

A Military Design Movement: Postmodern Comedians of War

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September 2020

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Acknowledgments:

This project has taken over twenty years and reflects a most unexpected journey for me. Early in life I took to the Fine Arts and excelled at drawing, painting and creatively expressing various ideas. I entered undergraduate studies seeking to master graphic design and illustration, and set off as an artist. At the same time, I could not pay for my education and thus joined the U.S. Army to fund my advanced education. In the military, I noted a significant friction between creativity and the artist's free-flow way of sensemaking and that of the honed, skilled and well regimented military mindset that, while powerful in the infantry where I served my career, extended deeply across all services, organizations, and branches.

In 2010 I attended the U.S. Army School of Advanced Military Studies (SAMS) at Fort Leavenworth, Kansas and was introduced to Dr. Shimon Naveh and his radical ideas concerning 'designing for war.' It was an awakening, and I realized that all of the previous artistic, divergent, and unorthodox ideas concerning war and warfare that I was suppressing (often in self-preservation for career concerns) could be employed through military design theory to challenge the conventional and influence experimental disruption and innovation. At the same time, I met Dr. Christopher Paparone, (then) Major Grant Martin, and my design academic journey was underway. Over the last decade, I have met and engaged with the most amazing network of brilliant, unorthodox, and passionate military theorists, educators and leaders across various fields, institutions, military organizations and industry. It is impossible to list them all here, and many are cited within this work. After twenty-two years combined service and four combat tours to Iraq and Afghanistan, I retired and took a position teaching military design to the U.S. Special Operations Command.

Dr. Philippe Beaulieu-Brossard (Canada), Dr. Aaron Jackson (Australia), Dr. Ofra Graicer (Israel), and Dr. Paul Mitchell (Canada) have been my closest academic mentors and friends. I am most grateful to Dr. Daniel Prince and Dr. Mark Lacy from Lancaster University for guiding me in this formal research over the last two years. At the Joint Special Operations University where I have led an educational program with real-world military applications over the last five years, Mr. George "Hal" McNair cultivated and protected my growth as a true champion of military design. Mr. Nathan Schwagler as my partner in design practice would inspire me in many ways as well. Our eclectic team of military designers continue to open minds and influence radically different ways for military forces to think and act in war.

Lastly, my family has been the castle walls to protect me during the storm, providing me safety, love, compassion and support even in the darkest of nights. Jill, Ethan, Jack and Luke have sacrificed so much for me to complete this work, and I cannot repay them. This research is dedicated to my father, Dr. Irving Zweibelson, who originally inspired me on academic endeavors in my earliest memories seeing him as a professor in Connecticut.

- Ben Zweibelson, Tampa, Florida 2020

Research Abstract:

Across the security studies discipline and beyond, the security community is now questioning whether legacy systems of thought and organization as practiced by American armed forces are still relevant for the application of organized violence in the twenty-first century. There is a growing sense that military frames for thought and action concerning contemporary and future war are increasingly insufficient or unsuitable for how societies are currently expressing conflict. There is a growing interest in security studies, as well as within military organizations, on how design logic and practice could be useful for navigating this dynamic, complex landscape described by some as the 'postmodern world', composed of 'post-industrial societies' engaging in 'post-conventional warfare.' The confusion between war in a postmodern context and reinterpreting war within a postmodern frame will be addressed so that readers appreciate the distinctions as well as the ongoing arguments between military practitioners, academia, and other stakeholders in contemporary as well as complex defense challenges. Postmodernists provocatively suggest that war has changed, with still others suggesting war has entered postmodernity, and others still advocating 'new rules for war' in postmodern stylings; with this change there is also an emerging methodology for security forces to deal with this change in the warfare within this new 'war' context. While this methodology uses the term 'design', it is not interchangeable with civilian or commercial design applications in most cases, particularly in the complex, strategic, and systemic security challenges where military design is being employed with more frequency. Lastly, military design continues to spread across the Anglosphere and beyond in post-industrial societies while also shifting and adapting to cultural, geo-political, and social nuances of the nation itself. These examples of military design results do not fall neatly into the traditional security categories of 'victory', 'achieved end-state', or 'failure' as earlier efforts in organized state violence could. Instead, this research provides a rich tapestry of military design experimentation, scattered adaptation and variation, institutional resistance, and in some cases assimilation. In some instances, there is a destruction of new and radical ideas so that the established and deeply ritualized military belief systems remain intact despite their growing irrelevance in this emergent postmodern security context. Yet these battles are expected in any paradigm shift, including one of how and why to engage in warfare as well as what 'war' has now become for humanity.

Introduction Chapter: Framing a Transition in Military Thought and Action toward the Application of Organized Violence

Military education is prone to fostering a sense of shared identity...[the] postmodern as a revolt with the modern is thus an expression of emancipation from that which we see as modernity's commonly accepted 'truths'...the notion of the 'factory-school' built on the characteristic structures of modernity; namely hierarchical bureaucracies, standardization, economic efficiency and the mass market, with the assembly line as a particularly relevant metaphor of an educational delivery system

- Anders Sookermany¹

US military doctrine as generic sensemaking continues to double down on the logic of systematicity, intent on removing equivocality, increasing robotic-like predictive reliability, assuring compliance with hierarchical legal authority structures, and promising postbellum accountability

- Christopher Paparone²

Any attempts to gain understanding by breaking a system into its constituent parts, in this case strategy-operations-tactics, isolate in theory what are united in praxis. As a result, such analysis generates theory that is practically and literally meaningless. The English-speaking world has grown to have a linear view of war with ends, ways and means arranged hierarchically and linked to discrete levels of command

- Justin Kelly and Mike Brennan³

How do humans collectively perceive war, the application of warfare, and how as well as why security organizations construct decision-making methodologies to orchestrate coherent activities within this cognitive frame for reality? This research attempts to explain the complex, myriad ways that societies over great periods of time and space have applied organized violence in order to impact future states of reality, how it has changed, and why societies often struggle to realize why such change occurs (or is occurring). Earlier societies, together with different technological, social, and geographic frames approach the mode of war-

¹ Anders Sookermany, "Military Education Reconsidered: A Postmodern Update," *Journal of Philosophy of Education* 51, no. 1 (2017): 313–14.

² Christopher Paparone, "How We Fight: A Critical Exploration of US Military Doctrine," *Organization* 24, no. 4 (2017): 522, <https://doi.org/10.1177/10735103505804814716769933853>.

³ Justin Kelly and Michael Brennan, "Alien: How Operational Art Devoured Strategy" (Carlisle, Pennsylvania: Department of the Army's Strategic Studies Institute, September 2009), 8.

making in particular ways that have some overlap, tension and interplay with other societies featuring different social, technical, and physical domain parameters. Along the way, military institutions, communities of practice, and similar groups manipulating organized violence will ritualize, indoctrinate, promote and also discard many cognitive as well as tangible 'tools' for war and warfare; many struggle to make sense of this as well as understand when major transformation is upon the military institution as it occurs.⁴ There is a problem with how militaries tend to frame tomorrow's 'problem' intentionally so that it directly supports yesterday's solutions, and a propensity for 'fighting to win the last war' paradoxically aims an organization to be entirely unprepared for the next one.

Today's modern military institutions struggle to break out of standardized procedures with what some criticize as due to a 'machine bureaucracy' and centralized organizational form of control⁵ where armed forces consist of what Paparone describes as: "degrees of habituated rules and inculcated values, that through social interactive processes, *frame* individual and collective action."⁶ Giddens posits: "tradition, in sum, contributes in basic fashion to ontological security in so far as it sustains trust in the continuity of the past, present, and future, and connects such trust to routinized social practices."⁷ The act of framing in turn focuses the military upon one appreciation of thought and action in war at the expense of other alternative frames. This idea that militaries are often unable or unwilling to reflect upon the rationale that underpins their entire logic for war, doctrine for warfare, and decision-making methodology will be a key area of investigation here. Paparone and other military academics offer this is due to an inability to realize the dominant military paradigm and the epistemological as well as ontological choices within.⁸ This also traps a military into viewing and re-viewing all conflicts dependent on the same ideas and beliefs.

Despite the apparent lack of epistemological reflection, across the security studies discipline and beyond there is an emerging discussion on whether the legacy systems of thought and organizational form for war remains relevant in the twenty-first century, as recent security studies academic projects such as Matfess, Miklaucic et. al provide in considering the 'post-Westphalian era.'⁹ Is war changing, and are militaries confronted by this attempting to disrupt the system in order to usher in a new way of thinking and acting in war? This research will demonstrate this historic trend in brief by framing into Feudal Era European warfare, and extend

⁴ Karl Weick, "Drop Your Tools: An Allegory for Organizational Studies," *Administrative Science Quarterly* 41 (1996): 301–13; Karl Weick, "The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster," *Administrative Science Quarterly* 38, no. 4 (1993): 628–52.

⁵ Henry Mintzberg, "The Design School: Reconsidering the Basic Premises of Strategic Management," *Strategic Management Journal* 11 (1990): 192.

⁶ Christopher Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design* (New York: Bloomsbury Academic Publishing, 2013), 10.

⁷ Anthony Giddens, *The Consequences of Modernity* (Stanford, California: Stanford University Press, 1990), 105.

⁸ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 28–50.

⁹ Hilary Matfess and Michael Miklaucic, eds., *Beyond Convergence: World Without Order* (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016).

this same pattern into what is proposed as the new 'postmodern age of war and warfare' that contemporary select militaries are now confused and struggling with. The rise of the modern nation-state may indeed have "reached its zenith with the total wars of the Twentieth Century,"¹⁰ and the systemic failures and frustration with institutional belief systems on how to wage war since reaching this zenith indicate that militaries are facing something different to design upon.

Security forces wrestle with their institutional forms, the standardized, modernist mode of knowledge curation through doctrine,¹¹ as well as the difficulty in distinguishing what behaviors have become ritualized beyond any relevance in the emergent, unfolding security context. There are institutional, social, as well as philosophical reasons for why militaries are able to exercise convergent behaviors and thought with exceptional efficiency while being predisposed against divergent thought and alternative, disruptive frames within the context of war and war-making. It is the organizational ability to drop cognitive tools that perplexes most when confronting change and uncertainty.¹² This goes well beyond uncertainty with specific topics or explicit conflicts; militaries are confronting ontological insecurities¹³ where traditional war beliefs are becoming disconnected from routinized social practices.

Today there is a vigorous debate occurring across the international security community¹⁴ on why and how security conflicts are changing, and whether their own understanding of conflict requires significant, radical transformation or merely minimal, incremental adjustment to the existing, dominant military frame. Perhaps this occurs during any period where a military force is confronted by failure, defeat, or a seemingly never-ending conflict where legacy concepts and procedures appear to no longer accomplish the same effects as earlier applications.¹⁵ Or, this particular period of societies engaging in war may instead require a dramatic shift in how war and warfare are understood and expressed. There is already extensive research and multiple disciplines focusing on the historical, social, technological or even methodological (military doctrine and decision-making models) failings of contemporary applications of organized violence spanning multiple combat zones, organizations, and complex circumstances. Those are generally not philosophical in

¹⁰ Phil Williams, "The Global Crisis of Governance," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 22–23.

¹¹ The term 'doctrine' here is used in an abstract sense to include premodern forms of military knowledge curation, the far more familiar modern formation of standardized lexicon and analytically oriented directives, as well as potential postmodern 'anti-doctrine' forms as well. This will be explained in detail in the second chapter of this research.

¹² Weick, "Drop Your Tools: An Allegory for Organizational Studies"; Weick, "The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster."

¹³ Giddens, *The Consequences of Modernity*, 105.

¹⁴ This includes the security studies discipline, as well as military practitioners that do not necessarily identify in any academic sense yet directly influence military policy, doctrine, and methodologies for war.

¹⁵ Brian Bloomfield, Gibson Burrell, and Theo Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," *Organization* 24, no. 4 (2017): 2.

nature in that they attempt to solve a military 'problem' without approaching the overarching challenge of how to introduce new ways of making sense and understanding the military's apparent 'problem with problems.' This growing sense that traditional military frames for thought and action are increasingly insufficient or unsuitable for how societies are currently expressing conflict is opening the door for disruptive, radical and controversial military theorists such as Israeli Defense Forces retired Brigadier General Shimon Naveh (a central military design theorist) and the broader military design postmodern movement.

This begins the journey that this project takes in exploring why militaries perceive war in particular manners that are dependent on the context as well as the societies they manifest out of to apply organized violence, and why they adapted peculiar decision-making methods and organizational forms *within those contexts*. Paparone, in his own introduction chapter addressing military frames and this lack of philosophical introspection, offers, "modern military institutions reflect a belief system that claims aprioristic knowledge, progressivism, and a constrained ontological and methodological bases for epistemology- objectivism and scientification...Modern military science is *not* objective knowledge; rather it is largely *objectified* knowledge."¹⁶ Paparone proposes that militaries adapt specific frames for making sense of war and reality that grow in and out of relevance, yet militaries typically find themselves clinging to ritualized belief systems even after they no longer produce the desired outcomes in warfare as previously experienced. Why are militaries, the very organizations flung into the most chaotic and complex of all human organized activities, paradoxically some of the most rigid and cognitively unwilling to shift off from accepted or even ritualized forms for sense and action in war?

However, there is little research on the ontological and epistemological study of paradigms employed by military forces, nor the philosophical structuring of military sensemaking methods in complex reality. There is an abundance of research on the application of decision-making, evaluation of existing doctrine, and analytic studies concerning how to evaluate said methods in war practice. There has been a tremendous amount of studying what militaries have done, as well as how they have gone about doing it in war. The 'what' and 'how' of wars across human history has been well studied by historians, while the 'why' of these same violent activities has been less studied philosophically and even then, done adhering to certain ontological and epistemological frameworks. The methods of warfare are well understood, while the ontological and epistemological processes above and beyond both these chosen methods and those rejected or unimagined remain unexplored largely.

In other words, militaries acting in war have content and form,¹⁷ like a glass bottle that dictates the shape of the liquid placed inside, but the military community

¹⁶ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 22.

¹⁷ Christopher Alexander, *Notes on the Synthesis of Form* (Cambridge, Massachusetts: Harvard University Press, 1964); Hayden White, *The Content of the Form: Narrative Discourse and Historical Representation*, paperback edition (Baltimore: The John Hopkins University Press, 1990).

of theorists and practitioners tend only critically and creatively address the liquid vice the bottle and are non-reflexive.¹⁸ The function is open to examination, whereas the abstract military form is typically off limits. This research proposes that a meta-methodological inquiry involving multi-perspectival reflexivity as advocated in postmodern military design movement can disrupt and critique *the bottle as well as the liquid*, whereas non-reflective practitioners within the dominant war paradigm typically contemplate the 'what, how, why' of the liquid alone.¹⁹ Postmodern approaches are "to challenge the content and the form of dominant models of knowledge and also to produce new forms,"²⁰ where military design will be demonstrated in this research as a potential new military frame for thought and action concerning war.

'Self-reflexivity,' a key concept within this research and relevant to this introduction chapter, is the ability to realize one's own cognitive and social 'frame' while in action, and reflect as well as challenge those belief systems through iterations of self-aware practice and reframing of both action and socialized beliefs.²¹ Rittel, a founding design theorist and educator, advocates design theory with the strong relationship between the abstract, meta-level 'why-centric' inquiry in order to subsequently address the 'how' of design application to complex challenges.²² He presents the paradox that any model involving complexity requires the model to be part of that model; without critical self-reflexivity built into one's logic, efforts become rationalized and unable to operate in complexity.²³ This core theme is explored throughout this research, where military design appears to provide what previous modernist military decision-making frames could not. Paparone also effectively captures this tension with:

¹⁸ Donald Schön and Martin Rein, *Frame Reflection: Towards the Resolution of Intractable Policy Controversies* (New York: Basic Books, 1994); John Gero and Udo Kannengiesser, "An Ontology of Donald Schön's Reflection in Designing" (Key Centre of Design Computing and Cognition, University of Sydney, undated); Donald Schön, "Knowing-in-Action: The New Scholarship Requires a New Epistemology," *Change*, no. November/December 1995 (1995): 27–34.

¹⁹ Although they use different metaphors, Chia and Holt discuss the functionalist limitations concerning complexity as an outside observer. See: Robert Chia and Robin Holt, *Strategy without Design: The Silent Efficacy of Indirect Action* (New York: Cambridge University Press, 2009), 59; Martin Kilduff and Ajay Mehra, "Postmodernism and Organizational Research," *Academy of Management Review* 22, no. 2 (1997): 464.

²⁰ Kilduff and Mehra, "Postmodernism and Organizational Research," 458.

²¹ Schön and Rein, *Frame Reflection*, 1–22; Philippe Beaulieu-Brossard and Philippe Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners" (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces, Canadian Forces College, Toronto, Canada: University of Ottawa and the Canadian Forces College, 2016); Natalie Ferry and Jovita Ross-Gordon, "An Inquiry into Schön's Epistemology of Practice: Exploring Links between Experience and Reflective Practice," *Adult Education Quarterly* 48, no. 2 (Winter 1998): 98–113.

²² Jean-Pierre Protzen and David Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning* (New York: Routledge, 2010), 121.

²³ Protzen and Harris, 154; Alexander, *Notes on the Synthesis of Form*, preface; Richard Daft and Karl Weick, "Toward a Model of Organizations as Interpretation Systems," *The Academy of Management Review* 9, no. 2 (April 1984): 284–86.

It seems no matter how the US military rearranges, relabels, and republishes its doctrine, the underlying logic of action remains culturally imbedded. Experiencing collapses of sensemaking in Vietnam, Afghanistan, and Iraq seems not to result in wholesale changes to the logic of systematicity.²⁴

This in turn points toward the core problem statement that is framed in the next section. To set this concept up for readers, several initial issues require a quick acknowledgement for this project and the significance for the security studies discipline. These are the more explicit examples of systemic tension observed today in debates, institutional confusion and organizational frustration concerning military education, practice and theory. This research attempts to explain the emergence of a potentially novel way of thinking about problems as well as a different approach to military problem-framing that breaks from earlier established military decision-making methodologies and doctrine.

A related yet secondary component to this explicit problem is considering why military designers, as a community of practice are facing such significant barriers to implementing these ideas into contemporary military organizations to include doctrine, education, and practice. It is not that militaries today are failing to solve problems, or even 'solving the wrong problems right, making them more wrong'²⁵, rather they are increasingly unable to frame what emergent security 'problems' are, or what their roles are in the increasingly complex (or even chaoplexic)²⁶ security contexts of the twenty-first century. This implies a change in warfare as well as potentially war itself, which is a provocative and steep bar to clear. Nonetheless, this research frames the military design movement and how as well as why designers appear to be challenging both the character as well as the nature of war.

This opens the argument of the nature/character war debate. Security organizations, by the arguments of some key postmodern military designers featured in this research, are struggling with whether war has transformed away from earlier modernist frames for the application of organized violence towards a 'post-conventional'²⁷, 'post-structuralist' or as this research will argue, a 'postmodern frame for conflict.' Such a postmodern frame would also suggest entirely different ways of thought and action that in turn are creating institutional barriers for those at the forefront of these new methodologies for sensemaking²⁸ in

²⁴ Paparone, "How We Fight: A Critical Exploration of US Military Doctrine," 523.

²⁵ Russell Ackoff, *Redesigning the Future* (New York: John Wiley & Sons, Inc, 1974), 8.

²⁶ Antoine Bousquet, "Chaoplexic Warfare or the Future of Military Organization," *International Affairs (Royal Institute of International Affairs 1944-)* 84, no. 5 (September 2008): 915–29.

²⁷ Sean McFate, *The New Rules of War*, First Edition (New York: William Morrow, 2019); Sean McFate to Ben Zweibelson, "Re: Book Question," February 26, 2020. Personal correspondence to the author.

²⁸ Karl Weick, "Enacted Sensemaking in Crisis Situations," *Journal of Management Studies* 25, no. 4 (July 1988): 305–17; Karl Weick, *Sensemaking in Organizations*, Foundations for Organizational Science (Book 3) (California: Sage Publications, 1995); Weick, "The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster."

war. The ideas of some military designers are so disruptive and radical that potentially they face an institutional 'circling of wagons' to prevent such design ideas from being taken seriously. These are difficult and controversial issues to frame, and carry with them powerful institutional belief systems as well as social, cultural, and personal views that require a philosophical inquiry to clarify and explain. These explicit issues thus help formulate the problem statement as articulated below.

Research Problem Statement and Significance to Security Studies:

This establishes the fundamental questions for which this research is premised upon and subsequently establishes a working thesis statement. Are contemporary decision-making methodologies, termed the 'modernist military belief system' for the application of organized violence (war) and associated military doctrine as well as professional education relevant and needing only minor adjustment in the complex reality that humanity currently experiences in the twenty-first century? Is the contemporary philosophy concerning war as held by nearly all western industrialized militaries suitable in current and emergent security challenges that seem to differ or break from past patterns and practice? At a more abstract level, what is the value of philosophical inquiry concerning security applications, and should philosophical debate influence how societies wage war, secure peace, and pursue political activities related to war? Is the 'nature of war/character of war' dynamic a closed case, or should a discourse continue and be taken seriously by the security community of practice, particularly with respect to new and unfamiliar designs made through postmodern frames?

Should militaries pursue one or several philosophical stances on 'war' as well as 'warfare', and how might they assess if their military belief system remains useful (or in retrospect, ever really was)? Can a postmodern military perspective complement and enable different, ideally more productive ways for militaries to think and act in war using military design that employs concepts from different paradigms on how war and warfare exist? As Shimon Naveh is a core element of this research and central to the design movement, why did his application of multiple and seemingly eclectic concepts such as postmodernism, systems thinking, complexity theory and alternative philosophies attract such devotion, debate, and repulsion? Is it feasible to use some fusion of postmodern and modern war concepts collaboratively? Is the military design movement, as introduced in this research, at the intellectual forefront of this topic, and what might this mean for all militaries whether they are currently using some application of design or not?

To go deeper, one might ponder "what is the relationship between *the perception of the nature of war*, how and why militaries construct decision-making processes to think and act within these philosophical frames for a reality of war? This inquiry must then proceed by asking: *how did this relationship become possible* and develop through time? This research project explores how and to what degree the recent development in military decision-making methods and their underlying ontological and epistemological stances on 'what war is/is not. By establishing these dominant belief systems on war/warfare, the second step considered how one acts

within the context of war (in conjunction with either a changing nature or character), and how a new movement bracketed under 'military design' is employing alternative frames such as postmodern theory as well as various other concepts to critique, deconstruct, debate and propose hybrids and alternatives to dominant military sensemaking activities concerning war/warfare. To what degree in the last few decades has this been influenced in the popularization of military design thinking for select industrialized western militaries, and is this a significant transformation in the broader history and expression of military instruments through which societies apply policy as well as organized violence?

Complementary problematic areas for further inquiry include: 'How one realizes undesired outcomes, and how one considers reflexively both the institutionalized frame of the 'self' and the dynamic, changing complexity of human perceived reality within which organized violence is applied through warfare' becomes yet another deeper level for philosophical inquiry. This project will also address these ancillary questions by building on the philosophy of social sciences and the history of ideas with respect to war. This will be accomplished by addressing how they flow from earlier 'premodern' societies that thought and acted in war, through modernist societies enabled by the Industrial Revolution, the Age of Enlightenment upon western societies as well as the influx of different ideas on society and war through modernity. Provocatively, the military design movement is introduced as paired with whether a 'post'-modern, post-industrial,²⁹ post-conventional, or perhaps a post-structuralist reality is now a more meaningful manner to think and act in the application of organized violence.³⁰ The utility of these terms often are enabled not only by how and why they are used in research, but also whether one is addressing organizational studies, international relations (and the subfield of security studies), or philosophy in general.³¹ The next chapter clarifies these distinctions further through core theoretical applications.

Thesis Statement and Overarching Approach to this Military Design project:

This research project pursues an examination of the history of ideas within which earlier military organizations framed how they organized, thought and acted in war a particular way and nested within specific ontological and epistemological structures. Subsequent modern military organizations shifted from premodern ones while still demonstrating precise and historically definable ontological and epistemological structures that result in different decision-making methodologies for organizing and acting in war. Modern militaries use a rationalized, technologically oriented and analytically optimized mode for logic and institutional action that military designers in the last few decades have challenged while presenting alternative ways to think and act in war; they conduct the application of

²⁹ Paul Virilio, *The Information Bomb*, trans. Chris Turner, paperback, Radical Thinkers (New York: Verso, 2005), 25.

³⁰ The nuanced differences between these perplexing terms is explored in the next chapter.

³¹ This insight relates to private correspondence between the author and Beaulieu-Brossard concerning revised drafts of this chapter. Philippe Beaulieu-Brossard to Ben Zweibelson, "Re: A Question for You Four (and Shimon) for My Introduction Research Chapter," April 14, 2020.

organized violence within the context of modernity, at least until the idea of modernity is challenged by postmodernity. In this more controversial area of research, several militaries have employed postmodern concepts in direct or indirect ways that disrupt, deconstruct, or present different modes and methods for thought and action in the application of organized violence. The leading military forces experimenting with postmodern design concepts will form the bulk of this research, exploring how and why these efforts have occurred and the impacts upon contemporary security challenges.

Postmodernism is addressed in the next chapter in greater detail concerning how and why it is applied in this research. However, for the thesis statement the wide range of postmodern ideas and views as well as critiques makes even introducing the term in any thesis problematic. Specifically, this research project does suggest that some military communities prefer to acknowledge change in warfare as a result of societies entering postmodernity, where the character of warfare has changed yet the nature of war is unchallenged. Others go further, utilizing postmodernism to challenge the idea of war both in character and nature; the disruption and deconstruction of modern military ideas so that novel war practice might emerge. This is a volatile area of debate as well as significant confusion. Maintaining a philosophical study of the history of ideas in war and warfare, this research recognizes the emergence of some postmodern concepts becoming relevant and influential to the minority community of military design practice that are challenging established modernist military modes for thought and action. Additionally, many within the military design movement eschew the term 'postmodern' entirely, despite expressing postmodern concepts and techniques in their activities. They are in the military design movement *in terms of a postmodern style*, despite potential ontological rejection of postmodernism stances.

This research also presents a unique perspective on the military design community of practice as the author is also an insider of this group. Drawing from over a decade of design theoretical experimentation, military education and practical application of design in real-world security challenges, the author is a contributor to the design community for new content, research, and military education. This provides advantage in understanding subtle nuances within the various service-specific and institutionalisms comprising the military design community, as well as the tensions and overlap with commercial design theory, education and practice for economic enterprise. This also creates issues of bias of which the author has taken great efforts in research to recognize and marginalize.

Chapter Arrangement and Overall Argument Structure:

In order to explore this challenging and rather controversial concept, initial framing arguments will be made to propose that a modern-to-postmodern military shift is occurring either according to the advocates of 'postmodernity' but also opening the door to the more radical 'postmodernism' position as well. This is necessary to explain the ontological and epistemological positions and differences of these groups conducting military design, and also explain the motives and linkages between what is now an international yet fractious military movement. To highlight

the potential of a postmodern shift in war, this requires a brief explanation of the earlier premodern-to-modern shift in the application of organized violence. As each subsequent military paradigm shift carries some sociological aspects forward into the next dominant paradigm or group of relevant paradigms, an appreciation of what influential premodern military constructs shaped and remained influential in the modern military frame will be explored. Why these shifts occur and how they manifest across various militaries in societies is an exceptionally broad topic of inquiry.

Thus, in this introductory chapter the scope and limitation of this design project will also be presented so that the specific periods, nations, and extended societies and cultures are understood as the primary focus for inquiry. Additional research is warranted for those periods of war outside the scope of this research, as well as those militaries, cultures, and societies underrepresented or omitted from this study. However, both the scarcity of contemporary research on military design as well as interdisciplinary overlap from sociological, philosophical, and historical research will be addressed.

The next chapter will provide the essential concepts, methods and theories necessary for this project, and also provide core theoretical material that spans all subsequent chapters. While much of the next chapter introduces critical theoretical content from various disciplines, there are also concepts introduced that frame this research and provide different perspectives for the security studies community. Existing theoretical underpinnings on 'application of organized violence' from which this chapter draws part of its title is explored, as is the military institutional confusion with key concepts and terminology such as 'postmodern' and 'design' in security applications. Original concepts such as the 'premodern hero, modern manager, and postmodern military comedian' as metaphoric devices for thesis structural logic are presented, while many of the essential yet interdisciplinary concepts that military designer Shimon Naveh originally combined to establish the first military design methodology are presented to the reader.

Chapter Two presents how industrialized, modern militaries over the last three centuries of development have adapted a single paradigm for making sense of war and commit their entire organizing logic as well as decision-making methodologies towards specific ontological as well as epistemological choices for making sense of war. Earlier ideological and autocratic forms of war theory and organized violence that frame the 'premodern war frame' would develop, transform and mutate into pseudo-scientific structured logic complete with specific terminology, doctrine, and decision-making methodology for war. This modern military war frame in turn stimulates all contemporary associated security doctrine, practices, management style, and knowledge curation for military forces in contemporary operating environments.

Yet in the twenty-first century, modern military frames that worked previously in earlier conflicts no longer appear to maintain their relevance and utility as before. The previous efforts to apply tactical and operational planning methods using scientific logic toward political instead of technical problems

becomes increasingly paradoxical; political dynamics appear to render these challenges beyond the realm of scientific theory.³² This is not without modern military strategists, managers and planners attempting to 'fix' this war paradox repeatedly, provided the modern war frame for logic and decision-making remains unchallenged. Within this new complex, even chaotic war space, a military design movement has presented something different concerning how and why to frame the application of organized violence, and by offering an alternative are actually challenging what was previously off-limits to inquiry. For what some propose calling the post-industrialized world,³³ this most recent shift away from a highly objective,³⁴ reductionist,³⁵ linear, and analytically optimized interpretation of war towards a multidomain, multiparadigmatic³⁶ and vastly more complex military form and function remains not just a contested proposal, but one fraught with institutional barriers to this paradigmatic transition.³⁷ Military design itself becomes adversarial to the defence of the modern military belief system and ontological stability promised by its utilization;

While the suggestion that the war frame concerning how and why to apply organized violence shifted from premodern to modern form is well researched with a variety of disciplines offering supporting arguments and studies,³⁸ the argument for a current shift away from the modern war paradigm toward a postmodern one is quite different. This argument is controversial, with limited and often isolated research occurring in dissimilar disciplines coupled with seemingly incommensurate positions of many of the researchers as well. In part, some of this disagreement within academia is related to the sudden transformation occurring in the last generation for security studies, political science, foreign policy research, and the institutional practice of war by security forces as well as adversaries. Chapter Two explores these tensions to propose that the philosophical study of ideas in war and warfare have now shifted from a modernist to a postmodernist footing; the intersection of military design with traditional analytic military planning has purportedly changed things systemically. Within this, a minority community of military designers are challenging the modernist military modes for thought and action by disrupting the war frame debate not just methodologically, but epistemologically and ontologically as well. It is within these conceptual engagements that any war frame shift might proceed. Just as this shift occurred between earlier premodern war paradigms observed in feudal and other related

³² Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 148.

³³ Virilio, *The Information Bomb*, 25; Ackoff, *Redesigning the Future*, 8; Mary Jo Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, Third Edition (Oxford, United Kingdom: Oxford University Press, 2013), 80; Williams, "The Global Crisis of Governance," 24–25.

³⁴ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 11.

³⁵ Alexander, *Notes on the Synthesis of Form*, 1–5.

³⁶ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 57–59.

³⁷ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Sookermany, "Military Education Reconsidered: A Postmodern Update."

³⁸ Of these, Giddens presents one of the most extensive and comprehensive studies concerning the rise of modernity out of premodern societies (including warfare and organized violence between states). See: Giddens, *The Consequences of Modernity*.

military periods, the shift from a modernist, analytical and technologically enabled frame is being disrupted and deconstructed by the postmodern frame now emerging in war. The inclusion of military design doctrine, design education within military formal schooling, and a vigorous institutional debate over the relationship of military design to military strategic and planning indicates that in some ways, the modern military institution acknowledges at least some of these war frame arguments concerning a need to think and act differently concerning war/warfare.

In the third chapter, how and why military design formally commenced later than commercial design methodologies is addressed, as well as the historical intertwining of commercial design with the industrialization of warfare and the need to design toward the application of violence differently than previous war frames. Historically, any inquiry into the military frame shift from modern to postmodern should first define the first 'design' movements and how they relate, overlap, and also differ from subsequent military manifestations. Chapter Three provides an ontological, epistemological, and methodological study of various primary commercial design communities of practice, including recent military design ones and how they interrelate, overlap, and differ. The intermingling of designing for commerce and designing for organized violence are extensive yet often ignored or marginalized by design practitioners from each discipline. This chapter provides the first epistemological study of designing for commerce as distinct and dissimilar to designing for war, with a historical and methodological explanation of the interdependent development in the twentieth century of both commercial and military design schools of thought.

Civilian design capitalizes on various human needs that exist outside of war, but also for numerous design requirements within the pursuit of war efforts including war artifacts, war economies, new technological opportunities designed toward conducting war with war tools, and the contextualized needs of war participants using war tools in order to execute warfare therein. Some design disciplines excel at streamlining methodologies or organizational work flow, reducing risk, and tailoring activities toward greater outputs with enhanced reliability, uniformity, and stability in a market. Others move towards the need for imagination, divergent thought, creativity, as well as higher risk for experimentation in order to render "that which is needed but does not yet exist"³⁹ as the need to appreciate unarticulated organizational needs along with those articulated ones is essential in designing for commerce as well as designing for organized violence. Whether one subscribes to one school of design thinking or another, the methodological nuances between one model and another still remain within particular disciplinary boundaries that help distinguish between one sort of design enterprise and more distant relatives that approach designing through alternative ontological, epistemological, and subsequent methodological constructs. This

³⁹ Richard Buchanan, "Wicked Problems in Design Thinking," *Design Issues* 8, no. 2 (Spring 1992): 18; Harold Nelson and Erik Stolterman, *The Design Way*, Second (Cambridge, Massachusetts: The MIT Press, 2014); Shimon Naveh and Ofra Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 15, 2019, 0:38.

research offers the first exploration of design writ large, with careful contextual considerations of why designing in commercial applications versus security ones generate different opportunities, risk, consequences and even paradigmatic orientation as applied within a multi-paradigm theory of interplay.⁴⁰

The fourth chapter explores the rise of military design through the original and experimental work of an Israeli General and military academic starting in the 1990s through the Israeli Defense Force. Dr. Shimon Naveh's significant and controversial contributions to the Israeli Defense Force, his nation's security challenges within the late 1990s through present day, and his worldwide impact upon various predominantly Anglo-Saxon and western-industrialized partnered nations provides the very foundation upon which 'military design' becomes a viable movement. Interestingly, this military design emergence of a new community of practice does not neatly branch off as a sub-discipline of an existing commercial design methodology or school depicted in the third chapter's framing of commercial design enterprise. Instead, this design for war does not readily accept the same concepts, language or methods of modernist civilian design, although the two design domains are interrelated and share a dynamic, interactive history. By following a nonlinear and emergent path for intellectual development through war a series of developments stimulated visionary military thinkers to introduce their own design ideas in military form starting with the original Israeli concepts. Naveh's contribution to this new military design community of practice cannot be understated; his central position in this research demonstrates both the prominence of his impact as well as the controversy and ongoing debate of his ideas and influence upon contemporary military theory and practice.

Through experimentation and within cultural filters, groups of early military design experimenters decided to fight against the institution and disrupt established practices and rigid military paradigms. Their provocative stance and use of eclectic and seemingly paradoxical theories and ideas would challenge, disrupt and deconstruct existing and dominant institutional beliefs. The modern military form would face an insurgency of thought through the new and disruptive form of military design thinking; whether this movement is best captured in a discussion of war in 'postmodernity' or instead a 'postmodern philosophical reinterpretation of war' in order to deconstruct modern military frames and power structures is also addressed in the next several chapters. Chapter Four's study of Naveh establishes his attempts to use a postmodern military approach to complement and enable different and ideally more productive modes for military thought and action in war through military design. Naveh's design methods draw from alternative paradigms, postmodern philosophy and the promotion of seemingly paradoxical concepts

⁴⁰ Majken Schultz and Mary Jo Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies," *Academy of Management Review* 21, no. 2 (1996): 529–57; Dennis Gioia and Evelyn Pitre, "Multiparadigm Perspectives on Theory Building," *Academy of Management Review* 15, no. 4 (1990): 584–602; Ben Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay," *Small Wars Journal*, January 2019, <https://smallwarsjournal.com/jrnl/art/multidisciplinary-design-movement-frame-realizing-industry-security-and-academia-interplay>.

concerning how to think in war, as well as 'think about one's thinking concerning war.' Naveh's approach necessitates different language and meaning as well as highly fluid cognitive activities that face numerous institutional barriers for modernist military implementation. This leads to Chapter Five, and the long reach of Naveh's radical ideas on war and warfare across the globe and into the intellectual center of multiple leading military powers as well as the setbacks, failures, and institutional rejection of many of the movement's varied proposals.

The fifth and sixth chapters explore the rise of the military design movement in the span of roughly three decades from the original Israeli experiment into what can be justifiably called a new sub-discipline of security studies across the Americas, Europe, NATO partners and beyond.⁴¹ Military design has grown into a full-fledged international community of practice, although the acceptance of this community into their respective military institutions remains questionable, with much debate and need for further experimentation still wanting. Nonetheless, this minority population that started nearly three decades earlier from a single theoretical application within a minority group of a military service in Israel is now entering the theory, doctrine, education and practice in multiple advanced militaries across the globe. While the American and Israeli militaries appear to have more mature design movements within their armed forces, other militaries appear to be also influenced and engaging in similar institutional reforms, debates, and experimentation.

The sixth chapter of this project explores 'proto-design' constructs in the Canadian, Australian and British military institutions to include some aspects of design education, theory, doctrine, and/or experimentation in overlapping areas of American and Israeli military design expression. As this research places the various military design communities of practice under an overarching context of a suggested postmodern military form and function, the logic of military design in theory is positioned here as the disruptive antagonist of the modern military frame as articulated in the fifth and sixth chapters of this research. These powerful military institutions all appear in some degree willing to further engage in the military design debate over war frame transformation, the nature/character of war discussion a disruption and potential deconstruction of dominant modern military war logics, and a deep philosophical inquiry into the how and why of war itself.⁴²

This collaborative disruption occurs despite numerous seemingly incompatible modes of military design as well as significant differences in

⁴¹ This does not suggest the military design movement is limited to the English speaking world, democratic alliances of capitalistic societies, or the Western Hemisphere. Additional research is needed on whether an equivalent of military design practice framed in this study is also occurring in other cultures and parts of the world, particularly within traditional state adversaries of the United States, Israel, and others associated with the military design methods of this research.

⁴² Explained in the next series of chapters, the pragmatic approach to military design focuses on incremental, even evolutionary improvements to the modern military war frame using select design initiatives to include some agreement that society is now in a 'postmodernity of war.' The transformative or idealistic approach to military design uses postmodernism to directly challenge the modern military frame and deconstruct it to insert a postmodern understanding and approach to war through design.

disciplinary groundings, cultural and institutional preferences that shape the design methodological form, and various contextual influences from how and why a design is needed in war.⁴³ Military design is becoming a primary cognitive working space for militaries to consider alternative paradigms, multiple disciplines, paradox, complexity theory, reflective practice and the implied self-disruption to stimulate transformation in war. According to military design advocates, modernist war frames alone are becoming insufficient unless enhanced, disrupted, or modified through some postmodern application of design for complex security challenges.

The arrival of military postmodern ideas (whether war is in a postmodernity or if postmodern ideas themselves must replace modern logic concerning warfare) is often framed as heretical toward established military beliefs, rituals and traditions. Lyotard would employ a similar term of 'pagan' who "is the triumph of the weak, armed with their humor, over the irony of the strong."⁴⁴ Tschumi would discuss 'madness' as a key element in postmodernity and architecture, where:

This situation is not necessarily a negative one, but rather is symptomatic of a new conditions, as distant from eighteenth-century humanism as from this century's various modernisms. Madness, here, is linked to its psychoanalytical meaning- insanity- and can be related to its built sense- folly- only with extreme caution. The aim is to free the built *folie* from its historical connections and to place it on a broader and more abstract plan, as an autonomous object that, in the future, will be able to receive new meanings.⁴⁵

Thus, Tschumi is playing with meaning and how 'madness', 'insanity' and the seemingly irrational or 'crazy' edges of human expression of ideas, and that a postmodern treatment will free it from previously historically negative or dangerous connotations. Military postmodern designers are comedians of war because they too are dismissed or rejected as 'heretics', 'madmen', or 'insane' if only due to the postmodern ideas, theories and approaches that are not in keeping with the war rules of modernity. The fifth chapter explains how this military design community has emerged as some postmodern equivalent of the disruptors, the heretics, or more provocatively 'the comedians of war in the postmodern world.'

⁴³ Philippe Beaulieu-Brossard and Philippe Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 273–89; Philippe Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," in *Concepts at Work: On the Linguistic Infrastructure of World Politics* (Ann Harbor: University of Michigan Press, 2020); Aaron Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," *Polemos: The Australian Journal of Defence Studies*, December 2019, 1–22; Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay."

⁴⁴ Jean-Francois Lyotard, *Toward the Postmodern*, ed. Robert Harvey and Mark Roberts, paperback edition (New Jersey: Humanities Press, 1995), xv.

⁴⁵ Bernard Tschumi, *Architecture and Disjunction* (Cambridge, Massachusetts: MIT Press, 1997), 175.

Their activities are not intended to be channeled subserviently into the legacy system's mode for thought and action, but instead disrupt it and promote alternatives.⁴⁶ Pragmatic military design advocates might downplay the comedic associations of design thinking, while postmodern 'purists' might embrace the dark comedy of war deconstruction with open arms. This tension persists within the military design community and is also explored in chapters four through six.

The conclusion chapter summarizes how the sophisticated and well-resourced military organizations that dominate today's wars and security applications are increasingly plagued by misapplications of traditional and largely linear methodologies for sense-making, decision-making, and potentially entire guiding philosophies on warfare.⁴⁷ In some limited cases, indeed these analytic and well-managed war logics work effectively provided that war opponents hold to the recognized rules of war and the 'playing field' of warfare is properly managed, rationalized and contained to ensure necessary perceptions of control, management, risk and causality. The analytic-oriented and centralized hierarchical structured militaries of the industrialized west apply a rational decision-making frame towards ideally similar opponents, yet these structures are now assumed as inappropriate and insufficient for confronting non-hierarchical, networked and divergent threats that are increasingly familiar in twenty-first century competition.⁴⁸

No contemporary adversary whether Westphalian nation-state or non-state actor is willing to play by these war rules;⁴⁹ the game has changed regardless of how much technological, analytical, or political capital is invested to retain the old system for organized violence. The rise of the postmodern military comedian of war uses military design to disrupt, deconstruct, and transform thought and action in the application of organized violence. Whether this is better understood within a reframing of organized violence as a consequence of society entering

⁴⁶ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 57–63.

⁴⁷ Antoine Bousquet, "Cyberneticizing the American War Machine: Science and Computers in the Cold War," *Cold War History* 8, no. 1 (February 2008): 77–102; Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (New York: Frank Cass, 1997), xiii; Shimon Naveh, Jim Schneider, and Timothy Challans, *The Structure of Operational Revolution: A Prolegomena*, A Product of the Center for the Application of Design (internally produced publication: Booz Allen Hamilton, 2009), 7–10; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 90–97; Anders Sookermy, "On Developing (Post)Modern Soldiers: An Inquiry into the Ontological and Epistemological Foundation of Skill-Acquisition in an Age of Military Transformation" (dissertation for the degree of Dr. Philos, University of Oslo, 2013), 40–45.

⁴⁸ Joe Miller et al., "Harnessing David and Goliath: Orthodoxy, Asymmetry, and Competition," *Small Wars Journal*, February 2019, <https://smallwarsjournal.com/jrnl/art/harnessing-david-and-goliath-orthodoxy-asymmetry-and-competition>; Jeremiah Monk, "Strategic Design for the Complex Realm," *Www.Thestrategybridge.Org*, November 28, 2018, <https://thestrategybridge.org/the-bridge/2018/11/28/strategic-design-for-the-complex-realm>; Marc Sageman, *Leaderless Jihad: Terror Networks in the Twenty-First Century* (Philadelphia: University of Pennsylvania Press, 2008); Hy Rothstein, "Less Is More: The Problematic Future of Irregular Warfare in an Era of Collapsing States," *Third World Quarterly* 28, no. 2 (2007): 275–94; Colin Clarke-Hill, Huaning Li, and Barry Davies, "The Paradox of Co-Operation and Competition in Strategic Alliances: Towards a Multi-Paradigm Approach," *Management Research News* 26, no. 1 (2003): 1–20.

⁴⁹ McFate, *The New Rules of War*.

postmodernity, or that postmodern theory is now needed to appreciate war by disrupting, deconstructing, and radically altering the modern war frame is left both to the reader and the ongoing institutional debate for the military design community of practice and those military organizations struggling with war activities in contemporary security contexts. This project will frame each of these challenges and present some conclusions and recommendations.

Part of the core argument offered in this research is that the modern era of nation-state centric, physical domain expressed, and technologically rationalized applications of organized violence is potentially coming to an end for societies except perhaps for in rare (and unfortunately catastrophically destructive) circumstances. The traditional modes of military decision-making are no longer applicable except for occasions in the future where both warring parties in a sense of nostalgia attempt to restore the war rituals and rules of the past. The illusion that tactics can be technologically enhanced incessantly to the abstract and complex in war is now seemingly destroyed. Whether a postmodern logic can make sense of the new modes for organized violence in useful yet entirely unique ways is to be examined as military designers champion this proposed shift in war/warfare.⁵⁰ Will the modern military managers of warfare retain control with new technology and developments, or will the postmodern comedians of war get the last laugh?

The conclusion chapter of this research will present that Naveh employed his campaign to stimulate a radical shift in how war/warfare is framed by using postmodern concepts and systemic thought to challenge the dominant modern institutions; he nonetheless only could stimulate limited and largely single-paradigm assimilations of design into the dominant modern military institutions set on conserving legacy epistemological and ontological structures. Naveh, as chapters four through six detail, did not enable a paradigm shift in war through some Kuhnian 'scientific way of warfare' understanding.⁵¹ Rather, he is explained in this research as introducing a multiple-paradigm frame for making sense of war and warfare more in keeping with social paradigm theory.⁵² The modern military frame, dependent upon a functionalist paradigm for interpreting warfare, may potentially remain dominant even within such a postmodernity of war so that the postmodern antagonist can continue in tandem. The modern belief system toward war might somehow retain ontological stability through a symbiotic relationship with postmodern designers deconstructing and transforming along; their concern for war may progress in a dynamic, drifting form and through the function of 'warfare' in ever-changing, experimental endeavors to gain a future advantage.

⁵⁰ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 24:15.

⁵¹ The next chapter will address this distinction in paradigm theory. See: Thomas Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago: University of Chicago Press, 1996).

⁵² Peter Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, First Anchor Books Edition, 1967 (New York: Anchor Books, 1966); Linda Putnam, "The Interpretive Perspective: An Alternative to Functionalism," in *Communication and Organizations: An Interpretive Approach*, ed. Linda Putnam and Michael Pacanowsky (Beverly Hills: Sage Publications, 1983), 31–54; Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies."

Overview of Research Approach/Attitude and Key Source Material:

Postmodern theory is difficult if not impossible to frame comprehensively, as the debate over 'postmodern' in terms of '...ism' or '...ity' are unlikely to be resolved here or anywhere soon. Within this project, the challenges concerning the arguments against using postmodern theory in any serious scientific or historical research application are vast, even between antagonistic postmodernists within this ill-defined enterprise featuring countervailing epistemologies. This challenging issue is further framed in the next chapter where the essential theories, methods and concepts are introduced to readers. For this introduction as well as major institutional barriers concerning this research, the affirmative over skeptical variety of postmodernism (of many more varieties) is featured *as an attitude and not necessarily as an approach* by drawing from postmodern concepts developed by Kilduff and Mehra. Their concept supports the study of a history of ideas in war and warfare require some framing of postmodernism in order to recognize the contributions of Naveh and other contemporary military designers utilizing various theories, frames and logics.⁵³ Unlike proponents of radical postmodern theory where war discussion might reach some point of postmodern nihilism or absurdism, the affirmative postmodern frame sits between radical proponents and that of the rigid defenders of modernity and the modern military frame for war.

Kilduff and Mehra promote the affirmative postmodern perspective without granting it or any other theory the absolute authority, and emphasizing that postmodernism is not incompatible with research about the world nor should postmodern contributions be prematurely dismissed.⁵⁴ Paparone builds upon Kilduff and Mehra's arguments employing this affirmative postmodern approach as a mindset or attitude toward research instead of a research method; such an attitude of affirmative postmodernism permit an inclusive, pluralistic approach to navigating the history of ideas in the various military paradigms of the premodern, modern and arguably postmodern approaches to the application of organized violence.⁵⁵ This also permits competing views in military design, whether endorsing war in postmodernity or war through postmodern theoretical deconstruction to exist within the same academic space, along with the modern as well as premodern war frames. Thus a meta-methodological war inquiry is ultimately suggested by Naveh's military design concepts as well as how they are reinterpreted since his original experiments in the 1990s in Israel.

These concepts will be further explained in the next chapter, but are useful in this introduction to articulate perhaps the biggest research barrier presented in articulating the novel contributions of the military design movement to the understanding and expression of war by societies. Without providing a multidisciplinary approach capable of distinguishing epistemological and

⁵³ Kilduff and Mehra, "Postmodernism and Organizational Research."

⁵⁴ Kilduff and Mehra, 454.

⁵⁵ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 16–17.

ontological differences,⁵⁶ overlap and interplay⁵⁷ between premodern, modern and postmodern approaches, any research effort would likely be unable to sufficiently frame *at a systemic level how and why militaries are transforming their understanding and organizational form for war as well as the function of warfare therein*. Such a frame cannot be reduced into a particular war frame within one context or period, any singular paradigm with respect to the application of organized violence. Nor can it be restricted to expressing ideas within one particular methodology or doctrine, as those are preconfigured according to the very epistemological and ontological frameworks that will be demonstrated in future chapters as dissimilar and at times paradoxical concerning war within complex contexts.

While a significant portion of this research is invested in a multidisciplinary literature review of available military design source material as well as associated disciplines and sub-disciplines, this research also contains exclusive interview content from essential theorists and practitioners within the military design community of practice. In cases such as retired Israeli General Shimon Naveh, the availability of published interview content is limited and increasingly out-of-date with his current perspectives and teaching practices on design. This is accelerated by the fact that Naveh continues to transform and change his own design philosophy into the third and latest version, with most published research addressing only his first version of 'military design.' Numerous design advocates from the American, Israeli, Canadian, British, and Australian militaries are interviewed, their research cited, and their experiments in design application, education, theory and debate are integrated into the totality of this military design project as a unique and novel contribution to the security studies discipline.

This research draws from interviews, published and unpublished research as well as design educational practices of Naveh, Graicer, Mitchell, Jackson, Ryan, Paparone, Martin, Beaulieu-Brossard and other key theorists and practitioners from across the military design community.⁵⁸ While the military design community is international and spanning from North American security forces and academia across Europe and extending to Australia as well as Israel and isolated military communities outside of these regions, this research is the first to present a detailed epistemological study of the primary military design methodologies and civilian variations applied to military settings. Of the limited contemporary research available on military design, only a few study more than a single service approach to design, with many limited to the boundaries of one imposed service doctrine or directed design practices. While the military design movement as a sub-discipline in

⁵⁶ Paparone, 33–41.

⁵⁷ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies"; Gioia and Pitre, "Multiparadigm Perspectives on Theory Building."

⁵⁸ The author has had extensive contact with this network of military design theorists, educators, and practitioners over the last decade. Although this create potential areas of concern for research bias, this research emphasizes a fair and thorough critique of the strengths and weaknesses of various design positions and arguments across this community.

security studies is itself new, the emergence of a multidisciplinary design theory is an even less understood or published construct until now.

What's New: On the Cusp of a Different Articulation of Organized Violence

This project ultimately frames the military design movement, the international community of practice demonstrating this movement, as well as the increasingly rich body of research, discourse, doctrine, education and practice therein. Contemporary research on military design is exceedingly thin, with the vast majority of study focusing on a single design methodology or school of practice. Even within civilian design practices, few researchers have proposed unifying theories on 'design philosophy' and those that have do not address design in security contexts nor appear aware of the last three decades of military design development.⁵⁹ Indeed, the third chapter of this research frames the military and commercial divide on design in an unprecedented manner that is significant for both communities of design practice due to recent interest and interaction between security organizations and commercialized industry. Military design communities are fragmented, while design communities across industry, academia, and in security applications are further in disarray and unaware of existing overlaps, tensions and interplay.

These communities of design practice generally are insular, focused upon a particular target demographic such as a military service or in commercial design applications a user experience or new product solution. Where one 'stands' in design frequently is directly linked to where one 'sits' in terms of design exposure, education and formal practice. Limited examination of design epistemological and ontological structures exists, with most of that research drawing upon earlier drafts of this research or other associated work of the author.⁶⁰ For example, there are no examples of 'military design' appearing as a topic in any major academic design journal through 2020, while few examples of commercial design theory appear in respective military professional journals where 'design' is considered as anything beyond technical warfare needs or specific user experiences or new war tool requirements.

This research is the first to provide a cross-disciplinary study of contemporary military and some commercial design methodologies while also providing the history of each method, to include extensive literary review of primary sources and original interviews with select stakeholders. Further, a detailed

⁵⁹ Klaus Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," in *Doctoral Education in Design: Foundations for the Future: Proceedings of the Conference Held 8-12 July 2000, La Clusaz, France* (Staffordshire (UK): Staffordshire University Press, 2000). Krippendorff makes no mention of 'military design' and instead offers a unifying philosophy of design oriented toward human-centered design (HCD). HCD is the topic of the second chapter of this research.

⁶⁰ For example, Jackson, Dufort and Beaulieu-Brossard have conducted post-doctrinal research on various aspects of the military design movement and have extensively cited the author's body of research and publications in their own work. Paparone, as the only military sociologist currently publishing research on the military design movement has cited the author as well and conducted collaborative writing projects on military design.

analysis of existing military design doctrine and theory to include current Israeli, American, Australian, British and Canadian examples is presented in this research for security studies practitioners. Aside from internal and unpublished organizational review of military design doctrine, there are very few examples of any critical examination of doctrinal efforts by militaries beyond a select handful of documents. This research frames the development of military design theory, doctrine, and methodology in practice to include the differences, tensions, and variation between various military organizations therein. Commercial design theorists and practitioners should find this content useful for strategizing how any particular civilian design methodology might better integrate into a security or governmental organization facing complex, dynamic security challenges.

The findings of this research are intended to support ongoing development of target audiences of security studies such as policy makers, military professionals, commercial designers, academics, security studies theorists as well as practitioners in either the commercial or defense side of complex security and policy contexts. Further, this project should potentially influence the next shifts in military development concerning policy, doctrine, education, and experimentation. Military design is quickly emerging as a new area of study within security studies, and therefore ought not being miscategorized *as another form of military planning* as well as *just another form of commercial design*. This research deconstructs and critiques existing and largely non-reflective organizational behaviors of security forces where a continued rationalization of the legacy (modern military) form prevents critical self-reflection as well as alternative perspectives on deeply cherished beliefs and epistemological reasoning that governs military methodological processes. Commercial designers should consider why militaries need to 'design for war' while military strategists, planners and leaders ought to also consider how 'designing for commerce' includes the tools and human needs within warfare, but may not include the 'why war' aspects.

As military design is largely unstudied by the larger and more established commercial design community, all previous attempts to unify design theory at a meta-level has ignored or overlooked *designing for organized violence*. At this point there exists no overarching 'philosophy of military design' to help explain and define it as a community of practice within the security studies community, and render the overlap and interplay with other design disciplines in civilian and commercial enterprise. This research contributes that necessary philosophical framework and mirrors Krippendorff's academic work on paradigmatic design challenges due to a lack of an epistemologically informed 'philosophy for design' writ large.⁶¹ Accordingly, this project may face institutional resistance from not only traditional minded military strategists and operational planners, but from across a range of overlapping yet dissimilar design communities of practice as well. Why should militaries design for war if 'war' might be assimilated into already existing commercial design considerations?

⁶¹ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design."

Many participants of non-military oriented design communities are largely unaware of military design, while militaries themselves lack general awareness and appreciation of different military design methods outside of the single directed or dominant mode for design they currently utilize. This research is accessible to military strategists, operational planners, design practitioners across multiple services and military organizations as well as commercial designers outside of the security context. The author's status as a military design insider is not without pitfalls; personal bias and an appeal to rationalize the continue relevance of military design are understandably a potential to flaw research conclusions as well as tilt the narrative toward desired outcomes. The numerous challenges, problems, and institutional rejections of design to include commercial, civilian, and all major military design methods in contemporary usage are critically examined so that the overarching body of research is comprehensive for a fair qualitative appreciation.

Lastly, Naveh's design theory as well as access to his practice of military design remains elusive and frequently misunderstood. Few contemporary military theorists trigger such debate, controversy, or outright demands for censure as whether military design concepts can and should be offered in various professional military educational enterprises. Until this point, the distinction between contemporary strategy-making and military functionalist decision-making in war has been conflated and confused with how Naveh's alternative design theory operates within dissimilar epistemology and subsequent methodology. This project attempts to move the entire military design community of practice further in discourse by clearly demonstrating the primary military design methodologies, contemporary institutionalized doctrine on design, the tensions between these communities and that of commercial design and reductionist operational and strategic planners, and the limits of forcing design discourse through any one single dominant war frame.

In closing, the rise of disruptive and alternative methodologies as well as entire sophisticated (and controversial) philosophies to address what some offer as a 'post-industrial world' or 'postmodern societies' is now occurring in multiple disciplines and fields. These discussions are often located on the fringes of dominant communities of practice endorsed or accepted by security studies practitioners. The developing fields of complexity science, sociology, post-modern philosophy, and the trans-disciplinary notion of design all began within the twentieth century, yet only in the past generation gained some inclusion in military and international political affairs for the application of organized violence.⁶² Whether war is now within some form of postmodernity or best understood now through postmodernism reflect controversial and complex arguments. Whether military design as an emergent practice is presenting something different or merely

⁶² Sookermany, "On Developing (Post)Modern Soldiers"; Philippe Beaulieu-Brossard and Philippe Dufort, "The Archipelago of Design: Researching Reflexive Military Practices," *The Archipelago of Design: Researching Reflexive Military Practices*, 2017, www.militaryepistemology.com; Charles Moskos, "Toward a Postmodern Military: The United States as a Paradigm," in *The Postmodern Military: Armed Forces after the Cold War*, ed. Charles Moskos, John Williams, and David Segal (New York: Oxford University Press, 2000), 14–31.

'pouring old wine into new bottles' is another difficult argument to make. This research presents these fundamental shifts in war/warfare, the reasons for it, why it matters and who the key actors and concepts are that compose this novel, emergent movement.

Chapter 1: Essential Theories, Methods and Concepts for this Research

Discourse in general, and scientific discourse in particular, is so complex a reality that we not only can, but should approach it at different levels and with different methods.

- Michel Foucault⁶³

More persuasive, perhaps, is the possibility that the significance of certain aspects of the contemporary world can be reevaluated from a postmodern perspective. Whether or not the world we live in can be represented as differing dramatically from the recent past, postmodernism highlights neglected aspects of contemporary everyday life...postmodernism also opens space for voices, texts, and viewpoints previously neglected or ignored.

- Martin Kilduff and Ajay Mehra⁶⁴

[On the 'affirmative postmodern approach'], by "affirmative," I mean not to argue that better Military Design should always result from some sort of solipsistic, radical postmodern philosophy and corresponding nihilistic deconstruction methodologies. Rather, the positive approach is an attitude that seeks to identify and criticize sedimentary beliefs and assumptions...[to] help expose what knowledge structures modern military institutions take for granted.

- Christopher Papparone⁶⁵

This first chapter provides the essential theory, select methodologies, and the conceptual frameworks that underpin this design project. The introduction presented some of the philosophical inquiries to be made in this research and which concepts from multiple disciplines will be drawn from. This research addresses a history of ideas concerning societies and how they perceive what war is (and implicitly, what war is therefore not), and subsequently how militaries construct a decision-making process to think and act within these philosophical frames that render the 'what', 'how' and 'why' for warfare among adversaries. What one's 'war frame' is will undoubtedly prominently feature war methods, but within these methods hide the ontological and epistemological structures that constitute one's

⁶³ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, Vintage Books Edition, April 1994 (New York: Vintage Books, 1994), xiv.

⁶⁴ Kilduff and Mehra, "Postmodernism and Organizational Research," 459.

⁶⁵ Papparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 16.

more abstract framing for making sense of what war is/is not, and how warfare within this idea of war ought to be waged.

Human appreciation of war/warfare changes across various major periods of warfare, yet contemporary research fails to address this latest proposed shift in whether war has entered a postmodernity or if perhaps war might be better appreciated through the various deconstructive lens of postmodernism. Systemically, any postmodern shift in war/warfare must also be linked to the premodern to modern shift in war frames if only to offer comprehensiveness in the totality of a human appreciation of war and warfare within. To frame this entire meta-construct of war and warfare across vast periods of time, space and rather distinct societal forms and technological levels of sophistication, particular methods and associated metaphoric devices are employed to arrange this argument cohesively. These methods and metaphoric devices as well as the core theories associated therein are presented here first for the reader so that the multidisciplinary approach used by military designers and articulated within this research is more readily understood, to include juxtaposition with earlier modes of military thought and action concerning war and warfare. Today's military designer appreciates war in a different context than previous war designers.

'Military design' is therefore by design a paradoxical and highly controversial (and frequently misunderstood) *new way of making sense of war and warfare*,⁶⁶ and requires the introduction of new concepts, theory, methods, language, and when possible, entirely different doctrine or policy. This may even take the novel form of 'anti-doctrine', 'anti-policy', and 'anti-conclusions' therein.⁶⁷ This chapter also expands on the introduction on a variety of the most serious institutional and organizational barriers that the military design movement currently faces in attempting these various reforms, revisions, and cognitively disruptive actions in order to transform towards a different way to think and act in the application of organized violence. The first concept addresses how humans frame acts of violence, and how depending on the context, value sets, and belief system the frame projects different interpretations of reality.

The Concept of 'Organized Violence' for this Research Approach:

As a brief thought experiment, consider four dead human bodies with near identical causes of death: *a fatal puncture wound*. Scientifically, the four bodies ceased living through similar physical trauma, and only through the philosophical inquiry into the context and associated societal belief systems can the key tensions concerning war frames be demonstrated. In this experiment, the first died of a bayonet thrust into him in the trenches of a declared war between two nation-states. The second died as a machete victim of some contemporary Mexican drug cartel, while the third was a (Japanese) Feudal Era Ronin. The term 'Ronin' refers to exiled samurai committing 'seppuku' to restore honor through self-

⁶⁶ Christopher Paparone, "Design and the Prospects for Mission Analysis | Small Wars Journal," *Small Wars Journal*, 2010, 1-7.

⁶⁷ Kilduff and Mehra, "Postmodernism and Organizational Research," 480-81.

disembowelment, a ritualized suicide endorsed by societal values. The fourth died being gored by a bull's horn in the 'running of the bulls' festival in Pamplona. While all four died violently and in near identical causations, the act of violence is categorized by societies quite differently. Thus, the necessary abstraction required is not to consider how each violent death occurred, but the social construction regarding the context of each violent death and the symbolization, meaning and association with dominant belief systems on what is/is not organized violence takes priority. The physics of death are secondary to the socialized interpretation of the violence therein. This is where postmodern theory, such as the work of Foucault that is heavily used in military design, posits a linkage of socially constructed 'coding' that links ideas and also "links realities."⁶⁸

Starting with the violent death by bull running, one must differentiate this from other organized violence enacted by fellow human desires. First, animals have no concept of war, and thus any death by animal including a bull's horn cannot be associated with 'war' even if the beast is employed in an actual war.⁶⁹ They might be utilized within warfare, but only humans construct the artificial notion of 'war' as a category of recognized thought and action through the application of organized violence. Foucault in *The Order of Things* addresses this with: "it is the man-made sign that draws the dividing-line between man and animal; that transforms imagination into voluntary memory, spontaneous attention into reflection, and instinct into rational knowledge."⁷⁰ Derrida supports this with: "Ferocity is thus not bellicose but fearful. Above all, it is incapable of declaring war. It is the character of the animal... of the isolated being who, not having been awakened to pity by the imagination, does not yet participate in sociality or in humankind."⁷¹ The term 'organized violence' renders some violence outside of this concept to be either disorganized, or potentially a different notion of violence that occurs beyond or below human comprehension of what war is. In order to be part of war, one first must be able to comprehend any given and shared human understanding of what war constitutes, and how types of warfare might be expressed therein.

The former samurai committing ritualistic suicide may indeed have participated in a war, yet self-inflicted fatal injury even in the conduct of a larger war activity remains exclusively 'suicide' and not *warfare*, except in cases where self-sacrifice is part of the direct or causal application of organized violence.⁷² In the

⁶⁸ Michel Foucault, *Discipline & Punish: The Birth of the Prison*, trans. Alan Sheridan (New York: Vintage Books, 1995), 110.

⁶⁹ There is some research, frequently within archeological study of primates such as chimpanzees that they share some 'war-like' organizational behaviors with human societies. This is a highly controversial and still theoretical area and is outside the scope of this research. Chimps at war aside, the vast majority of living creatures on this planet have no frame of reference or awareness of 'war.' It remains an almost exclusive and artificial social construct of humanity.

⁷⁰ Foucault, *The Order of Things*, 62.

⁷¹ Jacques Derrida, *Of Grammatology*, trans. Gayatri Spivak, Fortieth Anniversary Edition (Baltimore: John Hopkins University Press, 2016), 204.

⁷² Suicide within war contexts include suicide bombers, kamikaze pilots, sailors ramming their submarine into another vessel, or other war-related application of organized violence that has suicide as a secondary effect.

example of the machete death, the drug cartel committing illegal acts of murder are also a local or regional security matter of the state, not a legally recognized 'war' by Westphalian standards. Although some states use the term 'war on drugs' they do not declare war on a particular cartel nor are legal aspects of war employed within the context of state-oriented security issues that are policed.⁷³ Lastly, the dead soldier with the bayonet is the only corpse of the four where states frame a particular artificial form of human collective violence where there are associated concepts, language, rules, and entire belief systems in conflict with alternative ones. Later in Chapter Three, the key distinctions in entire design schools are addressed within this same social construction of what is one type of violence versus other seemingly similar types.

Of the four violent deaths, only the state-recognized violent death by bayonet reflects 'organized violence for warfare.' If this makes sense to the reader, this exercise is offered to highlight the modern war frame that is a direct link to the rise of the Westphalian Order, the emergence of a Clausewitzian logic concerning warfare, and the integration of natural science epistemological structures to how to understand and evaluate warfare in a modern sense of the term. Modern militaries representing the industrialized nations of today's complex world boast robust and active international security demands. Yet when one considers this thought experiment and the four violent deaths, not all war frames match that of the modern one. The next chapter provides premodern and later postmodern war frames for readers to consider, and whether either of these would agree on the four violent deaths with respect to 'war' and 'warfare.' Organized violence is a term that encompasses all periods of war in that disorganized violence fails to demonstrate any explicit or tacit purpose in violence other than violence itself. Yet how humans express organized violence determines their war frame for how and why it might be applied and for what explicit or tacit goal the war activities orient toward.

In this research, the term 'organized violence' is an all-encompassing construct meant to cover both the actual application of violence as well as the perception or mere potential to accomplish said action.⁷⁴ Thus, at a local security level in a small town, organized violence or the mere potential for governmentally sanctioned use of force for societal behavior regulation is again an extension of the larger state use of power. However, these ideas are coming under critical assault, as subsequent chapters will demonstrate. The supremacy of the Westphalian Order and the modern nation-state' is examined in the next chapter with respect to this. While in the modern era the states could dismiss all but the soldier's bayonet death in the four-death example as 'non-war' in categorization, the postmodern application of violence may be compromising that contemporary frame for organized violence. Again, it is not the objectivity of how the violent deaths occur, rather how at the ontological and epistemological level a society *appreciates the*

⁷³ One could argue that nations that employ militaries internally for domestic matters could be an exception here, however the application of military forces for non-war activities again renders the point moot. Soldiers tasked to police can be tasked to write speeding tickets as well.

⁷⁴ Siniša Malešević, *The Sociology of War and Violence* (Cambridge, United Kingdom: Cambridge University Press, 2010), 7.

organized violence in relation to making sense of war and warfare. White emphasizes the subjectivity of historical study and how 'objectivity' becomes a foreign, unreachable idea outside of natural sciences, yet social scientists nonetheless continue a detached, objective narrative nonetheless.⁷⁵ Postmodern interpretations may bring very different conclusions on this 'four-death' thought experiment, despite objections from the modern war frame perspective.⁷⁶

'Violence' as a security term is used here to articulate the core existential requirement for all security forces to include local militia, police, and up to national instruments of power such as armies and navies. All of these organizations must possess the capability and capacity for application of organized violence in order to justify their existence as security entities that operate on behalf of political, social and cultural needs; destruction is to be considered *manageable* for contemporary society.⁷⁷ There are different forms of violence, to include intraspecific killing and other forms of individual or group aggressions. McFate, without declaring any change in a perceived 'nature' of war, posits that the state appropriation of legitimizing war started in the Westphalian Era in an effort to delegitimize non-state violence and conflict as non-war.⁷⁸ His position might be captured in war entering a state of postmodernity where the aforementioned Westphalian standards are wearing down, and socially constructed beliefs on war that were upheld in modernity are now in flux. The Westphalian decree that criminal violence occurs below the necessary threshold of 'state-directed violence' linked to Clausewitzian inspired political desires would exclude the drug cartels from being capable of 'declaring or enacting war' while both premodern and postmodern frames may not necessarily draw that distinction.

This transition is where violent deaths at the hands of cartels or other non-state conflict are regulated to non-war acts of violence. The Westphalian formation of 'nation-state' constructs is detailed in the next chapter but warrants mention here. Rules for war would be established within state apparatuses, rendering non-state acts of organized violence 'war-like' but subjugated to some form of domestic internal security matter. Since then, societies assign organized political violence to state actors, and all other violence to a non-war status for security management; this has been ongoing for several centuries now. Societies socialize what war is, and subsequently regulate what war means to include specific boundaries and shared social activities within. Malešević summarizes this effectively with: "unlike aggression, which is a psychological response, war is a social phenomenon that

⁷⁵ White, *The Content of the Form*, 67–68.

⁷⁶ Outside of the scope of this research, various premodern war frame objections also likely exist for the 'four death' experiment as well. Premodern war not only lacked the Westphalian requirement of 'state-on-state' appropriation of war activities, but the line between human and animal symbolism with war would also likely come into play. Whether ideologically or through ritualization, premodern 'war' constructs are more pliable to invite animal consideration for war stakeholders, as well as spirits, deities, and other non-scientific considerations involving the application of organized violence.

⁷⁷ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 10–11.

⁷⁸ McFate, *The New Rules of War*, 180–81.

requires organised social action, collective intentionality, the systematic use of weapons, sophisticated linguistic coordination and ritualism.”⁷⁹ The ritualized warrior suicide within a war context such as a suicide bomber in a Japanese Zero or an Islamic State fighter driving a vehicle rigged with home-made explosives into an operating base aside, the acts of individual suicide unrelated to the application of state-sanctioned violence are ultimately not directly considered ‘acts of war violence’ themselves either within this modern frame.

A Controversy of Words: ‘Postmodernism’ and ‘Postmodernity’

The term ‘postmodern’ is used frequently in security studies, military sociology, and in the focus of this research, within many military design applications. Postmodernity reflects a condition where reality for many (depending on the societal context) is no longer in the earlier ‘modern’ form most often associated with its zenith in western nations in the 1950s.⁸⁰ For many modern military planners and strategists, the context might be one of postmodernity due to disruptions to previously stable social, political, or technological constructs, yet even within these the modern military institution might still forge ahead, applying minor adjustments and evolutionary, incremental developments to existing traditional military decision-making methods and knowledge curation for the organization engaging in war.

However, for the ‘postmodernist’ relying upon ‘postmodernism’ that rejects some implied gradual extension of modernity into postmodernity, this is insufficient. Not only is the world no longer a modern one and ‘postmodernity’ is indeed replacing the previous modern functions of society, but the very ‘form’ of war and warfare as well as those military organizations acting within postmodernity must be reconsidered and enabled through postmodern philosophy. This dual quality of ‘postmodern’ whether assigned to an ‘ism’ or an ‘ity’ will be an important consideration throughout this project when considering the types of military design and overarching ontology and epistemology therein.

Whereas postmodernity might be considered while still engaged in a modernist, single paradigm and dominant frame, a military *postmodernist* understanding of war and warfare does require multiple social paradigms to be employed, with typically the postmodern perspective deconstructing, disrupting, and radially altering the dominant, modernist, traditional frame of the military form. This will come into significance between identifying various styles of military design, but also to clarify distinctions between contemporary commercial design methods and those of select military ones. Thus, a larger group that critique the modernist, Westphalian and Clausewitzian frame for warfare view the arrival of postmodernity as a cause for reevaluating all existing modern war logic and potentially replacing or modifying extensive elements within *while still holding to most of the epistemological and ontological stances* of modernity and war. A smaller group takes the postmodern philosophical approach that deconstructs, challenges,

⁷⁹ Malešević, *The Sociology of War and Violence*, 57.

⁸⁰ Giddens, *The Consequences of Modernity*.

and offers an entirely paradoxical or epistemologically dissimilar alternative that shatters the existing modern military frame. To illustrate this distinction, several from each group are provided below in how they frame and discuss postmodern war.

Peters, in his *Beyond Baghdad: Postmodern War and Peace* positions his arguments as part of the 'postmodernity of war' advocates for change. Like Gorka (another postmodernity advocate), Peters sees the war logic of radical Islamic terrorist movements as non-Clausewitzian, with the practical terrorists still remaining in the more understood modernist war frame:

Apocalyptic terrorists, men driven by religious, often messianic, visions- men who yearn toward Armageddon, and for whom no victory could be sufficient (the practical terrorist could one day sit in his country's parliament, if he is not killed in his youth, but the apocalyptic terrorist wants to expedite the Day of Judgment; the first fights for changes in "the system," while the second wants only to destroy it, no matter his rhetoric about earthly concerns).⁸¹

Thus, Peters places 'traditional' or rational terrorists within the existing Clausewitzian cycle of war being an endless extension of policy by other means, where successful terrorists eventually become part of a new political expression of their society after their war is over. Rational terrorists operate within Clausewitzian logic, thus are adversaries subscribing to the Prussian war philosopher's modern rules and logic for the application of organized violence between nation-states despite terror groups not having state-like capabilities or capacities. If anything, they are catalysts for a revolution or restoration of the state-form, just as any successful unconventional warfare strategy for special forces will move from a guerrilla phase of obfuscation and low-profile into a dynamic defeat of the host national security forces; the unconventional becomes conventional as the successful rebelling forces subsequently inherit the security responsibilities of the nation-state or region they have overthrown.

The cycle of Westphalian state-on-state war rules remains largely intact. Yet for the radicalized terrorists attempting to bring upon the Armageddon instead, they have no interest in a seat at the table in the future of the country. *Divine messianic eschatological war*,⁸² as first termed by Rapoport in his controversial

⁸¹ Ralph Peters, *Beyond Baghdad: Postmodern War and Peace* (Mechanicsburg, PA: Stackpole Books, 2003), 47.

⁸² 'Eschatological' refers to the ontological belief that war is not cyclic, rather it ends in a predicted final battle that resolves all human conflict and is representative of multiple monotheistic religions that have a 'end of days' ideological narrative. 'Divine' refers to the ideological quality of the 'end of days' ontology in that non-ideological extinction events exist in astrophysics, biology, sociology, and other disciplines. 'Messianic' refers to a select group that are present and those selected to execute the eschatological culmination. Rapoport, focusing on the Soviet Union, viewed the Politburo as the

introduction to the 1968 Penguin Classic version of Clausewitz's *On War* contradicts Clausewitzian war logic at the ontological as well as epistemological levels.⁸³ Radical 'Judgement Day' terrorists at war expect their success to collapse the entire system utterly and transform the world into something entirely different or new.

In another example of war within a postmodernity where modern war frames are challenged, Atran describes what he characterizes as the *absurdity* of contemporary U.S. Department of Justice policy on counter-terrorism taking a modern frame towards the Islamic State as a terrorist group, but set within a security context of postmodernity. This context is one where the U.S. government is unaware of the failings of their policy, potentially ignorant of the policy paradox therein, or are unable to respond to this postmodernity beyond crafting linear policy extensions that may have been relevant and rational in earlier contexts but are no longer useful:

Media exposure, which is the oxygen of terror in our age, not only greatly amplifies the perception of danger, but generating such hysteria, makes the bloated threat to society real...The outcome is dangerous and preposterous. The U.S. Justice Department now considers the common kitchen pressure cooker to be a weapon of mass destruction if used for terrorism. This ludicrously levels a cooking pot with a thermonuclear bomb, which has the destructive power that is a billion times greater. It trivializes true weapons of mass destruction, making their acceptance more palatable and their use more conceivable. In this present hyperreality, messaging is war by other means. ISIL's manipulation of our media creates a sense of foreboding of mass destruction where not really possible, and at the same time obscures any real future threat.⁸⁴

Atran's analysis maintains the supremacy of nuclear weapons in a modern and analytical oriented (functionalist paradigm)⁸⁵ evaluation of destructive power, and highlights the absurdity of postmodernity where media manipulation and societal panic obfuscates what was once a clear hierarchy of destructive threats. A postmodern philosophical treatment here would differ from Atran's view of postmodernity with that Baudrillard, a prominent postmodern philosopher. Baudrillard, in his infamous essay critiquing the Gulf War with "The Gulf War Did

'messianic' group aligned with Soviet 'messianic eschatology' concerning a Marxist interpretation of war that differed from Clausewitzian theory.

⁸³ Anatol Rapoport, "Editor's Introduction to *On War*," in *On War*, by Carl Von Clausewitz, ed. Anatol Rapoport (New York: Penguin Books, 1968).

⁸⁴ Scott Atran, "The Islamic State Revolution," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 66.

⁸⁵ For social paradigm explanation, see the next section in this chapter.

Not Take Place”⁸⁶ used postmodern theories such as ‘simulacra’⁸⁷ to entirely reframe war and societal perception within a postmodern interpretation that rendered the modernist frame deconstructed and challenged by the postmodern interpretation that offered entirely dissimilar epistemological structures for making sense of war. Foucault employs the *episteme* not to objectively address scientific knowledge formation toward some growing perfection, rather to explore “that of its conditions of possibility.”⁸⁸ Postmodern engagement at the epistemological level must and will challenge analytical science while enabling alternative knowledge formation.

Were a ‘Baudrillard-like’ treatment be applied to Atran’s passage, the argument that the kitchen pressure cooker has indeed supplanted the nuclear bomb by altering society’s perception of reality might be made. This would be in tension with Atran’s argument, and thus ‘postmodernity through a modern frame’ is in tension with a philosophical rendering using postmodernism for war/warfare. If Atran supports war in postmodernity, he acknowledges the belief that pressure cookers wielded by radical terrorists might shock societies in ways comparable to the social anxieties concerning mutually assured nuclear destruction; this extends modernity’s emphasis on rationalizing war into postmodernity to explain emergences in warfare.

Yet Baudrillard as a postmodernist would offer that any effort to wage nation-state war cannot any longer escape the fact that society is now trapped in modernity in a way that only postmodernism might deconstruct, challenge, and expose the power structures and illusions. All current and future wars would be potential cognitive traps where modernity extends Westphalian Order power structures so that warfare evolves with techno-science, but political structures of the dominant modern state maintain their grip on power, while individuals are unaware or unable to break out of the powerful shaping forces of modern war belief systems. Only through a postmodern lens might one ‘take the red pill’ and escape the Matrix by way of postmodernism and war.⁸⁹

This is indeed just the tip of the iceberg in the postmodernism or postmodernity debate. In defining ‘postmodernism’ and war, Gray also acknowledges the lack of consensus on the meaning of the term, and in his effort to frame it in relationship to war, he looks to ‘modernism’ in various disciplines in order to highlight some major postmodern characteristics that support the frame

⁸⁶ Jean Baudrillard, *The Gulf War Did Not Take Place*, trans. Paul Patton (Sydney, Australia: Power Publications, 2009).

⁸⁷ Simulacra refers to what Baudrillard explains as a ‘copy without an original’, where society has created an illusion of reality so convincing that once within this illusion, society cannot imagine anything else nor realize any linkages with the original reality from which the illusion spawned from. The science fiction movie *The Matrix* draws from Baudrillard’s ideas in crafting a fake cyber-world where people believe they are living their lives, where in fact they are just part of a vast energy harvesting production by sentient machines in a real war with humans still outside of the simulacra.

⁸⁸ Foucault, *The Order of Things*, xxii.

⁸⁹ Although the movie *The Matrix* draws heavily from Baudrillard’s work, the author acknowledges Baudrillard’s vocal rejection of the popular movie as having misunderstood his core premise.

within the application of organized violence. 'Modern' is represented with specific historical, contextual or symbolic meanings such as art and architecture and thus are often defined by 'periods.' Yet for Gray's inquiry into the history of war, "modern war is defined both chronologically and qualitatively."⁹⁰ The themes that Gray highlights in what is a proposed 'postmodern war' transition away from modern war includes "information is the organizing principle" paired with a disillusionment with the grand master narratives of modernism (and all narratives).⁹¹ Thus terminology, metaphors, narratives and entire belief systems cultivate a social construction of reality that cannot be reduced or analytically explained objectively or with natural science applications. Foucault demonstrates this with a social construction of complex reality where codes conceptualize signs and symbols which "link ideas, [and] also link realities"⁹² as does Tschumi through postmodern architecture where "forms do not follow functions but refer to other forms, and functions relate to symbols."⁹³ Virilio too offers the prominence of 'information' that conceptualizes, socializes, and in postmodernity becomes the successor of the modern war frame's ultimate weapon: nuclear bombs.⁹⁴ These postmodernists emphasize the rise of 'information' as the key disruptor in shifting away from the modern, Westphalian ordered war frame.

This stance that reality is much 'thicker' than some balanced, rule-based machine governed by natural laws appears to support philosopher Lyotard's overarching stance that postmodernism is ultimately defined as "incredulity toward metanarratives...postmodern knowledge...refines our sensitivity to differences and reinforces our ability to tolerate the incommensurable."⁹⁵ White, a historian drawing influence from postmodern theory, takes a postmodern position on narrative construction as well. "Far from being one code among many that a culture may utilize for endowing experience with meaning, narrative is a meta-code."⁹⁶ Whereas modern war places an implied 'value-free', objective science with a Westphalian-centered political structure as central to the organizing principle to war, postmodern war deconstructs this by accusing modernity of becoming consumed by technology and analytic reasoning. This idea of 'techno-war' situates knowledge within values, and an illusion of natural order and linearity that, once disrupted, can be exposed as merely one of many competing ways to understand war. 'Techno-war' is expressed in postmodern theory and used in this research as a useful postmodern foil to pierce the veil of modernity and the Clausewitzian war logic; the concept will be further examined later in this research.

⁹⁰ Chris Gray, *Postmodern War: The New Politics of Conflict* (New York: The Guilford Press, 1997), 81.

⁹¹ Gray, 81.

⁹² Foucault, *Discipline & Punish: The Birth of the Prison*, 110.

⁹³ Tschumi, *Architecture and Disjunction*, 38.

⁹⁴ Virilio, *The Information Bomb*.

⁹⁵ Jean-Francois Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, *Theory and History of Literature*, Volume 10 (Minneapolis, MN: University of Minnesota Press, 1979), xxiv-xxv.

⁹⁶ White, *The Content of the Form*, 1.

Gray states that postmodern war situates knowledge where it cannot as modern war demands it to be uniform, universal, and generalizable. Instead, it is situated, specific, paradoxical, with many epistemological opposites in play that reject any order or imposed mediation by science and rationalized logic. While modernity uses analytic optimization to destroy, marginalize or refute paradox in pursuit of greater objectivity, precision, control and prediction, postmodernism embraces paradox as essential to making sense of reality. Tschumi explains through postmodern architecture theory that: "paradoxes equivocate. They lie, and they don't; they tell the truth, and they don't. Each meaning has always to be taken with the others...the paradox is literally speculative."⁹⁷ Paradoxes gain tremendous significance, as do numerous non-analytical constructs. Postmodern war also possesses "a tremendous increase in speed", and Gray concludes with postmodern war featuring increased "human-machine culture [proliferation]" that becomes a powerful theme in postmodernity. Earlier modern and premodern war did not feature these qualities as Gray argues. The next chapter will enable Gray's position by demonstrating the defining characteristics of a premodern 'Feudal Age' war era that transitions into a 'modern war' era and ultimately into a postmodern one.

The term 'postmodern' creates a two-sided coin where one application features a sociological emphasis and how current society is socially constructing a different reality that criticizes, rejects or disrupts the traditional, modern ideas of societal progress, values, and belief systems of the last few centuries.⁹⁸ On this first side of the coin, social paradigm theory seems to work effectively within this postmodern sociological focus due to some paradigms being associated with modernist interpretations of reality and others with a postmodern interpretation.⁹⁹ The other side of the coin is philosophical emphasis, where modernists establish a uniform, universal and generally analytic-oriented logic for how reality exists and how humans think and act within it.¹⁰⁰ The world becomes reducible, measurable, and stable enough so that principles and rules governing reality at a micro-scale might link to much larger and more complex behavior regulation at abstract levels. Just as the laws of physics explain atomic level up to astronomical level activities, so is expected for tactical rules of war to expand outward to entire multi-state conflicts, regulated by universal and ever-present war properties.

Postmodernists challenge this modernist philosophy by deconstructing language, rejecting uniform or universal meanings, and moving the interpretation of reality towards a fluid instead of fixed form and function.¹⁰¹ Postmodern philosophy

⁹⁷ Tschumi, *Architecture and Disjunction*, 71.

⁹⁸ Max Boisot and Bill McKelvey, "Integrating Modernist and Postmodernist Perspectives on Organizations: A Complexity Science Bridge," *Academy of Management Review* 35, no. 3 (2010): 419–21.

⁹⁹ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 17.

¹⁰⁰ Boisot and McKelvey, "Integrating Modernist and Postmodernist Perspectives on Organizations: A Complexity Science Bridge," 418–19.

¹⁰¹ Kilduff and Mehra, "Postmodernism and Organizational Research," 457–59; Rika Preisner, Paul Cilliers, and Oliver Human, "Deconstruction and Complexity: A Critical Economy," *South African Journal of Philosophy* 32, no. 3 (2013): 261–73.

cast the dominant power structures as corrupt and illusionary, while promoting alternatives that dynamically (and disruptively) transform societies as demonstrated by Baudrillard, Virilio, and Deleuze & Guattari.¹⁰² Both the sociological and philosophical 'postmodern-isms' require the exploration of one's belief system at the ontological (what reality is and is not) and the epistemological level (how knowledge is formed and functions, how we know to know) so that one can understand well beyond the mere methodological or practical actions.

Thus, the term 'postmodern' is, depending on the usage and discipline or field of the participants concerning war, both a confusing and disputed word, associated with multiple conceptions of war or warfare.¹⁰³ This project recognizes the two primary camps of 'postmodernity' and 'postmodernism' with respect to war and warfare; both will be applied when necessary to explore how military design enacts particular aspects of one, the other, and at times both for the application of organized violence. This requires military designers to explore new terminology, often couched in challenging theories and constructs that frequently operate paradoxically to more familiar war frames. One clear overarching theme with postmodern war and warfare is that of alternatives and disruptiveness towards the institutionalized norms. Sookermany, in his postmodern approach to military education and development, also defines postmodern as: "an expression of an alternative understanding/mindset/practice to that which we understand as representing the traditional."¹⁰⁴ Thus, it becomes critical for military designers to embrace new concepts, break out of traditional dialogue and forms, and learn new concepts that might challenge the very ontological stability offered by institutionalized war frames. Graicer, in recounting her postmodern military design education under Shimon Naveh, summarizes with:

To explain an alternative praxis, one needed alternative language. To go beyond modern, industrialist, westernized paradigms and epistemological structures, one needed text with other motives...my exposure to Operational Art went hand in hand with voluminous postmodern, post-structuralist, de-constructivist, postcolonial, anthropological, fantasy, feminist, anarchist, critical thinking texts of various philosophers from many countries.¹⁰⁵

¹⁰² Baudrillard, *The Gulf War Did Not Take Place*; Paul Virilio and Sylvère Lotringer, *Pure War*, trans. Mark Polizzotti, "Twenty Five Years Later" edition (Cambridge, Massachusetts: MIT Press, 2008); Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987).

¹⁰³ Kilduff and Mehra, "Postmodernism and Organizational Research," 453–56; Larry Kay, "A New Postmodern Condition: Why Disinformation Has Become So Effective," *Small Wars Journal*, February 27, 2020, 2–4.

¹⁰⁴ Sookermany, "Military Education Reconsidered: A Postmodern Update," 311.

¹⁰⁵ Ofra Graicer to Ben Zweibelson, "Re: A Question for You Four (and Shimon) for My Introduction Research Chapter," April 13, 2020. Personal correspondence by e-mail.

To open up war theory to so many disruptive, controversial, and seemingly incompatible philosophical stances makes for an implication of a flexible military design war frame. For postmodernists examining military organizations in how and why they make sense, organize and act within complex conflict situations, they frame strategy-making efforts as “an ongoing aggregative world-making activity and not a solid and static thing.”¹⁰⁶ Military designers might require a suspension of personal war convictions at an ontological and epistemological level so that alternatives might be considered at almost a *meta-war frame*. Drawing from philosophy, Sookermany takes a postmodern sociological position in his arguments. He suggests the world is moving towards continuous change where meaning ‘floats’ and militaries must perpetually challenge, transform, and create knowledge in ways that are uninhibited by set ontological and epistemological beliefs; reality is socially constructed and only by understanding how humans create these belief systems will they become self-aware and able to influence change beyond mere methodological variations. In a correspondence with the author, Sookermany states: “I do believe our understanding of the world is heavily influenced by our social engagement in the same world...it is the sense-making of that which takes place, and I believe that is socially constructed both in how I/we make sense of it and in the fact that reality becomes influenced by how I/we make sense of it.”¹⁰⁷ Sookermany sees this postmodern shift as a movement unfolding somewhere after the end of the Cold War, with a rise in socially complex and novel requirements for militaries nested within an increasingly technologically dense and socially interconnected information society. This suggests both a postmodernity of warfare, but also for Sookermany the need for postmodernism in understanding and explaining a changing context of postmodern war where the military itself must reinvent how it thinks and acts.

Mäder, also taking a sociological approach identifies essentially a similar transitional period as Sookermany while associating the shift with a change in military requirements, contexts, and increasingly networked societies that reject previous forms and function of the modern military profession. Mäder bookmarks the rise of a military postmodernity with “the fall of the Berlin Wall and the collapse of the Twin Towers,” set in socially constructed framings of these events that support existing and emergent belief systems.¹⁰⁸ Virilio too marks the fall of the Berlin Wall as were “we now see a whole swathe of techno-scientific positivism crumbling away noiselessly.”¹⁰⁹ The drift into postmodernity for Virilio is obscured, in that society is not necessarily even realizing the transformation. This will be further explored in the second chapter as one of the transition points between military modernity and postmodernity. Coinciding with Mäder, Jameson’s 1991

¹⁰⁶ Robert Chia, “Organization Theory as a Postmodern Science,” in *The Oxford Handbook of Organization Theory: Meta-Theoretical Perspectives* (New York: Oxford University Press, 2003), 114.

¹⁰⁷ Anders Sookermany to Ben Zweibelson, “Fwd: Would You Agree with This Edited Paragraph on Your Postmodern Military Position?,” September 1, 2020. Personal correspondence with author.

¹⁰⁸ Markus Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002* (Bern, Germany: Peter Lang AG, 2004), 25.

¹⁰⁹ Virilio, *The Information Bomb*, 79.

study of postmodernism associates the rise of postmodern culture with a “superstructural expression of a whole new wave of American military and economic domination throughout the world.” Jameson again employs a largely a sociological framing to address change as a contextual shift of war into postmodernity from a previous modernity.¹¹⁰

While postmodernity appears to have some support both within military academia as well as broadly across various disciplines, postmodernism is much more contested with respect to war and society. Giddens, an advocate for modernity views it as only useful if best kept “to refer to styles or movements within literature, painting, the plastic arts, and architecture. It concerns aspects of *aesthetic reflection* upon the nature of modernity,”¹¹¹ and thus cannot displace or replace modernity. It can only forever be a supplemental and potentially unnecessary or augmenting construct. Giddens permits the potential of postmodernity, only if an augmentation to some late-modernity; postmodernism can only challenge and provoke modernity as almost a perpetual side-car attachment bolted to the motorcycle of which modernity continues to steer. Giddens’ stance is echoed by many and represents a formidable obstacle to what Naveh and military designers would attempt in introducing postmodern philosophy applications in war.

Bousquet, largely taking a sociological orientation on modernist and postmodernist arguments,¹¹² appears to side with postmodernity war frames without displacing scientific reasoning and thus rejecting postmodernism, at least in respect to warfare. He discusses the transition of earlier modern societal frames towards some variation or development with: “large bureaucratic centres of production which once dominated the industrial era no longer appear suited to competing with their more nimble counterparts within a fast-paced global economy.”¹¹³ Bousquet acknowledges the significant role of new technology yet finds it insufficient to alone articulate the emergent transformations occurring in war, society and theory therein. His central positioning of science presents an ontological position that fuses war with ‘technoscience’ to create new and unanticipated challenges,¹¹⁴ and while Bousquet does use postmodern philosophers in his examination of warfare, he does not suggest a postmodern era or movement therein.

¹¹⁰ Fredric Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism* (Durham, North Carolina: Duke University Press, 1991), 5.

¹¹¹ Giddens, *The Consequences of Modernity*, 45.

¹¹² Bousquet does not use ‘postmodern’ and emphasizes a scientific way of warfare, however his research employs postmodern theory, social paradigm concepts, as well as an ontological and epistemological examination of societies and war where modernist war theory and application is provided relatively clear start and end periods within a broader, emergent social frame.

¹¹³ Bousquet, “Chaoplexic Warfare or the Future of Military Organization,” 915.

¹¹⁴ Bousquet, “Chaoplexic Warfare or the Future of Military Organization”; Bousquet, “Cyberneticizing the American War Machine: Science and Computers in the Cold War”; Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (London: HURST Publishers Ltd., 2009).

The emphasis on modernist 'technoscience' to render a complex (even chaoplexic world)¹¹⁵ predictable, controllable and manageable by the legacy rules of earlier wars has locked horns with new and seemingly paradoxical organizational forms and modes of thought and action within reality. This supports similar positions on a postmodernity for war, without the messy aspects of postmodernism in philosophy; science remains supreme in war for Bousquet's positions on networks, computers, artificial intelligence, and 'chaoplexity' in warfare. Yet the nature of war remains fixed, with only the character gaining new expressions of violence fueled by never-before-seen levels of increased complexity and technology supporting warfare. Thus 'new rules' might be presented as McFate and others postulate,¹¹⁶ but these must still operate in some epistemological routine that realizes science, thus maintaining a fundamental 'nature of war' able to be scientifically examined and tested.

Bousquet's application of core arguments of social paradigm theory illustrates what is a postmodern *styled* sociological approach to include his examination of ontological debates within international relations theory.¹¹⁷ This permits a view of "the state and the state-system as phenomena that have a particular origin in time, a specific history and most likely an endpoint"¹¹⁸ rather than the modernist notion of universal and uniform concepts that provide principles of war and a fixed nature. Narratives, emplotment, symbols and socially constructed meaning in experiencing and expressing war are best represented not in functionalist scientific endeavors but in postmodern theory. Or, while the foundational 'nature' of war continues, the temporary societal constructions which include for Bousquet the Westphalian Order nation-state may be just one manifestation along a continuum of yet-to-be encountered technological fusions of humanity and technology in warfare.

Whether one supports postmodernism, postmodernity, or some variation therein remains a debate unresolvable in this or any project. There are postmodernists, post-structuralists, and arguably the position of 'late-modernist generalist' where even within these groups, some reject any label or are unable to clearly articulate their position from the arguments of others.¹¹⁹ In part, this is why in security studies there are so many terms attempting to explain the period, era, phase or manifestation of complex, dynamic war that many societies are now wrestling with. These terms are not limited to: 'asymmetric warfare', 'irregular warfare', 'post-conventional warfare', 'activities in the grey-zone', 'new-generation warfare', and 'actions short of war' as just some of the more popular terms in vigorous debate. This project thus acknowledges the tensions between self-identified military postmodernists, proponents of postmodern qualities in the

¹¹⁵ Bousquet, "Chaoplexic Warfare or the Future of Military Organization."

¹¹⁶ McFate, *The New Rules of War*.

¹¹⁷ Antoine Bousquet and Simon Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations," *Cambridge Review of International Affairs* 24, no. 1 (2011): 44–45.

¹¹⁸ Bousquet and Curtis, 49.

¹¹⁹ Kilduff and Mehra, "Postmodernism and Organizational Research," 453–55.

character of warfare, as well as perhaps additional groups where 'postmodern' is used stylistically in association with sociological, historical, or other meaning that focuses on the military organization and knowledge instead of war philosophy. In subsequent chapters, efforts will be made to clarify whether a method, theorist, or actor is proposing a particular postmodern stance or if one can clearly be assumed from their terminology, ontology, or epistemology concerning war.

An Unexpectedly Problematic Term: 'Design' and Security Studies

While the concepts associated with postmodern war and warfare are controversial, there is another equally contested term used in pursuit of the main objective of this research. The notion of 'design' and how it differs depending on what community of practice one hails from, what design purpose is being sought, and what societal context one believes they are designing in or designing for. In military applications of which this research primarily focuses on, 'design' is usually distinguished from the more readily understood and appreciated concept of 'planning' with respect to both designing and planning applied to future actions in war. Planning for war is well understood and framed within military doctrine, methodologies and professional military education, while designing for war is a confusing, often fiercely contested concept of which some even advocate is an unnecessary and redundant term in itself for warfare. While the third chapter of this research extensively explains the origins and meaning of 'design', a brief introductory summary is useful here as the term is quite controversial, particularly within military applications. If anything, the main motive for this project remains a desire to clear up this institutional confusion sufficiently and explore harmonious design and planning relationships for war applications. Rittel, one of the major early design theorists of the twentieth century articulates design in the broadest sense with:

Everybody designs sometimes; nobody designs always. Design is not the monopoly of those who call themselves "designers." Design takes place in the world of imagination, where one invents and manipulates ideas and concepts instead of the real thing- in order to prepare the real intervention.¹²⁰

The term 'design' in both security and general context has different meanings as well as different disciplines and entire fields addressing the what, how and why of 'designing' in particular ways.¹²¹ Across these many different communities of

¹²⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 187.

¹²¹ Richard Buchanan, "Management and Design: Interaction Pathways in Organizational Life," in *Managing as Designing*, ed. Richard Boland Jr. and Fred Collopy (Stanford, California: Stanford Business Books, 2004), 54–57; Ulla Johansson-Skoldberg, Jill Woodilla, and Mehves Cetinkaya, "Design Thinking: Past, Present and Possible Futures," *Creativity and Innovation Management* 22, no. 2 (2013): 132; Kalle Lyytinen, "Designing of What? What Is the Design Stuff Made Of?," in *Managing*

practice, many design practitioners themselves are unaware of the origins of their own design discipline,¹²² how it relates and overlaps with other dissimilar design variants, or any comprehensive frame of design outside of their own training, practice, and most significantly the culture and design narratives within their design community.

Some designers advocate for a particular brand, method or style of 'doing design' while others such as Krippendorff (from a 'philosophy of design' perspective) promote a perpetual critical reflection and transformation of design by designers; the essence of design principles must in turn be applied to design itself as well as the rest of the world.¹²³ However, design disciplines as well as schools of design appear to be prone to bureaucratic creep as well as self-preservation efforts as any other community of practice. Papanek in particular demonstrates a keen awareness and disappointment with commercial design bureaucratization, and is an early advocate of civilian design reform and renewal.¹²⁴ Despite the concerns of design philosophers from within corresponding movements or disciplines, the design landscape today is fragmented with many different *design tribes* to include those accustomed to designing for commerce, and a smaller yet still fractured group exploring designing for war. This makes for numerous institutional barriers between design fields as well as within security organizations that further complicate the opportunity of intra-field design discourse.¹²⁵ These same institutionalisms that reinforce traditions, behaviors, and codified terminologies also seem to prevent any appreciation of expanding and expressing 'design' praxis from outside of one's design tribal boundaries for what design is defined as.

For military organizations, the idea of 'design' in war or warfare came much later than in commercial applications if one seeks the literal use of the word 'design.' In the early 1980s, the first example of 'design' appearing in a military doctrine in any capacity occurred with a revision of the United States' Army's *Field Manual 100-5, Operations* during the American Army's deeply critical period immediately following the failures of Vietnam.¹²⁶ *FM 100-5's* mention of 'design' as a concept began with a discussion of how strategy and tactics were distinct and that another

as *Designing*, ed. Fred Collopy and Richard Boland Jr. (Stanford, California: Stanford Business Books, 2004), 221–26.

¹²² Johansson-Skoldberg, Woodilla, and Cetinkaya, "Design Thinking: Past, Present and Possible Futures," 121.

¹²³ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 1–2.

¹²⁴ Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (New York: Pantheon Books, 1971).

¹²⁵ Aaron Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers" (IMDC 2019 Conference, Lancaster, UK: unpublished, 2019), 1–5; Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay"; Phil Gilbert and Ben Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson" (lecture, Innovation Methodologies for Defense Challenges (IMDC) conference 2019, Lancaster, UK, February 27, 2019), <https://www.youtube.com/watch?v=tU1MYaAzoxk>.

¹²⁶ Aaron Jackson, "Surrogate: Why Operational Art Adapted Strategy," *Military Operations* 2, no. 2 (Spring 2014): 8–9; Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 40–48.

'layer' of control and organizational form required the design and planning of military campaigns. This implied that before 'planning' occurred where a series of operations could be linked towards some larger strategic goals, a broader 'design' ought to occur that required more systemic thinking over analytic reductionism. The institutional resistance to this shift is explored in the third through sixth chapters of this research, where the experimentation in design for war as well as multiple failures in design application from Toronto to Sydney are addressed.

Within this specific and narrow frame for the term 'design', military organizations had selectively applied some sort of associated 'design thinking' throughout the twentieth century, particularly in Soviet and German military enterprise during the Second World War, as advocated by Naveh in his study of operational art and military design.¹²⁷ However, the term 'design' is used here in a different context versus how it is found in industrial design considerations for the same period.¹²⁸ During the Cold War period as security forces continued to shape strategy and decision-making with linear, analytic planning methodologies descendent from the high intensity warfare and nationalized total war mechanizations,¹²⁹ commercial design methods shifted towards empathetic and human-centered constructs.¹³⁰ Again, 'design' would branch into further diverse sub-communities where the meaning, purpose, and methodologies for designing would frequently be oriented on a maddeningly range of different things and logics. This problem would exponentially grow, creating much of the contemporary institutional and inter-disciplinary friction and confusion to be covered in detail in the third through sixth chapters.

The 1960s through 1990s became the incubation period of numerous human-centered, industrial, technical and eventually digital-oriented design methodologies that, with the inclusion of new technology, would usher in hybrid design processes concerning emotive, social, digital, and managerial focuses.¹³¹ This is where various meanings of design across different communities of practice cause confusion and incommensurate perspectives on organization, change and innovation.¹³² Today, multiple groups of designers from various disciplines tend to misunderstand the meaning of 'designing' when it is applied outside of their particular field of inquiry, school of practice, or institutional paradigm. These challenges create unclear paths for militaries today to plot strategies toward transformation and foil the bureaucratic intentions of military doctrine writers seeking a single model of design to integrate.

¹²⁷ Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, 12–19.

¹²⁸ Bruce Archer, "The Structure of Design Processes" (thesis/dissertation/report, Royal College of Art, London, 1968), 1.1-1.7.

¹²⁹ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 36–41.

¹³⁰ Papanek, *Design for the Real World: Human Ecology and Social Change*, 24–31.

¹³¹ Georgi Georgiev, "Design Thinking: An Overview," *Japanese Society for the Science of Design* 20–1, no. 77 (2012): 70–71; Johansson-Skoldberg, Woodilla, and Cetinkaya, "Design Thinking: Past, Present and Possible Futures," 122–23.

¹³² Johansson-Skoldberg, Woodilla, and Cetinkaya, "Design Thinking: Past, Present and Possible Futures," 131–32.

A Military Hero, Military Manager, and a Military Comedian Walk into a Bar:

The legendary war hero has been celebrated for nearly all of recorded human history, and most certainly further back into oral traditions of societies well before the invention of written languages. For all of what the next chapter will frame as the premodern war era, heroes played an essential role in the application of organized violence. The hero would only recently be joined by a new metaphoric construct, that of the modern military manager in the rise of industrialized, scientifically oriented and analytically structured organizers for a new and different mode for war and warfare. Gibson, in summarizing Janowitz, observes:

The officer corps...being composed of "heroic" combat leaders or "gladiators", and the emerging career path of the "military manager" [would be in tension]. Combat leaders inspire troops to fight in dangerous battle; social relationships of loyalty from top to bottom and bottom to top are crucial. Managers allocate resources. As two other military sociologists, Richard Gabriel and Paul Savage, say, "no one expects anyone to die for IBM or General Motors." Second, in a world where only technology and production count, the enemy begins to be seen *only* in those terms.¹³³

In most global contexts concerning the application of organized violence, industrialized, largely western-associated military forces remain in the twenty-first century the dominant force for state-sanctioned organized violence through an attempted management of conflict. This is done to satisfy political, societal, and cultural demands, to include internal and potentially contradictory demands of the military institution itself.¹³⁴ Military forces today are routinely tasked to assume more and more traditionally non-military functions, with many security contexts today requiring the same unit to engage in intense combat, humanitarian aid, foreign security partnering and training, as well as host-nation infrastructure and rebuilding efforts. However, increasing complexity coupled with societal transformation may be causing traditional military organizational models and decision-making methodologies to become increasingly fragile in war. Further, these same methodologies may also be at times incommensurate with novel, emergent demands in war and foreign policy applications within a new postmodern frame, as this research will demonstrate in the next chapter of this research.

The next chapter explains the rise of the modern, professionalized military organization coinciding with the decline of the premodern 'gentleman amateur' in

¹³³ James Gibson, *The Perfect War: Technowar in Vietnam*, First Edition (Boston: The Atlantic Monthly Press, 1986), 23.

¹³⁴ Carl Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: John Hopkins University Press, 1989).

war.¹³⁵ The premodern 'hero' set within an earlier, more limited world of organized violence would be displaced by a highly analytic oriented, factory-based mass-production model¹³⁶ for accomplishing vastly higher levels of violence than ever experienced in human history. Malešević captures this transition with: "what characterizes modern armies is not the personal and emotional displays of bravery but an efficient bureaucratic machinery of war."¹³⁷ The modern military 'manager' of war emerges within this significant shift, as a direct consequence of what Giddens terms *the consequences of modernity*.¹³⁸ Heroes might still be needed, yet they no longer are necessarily the driving force in military strategy and the application of organized violence. Managers become the necessary military providers that connect industrial innovation and organization to military power at a scale where human labor power is commodified, to include in war. As the scale and scope of battle expanded, the abilities of the hero in proximity to his entire force decreased while the need for him to move away from the leading edge of battle to orchestrate would increase, making for new demands in information, time and technology.¹³⁹

Heroes would continue to operate in the modern era of war as their symbolic qualities can be found in many conflicts, battles, units and institutionalized narratives. Yet their supremacy in influencing how and why organized violence would be administrated would be under attack by the rise of modern military managers.¹⁴⁰ These managers of war, in their efforts to use technological rationalism to predict and control all aspects of the future battlefield would in turn define the zenith in war modernity, as well as open the door for subsequent transformation into either a war postmodernity or the utility of reinterpreting war through postmodernism. For this new suggested movement concerning war, *the military comedian is introduced* to join the war heroes and managers, and is a unique contribution by this research to associate with postmodern concepts and war. Thus, comedy and humor are essential elements for self-disruption, thinking systemically, and creating necessary conditions for divergent thought in war, frequently better realized through a postmodern perspective.¹⁴¹

Heroes are sustained as 'legendary' in war, while managers are an accepted bureaucratic extension of the military industrial complex now fused into all modern war-making endeavors, as framed by Gibson. "The military and civilian executives who command the foreign policy and the military apparatus are *war-managers*," and Gibson renders history in their war frame as "a series of static points, each point measuring the balance of technological forces between the United States and the

¹³⁵ Morris Janowitz, *The Professional Soldier: A Social and Political Portrait*, Paperback Edition (New York: Free Press, 2017), 6.

¹³⁶ Ackoff, *Redesigning the Future*, 73–75.

¹³⁷ Malešević, *The Sociology of War and Violence*, 28.

¹³⁸ Giddens, *The Consequences of Modernity*, 11–17; John Keegan, *The Mask of Command* (New York: Penguin Books, 1988); Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 10–13; Janowitz, *The Professional Soldier: A Social and Political Portrait*, 262–63.

¹³⁹ Keegan, *The Mask of Command*.

¹⁴⁰ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 8.

¹⁴¹ Kilduff and Mehra, "Postmodernism and Organizational Research," 472.

foreign Other.”¹⁴² Gray even posits that in postmodernity, the war hero descends into a technocrat, no longer a combat leader, where today’s officers must become ‘technomanagerially specialized’ and are not even managing violence now, but managing for its own sake.¹⁴³ Military comedians are suggested as the foil for both war heroes and war managers, deconstructing and challenging their relevance when it is most needed for stimulating military change and innovation in war via postmodernist perspectives. The postmodern comedian of war will challenge either the logic of analytic optimization of what cannot really be analyzed fully, or potentially shatter the illusion that heroic acts on the battlefield serve anything beyond individual belief systems detached from any operational or strategic necessities.

As remarked by the anti-hero character ‘The Comedian’ in contemporary pop culture: “Once you realize what a joke everything is, being the comedian is the only thing that makes sense.”¹⁴⁴ Military comedians as the new designers of war are able to socialize radical concepts to reduce the distance between “the established image structure” and the innovation so that designing toward change is not dismissed as “crazy.”¹⁴⁵ Yet this notion of military comedian is controversial, disruptive, and perhaps even offensive to some readers. The emergent design movement toward a postmodern construct cannot be smooth and conforming as it would thus not qualify as any form of institutional change. This provocative metaphoric device is intentional, and as subsequent chapters will demonstrate the comedic aspects of military design education, practice and theoretical elements; the comedian is perhaps the most appropriate metaphor for this emergent development in war. Further, this “[cobbling] together of various fragments of older discourses from modern, ancient, and even ritual war”¹⁴⁶ conveniently demonstrates postmodern ‘fragmentation’ of beliefs, theories and knowledge occurring.¹⁴⁷ Premodern heroes mixed with modern military war-managers, all now interacting with postmodern war-comedians makes for a seemingly chaotic setting. Yet contemporary war contexts also seem to best be described with ‘chaotic’ over anything else.

In this project, ‘military comedians designing in war’ as proposed are drawing from postmodern ideas to challenge the epistemological stance for the ‘unchanging nature’ of war which currently underpins most all contemporary military doctrine, logic, and dominant decision-making methodologies. Several controversial proponents of these ideas have ushered in a military design movement which in a pure form is postmodern disruption of the legacy military institution writ large, and not without controversy or skeptics. Perhaps the most influential of these postmodern military theorists is Israeli retired General Shimon Naveh, the focus of the fourth chapter. Naveh’s radical postmodern military design

¹⁴² Gibson, *The Perfect War: Technowar in Vietnam*, 26–27.

¹⁴³ Gray, *Postmodern War: The New Politics of Conflict*, 201.

¹⁴⁴ This pop culture reference comes from the comic book (later movie and television show) “The Watchmen” created by Alan Moore.

¹⁴⁵ Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 124.

¹⁴⁶ Gray, *Postmodern War: The New Politics of Conflict*, 169.

¹⁴⁷ Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism*, 182.

would later be shifted back to the broader modernist military community that embrace select postmodern design concepts yet hold to a fixed nature of war that again reinforces a Clausewitzian logic fitting of modernist military thought. The fifth and sixth chapters address how the American military follows this arc while other militaries from Toronto to Sydney are following suit. Before examining the postmodern designers, this next chapter addresses why modern militaries approach reality and frame problems for war in a process paired with managerial logic yet increasingly challenged by current security challenges.

Paradigms: Of Military Cognitive Frameworks for Sensing War and Warfare

The term 'paradigm' will be thoroughly addressed in future chapters, thus a brief definition of one is essential here. First, Naveh defines one with: "A paradigm is like a conceptual window into the real world: like a map that allows us to see the underlying terrain; like a menu that allows us to see into the back kitchen of a restaurant...Paradigms are theories that aid us in reflecting critically on our profession."¹⁴⁸ Schultz and Hatch offer: "paradigms are sets of ontological and epistemological assumptions...each paradigm engages a unique perspective from which concepts are defined and theories are developed...because each paradigm defines a different domain for which theories can be conceived, there is little to no possibility of effective communication between their adherents."¹⁴⁹ It is through social paradigm theory that a sociological appreciation of 'modernist' and 'postmodern' might best be framed where one does not simply 'eat the other' in Kuhn's original scientific paradigm theory.¹⁵⁰ Rather, modern sociological frames co-exist with postmodern ones that nonetheless operate using different ontological and epistemological structures, necessitating entirely dissimilar methods, language, metaphoric devices, and logics for acting as well as explaining reality.

Ontological and epistemological aspects of military paradigm operation and war theory manifestation remain difficult to identify due to the tendency for these core logical aspects within a profession or community of practice to have an onomasiological indifference or inability towards the paradigm they are using to make sense of reality.¹⁵¹ Paparone goes into significant detail exploring the paradigmatic preferences of the modern military institution, where a high degree of functionality coupled with a strong belief of supremacy of this one worldview as the

¹⁴⁸ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 31.

¹⁴⁹ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies," 529–32.

¹⁵⁰ Kuhn, *The Structure of Scientific Revolutions*.

¹⁵¹ Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations," 48; Aaron Jackson, "Innovative within the Paradigm: The Evolution of the Australian Defence Force's Joint Operational Art," *Security Challenges* 13, no. 1 (June 2017): 59–79; Aaron Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit," *The Archipelago of Design Blogs* (blog), March 4, 2018, <http://militaryepistemology.com/multiparadigm2018/>; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 114–38; Ben Zweibelson, "Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases," *Air and Space Power Journal* 30, no. 2 (Summer 2016).

only relevant and rational choice to make sense of reality in war¹⁵² may in some ways be an expression of ideological devotion to war rituals and behaviors observed in the premodern military era. One significant distinction may be technological developments and the inductive and deductive logics underpinning that scientific progress applied to organized violence for political goals. Postmodernists reflect on this and propose that progress in science is a myth; "the more that we know, the more we realize we don't know."¹⁵³ This in itself puts postmodernists in direct opposition to modern military managers where military science is the most significant foundational concept upon which to wage war.

Social Paradigm Theory: Ontological and Epistemological Assumptions

While 'paradigm' and the application of them to natural science was pioneered by Kuhn in the late 1950s, *social paradigm theory* would build off of Kuhn while applying them to sociology, particularly to organizational theory in the 1970s onward. This research makes frequent utilization of Burrell and Morgan's four paradigm construct as well as their position that paradigm differences in ontology, epistemology, and subsequent methodologies generated therein combine with assumptions about human nature and create seemingly insurmountable barriers between paradigmatic perspectives.¹⁵⁴ Burrell and Morgan's four paradigms consist of: *functionalism*, *interpretivism*, *radical structuralism*, and *radical humanism*. Burrell and Morgan distinguish between the boundaries of these paradigms using tensions such as 'objectivity versus subjectivity' concerning making sense of reality, as well as 'stable, uniform reality versus a changing, dynamic and transformable reality.'

While Burrell and Morgan originally found paradigms to be quite rigidly incommensurate with one another on how to interpret reality, the author joins more recent social paradigm theorists such as Schultz and Hatch, Gioia and Pitre, and Weaver and Gioia in viewing multiple paradigm interplay as essential in new theory production.¹⁵⁵ For military design in particular, this 'multi-paradigm' position is adapted by military design theorists and will be presented in this research.¹⁵⁶ Regardless of the interplay argument, paradigm 'boundaries' feature significant tensions arranged so that one can recognize various 'paradigm borders.'

¹⁵² Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 140.

¹⁵³ Kilduff and Mehra, "Postmodernism and Organizational Research," 466.

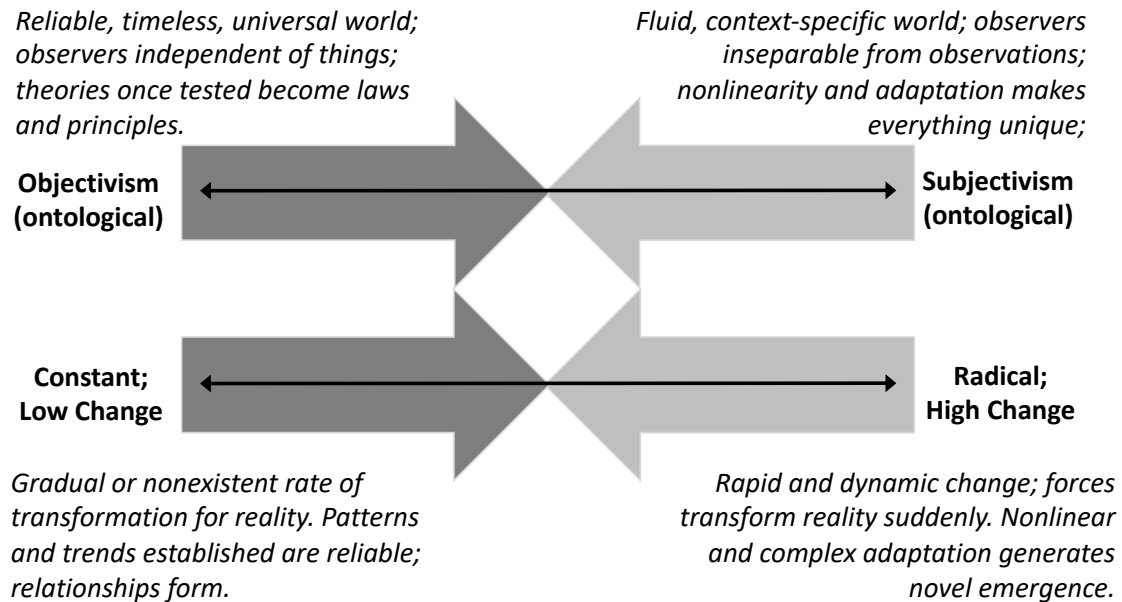
¹⁵⁴ Gibson Burrell and Gareth Morgan, *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life* (Portsmouth, New Hampshire: Heinemann, 1979); Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies."

¹⁵⁵ Gioia and Pitre, "Multiparadigm Perspectives on Theory Building"; Marianne Lewis and Andrew Grimes, "Metatriangulation: Building Theory From Multiple Paradigms," *Academy of Management Review* 24, no. 4 (1999): 672–90; Gary Weaver and Dennis Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry," *Organization Studies* 15, no. 4 (1994): 565–90; Marianne Lewis and Mihaela Kelemen, "Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox," *Human Relations* 55, no. 2 (2002): 251–75.

¹⁵⁶ Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers"; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*.

In a military design article for the U.S. Air and Space Power Journal, Zweibelson illustrates these tensions as depicted below:¹⁵⁷

Zweibelson Figure 1 from "Thinking beyond the Books: Sociological Biases of Our Military Institutions"



The second graphic depicted below is also from Zweibelson's article and the more popular way to depict Burrell and Morgan's paradigms using a quadrant graphic. Of these, Paparone among most all military sociologists and organizational theorists position 'functionalism' as the modern, industrialized military's paradigm of choice. "The *functionalist* paradigm promotes the utilitarian view where leadership is treated as an objective, operationalized variable which is valued toward the increased systemic performance of organizations and institutions."¹⁵⁸ According to Paparone, the modern military frame and their application of 'military science' is "underpinned by an objectivist ontology, stratified epistemology, and the reductionist methodology of *positivism*."¹⁵⁹ Giddens, in framing modernity employs the term *ontological security* where the social paradigm used by a society features implicit ontological structures that are intertwined with trust, traditions, and rituals that provides routinized social practices for individuals to apply even when confusing, chaotic or unexpected challenges arise.¹⁶⁰ Foucault, in critiquing the sciences (operating within functionalism) states that they "always carry within themselves the project, however remote it may be, of an exhaustive ordering of the

¹⁵⁷ Zweibelson, "Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases," 18.

¹⁵⁸ Christopher Paparone, "Information Paper #1: Review of Lit_SST_10_10_19crp" (unpublished document internal to NDU, October 10, 2019), 1.

¹⁵⁹ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 34–35.

¹⁶⁰ Giddens, *The Consequences of Modernity*, 92–107.

world.”¹⁶¹ A scientific rendering of war must inevitably provide greater order, uniformity, and predictability so that leaders of armies can calculate risk, reward, and opportunity within the modern illusion of analytic certainty for applying organized violence in dynamic, complex security contexts.

Paparone’s examination of modern militaries remains within Giddens’ and other sociological theories for paradigms with armed forces feeling secure in uncertainty by trusting in a objectivist understanding of warfare set within a fixed and unchanging nature of war that can be observed, deciphered and studied using positivist methods of analysis and inductive or deductive reasoning. White echoes this as well by linking positivist framing of history built upon a belief that a “genuinely scientific study of history [is] capable of revealing the laws of historic process.”¹⁶² Rules need to be located and tested, so that an entire system becomes controllable and predictable. Chaos may exist in war, but it is to be marginalized through analytic optimization and technological rationalism so that ‘most dangerous’ and ‘most likely’ have implied scientific weight for strategists to quantify possible military actions therein.

Thus, militaries employing functionalism as a paradigm will attempt to apply strict scientific methods so that some objective and reliable ‘truth’ can be found, with the perpetual paradigm self-reinforcing effort of ontological security and rejection of other paradigms incommensurate with a functionalist understanding of the fixed nature of war coupled with an ‘evolving’ character of warfare that can be analyzed. The world of warfare is interpreted through “the *only* lens- objectivity- the method is to isolate empirical variables and reduce them to the point where we can label them, manipulate them, and measure the cause-and-effect relationships between them.”¹⁶³ The other paradigms are considered in various military design applications while *functionalism* is where virtually all modern military doctrine, mechanistic and linear decision-making methodologies, as well as even a majority of military recommended professional reading lists reside for numerous industrialized armed forces around the world.¹⁶⁴

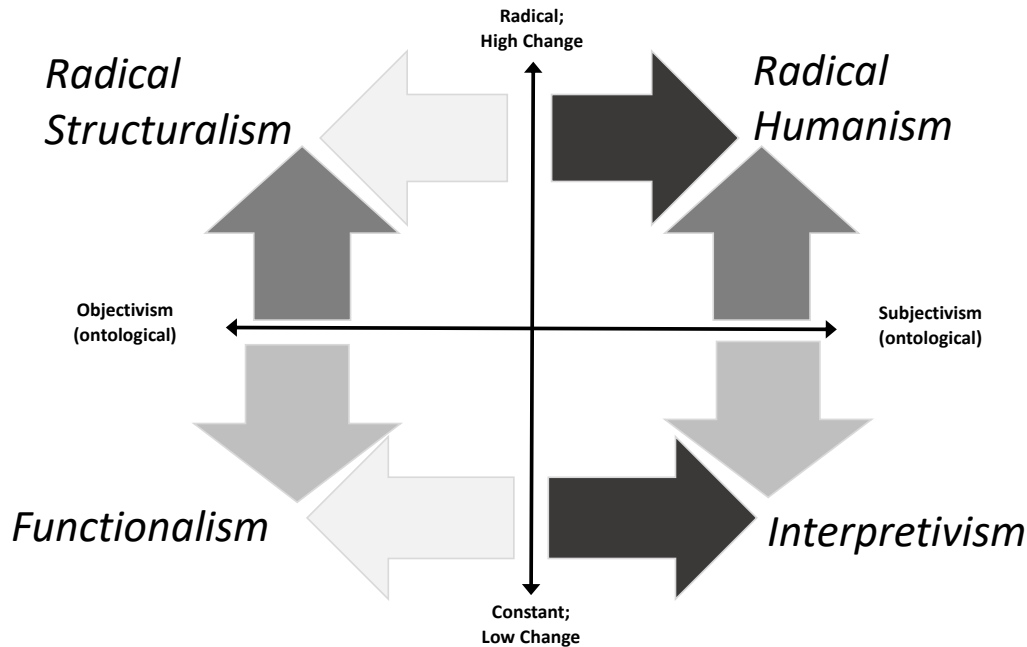
¹⁶¹ Foucault, *The Order of Things*, 74.

¹⁶² White, *The Content of the Form*, 63.

¹⁶³ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 35. The fifth chapter will provide several examples of this in practice.

¹⁶⁴ Zweibelson, “Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases.”

Zweibelson Figure 2 from "Thinking beyond the Books: Sociological Biases of Our Military Institutions"



This research refers to Burrell and Morgan's foundational work on social paradigm theory as multiple academics have advanced social paradigm theory in recent decades to include numerous applications concerning military design¹⁶⁵ as well as postmodern theory. Although 'radical structuralism' and 'radical humanism' are featured in some military design applications including Zweibelson's rendering of Baudrillard's *simulacra and simulation* for postmodern educational reform applied to military training and professional education,¹⁶⁶ and Ranciere's *The Ignorant Schoolmaster* concept for military counterinsurgency reform,¹⁶⁷ the majority of design discussions orient towards functionalism and interpretivism.

Postmodernism is not a paradigm in itself. Schultz and Hatch frame it as "a critical movement rather than a consistent theoretical framework or paradigm in its own right."¹⁶⁸ They further explain that "postmodernism represents a recent development within organizational theory via architecture, philosophy, linguistics, semiotics, and literary criticism. Among the key contributors to postmodern thinking are Jean Baudrillard, Pierre Bourdieu, Jacques Derrida, Michel Foucault,

¹⁶⁵ Christopher Papparone and Renee Squier, "Reframing Leadership at the Eisenhower School" (National Defense University Eisenhower School, July 6, 2019).

¹⁶⁶ Ben Zweibelson, "Preferring Copies with No Originals: Does the Army Training Strategy Train to Fail?," *Military Review*, February 2014, 15–25.

¹⁶⁷ Ben Zweibelson, "The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts," *Military Review* 95, no. 2 (April 2015): 94–105.

¹⁶⁸ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies," 539.

Frederick Jameson, Charles Jencks, and Jean-Francois Lyotard.”¹⁶⁹ Many of these postmodernists will be used by military designers and depicted within this research, particularly in critical and disruptive ways at challenging organizational insistence on remaining within a single-paradigm view of war. While the modern military structure of doctrine, methodology for decision-making, as well as organizational form and function matches strongly with functionalism, “postmodernists either ignore paradigm boundaries as mere modernist conventions or deconstruct paradigms in order to expose oppressed oppositions.”¹⁷⁰

Institutional Barriers Due to War Paradigms and ‘What War Is/Is Not’:

Some defenders of the current single-paradigm mode of military decision-making retort that the doctrine for war is sound and has merely been misapplied or perverted by political or societal lapses in judgment. “Too many scholars now have their reputations and careers staked on the efficacy and durability or failure of *U.S. Army Field Manual 3-24* and how it relates to the competing narratives about its use on the battlefields of Iraq and Afghanistan” as several military practitioners have lamented in their post-combat reflections on institutional rigidity.¹⁷¹ Considering that some theories are outdated, flawed or completely incompatible with contemporary security challenges is difficult when some professionals have built their careers, body of work, or public record articulating a specific security position that is now under critical challenge. Doctrine, policy, and the institutional ‘best practices’ are encoded through overarching doctrinal beliefs and rituals that constitute a powerful and slow-to-change artificial structure. Ontologically, ‘war’ and ‘not-war’ are reinforced through organizational sense-making in reality so that with respect to multiple paradigm perspectives concerning war and warfare, there are difficult conceptual, linguistic, and practical barriers to any discourse or debate beyond reinforcing one’s paradigmatic preference for making sense of war.

This can be further exacerbated if the military organization has absorbed some of these beliefs into ritualized behaviors, historical cannon, or other form of dogma that becomes protected from any introspection. If anything, one war method from within the same single-paradigm logic will be re-applied with the institutional expectation that in the next war, it should work again. Dunlap highlights this institutional shortfall with: “In fairness, part of the problem of incorporating the lessons of Iraq and Afghanistan, writ large, is beyond the purview of any doctrine manual writers: in Iraq, a counterinsurgency approach was employed to address what was, originally anyway, a counter-terrorism problem.”¹⁷² Jackson, in his study of how military failures result in critical reflection upon the doctrine they created,

¹⁶⁹ Schultz and Hatch, 539.

¹⁷⁰ Schultz and Hatch, “Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies”; Kilduff and Mehra, “Postmodernism and Organizational Research.”

¹⁷¹ Carl Prine, Crispin Burke, and Michael Few, “Evolving the COIN Field Manual: A Case for Reform,” *Small Wars Journal*, 2011, 4.

¹⁷² Charles Dunlap, Jr, “Still Shortchanged: Some Observations About the New Army/Marine Corps COIN Doctrine,” *Small Wars Journal*, June 2014, <https://smallwarsjournal.com/jrnl/art/still-shortchanged>.

uses several historic examples in recent military memory of doctrinal failure. He looks at the dissonance between American military tactical success and strategic failure in the Vietnam war corresponding to the doctrine underlying it, and the recent example of the Coalition attempt to recycle the U.S. Army's counterinsurgency doctrine developed in Iraq in 2006 for application in Afghanistan several years later.¹⁷³ Often, militaries struggle to critically challenge deeply held beliefs and the epistemological and ontological structures underpinning their war logic, where a new version of a doctrinal publication can be produced provided it remains recognizable and in compliance with all existing doctrine endorsed by the institution. The next chapter will demonstrate premodern examples of this as well as modern ones, with doctrine and formal military education aspects of modernity and warfare.

Those considering significant change may debate whether technological, sociological, and organizational developments for societies bring with it any changes to a perceived *nature of war* as well as future expectations on how these societies might pursue the application of organized violence for strategic or national goals where a monopolization is sought.¹⁷⁴ Technology and social interplay, tension and experimentation through the application of organized violence has been a somewhat regular pattern throughout recorded history, however the last two-to-three centuries of rapid, dynamic change appears to in the last generation of conflict shifted military organizational form and function into previously unseen expressions of bureaucratic cohesion, knowledge construction and capacity for applied violence. Questioning whether the nature of war is changing, or merely the character is a controversial topic deserving of its own doctoral research. However, the tension between modernist military framing for war (fixed nature of war; changing character) and what will be presented as a postmodern perspective (nature and character of war is fluid) and will thus be addressed throughout this research to augment core arguments, starting with the next chapter in detail.

For those that might reject any need for a radical security-oriented paradigm shift concerning military form and function, they often fix their ontology upon the belief in enduring qualities of war that remain timeless and universal in application despite technological or social change.¹⁷⁵ This is the dominant position where most modern military professionals believe in an absolute and objectively-existing world where war occurs, although admittedly humans can only partially appreciate such

¹⁷³ Aaron Jackson, "The Nature of Military Doctrine: A Decade of Study in 1500 Words," *RealClear Defense*, The Bridge, November 15, 2017, https://www.realcleardefense.com/articles/2017/11/15/the_nature_of_military_doctrine_a_decade_of_study_in_1500_words_112638.html.

¹⁷⁴ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 3–8.

¹⁷⁵ McFate, *The New Rules of War*, 49; McFate to Zweibelson, "Re: Book Question," February 26, 2020; Rosa Brooks, "Fighting Words: Has the Nature of 'War' Changed Since the Days of Clausewitz?," *Foreign Policy Journal*, February 4, 2014, <https://foreignpolicy.com/2014/02/04/fighting-words/>; Christopher Mewett, "Understanding War's Enduring Nature Alongside Its Changing Character," *War on the Rocks*, January 21, 2014, <https://warontherocks.com/2014/01/understanding-wars-enduring-nature-alongside-its-changing-character/>.

complexity.¹⁷⁶ For these security professionals, contemporary militaries need only make incremental, evolutionary adjustments in existing strategic logic, decision-making methodologies, and institutional knowledge curation and development. The rules of war might require revision now and then, but the nature of war remains timeless and “an established pattern of politics, violence, and power” in full endorsement of Clausewitz and Jomini.¹⁷⁷ The proponents of this functionalist paradigm concerning war and warfare become the primary antagonists to military design visionaries (or heretics) such as Naveh, the focus of the fourth through sixth chapters. Modern militaries generally employ a reductionist, positivist view of war that military design advocates now charge as increasingly insufficient in today’s post-industrial,¹⁷⁸ socially dynamic reality. One such postmodern critique is offered by Chia and Holt:

The science of complexity thus brings a new and radical challenge to the traditional reductionist view that a system can be understood by breaking it down (hence *analysis*) and studying each component part in isolation from the rest of the system. Instead, it is now well appreciated that ‘the interaction of the components on one scale can lead to complex global behavior on a large scale that in general cannot be deduced from knowledge of the individual components. Indeed, attributing any cause and effect relationship becomes difficult, because there is no way of isolating events and entries in such a way as to trace a cause and effect connection; the events and conditions by which movement scatters and reconfigures are inseparable; order emerges.’¹⁷⁹

Yet moving beyond a military positivist (reality is reducible through natural-science logic in order to gain prediction, certainty and control) epistemology for decision-making in war is difficult, if only due to the non-reflexive tendencies of reductionist modern military logic in appreciating war. “Given the gloomy outcomes of the wars in [Iraq and Afghanistan], one would have thought that a doctrinal re-assessment of that 2006 approach would have unsparingly sought to figure out what worked and what did not, and revised accordingly...Instead, the “new” doctrine is mostly just a somewhat updated and re-organized version of the same 2006 formula”- according to Dunlop.¹⁸⁰ Militaries have a tendency to repeat themselves in doctrinal revision, if only to promote self-promoting narratives that

¹⁷⁶ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 126; Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 11–14.

¹⁷⁷ McFate, *The New Rules of War*, 4–10.

¹⁷⁸ Kelly and Brennan, “Alien: How Operational Art Devoured Strategy,” 72; Virilio, *The Information Bomb*, 25.

¹⁷⁹ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 51.

¹⁸⁰ Dunlap, Jr, “Still Shortchanged: Some Observations About the New Army/Marine Corps COIN Doctrine.”

justify deeply cherished beliefs even at the expense of the national security goals they are meant to protect.¹⁸¹ This is where perpetual planning creates closed loops for military thought, action and reflection; military design breaks this cycle not by challenging the methods but by deconstructing the paradigm employed.

Throughout the last century, militaries have increasingly turned to technology and science as the ultimate game-changer to marginalize the 'fog' and uncertainty of war, if only to see this promised and never delivered.¹⁸² Despite new technologies, the methodologies for making decisions in war tend to remain conservative, rooted in centuries-old philosophical stances¹⁸³ and single-paradigm belief systems where war is best explained and executed in the language and methods of engineers, mathematicians, and industrial managers.¹⁸⁴ Military designers, led initially by Shimon Naveh emerged in the 1990s to disrupt and challenge this single-paradigm dominance by ushering in an entirely dissimilar and postmodern way of thinking about war and warfare; this postmodern military design movement continues today and generates debate worldwide. The origins of the current dominant and modernist military paradigm are explained in the next chapter, while Naveh's experimentation with postmodern modes of war and warfare will be showcased in chapter four beginning in Israel, moving in chapter five to the Americas, and then in chapter six around the world from Toronto to Sydney.

Applying an 'Anglosphere', European, Western Military Emphasis:

This research focuses on armed forces and their expected abilities to accomplish political, cultural and social demands with the perception or application of organized violence in a security activity. Military organizations conduct both detailed planning endeavors as well as strategic activities toward security challenges. Somewhere within this dynamic sea of politics, organized violence, risk and resources is also the activity of design. While there are countless armed forces around the world ranging from local militias, illicit gangs, local armed groups all the way up to superpower nations able to field the most advanced and equipped modern militaries available, this research frames a focus upon industrialized nations of western societies, with some overlap into select non-western ones; how these nation-state military instruments of power apply design is of particular emphasis here. The subsequent chapters select particular design methods, communities of design practice, as well as nation-state militaries that employ design while excluding many others. This selection frames this design research specifically and provides ample suggested topics for future research for the many alternative

¹⁸¹ Builder's study of the U.S. Army, Navy and Air Force in the 1980s argues this general point, although he does not highlight doctrine itself. See: Builder, *The Masks of War: American Military Styles in Strategy and Analysis*.

¹⁸² Éric Alliez and Maurizio Lazzarato, *Wars and Capital*, trans. Ames Hodges (South Pasadena, California: Semiotext(e), 2016), 25.

¹⁸³ McFate, *The New Rules of War*, 222.

¹⁸⁴ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 114–40; Foucault, *The Order of Things*, 56–57.

design communities and services using some form of military design not covered here.

European militaries (including post-colonial extensions) are addressed first and foremost in the military design movement, as those nations currently are the leading military forces in the modern world. This project examines the ontological and epistemological structures within various western military decision-making and knowledge construction methodologies, as well as the historic precedents as well as cultural functions therein. Each successive generation of military professional within each industrialized nation's military service or force inherits an increasingly longer trail of institutional norms, rituals, past experiences, rules, as well as rich social beliefs and assumptions on how they interpret reality in war.¹⁸⁵ For example, many of the traditions of the military 'Anglosphere' as well as the much broader frame of English-speaking nations come directly from United Kingdom's powerful military history, intertwined with culture, language, and beliefs.¹⁸⁶ British military lineage permeates through many modern armed forces despite at least one of them going to war against the British to become independent. Sovereign control is fleeting, while long-held rituals and traditions appear to remain within an organization long after independence is achieved. Due to the numerous cultural and social overlaps between many western industrialized nations (as well as mutual conflicts therein), this western industrial scope of research is again justified. Rittel frames this with:

This is a natural tendency that can be observed in the history of any medieval guild and in any "in-group" system. A tendency develops toward rigid deification and further adulation, justified by statements that "only practicing experts can judge the work of other practicing experts." This is a closed system with respect to the evaluation... Architects obtain more contracts, and this "proves" the system. External success exemplified by the employment of the "guild" reaffirms the internal value system. The whole has become a piece of culture, a sub-culture. Nothing is against it- it works!¹⁸⁷

Rittel reinforces what Giddens calls ontological security where iterations of self-validating activities perpetuate traditions, rituals, and codification of particular methods, terminology, and the underlying metaphoric devices as dogma.¹⁸⁸ It is this

¹⁸⁵ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 27–29; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 10–12; Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, New York: Cornell University Press, 1984), 34–42.

¹⁸⁶ Charles Moskos, John Williams, and David Segal, "Armed Forces after the Cold War," in *The Postmodern Military: Armed Forces after the Cold War*, ed. Charles Moskos, John Williams, and David Segal (New York: Oxford University Press, 2000), 8.

¹⁸⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 125.

¹⁸⁸ Giddens, *The Consequences of Modernity*, 92–105.

single-paradigm mode of decision-making and making sense of reality that spawns both the creep of bureaucratization and the institutional hardening of the organization to alternatives in realizing reality. Thus, the premodern military community resisted the rise of modern war theory and action, and now the modern community of rationalized war planners are resisting the postmodern emergence of 'military design.'

Chapter Conclusion:

While this project will advance several arguments concerning security studies, postmodern war theory, as well as the uniqueness of military design as an emerging area of intense activity for war study and practice, the provocative aspects of key positions offered in this work will be disruptive for conservative and single-paradigm military traditionalists. This is especially true for defenders of the single-paradigm frame for rationalized decision-making in war that underpins most all mainstream strategic, operational, and organizational logic. This logic is set within the modern decision-making model for applying organized violence by industrialized societies, where all existing war frames require only incremental and evolutionary improvements, established upon a belief system employing natural science epistemology. For those within that single-paradigm frame, the logic that drives the military action is beyond critical examination, while individual actors often become the reason the military logic did not succeed. A euphemism for this is: "the enemy has a vote." For example, modern militaries avoid the concept of 'failure' in their organizational behaviors, policy, doctrine, and throughout their decision-making methodologies. Yet failure is what drives institutional change, and arguably is a significant aspect of whether one effectively makes sense of why they are failing, and how to learn from this.

Maurer, reflecting on contemporary military organizational lack of acknowledgement of the need for failure to stimulate learning and critical self-reflection, provides a succinct description of the military institutional intolerance for experimentation, risk, or failure in complex, emergent military contexts. Epistemologically within the modern single-military paradigm, one is required to obey doctrine, follow it explicitly, and if one fails in combat, they either failed to follow doctrine properly or violated doctrine intentionally (or perhaps unwittingly due to ignorance) and therefore must be punished for nonconformance:

I pause here for a short *obiter dictum*: nowhere does Army doctrine promote the virtue of failing. We want winners studding the ranks, after all, and certainly we wish for winners among our leaders. In order to follow others dutifully and respectfully, we must to some extent believe in the inherent capability, confidence, and gravitas of those in charge. We must trust them, and our trust is given more comfortably to those we see as "winners." To advance in rank and to secure esteemed positions of command, you must—in some sense—win out over your peers. We cannot have losers, whiners, defeatists,

or pessimists in our force. We must know, and we must do. Always. Successfully.¹⁸⁹

New language and concepts that are sophisticated or perhaps simply different enough to provide military advantage in these increasingly complex and chaotic conditions are often established upon dissimilar justifications. New ideas in war or elsewhere often come from surprising origins, challenge previously unquestioned beliefs, or provide paradoxical outcomes that not only surprise but concern an organization seeking increased validation of previously sound logics. In these innovative, disruptive actions, new ideas require new language as well as entirely different (and usually paradoxical) metaphoric devices supporting the new language itself. "Metaphors encourage different ways of thinking,"¹⁹⁰ and the postmodern disruption of legacy language makes room for new interpretations. Words that meant something in the past for war frames, such as "end state" "problem", "direct effect" or "victory" may no longer have value or operate in a useful context.¹⁹¹ Postmodern theorist White questions the reality of being able to "see the end in every beginning" in that real events might be just as modernity demands it to be, or does complex reality resist such objectivity?¹⁹² As words change, collective human decisions, ideas, and actions will also change.¹⁹³ New language, different concepts, and alternative philosophies are being designed and will continue to emerge in the twenty-first century. Some may come from the most unexpected and unorthodox forms. Ricoeur, employing postmodern theory posits:

The parallel between metaphor and narrative goes even further...poetic discourse brings to language aspects, qualities, and values of reality that lack access to language that is directly descriptive and that can be spoken only by means of the complex interplay between the metaphorical utterance and the rule-governed transgression of the usual meanings of our words.¹⁹⁴

¹⁸⁹ Dan Maurer, "On Failure," *Modern War Institute at West Point*, April 4, 2017, online edition, <https://mwi.usma.edu/on-failure/>.

¹⁹⁰ Haridimos Tsoukas, "The Missing Link: A Transformational View of Metaphors in Organizational Science," *Academy of Management: The Academy of Management Review* 16, no. 3 (July 1991): 566.

¹⁹¹ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 2; Jeremiah Monk, "End State: The Fallacy of Modern Military Planning" (Research Report, Air War College, Maxwell Air Force Base, Alabama, April 6, 2017); Jeffrey Meiser, "Ends + Ways + Means = (Bad) Strategy," *Parameters* 46, no. 4 (Winter 2016): 81–91.

¹⁹² White, *The Content of the Form*, 24.

¹⁹³ Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations"; Christopher Paparone, "On Metaphors We Are Led By," *Military Review* 88, no. 6 (December 2008): 55–64.

¹⁹⁴ Paul Ricoeur, *Time and Narrative*, trans. Kathleen McLaughlin and David Pellauer, vol. 1 (Chicago: University of Chicago Press, 1983), xi.

Where previously actions of war were expressed within the physical domains of land, sea, or air and through constructs usefully explained through Newtonian physics metaphors and explicit, tangible 'ends-ways-means' logical outputs,¹⁹⁵ the postmodern military form and function challenges the institution to move beyond these¹⁹⁶ into non-physical 'domains' of social construction, cyberspace, or arguably 'space' itself. Postmodern military perspectives attempt also to comprehend the aforementioned traditional physical domains in entirely novel, disruptive and paradoxical ways due to the dynamic technological, conceptual and sociological advancements that potentially render legacy methods irrelevant, or at least more ineffective than previously expressed in other past war applications.¹⁹⁷ War understood yesterday may aid the consideration of war tomorrow, but it also carries the distinct possibility that tomorrow's war concepts are structured to disorient and deceive those employing yesterday's ideas.

Gibson, in critiquing the Vietnam War, attacked the engineering-oriented language that drove operational planning, policy and strategy: " "Falling dominoes," "cork in the bottle", "chain reaction"- these terms find their theoretical reference not in the social world of history, where men live and die, but in the lifeless world of Newtonian mechanics." Gibson termed the Cold War mindset "mechanistic anticommunism" which would "conceptualize the social world in terms of nature."¹⁹⁸ This extension of 'Newtonian thinking upon war' would, by the Vietnam War period, no longer produce the desired military or political outcomes as expected. Emergent strategy concepts that disrupt this linear, rationalized mode of legacy war theory are presented in this research based on civilian design theorists such as Rittel,¹⁹⁹ artificial intelligence and cognitive researchers such as Stanley and Lehman,²⁰⁰ and the work of postmodern philosophers such as Chia and Holt²⁰¹ on these alternatives to ends-ways-means logic. These theories are used in military design methodologies but not in modern military doctrine or operational planning/strategic endeavors.

The legacy rules of war, along with familiar physics-based logic and an 'Industrial Age' inspired management and decision-making system of organization

¹⁹⁵ Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, 8–14; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 36–46; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 90–97.

¹⁹⁶ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 57–63.

¹⁹⁷ Aaron Jackson, "Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007" (Ministry of National Defence, Australia, 2013), 58–60; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 111–12; Sookermany, "On Developing (Post)Modern Soldiers," 10–18; Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 136–40.

¹⁹⁸ Gibson, *The Perfect War: Technowar in Vietnam*, 26.

¹⁹⁹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 128.

²⁰⁰ Kenneth Stanley and Joel Lehman, *Why Greatness Cannot Be Planned: The Myth of the Objective* (Switzerland: Springer International Publishing, 2015).

²⁰¹ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*.

are now challenged for their primacy in war.²⁰² Within this blurred frame of emergent human conflict between the duality of war and peace is rapidly becoming quite crowded with novel and never-before-seen combinations of states, actors, domains, resources, ideas and language where existing and dominant war theories no longer appear to have the same return on investment as previous conflict periods. While detailed, mechanistic military planning set to a natural-science inspired logic has worked sufficiently for modern militaries cast upon a Westphalian Order for war, the potential of a postmodernity and a different post-Westphalian context has also created the opening for military design concepts to permeate the military international community of practice and make for different ways of considering both warfare and even war itself. For professionalized, modern military organizations that recruit, educate, equip, and employ their organizations in some of the most chaotic and demanding of contexts, this paradigm shift away from familiar legacy models and methods is a difficult and vast challenge with no apparent solutions in sight. The next chapter will detail the rise of modernist military thought and action out of premodern form and function, and then introduce something entirely different that has challenged the dominant, modern war frame over the last generation.

²⁰² Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 36–46; Paparone, “How We Fight: A Critical Exploration of US Military Doctrine”; Martin van Creveld, *The Training of Officers: From Professionalism to Irrelevance* (New York: The Free Press, 1990), 14–18.

Chapter 2: The Rise of the Military Comedian of War

After two world wars and the Cold War, by contrast, Umberto Eco believed war could no longer be characterized in this modernist, Clausewitzian fashion, in terms of straightforward linear vectors of force operating between clearly defined rival centers of power...Brilliantly and presciently, Eco proceeded to characterize postmodern war in terms of a technological contrast that had only emerged into public consciousness at that time: an analogy between serial computing and parallel processing...War is now, he stated, more like a chess game in which every antagonist takes pieces of the same color, and no one can any longer clearly state just what the strategic goal is, or precisely who the real enemies are.

- G.R. Lucas²⁰³

Military education as we know it seems to be characterized by a rather classic modernist view...which promotes an environment of learning that embraces uniformity and enhances scenario pre-planned drills as ways of conducting military operations...I will argue an alternative perspective, one that embraces difference rather than uniformity as a means of developing military units and their soldiers.

- Anders Sookermany²⁰⁴

The transatlantic divide that has emerged in the wake of the 2003 Iraq War regarding the use of military force...has not been a result of incongruent military capabilities, but is instead based on the construction and configuration of (post)modern societies. In essence, this constitutes an enormous challenge to Western civilization as a whole.

- Edwin Micewski²⁰⁵

Humanity has engaged in a complex, often chaotic struggle between political, cultural and ideological power and the application of collective, often political oriented violence that continued to develop through technological and societal advancements; this has transformed what humanity defines as 'war' several times across millennia of culture, geography and expression, in function as well as form. What war is would be imagined, reimagined, and now may be reimagined once more despite institutional divides on whether such a radical shift is even necessary. Thus, to make the overarching case for military designers framing a postmodern

²⁰³ George Lucas Jr., "Postmodern War," *Journal of Military Ethics* 9, no. 4 (2010): 290.

²⁰⁴ Sookermany, "Military Education Reconsidered: A Postmodern Update," 310.

²⁰⁵ Edwin Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," *Defence Studies* 3, no. 3 (Autumn 2003): 4.

understanding of war and warfare, a brief summary of premodern and modern war frames must be established first.

This chapter broadly classifies the major periods of westernized war²⁰⁶ within a pre-modern, modern and now a post-modern structure. The application of state organized violence for political, societal and religious interests has preoccupied generations of strategists, rulers, and warriors while the epistemological underpinnings of war's nature, behavior, and meaning has been the focus of philosophers. This chapter also address the theoretical as well as cultural considerations for postmodernism within a military frame with a brief summarization of major existing postmodern military positions, to include the difficulties in recognizing the different stakeholder paradigms, social beliefs, and potential incommensurate epistemological stances on war that make the various ideas of postmodernism difficult to appreciate. Postmodernity and war is further distinguished from 'war reinterpreted using postmodernism' as both appear in various military design activities.

The concepts addressed in this chapter set up the subsequent examinations of different design constructs and also address the formalized need for design as a foundational military methodology where in previous military periods *it did not exist except tacitly and informally*. The relationship between *the perception of the nature of war* is arguably different for ontological, epistemological and subsequent methodological reasons spanning vast periods of time and space, when considering premodern, modern and postmodern interpretations of war as well as warfare. As postmodern philosophers such as Ricoeur suggest, the ontological paradoxes generate deconstruction and critical inquiry of how societies understand language, meaning, metaphors, and the narratives employed to make sense of reality (and war).²⁰⁷ The cultural, social and technological qualities contextual to each major frame in this chapter demonstrate a different institutional framing for perceiving war as well as the activities of warfare therein.

How and why militaries construct a decision-making process, or a 'war logic' in order to think and act within these different philosophical frames for a reality of war are explored here. This includes their origins and how previous legacy belief systems usher in different ones while also deeply influencing future ones through ritualization, social and cultural patterning, and institutional adaptation of innovative, disruptive ideas for war. As the military design movement will be framed within a proposed postmodern war frame here, the premodern and modern military frames must be introduced and briefly framed as well in order to propose this latest transformation in the application of organized violence.

²⁰⁶ Using 'west' and 'non-west' is insufficient despite common utilization in security studies. This chapter frames 'westernized' to include all societies extending from Feudal European societies to include colonial extensions and broadly set within modernity. While 'west' as well as 'western' are geo-political, 'westernized' softens the geographic metaphor sufficiently for use here.

²⁰⁷ Ricoeur, *Time and Narrative*, 1:7.

The Premodern Military Movement: Organized Violence of Ritualized Warfare

The premodern movement concerning war for the purposes of this research originate in Greek and later Roman Empires and extend into the Dark Ages where a significant loss of military knowledge as well as general technological and societal progress retrogrades.²⁰⁸ Of particular emphasis is the premodern period of war representing European Feudalism, spanning from the ninth through mid-sixteenth centuries. Premodern war itself is a vast area of research, while at a global scale, human society beyond the confines of Western Europe provides a huge variety of form and function concerning war. Within the confines of this research, emphasis is placed upon Western Europe as well as later colonial expansion across North America, Australia, and other relevant settlements. Although not exclusively Anglo-Saxon, the term 'Anglosphere' is often useful in framing the majority of societies associated with what would subsequently express in modern warfare as the dominant western industrialized nation states for war in the twentieth and twenty-first centuries.

The feudal model would position a minority of powerful, wealthy elites that nonetheless were dependent upon the limited scope and skill of their vassals. This was set within a land-based economy that eventually would transition toward a money-based economy and robust technological and social change.²⁰⁹ Historians (as well as postmodern theorists) specify the development of money as a major transformation between land-based war abilities and different war characteristics of a money-based economy. Virilio and Lotringer address this with: "when the State was constituted, it developed war as an organization, as territorial economy, as economy of capitalization, of technology...Logistics is the beginning of the economy of war."²¹⁰ Yet societies using the premodern war frame would understand and wage war through the logic reliant upon tradition and societal belief systems on how and why war could be waged, often nested in ideological, philosophical, and economic, ritualized reasoning.

War would not be rationalized with nation-state bureaucracies and a systematic application of science and technologies until the rise of the modern war era.²¹¹ Ritualized, premodern war by design would define how organized violence could be applied, often involving the noble or deity-mandated power to declare and wage war held by a minority elite ruling class. Whether they could or not would be nested in cost, availability of amateur farmer-soldiers, seasonal and weather concerns, and the significant technological and informational limitations defining the premodern world. War moved slowly, from start to finish and frequently would be sporadic affairs where actual fighting need not occur at all to accomplish limited political, tangible or symbolic objectives.

In this vein, modern societies "make war the same way they make wealth" yet the wealth-power-state relationship may only be a more recent phenomenon

²⁰⁸ Keegan, *The Mask of Command*, 117.

²⁰⁹ Janowitz, *The Professional Soldier: A Social and Political Portrait*, 60–61.

²¹⁰ Virilio and Lotringer, *Pure War*, 19–20.

²¹¹ Gray, *Postmodern War: The New Politics of Conflict*, 111.

that is not necessarily an irrefutable physical law of reality for war.²¹² The shift from the land-based to money-based model of economic expression would in turn greatly impact how war could be waged. Nobles would have to change in order to keep with the times, eventually redefining their roles within military structures as the feudal system of land-economy changed to a money-based one.²¹³ Along with this, the strategic vision tied to ideological justification or limited bureaucratic decree would gradually crumble through the Renaissance as a professionalization of militaries and the tight integration of national political goals met with significant technological and economic development.²¹⁴

Premodern war (again focusing upon European Feudalism) was limited in size, scope, duration, as well as often regulated by an intricate and agreed upon rules by both sides. This often was due to largely agrarian based societies, the immense costs and time required to raise, train, move, and employ an Army, as well as the significant risks if one was not exceedingly sure of a successful outcome in advance.²¹⁵ The feudal system prevented any one king, prince, count or bishop to gather enough power and military resources to establish absolute domination over their peer competitors. Additionally, the independent nature of vassals under the king meant that rulers needed to perpetually manage their networks through material such as land or treasure and ideational means such as titles and promotions.²¹⁶ Premodern war was expensive, slow, and difficult; the entry to being able to 'wage war' thus became a high bar where only a small population of elites could attempt, only after considering the risks and costs therein.

Finding quality military officers was difficult as well, due to premodern emphasis on class and title over merit or qualification. Premodern officers did not attend school for war, nor did they study books or take examinations to advance in rank or position.²¹⁷ As the money-based economy of the High Middle Ages replaced the outdated land-based one, more and more wealthy families could purchase officer commissions and gain entry into the feudal power structure designed for limited war. Yet many of these fresh commissioned officers had no skills or military knowledge to support their status, nor would any merit-based logic prevent

²¹² Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 1.

²¹³ Alfred Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, Revised (New York: The Free Press, 1959), 49–56.

²¹⁴ Bousquet, "Chaoplex Warfare or the Future of Military Organization," 915–19; Felix Gilbert, "Machiavelli: The Renaissance of the Art of War," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 11–31; R.R. Palmer, "Frederick the Great, Guibert, Bulow: From Dynastic to National War," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 91–122; Gunther Rothenberg, "Maurice of Nassau, Gustavus Adolphus, Raimondo Montecuccoli, and the 'Military Revolution' of the Seventeenth Century," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 32–63.

²¹⁵ David French, *The British War in Warfare 1688-2000* (Cambridge, Massachusetts: Unwin Hyman Ltd, 1990), 2.

²¹⁶ Malešević, *The Sociology of War and Violence*, 105.

²¹⁷ van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 13.

unqualified yet well-connected elites from taking command of armies in increasingly expensive and disastrous results. Eventually this would lead to a societal rejection of this mode for selecting military officers entirely. The design of military leaders would shift from entitled nobility to upstarting middle class families desiring access to the previously denied elite attributes. Elite families themselves would also need to shift if only to maintain sufficient control over the military keys to the kingdom.

Amateur war-makers of the premodern world would gradually fade away or transform. War saw the replacement of traditional battlefield heroes with an increasingly scientific manager of technologically more complex organized violence. War managers would expand the original limited leadership of the war hero across increasingly more vast time and space. As Keegan describes, the mighty war heroes would provide their leadership prior and after battles, but once the fray commenced, the hero would need to fight and survive or not be around to continue leading afterward.²¹⁸ Military managers would function differently, as would warfare. The demands of the growing complexity in war through technology, science, time and space would retain war heroes for tactical and symbolic needs while creating a new form of military decision-making and command.

Heroes would remain in some capacity,²¹⁹ but the rise of military managers created a new requirement for understanding military 'policy' matters.²²⁰ The notion of 'military amateur' is not pejorative; rather in the premodern military era it was most often associated with hereditary or titled status and class-specific roles for the wealthy or powerful, coinciding with directed service of serfs, slaves, lower-class freemen, and purchased mercenary forces in the execution of limited military campaigns cast within this feudalistic model of war.²²¹ Military amateurs would wage wars and apply war theory. However, their abilities, mastery of tactics and strategy, and their understanding of the war profession differed greatly and was entirely dependent upon non-standardized and contextually unique situations.

Whether in the ancient world or within most any European conflicts through the late seventeenth century, most soldiers learned their drills through rote memorization or by reading non-doctrinal concepts in literature or through oral history.²²² Prior to the sixteenth and seventeenth centuries, "antiquity was still the great teacher in all that concerned the broader aspects of military theory and the secrets of military genius."²²³ Standardization only existed through explicit and

²¹⁸ Keegan, *The Mask of Command*; Brian Linn, *The Echo of Battle: The Army's Way of War* (Cambridge, Massachusetts: Harvard University Press, 2007).

²¹⁹ Keegan, *The Mask of Command*; Linn, *The Echo of Battle: The Army's Way of War*.

²²⁰ Janowitz, *The Professional Soldier: A Social and Political Portrait*, 262–63.

²²¹ Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 42–56; Malešević, *The Sociology of War and Violence*, 6–10.

²²² Jackson, "The Nature of Military Doctrine: A Decade of Study in 1500 Words"; van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 15.

²²³ Henry Guerlac, "Vauban: The Impact of Science on War," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 71.

repetitive rehearsals, drill and commitment to routines. This mode for violence prioritizes convergent thinking processes while generally lacking inductive or abductive logics. Premodern militaries had different forms and functions for policy documents and institutional regulation. 'Doctrine' in any premodern context was not written; rather it would be transferred and maintained through verbal, symbolic, ritualistic or other social construction within the military organization.²²⁴ Doctrine, as an organizational model for group behavior governing first originated in the Roman Catholic Church.²²⁵ This would be war by a premodern design, where conformity, convergence and uniformity in battle would be of paramount importance.

Catholic religious doctrine developed out of religious texts and practices designed for designating the body of correct beliefs and behaviors; multiple religions feature extensions of 'doctrine' that further explain core religious texts or rituals. It created for ideological applications in the western world a scalable and uniform way to establish similar baselines for explicit knowledge across an organization or institution. Naveh et. al remark: "Just as literacy facilitates bureaucratic, administrative centralization, it also makes possible the codification and logical centralization of doctrine."²²⁶ Religious doctrine would not only inspire military doctrine, but the centralized hierarchy of western monotheistic faiths and the bureaucracy of the Catholic Church in particular would replicate similar organizational behaviors within military forces.

Malešević also posits that military discipline blended rituals and ideological discourse from religion and mythology in premodern periods to not only justify conquests and coercive governmental forms, but to forge modern bureaucratic structures.²²⁷ Premodern militaries would adapt early forms of doctrine, and carry these structures forward into modernity. Yet the premodern world prior to the sixteenth century according to Foucault did not interpret the world through science, and any early notion of 'doctrine' could only operate under the relationship of man attempting to constructively resemble observations of reality into other forms such as text, paintings, sculpture, or belief systems (ideological, philosophical, or socialized). "It was a resemblance that organized the play of symbols, made possible the knowledge of things visible and invisible, and controlled the art of representing them."²²⁸ Seeing was believing in the premodern world, and through this ideas on what war was, who could wage it, how the rules of war might function, and the meaning of warfare within societies would be established.

They did this while also combining their absolutist and ideological qualities with pseudo-scientific rationale and language in mimicry of emerging fields for

²²⁴ Jackson, "The Nature of Military Doctrine: A Decade of Study in 1500 Words."

²²⁵ Elizabeth Kier, *Imagining War: French and British Military Doctrine Between the Wars* (Princeton, New Jersey: Princeton University Press, 1997), 29; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*.

²²⁶ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 23.

²²⁷ Malešević, *The Sociology of War and Violence*, 8-14.

²²⁸ Foucault, *The Order of Things*, 17.

natural sciences. Paparone hypothesizes that modern militaries attempt to interpret war using 'pseudo-scientific logic' reliant upon the same natural science discourse and engineering language.²²⁹ This is also proposed by postmodern theorists such as Ricoeur: "The explanations offered by historians do not function in history as they do in the natural sciences."²³⁰ Yet modern military logic attempts to do precisely that, and render activities within war and the nature of war itself understandable only through natural science constructs, terminology and principles. Those that challenge the modern military war frame are ironically often termed 'heretics' which again demonstrates a close overlap of religious terminology, practices and organizational forms to those of modern military forces.

On heretics and war, there are important overlaps between the Feudal Age ideological institutions and military instruments of power. In the Feudal Age, religion and war are closely linked²³¹, not only in the codification of texts, centralized hierarchical decision-making form, and frequently some justification to wage war itself, but also in the ethos or tone of their mission, purpose or existential introspection. Naveh refers to contemporary military doctrine using religious metaphors, and organizational obedience to it as indistinguishable. In an interview he observes: "the 'holy books' of military practice are to be obeyed, so that one is told what to think."²³² Naveh's postmodern perspective is complimented by traditional historic study of the same phenomenon. Lyotard, whom Naveh would draw inspiration from, offered the concept of the *pagan* who is the figure able to ironically use humor to defeat opponents (of modern logic) through postmodern theory.²³³ Thus, the rich use of metaphors on disrupting and transforming seem to create a pattern where religious metaphors and symbols provide content and indicate the risk and consequences of attempting to disrupt deeply cherished beliefs of the organization or society.

Vagts' study of the history of militarism describes the transition of soldiers from earlier Medieval associations with cold-blooded and drilled murderers to a romantic, even spiritual role of the church and army serving together "through the power of discipline and through hierarchical arrangement."²³⁴ Naveh et al. include the notion of 'heretic' in both the religious and military sense, in that "the authority of doctrine, however, created a new player in society- the *heretic*. The heretic could share his own beliefs, but these beliefs were socially subversive...the heretic is not only a social pariah, he becomes a military liability."²³⁵ Religious orders and

²²⁹ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 13–14; Paparone, "On Metaphors We Are Led By"; Paparone, "How We Fight: A Critical Exploration of US Military Doctrine."

²³⁰ Ricoeur, *Time and Narrative*, 1:115.

²³¹ The author does not suggest religion and war share similar intent; the overlap is due to similar institutional forms and function and concern uniformity, repetition, convergence, obedience, discipline, reliability, a centralized hierarchy of power, and shared narratives.

²³² Shimon Naveh and Ofra Graicer, Naveh audio 15OCT2019 18min02sec Day 2 morning.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 15, 2019, 10:19.

²³³ Lyotard, *Toward the Postmodern*, xv.

²³⁴ Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 17–18.

²³⁵ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 26.

formalized armies in the premodern era would use doctrine in similar patterns and react to heretics and innovators much the same. Heretics, as a military metaphoric device for the disruptive, comedic and divergent thinker will be addressed in subsequent chapters as the necessary postmodern actor, disruptor, and comedian in the military design movement.

Returning to the notion of 'organized violence', the premodern military amateur could wage war and apply organized violence with horrific, gruesome effects.²³⁶ This graphic violence had a logic to it, in that the impact of such activities could in turn influence those populations that learned of the actions and therefore might change their behaviors to support those capable and willing to repeat such actions. Foucault, in applying postmodernism toward the transformation of the premodern world into modernity in *Discipline and Punish* would liken premodern punishments with the atmosphere of a festival, where rituals and societal expectations of the act of punishment was public and despite the extraordinary brutality of many punishments, they were carried out with a festive, socially engaged manner.²³⁷ Derrida would also apply a *festival* metaphor to the formation of societies, but in a framing of "continuous experience" and not necessarily associated with violence or warfare.²³⁸ Whereas punishment in modernity would become that of 'a school' over a festival, Foucault's framing of premodern violence and punishment work in parallel with how organized violence was applied in premodern war. The localized gruesome qualities were meant to be public, understood and shared despite the difficulties in sharing information in the Feudal Age quickly and effectively.

Malešević frames this equation as one of conducting gruesome violence at a local level due to the feudal limitations of time, space and resources.²³⁹ However, the savage application of organized violence could scale upward and shift behaviors of surrounding populations. A horrific yet localized act could help that army achieve larger effects in an effort to circumvent the limitations of the Feudal Age itself. Word can travel fast, and a gruesome story might travel even faster. Amateurs were not less violent or less capable than modern 'professional soldiers' if one discounts war technology. Rather, they represent an earlier and less sophisticated group that nonetheless apply organized violence in war for political, ideological, or societal needs within the premodern context. The military amateur pairs with the need for the premodern 'hero' construct, while the eventual elimination of military amateurs later in the industrialization of war would in turn bring about the 'military manager' of war.

The term *amateur* concerning the application of organized violence is not to be taken lightly and instead addresses the lack of modern professionalization and standardization that would later define the modern age of war. European medieval

²³⁶ Siniša Malešević, "The Organization of Military Violence in the 21st Century," *Organization* 24, no. 4 (2017): 456–74.

²³⁷ Foucault, *Discipline & Punish: The Birth of the Prison*, 111.

²³⁸ Derrida, *Of Grammatology*, 286.

²³⁹ Malešević, "The Organization of Military Violence in the 21st Century."

military context remains paramount in framing premodern war, with the acknowledgement of earlier professional Greek and Roman military predecessors, as well as Medieval contemporary armies operating differently across the Middle East and Asia.²⁴⁰ However, most of the modern military concepts such as 'general staff', 'academy', 'doctrine', or even 'military profession' are *critically inappropriate* to correlate directly into premodern military form and function. Premodern war by design was amateurish in this capacity; experts in war were self-made, with no real continuity across the premodern world. Keegan frames this effectively addressing a millennium of premodern war:

How did Alexander form his military judgements? It is dangerous in any age much before our own, to speak of a 'general staff', because to do so is to imply a bureaucratization of society quite at odds with reality. The general staff, officered by men selected and trained to perform intelligence, supply and crisis-management tasks, was a nineteenth-century Prussian invention. The Romans, via the *cursus honorum*, anticipated something akin to it. But mediaeval armies knew it not at all, while even the Renaissance and dynastic armies of early modern Europe were staffed at best by gifted amateurs, usually the friends or favorites of the commander.²⁴¹

The premodern war era combined fraternal or political networks within isolated and contextually dependent groups of military practitioners that might have drawn knowledge from existing manuscripts, elite tutoring, or the hard school of experience on the battlefield. This less sophisticated model did not necessarily correlate to diminished scale, scope, or impact of organized violent action upon the context of the society; war in any age can express the depths of human cruelty, savageness, as well as compassion, discipline and focus. Feudal war structure occurred across most of Medieval Europe with the collapse of the Roman Empire and the subsequent loss of much of the ancient and effective military knowledge associated with those premier armies of old. The knowledge of premodern society particularly by the sixteenth century as Foucault offers would be defined as:

Made up of an unstable mixture of rational knowledge, notions derived from magical practices, and a whole cultural heritage whose power and authority had been vastly increased by the rediscovery of Greek and Roman authors.²⁴²

²⁴⁰ Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 48–49; van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 8–13.

²⁴¹ Keegan, *The Mask of Command*, 40.

²⁴² Foucault, *The Order of Things*, 32.

Some of this knowledge was transferred into other societies, locked in forgotten script, or buried under the sands of time. Whatever remained was curated in isolated monasteries and small pockets of literate groups intent on preserving or restoring what once was previously a powerful expression of Roman and earlier Greek domination of much of the European continent and beyond. The Dark Ages were aptly named as much of the millennium between the fall of Rome and the commencement of the Medieval Renaissance was cast in the darkness of ignorance and retrograde of societal progress.²⁴³ Some of the peculiar contexts of the European Feudal Age would usher in quite different organizing logics, symbols, and war rituals from past earlier periods.

Few military symbols of the Feudal Age of war rival that of the mounted knight. Fighting with chivalry and bravery on the field of battle, the actions of a valiant knight or heroic leader could resolve the outcome of the battle and even bring about the strategic end of the entire campaign in some instances.²⁴⁴ Many of these romantic narratives represent more lore and fantasy than reality, in that the maintenance of a military formation in battle would typically matter far more than any individual act of heroism. Knights were tremendously expensive, and in the Feudal Age of warfare, being a knight not only meant one had secured favor from nobility and also the church, but one's family had the resources and land to support the logistical needs of being a knight.

Feudal battles in a proper and direct sense rarely occurred, with most war activities being a combination of the mobilizing of forces and plundering expeditions that might descend into small-scale battles of individual fights between the knights.²⁴⁵ Knights were sociologically speaking, harboring predisposition against military discipline on the battlefield as seen earlier in Greek and Roman formations of infantry.²⁴⁶ Feudal knights would act in battle purely on personal honor, reputation, and in keeping with tightly ritualized behaviors of the gentlemen class.²⁴⁷ The epistemological stances on premodern officer behavior, code of conduct, role in decisions, as well as core belief systems would be heavily ritualized and carried forward in military institutions well into the modern era of war.

Premodern military knowledge and proficiency maintained often through oral traditions and was limited to personal or proximate contact between seasoned and inexperienced members of a military organization defined the premodern military world in what organizational theorists would term localized conditions. Those elites and select individuals able to become literate or be tutored by literate

²⁴³ Keegan, *The Mask of Command*, 117.

²⁴⁴ Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 41–46; Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 12–13.

²⁴⁵ van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 20; Malešević, *The Sociology of War and Violence*, 108–9.

²⁴⁶ A non-European variation of the Feudal Knight would be the rise of the Samurai class in Feudal Japan. These elite warriors maintained specific class status, rituals, and a strict code of conduct on the battlefield (as well as off) where their individual performances could determine battlefield outcomes as well as some strategic goals outright.

²⁴⁷ Malešević, *The Sociology of War and Violence*, 107.

military scholars would gain access to a fragmented range of ancient, medieval, Renaissance and contemporary war texts.²⁴⁸ The depth and quality of this military education depended on access, interest or even at times despite a cultural unwillingness to let go of feudal rituals and beliefs.²⁴⁹ In this context, the quality as well as uniformity of any military organization was frequently limited to the abilities of the most experienced leaders available at that time and within the limited range of their communication skills, along with quite a bit of happenstance and luck.

Although this project proposes the rise of a postmodern military comedian out of the modern and premodern military eras of war, the influence of 'humor' in this premodern context is diminished but worth framing for comparison to future ages. There is a long and rich history of comedy and entertaining expressions of ideas and culture throughout most of recorded human history. However, the specific term 'humor' is a modern invention and thus not quite applicable in this chapter until the shift from premodern to modern. Critchley observes:

The first recorded usage of the word [humor] to indicate something amusing or jocular occurs in 1682. This is obviously not to say that there was no humour prior to that date, but rather that the association of the word 'humour' with the comic and the jocular is an innovation that belongs to a specific time and place: the English language of the late seventeenth century. Prior to that date, humour signified a mental disposition or temperament.²⁵⁰

Humor thus as a social construct is an innovation of the nation-state era. As later chapters will demonstrate, an increasingly valuable element in military design for critical reflection, willingness to change, and the ability to think creatively and contextually through a socialized interaction with reality. The most popular German novel published in the seventeenth century was 'The Adventures of a Simpleton,' authored by a Black Forest soldier of the Thirty Years War. He wrote under a range of pseudonyms that historians suspect was in part "because literature in those days was held in abject contempt in Germany."²⁵¹ The protagonist in this work is a vagrant trapped in a series of comical yet horrific adventures during the Thirty Years' War from 1618-1648. This first German novel masterpiece is also quite appropriate for considering the intersection of premodern, modern, and

²⁴⁸ Guerlac, "Vauban: The Impact of Science on War," 71–74; Keegan, *The Mask of Command*, 18–19; Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 52.

²⁴⁹ Janowitz, *The Professional Soldier: A Social and Political Portrait*, 51; Vagts, *A History of Militarism: Civilian and Military (Revised Edition)*, 44–55.

²⁵⁰ Simon Critchley, *On Humour*, Thinking in Action (New York: Routledge, 2002), 71.

²⁵¹ Hans von Grimmelshausen, *The Adventures of a Simpleton* (New York: Frederick Ungar Publishing Co., 1963), 248.

postmodern military themes concerning humor, critical reflexive practice,²⁵² and heretical divergence in thought. It is in this gruesome yet comical account of premodern war in a feudal context; one might find the semi-autobiographical account of a soldier in that conflict as presenting many of these essential elements that promote military change.

The book exists despite premodern military antagonism towards any formal reflection or writings on war. At the time, writing about war was a rather risqué means to publicly raise necessary concerns on how war was waged, for what objectives, at the expense of whom and for the benefit of what part of society. Thus, the author writes under a pseudonym, and the story mocks the conflict as well as premodern war in general through a wide range of critical as well as self-deprecating scenarios. It becomes extremely popular as a narrative due to the rapid expansion of literacy and mass-production printing technology emerging in that period, as well as societal changes concerning war, power, politics, class, and religion. The heroes in the book often are juxtaposed against the tragic context of the Feudal Era value system for war and warfare. The author does not glamorize particular tropes such as nobility or status as being saintly or even heroic. Frequently the savageness and brutality of war is further highlighted by the wonton cruelty and randomness of how it destroys any of the good or valued qualities of society. Humor becomes an important literary device in this book, with the 'hero' being perhaps an 'anti-hero' of sorts in conflict with traditional medieval tales of ritualized warfare and noble quests.

Premodern societies laughed and made comedy just as they applied organized violence and waged war, but they did these things differently and understood them from distinct perspectives. Premodern institutional frames for war thus differed from modern ones in not just how they thought and acted in war, but *how they understood their understanding of it*. The premodern to modern shift in war would still take several centuries, with some militaries taking advantage of discoveries and experimentation while others lagged behind, often shackled to outdated or obsolete concepts well past their expiration date. In other contexts, irregular and hybrid applications of old and new techniques produced surprising outcomes, such as when the American colonists used European-style armies as well as frontier-style guerrilla units and tactics to deliver a defeat against the most powerful military force in the world at that time, the British Empire.²⁵³

The notion of the military comedian in this premodern period of war theory is also incommensurate due not only to a lack of epistemological inquiry outside of

²⁵² Christopher Papparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation," in *Design Thinking: Applications for the Australian Defence Force*, ed. Aaron Jackson and Fiona Mackrell, editor's manuscript pre-publication version, Joint Studies Paper Series 3 (Canberra, Australia: Defence Publishing Service, 2019), 1–18; Schön and Rein, *Frame Reflection*; Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners."

²⁵³ Russell Weigley, "American Strategy from Its Beginnings through the First World War," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 410–12.

the rigid rationalized frame and mechanistic applications of organized violence, but also largely due to western cultural belief systems. Through the seventeenth century and beyond, laughter was interpreted as a sign of a lack of reason and although it was considered entertaining, it was associated with the behavior of the lower classes or mentally weak. They would laugh because they were "at the mercy of their fleshy lusts."²⁵⁴ Only the poor, uneducated, and lower class individuals might employ humor and thus comedy (as recognized in the period) could not and would not be tolerated at any level of military leadership. Elites had their own sophisticated mode of humor that undoubtably existed, but comedy in any recognizable modern sense of the term was frowned upon.

Comedy is a modern innovation of the nation-state movement, in that the association of the word 'humour' with comic action and jocular or critically reflective playfulness emerged in the late seventeenth century in terminology as well as cognitive awareness.²⁵⁵ The court jester might be the only one able to mock royalty and the elites in court, but he was never considered for use in battle nor would his ideas ever be seen as valuable in such regard.²⁵⁶ Laughter had its understood place in society, as did war. The clown and the sword were distinct and for dissimilar activities. Critchley, in depicting the transition between premodern forms of humor and the more recognized modern form cites Brewer with: "the tradition of court jesters does not survive the seventeenth century in England...the last recorded fool being Henry Killigrew appointed to William III in 1694."²⁵⁷ Premodern humour in war as well as non-violence contexts existed, but were understood in different ways. Societies directed different behaviors and social norms concerning humor, to include its relevance to the application of organized violence.

War has always been considered a most serious business, and through the premodern as well as the modern eras of war, only the elites or professionals were expected to make the difficult decisions concerning war, as well as generate the deep theory and academic study of these serious topics. Comedy might entertain the troops and assist with morale, or delight the court elites during periods of playfulness. Laughter and comedy was understood as a common quality of the poor and underclass as an emotional response to life's hardships including the horrors of battle. Yet it had no understood value in the critical reflection of how and why militaries thought or acted, nor would it be associated with any enhancement or enabling of superior military action or novel reasoning. Military comedians were fools in the premodern era of war, and would largely continue the same role for

²⁵⁴ "Museum Sign for Henrick Terbrugghen Painting of 'Boy Playing the Lute/Hearing, Girl Holding a Glass/Taste, 1620s' in the National Museum, Stockholm, Sweden" (National Museum, Stockholm, Sweden, n.d.), accessed October 7, 2019.

²⁵⁵ Critchley, *On Humour*, 71.

²⁵⁶ There is no jester or fool in the game of chess. As chess is associated with war and strategy and has been played since premodern origins, this is an interesting observation. There is, however a 'joker' or fool in the game of cards, another game with early premodern origins as well as heavy usage in Feudal European life.

²⁵⁷ Critchley, *On Humour*, 82.

societally sanctioned play and amusement or entertainment through the modern era of war. Only later would things change.

The Modern Military Frame: the Rise of a Scientific Way of Organized Violence

The gradual transition from premodern to modern military form occurred over centuries where scientific methodology gradually influenced the military discipline through standardization in military education as well as the development of military doctrine for the professionalization.²⁵⁸ The modernist war movement used science to turn war into a bureaucratic form of managed violence, which “runs the risk of fostering a reductionist view where the human body is reduced to mere biology...consequently, the objectivized and alienated body is easily associated with the image of a machine.”²⁵⁹ Gray observes that this scientific style of military doctrine is “itself the style of nonstyle. It is not supposed to become, or even influence the content of what is asserted”;²⁶⁰ this equates to a ‘technical rationalism’ of war where Schön states: “practitioners solve well-formed instrumental problems by applying theory and technique derived from systematic, preferably scientific knowledge.”²⁶¹ Military leaders would thus become modern managers of organized violence, gaining increased efficiencies of a machine-like system run on technology, analytics, and the logic of natural science metaphors while also insulating the organization from major changes in strategy.²⁶² Gibson, in explaining the failures of the Vietnam War, cites Kissinger who, along with McNamara would be most associated with this modern managerial approach to warfare:

Kissinger writes that since 1945, American foreign policy has been based “on the assumption that *technology plus managerial skills* gave us the ability to reshape the international system and bring domestic transformations on ‘emerging countries...’ ” The West, in Kissinger’s view, had been committed to this hard epistemological work since Sir Isaac Newton first formulated his laws of physics... The West is deeply committed to the notion that the real world is external to the observer, that knowledge consists of recording and classifying data—the more accurately the better. Cultures which have escaped the early impact of Newtonian thinking have retained the essentially pre-Newtonian view that the real world is almost entirely internal to the observer...[and] are therefore totally unlike the West and its leading country. Those who are totally unlike us and live in their own

²⁵⁸ van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 14–18; Aaron Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare* (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2013).

²⁵⁹ Sookermary, “On Developing (Post)Modern Soldiers,” 69; Gray, *Postmodern War: The New Politics of Conflict*, 111.

²⁶⁰ Gray, *Postmodern War: The New Politics of Conflict*, 96.

²⁶¹ Donald Schön, *The Reflective Practitioner: How Professionals Think in Action*, 1st Edition (New York: Basic Books, 1984), 3–4.

²⁶² Henry Mintzberg, “Patterns in Strategy Formation,” *Management Science* 24, no. 9 (May 1978): 944.

delusions are conceptualized as foreign Others. The foreign Other can be known only within the conceptual framework of technological development and production systems.²⁶³

Thus, war managers of modernity can direct vast amounts of manpower, technology, and logical methods of analytic optimization toward all aspects as understood in this Westphalian ordered, Clausewitzian philosophical frame for war. Gray would cast McNamara as a key transitional war manager where in World War II, McNamara as a young Harvard professor specializing in bargaining theory would coldly calculate strategic bombing missions and operations against Imperial Japan. Later, "he would run a war of his own,"²⁶⁴ one that Gray declares the first 'postmodern war' waged. Gray would also use Kissinger's over-emphasis on the 'rational opponent' and his attempt to render war and policy into computer models of analysis and rational decision-making a limited structure of modernity, to subsequently be challenged with alternatives in postmodernity.²⁶⁵ The new philosophy of modern science and warfare would "be a masculine project in two senses...adapting logic and emotionless calculation from the scholastics and marrying them to objective clinical experimentation...[and] in its rhetorical equation that woman is nature and science is torture and domination."²⁶⁶ Managers would move beyond the heroes of premodern war, able to channel the energies and resources of the Westphalian state model toward mechanized, scientific, sterilized and analytically optimized acts of organized violence against clear state adversaries set against a mutually agreed-upon principles and rules for war.

The Westphalian state would centralize the multiplicity of Feudal Era war machines into state-sanctioned and legitimate monopolization of public force.²⁶⁷ Giddens offers: "The successful monopoly of the means of violence within territorially precise borders is distinctive to the modern state."²⁶⁸ Premodern societies typically fell short of this, or could only do so briefly and at significant cost. While premodern military ritualization and powerful social foundation shares many attributes of religious institutions concerning knowledge management and curation, the incorporation of scientific analysis and inductive thinking presents the modern military transition where the promise of greater prediction, control and precision in war is quite attractive. Tschumi would mark a similar transition in architecture from the premodern (or ancient) to what he saw as a paradigm shift in 1750,²⁶⁹ where the gradual arrival of modernity occurred across all human endeavors and disciplines. Foucault, in defining Napoleon's arrival as the beginning of modernity and war, saw his desire to organize and arrange around him "a mechanism of power

²⁶³ Gibson, *The Perfect War: Technowar in Vietnam*, 15–16.

²⁶⁴ Gray, *Postmodern War: The New Politics of Conflict*, 135.

²⁶⁵ Gray, 78.

²⁶⁶ Gray, 80.

²⁶⁷ Alliez and Lazzarato, *Wars and Capital*, 19.

²⁶⁸ Giddens, *The Consequences of Modernity*, 58.

²⁶⁹ Tschumi, *Architecture and Disjunction*, 48.

that would enable him to see the smallest event that occurred in the state...a meticulous observation of detail...for the control and use of men...and from such trifles, no doubt, the man of modern humanism was born."²⁷⁰ War would become scientific, precise, machine-like where men became disposable, mass-produced parts of the war machine. Bousquet also frames this 'scientific way of warfare' with:

The successes of modern science in uncovering seemingly external laws of nature and developing or perfecting technological contraptions to take advantage of them has unsurprisingly proved highly attractive to military thinkers and practitioners seeking to dominate the battlefield and render their activity as predictable as possible.²⁷¹

The incorporation of scientific rationalized logic into military thought on the application of organized violence would shift the creation process of military doctrine into a manufactured, pseudo-scientific form that would have one foot in the premodern world of canonized lore and codified hierarchical laws, and the other in a modern mindset of experimentation, testing, validation and subsequent community of shared practice and theory. Yet the paradoxes of this natural-science inspired rendering of war would be a tragic expression of war in modernity; the fusion of new technology with a belief system of Clausewitzian war strategy set within a Westphalian political system. "That faith in technology assured military technophiles that bombing cities would lead to victory, despite all the evidence to the contrary."²⁷² Military rationalized planning would establish Clausewitzian 'centers of gravity' that would be analyzed to determine quantified vulnerabilities so that Newtonian physics-inspired military action might target said vulnerability until victory is achieved, regardless of how much blood and treasure might be lost in the pursuit of the functionalist-realized military objective.

This rationalized scientific mode of inquiry would transform military language, building on top of the premodern feudal model of rank structures, rigid order and discipline and narratives of heroic lore with precise terms and Newtonian physics-based metaphors.²⁷³ Gibson, in critiquing the American military's systemic failure in the Vietnam War attributes much of it in his concluding chapter to this pseudo-scientific, false rendering of war as a technological framing where one can determine what knowledge is relevant to war, and filter out the rest:

A basic conceptualization of the relationships between knowledge and social stratification has been present throughout this analysis. War-

²⁷⁰ Foucault, *Discipline & Punish: The Birth of the Prison*, 141.

²⁷¹ Bousquet, "Chaoplex Warfare or the Future of Military Organization," 919.

²⁷² Gray, *Postmodern War: The New Politics of Conflict*, 149.

²⁷³ Paparone, "On Metaphors We Are Led By."

managers are at the top of the stratification system. They think in instrumental categories taken from technology and production systems, and the business accounting rationales of debit and credit ledger. Those at the top of the stratification system had a virtual monopoly on socially accepted "scientific" knowledge. Conflict among different war-managers was quite common, yet those conflicts all occurred within the paradigm of Technowar and its technical knowledge about war. Never was the "otherness" of the foreign Other really questioned, nor was the social world of the Vietnamese peasantry examined, nor were the terrible contradictions and double-reality facing U.S. soldiers in the field ever confronted. Debates at the top were only debates and struggles concerning the direction of the Technowar, not a questioning of its basic assumptions.²⁷⁴

Thus, the modernization of thought and action in war prioritizes scientific theory, analytic logic, and a somewhat sterilized categorization of all actions associated with the conduct of war into a manufacturing, sequenced and manageable affair of organized violence, resources, and risk. Lyotard saw the incommensurability of scientific beliefs to non-scientific knowledge as one where the game had rules that "can only be established within the bonds of the debate that is already scientific in nature" ...thus automatically anything not already realized as 'science' has to explain ideas using scientific terminology, through the methods of science, and be measured by science's rules that ultimately rig any debate to a foregone conclusion.²⁷⁵ Virilio would charge this techno-scientific obsession of modernity to be if anything "eclipsing...the real, in the aesthetics of scientific disappearance...science is now less concerned with truth than with the effect created by the announcement of a new discovery."²⁷⁶

Baudrillard would accuse leaders like Westmoreland of the Vietnam War as nothing but a dream, "a baroque dream of napalm and of the tropics, a psychotropic dream that had the goal neither of a victory nor of a policy at stake, but, rather, the sacrificial, excessive deployment of a power already filming itself as it unfolded."²⁷⁷ Lyotard attacks modernity and science as well by proposing postmodernity features a reversal of science and technology, where previously science would inspire new technological emergence. Now, the supremacy of 'techno-war' has scientific research allocated by "states, corporations, and nationalized companies in accordance with this logic of power growth."²⁷⁸ Postmodern deconstruction of core modern war belief systems invert the ontology and epistemology, dismissing tropes of 'good versus evil', 'war is the extension of politics', 'production to destruction', as

²⁷⁴ Gibson, *The Perfect War: Technowar in Vietnam*, 462.

²⁷⁵ Lyotard, *The Postmodern Condition: A Report on Knowledge*, 29.

²⁷⁶ Virilio, *The Information Bomb*, 3–4.

²⁷⁷ Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Glaser (Ann Arbor: The University of Michigan Press, 2001), 59.

²⁷⁸ Lyotard, *The Postmodern Condition: A Report on Knowledge*, 47.

well as cause and effect in how modernity perceives it for retaining structures of power.

While postmodernists challenge the corruption and potential illusion of scientific progress as well as techno-war, modernity would be defined by an orderly structuring of war, warfare within this frame, and the technological and managerial optimization of military units acting on behalf of clearly bounded nation-states. This all would support by design the emergence of nation-state political enterprise, complete with a new stability for foreign policy and universally recognized “rules” for war. Politically, the rise of the Westphalian Order would create a “rule-based system of states, based on the concept of sovereign equality... this resulted in a framework of widely respected norms for interstate behavior- to be sure, never for long unchallenged- that permitted states to turn greater attention toward their internal development.”²⁷⁹

Giddens further states: “the nation-state system was forged by myriad contingent events from the loosely scattered order of post-feudal kingdoms and principalities whose existence distinguished Europe from centralized agrarian empires...nation-states concentrated administrative power far more effectively...a massive leap forward in economic wealth and also in military power.”²⁸⁰ While Lockhart and Miklaucic clarify that the Westphalian development did not end war, it did “establish a culture of rule-based international relations conducive to unprecedented advancements in the human condition.”²⁸¹ The modern war frame would assume responsibility for all applications of organized violence recognized as ‘war’, regulate such actions between nation-states, and focus what ‘war is/is not’ to a degree unlike the premodern efforts. This was done for increased stability at a political state-level, conformity across various states concerning ‘war rules’, an understood hierarchical order for power,²⁸² and some arguable form of stabilization for societies to function economically, culturally and socially.

Hierarchical models for decision-making and linking strategy to operations and tactics in war dominate the modern military form.²⁸³ The industrialization of warfare would apply machines to magnify man’s physical capacity; the cognitive parallels would suggest analytic science could aid in controlling and predicting the natural world as well.²⁸⁴ Modern military education would promote “an environment of learning that embraces uniformity and enhances scenario based

²⁷⁹ Clare Lockhart and Michael Miklaucic, “Leviathan Redux: Toward a Community of Effective States,” in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 298.

²⁸⁰ Giddens, *The Consequences of Modernity*, 62–63.

²⁸¹ Lockhart and Miklaucic, “Leviathan Redux: Toward a Community of Effective States,” 298.

²⁸² Many of these qualities did exist in premodern representation; the Westphalian transformation would displace the archetypal structures such as clans, tribes, of familial units that did remain, but were displaced by the new power of the nation-state. This state would further displace from power the other dominant forms of autocratic rule such as kingdoms, monarchies, as well as empires, or force them to modify into nation-state forms therein.

²⁸³ Kelly and Brennan, “Alien: How Operational Art Devoured Strategy,” 63–65.

²⁸⁴ Alexander, *Notes on the Synthesis of Form*, 1–11.

pre-planned drills as ways of conducting military operations.”²⁸⁵ If natural sciences could unlock universal principles of reality to make the world more predictable, understood and therefore controllable, then so should a ‘military science’ do the same for the chaos and uncertainty of war.

The eighteenth and nineteenth centuries witnessed an emphasis on engineering and the mathematics of artillery for war study.²⁸⁶ In fact, the founding of major military academies such as West Point were based solely on the need for new technologically skilled military professionals able to use increasingly sophisticated artillery and engineering weapons of war. The twentieth century would see that engineering approach to strategy increasing build and extend into the emergent aviation, subsurface and new technological applications. This resulted in highly sequenced and formula-based combined arms maneuver strategies that manifested in World War II. Bousquet provides the metaphors of the ‘clock’ for the Newtonian period for what he frames as the first metaphoric development within what is considered ‘modern war’²⁸⁷ with the ‘steam engine’ reflecting the more modernized Industrial Era of warfare.²⁸⁸ Jomini’s principles reflect more the machine emphasis of the ‘clock’ period, whereas the Prussian war philosopher Clausewitz and his concepts of fog, friction, ambiguity and complexity are more aligned with the ‘steam engine’ association as well as arguably other complex applications. Bousquet’s delineation between these two provides added context to the gradual shift from premodern to modern war paradigms in organizational form, doctrine and practice.²⁸⁹

Inventions in war are uneven in the premodern period, while gaining greater analytic and scientific patterns as the modern war period emerges. Malešević highlights the isomorphic character of war as new technology presented opportunities in the pursuit of organizational power through applied violence. On the military integration of technological advances such as gunpowder, the stirrup, military drill, and standardized training practices, he observes, “of course, before the modern era, this was often a slow and uneven process. The stirrup being a much earlier premodern development while for Europeans gunpowder a medieval revolutionary development, all of these important developments were incorporated irregularly and without scientific rigor found in militaries of the post-Renaissance periods. Further, the technological advancements in any society did not necessarily correlate with respective developments in military theory or advancements in the application of organized violence.”²⁹⁰ In some instances, the new inventions did not generate mass use for centuries and had to be “re-invented” in other parts of the world (i.e. gunpowder and the compass in China and early modern Europe).²⁹¹ As

²⁸⁵ Sookermary, “Military Education Reconsidered: A Postmodern Update,” 310.

²⁸⁶ Linn, *The Echo of Battle: The Army’s Way of War*, 23.

²⁸⁷ Bousquet and Curtis, “Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations,” 45.

²⁸⁸ Bousquet, “Chaoplex Warfare or the Future of Military Organization.”

²⁸⁹ See also: Kelly and Brennan, “Alien: How Operational Art Devoured Strategy,” 14–16.

²⁹⁰ Malešević, “The Organization of Military Violence in the 21st Century.”

²⁹¹ Malešević, 462.

the premodern military was influenced by an enlightenment in human knowledge and beliefs, coupled with the rise of the scientific method and the resulting industrialization of Europe and the west,²⁹² the modern military form eventually metamorphosized out of the legacy premodern military structures. The illusion of managing all major aspects of war in a scientific approach dated back to at least the 1500s and formalized through the 1800s²⁹³ where the prediction and control of physical science logic was projected upon the complex and irrational canvas of war.

This includes the experimentation and integration of transformative new technology along with the replacement of noble or culturally appointed amateur military leaders with a profession of arms that required education and experience at various levels of responsibility. Initially the premodern to modern transition started with the gradual replacement of the feudal state of the medieval period with professionalized armies. These new armies shed the seasonal availability as well as the amateur fighting farmer population,²⁹⁴ and represented the new monetary power of the bureaucratic, absolutist states of the Renaissance period through the eighteenth century.²⁹⁵ This would be ushered in with several profound innovations that would transform the social fabric of how societies interacted.

Giddens termed this major transition from Feudal to modern society with 'symbolic tokens' that can separate from tangible artifacts and express activity in a host of physical as well as conceptualized forms. "Only the state (which here is the modern nation-state) is able to transform private debt transactions into a standard means of payment- in other words, to bring debt and credit into balance in respect of an indefinite number of transactions."²⁹⁶ Foucault's premise that humans 'code' socially and collectively creating a linkage of ideas that in turn link realities, where signs and symbols "engage with the mechanics of force."²⁹⁷ The rise of symbolic structures opens new doors to how and why societies think and act within their world, and also more importantly how they shape and reflect upon it. Money is one of these symbolic tokens that, with the formation of the modern nation-state combined with the transition from an agrarian economy to a monetary one would usher in modernity.²⁹⁸

The development of money led to the ability for feudal lords to rid themselves of the archaic system of temporary and low-skill vassal utilization for war. The rise of modern commerce provided new ways to establish a reliable foundation of political and military power as well as the introduction of new classes

²⁹² Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 11–17.

²⁹³ Gray, *Postmodern War: The New Politics of Conflict*, 23; Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars*, 52.

²⁹⁴ Premodern armies did have professional and even mercenary capabilities, although often at tremendous and unsustainable expense. The arrival of the modern army made long-standing forces financially more attractive.

²⁹⁵ Gilbert, "Machiavelli: The Renaissance of the Art of War," 13.

²⁹⁶ Giddens, *The Consequences of Modernity*, 23–25.

²⁹⁷ Foucault, *Discipline & Punish: The Birth of the Prison*, 108–10.

²⁹⁸ Giddens, *The Consequences of Modernity*, 22–26.

of freemen, to include some upward mobility.²⁹⁹ Military professionals would be able to earn their livings employed in the act or potential threat of war, even switching sides depending on where the money was, and whether lords could afford to maintain their armies and provide modern housing, medical care, and other services alien to the earlier feudal based model of vassals and ideologically inspired kings.³⁰⁰ Establishing and uniformly regulating military behaviors required a deliberate process of drill, training, and military education. The war design here was entirely toward uniformity, predictability, and convergent thinking to cohesively apply organized violence for political outcomes between what would become a Westphalian Order of nation-states across Europe.

This created a new need in war: the establishment of formal military doctrine composed in the language of scientific methodology as well as the assimilation of physical science concepts and metaphors into war-oriented applications. The birth of 'military science' occurred in the Age of Enlightenment and the arrival of the Industrial Revolution.³⁰¹ The increased technological requirements of modern military weapon systems as well as significantly larger and increasingly complex force structures required a shift away from the premodern military demand for heroic military warriors towards an educated military manager and engineer of more destructive and also more precise war machines.³⁰² While premodern militaries might conducted excessively gory acts of localized violence in order to control populations, the modern military scientist and manager could be far less 'brutal' while also destroying and killing at a vastly larger scope and scale.³⁰³

From a contemporary political and societal perspective, the treaties of Westphalia in 1648 also hallmark the transformation of societies from premodern to modern ones with the rise of the Westphalian nation-state.³⁰⁴ The Westphalian nation-state birth occurred within decades of the first military professional academy established, as well as the first modern published military doctrine.³⁰⁵ Other historians offer that the modern era of war was ushered in through the development of political thought and the reintroduction of Roman state-centric drill,

²⁹⁹ Gilbert, "Machiavelli: The Renaissance of the Art of War," 14; Alliez and Lazzarato, *Wars and Capital*, 39–43.

³⁰⁰ Palmer, "Frederick the Great, Guibert, Bulow: From Dynastic to National War," 91–95.

³⁰¹ Boisot and McKelvey, "Integrating Modernist and Postmodernist Perspectives on Organizations: A Complexity Science Bridge," 418; Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

³⁰² Paparone, "How We Fight: A Critical Exploration of US Military Doctrine"; Jeff Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military" (For completion of Masters Level graduate requirements, Maxwell Air Force Base, Alabama, School of Advanced Air and Space Studies, 2010), 2–3.

³⁰³ Malešević, "The Organization of Military Violence in the 21st Century," 464.

³⁰⁴ Mary Ann Tetreault and Harry Haines, "Postmodern War and Historic Memory" (Annual Meeting of the International Studies Association, Montreal Quebec, Canada: International Studies Association, 2004), 1; Malešević, "The Organization of Military Violence in the 21st Century," 463; Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 23; Moskos, Williams, and Segal, "Armed Forces after the Cold War," 1–2.

³⁰⁵ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

organization and discipline through the writings of Machiavelli in the Sixteenth Century.³⁰⁶ In Foucault's study of premodern to modern punishment through postmodern theoretical inquiry, he posits the shift of societal punishment from the premodern 'festival' nature to one of a 'school' in modernity, where transparency, uniformity, prediction, control, and regulation govern the activity. This idea moves in parallel with the rise of military academies in that the institution of modern penal systems would also be part of a societal drift out of the Feudal Ages into modernity.³⁰⁷

Much of current military literature is fractured into various framings of premodern militaries to include precisely when and how they would transition into a modern, professionalized form. Jackson promotes the earliest transformation could be paired with establishment of the first military academy. Jackson pairs the first professional military academy (executed in direct mimicry of natural science academies) with the development of the first modern military doctrine in the late seventeenth century.³⁰⁸ The trail end of the lengthy transition from premodern to modern military occurred in the twentieth century where the last of the gentlemen amateurs finally lost their automatic status as powerful military decision-makers.³⁰⁹ This manifested throughout the early to mid-twentieth century with slow elimination of most traces of aristocratic status trumping merit-based officer development and application.³¹⁰ Between these two bookends exist several centuries of just the European military form and function shifting and transforming from the premodern to the modern military form and function, demonstrating what is a gradual and often nonlinear, emergent transition. The modern military movement for the application of organized violence would slowly emerge on the world stage.

In terms of epistemology, the modernist military movement represents one of "rules and maxims."³¹¹ It corresponds with a movement that established a Weberian World Order "with the *rational-legal nation-state* as the center of gravity."³¹² Nation states wage war between states, using formal military instruments of power while seeking formal declarations of war and strategic closure through some ceasefire and metric of victory against a framed enemy force.³¹³ Asymmetric or irregular war would be possible and in reality quite frequent in the modern military era, however security forces would educate, equip, and act with an orientation towards high-intensity or total war considerations against near-peer

³⁰⁶ Gilbert, "Machiavelli: The Renaissance of the Art of War," 11.

³⁰⁷ Foucault, *Discipline & Punish: The Birth of the Prison*, 111.

³⁰⁸ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

³⁰⁹ French, *The British War in Warfare 1688-2000*, 128; Kier, *Imagining War: French and British Military Doctrine Between the Wars*; van Creveld, *The Training of Officers: From Professionalism to Irrelevance*, 122-24.

³¹⁰ Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 3.

³¹¹ Sookermary, "On Developing (Post)Modern Soldiers," vii.

³¹² Sookermary, 10.

³¹³ McFate, *The New Rules of War*, 28-33.

and existential threats. Threats that fell below these high thresholds would also be dealt with, however any military organization that is configured and prepared to wage high-intensity war was expected to also be qualified and competent to act in low-intensity war efforts including humanitarian and peacekeeping efforts that increased dramatically after the end of the Cold War.³¹⁴

One critical additional contribution to the modernist military form largely developed in the early twentieth century (maturing in the 1930s-40s with the Second World War) when bureaucracy, organizational theorists, and the rise of an industrial-administrative complex for permanent 'total war' preparation and improvement began addressing the serious challenges of war on a global scale. This fostered the growth industry of a standing military force large enough to deal with existential threats permanently instead of the previous delay between the mustering of recruits and drafting forces and the application of a military instrument of power towards an enemy. Once this occurred, the modern national security apparatus would exist not just for any immediate perceived threats to the nation, but as a permanent destructive capacity for all possible future security considerations by the creation of the military industrial complex.³¹⁵

Terms such as 'front line' would be developed in war's modernity because prior to industrial tools such as rail systems and mass conscription, such contexts did not exist nor did military language require those concepts to be articulated. Modern military goals became larger than the gaze of the tactical commander, and strategic desires of senior politicians could not peer down into the broad conflict zones in 'total war' scenarios without utter confusion.³¹⁶ Previously, a single service or even a large tactical force reliant upon a single physical domain could accomplish victory independently, or at the most collaborate through secondary or intermediate fashion with another service. Amateurs, regardless of their talents and wit, would become increasingly irrelevant within those societies that developed modernist militaries that utilized increasingly sophisticated technology, organizational structures and war methods.

While earlier wars might be waged by champions and despots in somewhat episodic or sporadic affairs of conquest, empire building and gore, modern wars were meant to be managed and executed in precise scientific means with clean, efficient and decisive results.³¹⁷ Heroes could still inspire tactically or locally, but it became increasingly difficult with a dilution of impact the larger the scale or size of the conflict.³¹⁸ This of course does not eliminate 'heroic' war leaders or the

³¹⁴ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 9-10.

³¹⁵ Bloomfield, Burrell, and Vurdubakis, 5.

³¹⁶ Bousquet, "Chaoplex Warfare or the Future of Military Organization," 921.

³¹⁷ Linn, *The Echo of Battle: The Army's Way of War*, 6-7.

³¹⁸ This does not discount 'heroic' strategic personalities and their impacts upon war such as Churchill, Stalin, Hitler or Roosevelt and their societies. Rather, the direct impacts of heroes for the application of organized violence would necessitate the inclusion of modern military managers, as well as elaborate staff functions, plans, and a gradual removal of the 'hero' from the leading edge of the battle to the strategic bunker well behind the front. See: Keegan, *The Mask of Command*.

occurrence of exceptionally gory conflicts outright; rather the twentieth century harbored the arrival of military scientists and managers to offer novel combinations and hybrid outcomes done in a scale and scope previously unreachable by even the largest pre-modern militaries. Despite the promise of such cold, scientific precision, war would in the twentieth century remain chaotic and untamed by pseudo-scientific logics. From the horrific bureaucratic genocide managed by Germany through creating emotional distance between Jewish victims and Nazi executioners to the misguided self-inflicted damage the British did in their strategic bombing efforts against Germany where they actually lost more British than destroyed enemy resources, modernist rational war logics created the illusion of scientific certainty despite often producing unscientific results.³¹⁹

If premodern wars consisted largely of expensive mercenaries,³²⁰ slaves, and the temporary conscription of amateur soldiers for limited political, ideological and security goals, the modern era introduced professionalization of war at a scope and scale unlike anything previously. With the American Civil War which framed as one of the first likely examples of modern military management at the operational level of warfare,³²¹ the earlier and more causal relationships between strategic goals and tactical victories even within a single battle became untenable. Military desires for the organized application of violence were vastly exceeding previous cognitive limits in scope and scale. In proposing the modern to postmodern war transition, Gray would refer to the U.S. Civil War as “the first industrial war, that ushered in the last phase of modern war.”³²² The American Civil War would have one foot planted firmly in earlier pre-industrialized and ritualized forms of war logic, while technological and rationalized ideas of Westphalian ‘total war’ would put another foot solidly in the modern war frame. Again, the blur between premodern and modern covered centuries, while the transition between what is proposed as either war in postmodernity or even war through postmodern framing would suggest mere decades instead to manifest.

In another paradox of industrialized modern war, the late-modern genocides in Africa were accomplished with primitive weapons coupled with radio broadcasted propaganda and instructions,³²³ while the western coalition’s continued counterinsurgency efforts in Afghanistan as of 2020 reflects two paradoxical aspects for analyzing war. The American-Afghan War remains both one of the most protracted modern conflicts as well as the most resource and technologically lopsided between the decentralized and impoverished Taliban and technological juggernauts such as the United States Department of Defense.³²⁴

³¹⁹ Bloomfield, Burrell, and Vurdubakis, “Licence to Kill? On the Organization of Destruction in the 21st Century,” 3–6.

³²⁰ McFate, *The New Rules of War*, 126–27.

³²¹ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 47.

³²² Gray, *Postmodern War: The New Politics of Conflict*, 116.

³²³ Malešević, “The Organization of Military Violence in the 21st Century.”

³²⁴ Daniel Bolger, *Why We Lost: A General's Inside Account of the Iraq and Afghanistan Wars* (New York: Eamon Dolan Books, 2014); Julius Cavendish, “Snatching Defeat from the Jaws of Victory: How ISAF Infighting Helped Doom Sangin to Its Ongoing Violence,” *Afghan Analysts Network*, July 23,

Furthermore, the strategy, operational logic, and essential epistemological underpinnings of American-led counterinsurgency efforts as well as host-nation security-force assistance and development of the Afghans remains unchanged aside from methodological variations on overarching single-paradigm governed military doctrine and decision-making behaviors.³²⁵ Chapter five will provide several military design examples concerning contemporary conflicts where these paradox are in fact generating the demand for militaries to think differently and challenge previously unquestioned core beliefs on war.

There already exists significant research on the differences between premodern and modern militaries,³²⁶ in particular the difference between the low-technology yet high-intensity and extraordinarily violent premodern era of war and the limited, rule-based and highly politicized 'cabinet wars' of the early through mid-modernist era.³²⁷ In the 'limited war' Feudal Era of Europe, "the object of the campaign frequently was to reach a situation (by proper maneuvering) in which it could become clear that one's own side had a strategic or tactical advantage...At that point, the side that was likely to lose could capitulate with honor, after which everyone would go home."³²⁸ There was no 'operational layer' for war, with strategic thinking usually nested into immediate tactical applications, and in some conflicts the tactical battle would determine the strategic outcomes.³²⁹ 'Total war' could not be realized until the combination of technology and political objectives using the application of organized violence allowed for the creation of a 'state within a state' or an economy of war.³³⁰

2014; Defense Industry Daily Staff, "From Solution to Scrapheap: The Afghan AF's C-27A Transports," *Defense Industry Daily*, October 12, 2014, <http://www.defenseindustrydaily.com/c-27as-for-the-afghan-air-force-05094/>; Michael Pizzi, "Afghan Opium Cultivation Hits Record High, Fueling Taliban Insurgency," *Aljazeera America*, October 21, 2014, <http://america.aljazeera.com/articles/2014/10/21/afghanistan-opiumrecord.html>; Mattie Quinn and R. Jeffrey Smith, "U.S. Literacy Program for Afghan Military Comes up Short," *The Center for Public Integrity*, January 29, 2014, <http://www.publicintegrity.org/2014/01/29/14183/us-literacy-program-afghan-military-comes-short>.

³²⁵ The author served in two combat deployments to Afghanistan in 2011-2012 and 2013-2014 and during that period participated in or was a active contributor to operational level and national military strategy and campaign planning. Despite superficial and often politically motivated methodological variations, all strategic and operational planning activities would represent the formal and institutionally sanctioned military doctrine, policy, and organizational behaviors.

³²⁶ Bousquet, "Cyberneticizing the American War Machine: Science and Computers in the Cold War"; Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (London: HURST Publishers Ltd., 2009); Carl Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: John Hopkins University Press, 1989); Azar Gat, *War in Human Civilization* (New York: Oxford University Press, 2006); Colin Gray, *Modern Strategy* (Oxford, United Kingdom: Oxford University Press, 1999); Guerlac, "Vauban: The Impact of Science on War"; Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

³²⁷ Tetreault and Haines, "Postmodern War and Historic Memory," 2.

³²⁸ Rapoport, "Editor's Introduction to On War"; Tetreault and Haines, "Postmodern War and Historic Memory," 2.

³²⁹ Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 12-17.

³³⁰ Virilio and Lotringer, *Pure War*, 29.

Virilio, through a postmodern perspective offers the 1870s as the shift from limited wars to a different phase where societies maintain entire war economies oriented towards total war preparation in peace, or complete application of the national potential through logistical machination. He would posit the arrival of the 'post-industrial era' for western society beginning in the 1920s with the rise of Hollywood and "the de-realization of the world" therein.³³¹ This climaxed in the arrival of the nuclear weapon, the technological solution to the modernist military staff problem of how to achieve decisive victory. Gray cites Glover's observation of modernity and modern war gradually declining in moderation concerning the application of violence as technological development enabled greater weaponization. This culminated in 1945 with nuclear weapons, where "ironically enough, that very fireball marked the end, as well as the apotheosis, of total war. Limited war has returned to central stage since 1945, although moderation certainly has not."³³²

Malešević refers to this shift as the "cumulative bureaucratization of coercion" in war, where military violence could change its form and utilize new technological modes of expression, all the while increasingly gaining greater control of the process to monopolize violence more effectively. While nuclear weapons were terrifying, they could potentially achieve select political goals through a rather deliberate and objective application of violence without the traditional risks to one's own military in the execution of the enemy's destruction, at least initially and against non-nuclear adversaries. Further, the use of advanced war technology such as a nuclear device offers the bearer of that war system a level of precision (complete city-sized destruction) and sterility (total annihilation) unreachable with earlier or more primitive means. Societal outrage notwithstanding, nuclear weapons essentially provides what hundreds of years of previous military organizations had been seeking; the ultimate city destroying capability that a military could employ in order to force the adversary to surrender or definitively be destroyed. With technological developments open to one's adversary, the hasty arrival of "mutually assured destruction" and nuclear stalemate in the mid-twentieth century was also an expected and unavoidably violent development for technologically advanced humanity.

Malešević also suggests support of this transition from premodern to modern military concerning the application of violence, where "there was a shift from the Medieval type of violence defined by excessive cruelty and a very low military efficiency to the wars of modernity characterized by the gradual displacement of gruesomeness and greater military proficiency resulting in enormous human casualties (i.e. WWII)."³³³ What took thousands of soldiers over the course of months of campaigning using hand-wielded edged weapons hundreds of years ago could now be done quickly and cleanly by mere hundreds of aviator crews in bombers flying over a targeted city. Today, the ratio gets even smaller where a

³³¹ Virilio, *The Information Bomb*, 25.

³³² Gray, *Postmodern War: The New Politics of Conflict*, 110.

³³³ Malešević, "The Organization of Military Violence in the 21st Century," 467.

single soldier might wield a city-destroying device of technology. Furthermore, smaller groups of adversaries capable of what previously could be state-controlled instruments of power can now be independent of states themselves. This deconstruction, or perhaps the fragmenting and challenging of the Westphalian monopolization of organized violence leads to the next section in this chapter, and opens a Pandora's Box of new challenges in the twenty-first century expression of war and warfare.

The Postmodern Military Movement: On Controversy and Disruption

Despite widespread agreement on these first two major transformations of militaries from premodern to modern forms, *there is little consensus on this last proposed transformation* from the modern to a postmodern military form, or that of a modern military form functioning in postmodernity. Many frame the zenith of modernity in the twentieth century either around World War II, or as late as the Cold War, while arguments of the rise of postmodernity span across the same periods depending on the postmodern advocate. Baudrillard argues: "The true revolution of the nineteenth century, of modernity, is the radical destruction of appearances, the disenchantment of the world and its abandonment to the violence of interpretation and of history...I analyze the second revolution, that of the twentieth century, that of postmodernity, which is the immense process of the destruction of meaning, equal to the earlier destruction of appearances."³³⁴ His broad brush for this shift between modernity and postmodernity effectively captures most other nuanced postmodern arguments.³³⁵

Postmodern war advocates also frame the transformation in existential or primary security threat in modernity as that of a physical invasion of a nation's sovereignty or that of an ally, while the late modern period consisting of the Cold War centered around a nuclear threat of annihilation.³³⁶ "The power to destroy civilizations was the defining quality of the Cold War" as Moskos et. al discuss in *Towards a Postmodern Military*.³³⁷ Once the Cold War ended, many advocates of postmodern war saw the arrival of a new period where multipolarism, international systems, networks and dynamic transformations created new contexts for the application of organized violence.³³⁸ Gray captures the transformation of war from the modern context to the postmodern in not just the accelerated speed of information, technology and violence but the meaning and prominence of information set within postmodernity:

³³⁴ Baudrillard, *Simulacra and Simulation*, 160–61.

³³⁵ Baudrillard's assessment that modernity was born of the nineteenth century is, however, the exception to the vast majority of theorists for this project that align it with earlier sixteenth through nineteenth century developments such as the Industrial Revolution and the Enlightenment period.

³³⁶ Charles Moskos, John Williams, and David Segal, eds., *The Postmodern Military: Armed Forces after the Cold War* (New York: Oxford University Press, 2000), 14; Sookermany, "Military Education Reconsidered: A Postmodern Update," 314.

³³⁷ Moskos, Williams, and Segal, "Armed Forces after the Cold War," 2.

³³⁸ Sookermany, "On Developing (Post)Modern Soldiers," 14–23.

I call it postmodern war. Why choose “postmodern” over the other possible labels? There seem to be two good reasons. First, modern war as a category is used by most military historians, who usually see it as starting in the 1500s and continuing into the middle or late twentieth century. It is clear that the logic and culture of modern war changed significantly during World War II. The new kind of war, while related to modern war, is different enough to deserve the appellation “postmodern.” Second, while postmodern is a very complex and contradictory term, and even though it is applied to various fields in wildly uneven ways temporally and intellectually, there is enough similarity between the different descriptions of postmodern phenomena specifically and postmodernity in general to persuade me that there is something systematic happening in areas as diverse as art, literature, economics, philosophy and war.³³⁹

While Gray positions the start of ‘postmodern era of war’ as 1945³⁴⁰ and the conclusion of World War II with atomic bombings, other military academics differ and promote postmodernity occurring later with the Vietnam War,³⁴¹ the end of the Cold War,³⁴² or later still with the terror attacks of September 11th, 2001.³⁴³ Gray himself later offers that the Vietnam War would be the first ‘postmodern war’, although he may merely see the period of 1945 through the American withdraw of forces from Vietnam in 1975 as one major shift in how society understands and conducts war.³⁴⁴ In a subtle precursor to this notion of postmodern war, Virilio would frame the First World War as the first ‘total war’ of humanity *against* man, where nation-states employed the entirety of “the scientific complex ranging from physics to biology [to] psychology,”³⁴⁵ injecting a stylized sequencing of postmodernity that would lead to a post-industrial reality ushered in through Hollywood in the 1920s, nesting with Virilio’s emphasis on signs, information and narratives.³⁴⁶ The differences between which precise event or war denotes the first “postmodern war” is expected and similar to the disagreements by military historians on when Feudal Age militaries transformed into modern military form. Yet in some ways, there is less debate on the argument that international security and the current Westphalian Order for regulating war is also under attack.

Lockhart and Miklaucic refer to the last twenty-five years of academic acknowledgement that failing and failed states present a clear and significant risk to international security, yet a majority position on the plight of the Westphalian Order

³³⁹ Gray, *Postmodern War: The New Politics of Conflict*, 22.

³⁴⁰ Gray, 125.

³⁴¹ Gibson, *The Perfect War: Technowar in Vietnam*.

³⁴² Moskos, Williams, and Segal, “Armed Forces after the Cold War,” 4–7.

³⁴³ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*.

³⁴⁴ Gray, *Postmodern War: The New Politics of Conflict*, 48.

³⁴⁵ Virilio, *The Information Bomb*, 55.

³⁴⁶ Virilio, 25.

remains one that it is the “best of all worst possible options” and that “the best hope to retain and build on this progress is to preserve the system of effective sovereign states, ensure that states can perform required functions, and adapt this system to the needs and realities of the twenty-first century.”³⁴⁷ This particular stance represents a preservationist argument where the ‘modern Westphalian Order for war and the application of organized violence’ must be retooled and modified to remain relevant in what has become postmodernity. Gorka, in cataloging the last two centuries of declared/categorized wars asserts that due to the vast preponderance of wars being irregular, our militaries are entirely misoriented to what war actually is now within postmodernity.³⁴⁸ Gorka joins Lockhart and Miklaucic in promoting improvements to the current Westphalian system if only to improve its relevance to emergent alternative competitors that violate the original “war rules.” McFate joins this group by decrying ‘new rules for war’ within this post-Westphalian world.³⁴⁹ It is rarely state-on-state, yet the United States uses doctrine and military analytical methodologies to prepare and understand warfare in a manner that Gorka charges is the exact opposite to reality and what wars are actually most likely to continue to occur:

As a nation, we must move beyond outdated and Clausewitzian understandings of war as solely a functional operation of the nation-state. This is not to denigrate the Prussian’s genius. However, his description of war as a continuation of politics by other means was an idealized description of state-on-state war and as such is fit fine for describing and understanding World War II or the Gulf War, but definitely lacking when we face groups that are not motivated by politics as we understand them, like al-Qaeda or [the Islamic State]. Whether fighting Shaka Zulu in Africa in the 19th century, the Taliban in Afghanistan, or [the Islamic State] today, our adversaries do not play by the Clausewitzian rule book. His concepts of friction and fog still apply, but the idea that our enemies will make rational cost-benefit analyses about the reasons for going to war in ways that serve the *raison d’etat* really does not apply in the irregular domain, especially one in which our main enemy is transcendentally and apocalyptically motivated.³⁵⁰

³⁴⁷ Lockhart and Miklaucic, “Leviathan Redux: Toward a Community of Effective States,” 299.

³⁴⁸ Sebastian Gorka, “Adapting to Today’s Battlefield: The Islamic State and Irregular War as the ‘New Normal,’” in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 353–68.

³⁴⁹ McFate, *The New Rules of War*.

³⁵⁰ Gorka, “Adapting to Today’s Battlefield: The Islamic State and Irregular War as the ‘New Normal,’” 354.

Gorka supports earlier arguments concerning the issue of Clausewitzian logic dominating most all modern military logic, doctrine, and even terminology in the twentieth century, along with Paparone, Rapoport, Zweibelson and others.³⁵¹ Gray reinforces this by casting the Vietnam War as the first postmodern one, where Foucault's postmodern view that military over-infatuation with technological knowledge production, the influence of institutional power structures upon the 'rules of the discourse system' (in this case, rendering war a purely scientific, mathematical process), and the disruption of what knowledge regime produces the real or valued 'truth' manifest. Rappaport would, in his 1968 introduction to Clausewitz's *On War* make numerous alternative war frames for the Soviet Union and other adversaries that also seem to reject the modern war frame so readily assumed as universal and unquestionable by western industrialized forces.³⁵²

Despite this, since Vietnam the U.S. obsession with high-tech war has only increased.³⁵³ Virilio would refer to the wars of modernity as "carceral methods in which the soldier (or the condemned man) is no longer treated like an individual, but becomes...in Clausewitzian fashion, a resource to be mined like any other...*a disposable product*."³⁵⁴ The industrialized, scientifically rendered, total-war focused war machine would use and consume resources (including humans) as the ultimate power projection of modern Westphalian Order; war is the extension of politics just as the charging army is the extension of the dualist's saber. Lyotard charges the rise of the military industrial complex coinciding with World War II when militaries, governments, and industries would shift emphasis away from the 'ends of action' where the new technology of the atomic bomb did arguably end WWII, toward the means of war. Postmodernity instead features a perpetual technological fixation on the 'means of war' where societies permit their governments and militaries to invest extensively into new technological war techniques and systems that are a means to what has become a simulacra of ends; the 'ends' no longer exist and an empty illusion occupies that place.³⁵⁵

Gibson, also taking a military historian perspective that the modern military institution is now within a postmodernity for warfare, reflects in the late 1980s that

³⁵¹ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Rapoport, "Editor's Introduction to *On War*"; Christopher Paparone and William Davis Jr., "Exploring Outside the Tropics of Clausewitz: Our Slavish Anchoring to an Archaic Metaphor," in *Addressing the Fog of the COG: Perspectives on the Center of Gravity in US Military Doctrine*, ed. Celestino Perez (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2012); Ben Zweibelson, "Gravity-Free Decision-Making: Avoiding Clausewitz's Strategic Pull," *Directorate of Future Land Warfare, Australian Department of Defence*, Army Research Papers, no. 8 (2015): 60; WM.J Olson, "The Continuing Irrelevance of Clausewitz," *Small Wars Journal*, July 26, 2013, <http://smallwarsjournal.com/jrnl/art/the-continuing-irrelevance-of-clausewitz>; Alan Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," *International Security* 17, no. 3 (Winter, - 1993 1992): 59-90.

³⁵² Rapoport, "Editor's Introduction to *On War*."

³⁵³ Gray, *Postmodern War: The New Politics of Conflict*, 167.

³⁵⁴ Virilio, *The Information Bomb*, 33.

³⁵⁵ Lyotard, *The Postmodern Condition: A Report on Knowledge*, 37; Baudrillard, *Simulacra and Simulation*; Zweibelson, "Preferring Copies with No Originals: Does the Army Training Strategy Train to Fail?"

the traditional Westphalian, Clausewitzian driven military mindset continues to attempt to maintain a failing war frame even a decade after the Vietnam War defeat. "Since the same mechanistic theory of revolutionary war informs the war-managers today as it did over thirty years ago, and since the same organizational dynamics characterize today's military, the redeployment of Technowar can only result in another massive defeat."³⁵⁶ Gibson's warning in 1986 would be echoed again in 2016 by Gorka who, along with others, would argue that this shift towards some postmodernity for war is being entirely ignored or misunderstood by the military institution intent on extending an increasingly irrelevant war frame. It is now incompatible with contemporary adversaries that have abandoned the Westphalian 'rules' as well as the Clausewitzian war logics, presenting modern warfare as well past its due date.³⁵⁷ Gray would overlap postmodernity with a framing of technoscience and war, where "science is a religion, an ideology, even a cult...the relationship of the technoscience of [artificial intelligence] and doctrines and practices of postmodern war [requires one] to wonder about science's real powers and its limits and how they are entangled."³⁵⁸

Just as the U.S. forces were technologically and financially able to completely overmatch their North Vietnamese and Viet Cong adversaries, Gorka sees the U.S. continued overmatch against radical Islamic terrorists in the twenty-first century with: "we are peerless in our capacity to apply kinetic force on target...But counting Reaper hits against jihadi high-value targets is just as bad a metric of victory today as counting Viet Cong body bags was during the Vietnam War."³⁵⁹ In the nearly six decades between the official start of U.S. involvement in the Vietnam War and today's ongoing counter-terrorist and counter-insurgent quagmires in the Middle East, the western modern military institution continues to force a mechanistic, linear and Clausewitzian logic within the political framing of the Westphalian order upon all adversaries, state or non-state.

If indeed a new war movement (whether postmodern war, war in postmodernity, etc.) is upon society, a case must be made that previous modern methods (that were once successful) *are no longer so*. Contemporary military practitioners, political leaders, strategists and theorists are indeed aware that the existing dominant and hierarchical modes of waging war in state-on-state 'Great World Wars' style may be losing relevance, or changing so that previous power relationships no longer work as before. No one wants to fight powerful, technologically advanced militaries in high-intensity, state-on-state warfare except those same technological superpowers wielding clear war advantages. Atran, in addressing revolutionary movements and their resistance to previously well-engineered, modern military solutions to security challenges, observes that contemporary terror networks such as the Islamic State are paradoxically able to

³⁵⁶ Gibson, *The Perfect War: Technowar in Vietnam*, 459.

³⁵⁷ Gorka, "Adapting to Today's Battlefield: The Islamic State and Irregular War as the 'New Normal.'"

³⁵⁸ Gray, *Postmodern War: The New Politics of Conflict*, 76-77.

³⁵⁹ Gorka, "Adapting to Today's Battlefield: The Islamic State and Irregular War as the 'New Normal,'" 355.

exist and even thrive under conditions that used to entirely defeat and destroy previous adversaries:

During the surge of American troops in Iraq, up to three-fourths of the fighters were neutralized in al-Qaeda's Iraqi affiliate, which would become ISIL, and an average of about a dozen high-value targets were eliminated monthly for 15 consecutive months, including its top leader, Abu Musab al-Zarqawi. Yet, the organization survived and the group went on to thrive beyond all expectations amidst the chaos of Syria's civil war and Iraq's factional decomposition.³⁶⁰

With reference to postmodernity and whether the earlier state-centric stability of conflicts, the dominance of the centralized hierarchical form for military organizations (as well as criminal entities) may also be faltering. Dishman, in studying criminal and terrorist organizations notes that analysts used to be better at determining the goals, motives and impacts of terror groups and criminal entities like drug cartels because they used to follow a modern centralized hierarchical form.³⁶¹ Farah argues that the new relationships between adversarial nation-states and criminal as well as terror groups has changed, and along with it, the dynamics for understanding and acting for security challenges in this new world (of postmodernity): "In the construct of the new rules they are writing for their game, none of the state-sanctioned or state-sponsored activities with transnational organized crime (TOC) groups or terrorist groups are illegal or questionable- they are revolutionary tools to obtain a strategic objective."³⁶² Militaries themselves are considering organizational alternatives to the steeply centralized military hierarchy, with interest in decentralization, 'rounded organizations', technological enhancements to horizontal command and control, as well as some biomimicry of swarm theory and rhizomic structures.³⁶³ Rhizomic theory originates from biology but would be adapted by postmodernism and later still be introduced to militaries through the military design movement.³⁶⁴ The center-less rhizome is the antithesis

³⁶⁰ Atran, "The Islamic State Revolution," 67.

³⁶¹ Christopher Dishman, "Terrorist and Criminal Dynamics: A Look Beyond the Horizon," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 137–53.

³⁶² Douglas Farah, "Convergence in Criminalized States: The New Paradigm," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 181.

³⁶³ Sageman, *Leaderless Jihad: Terror Networks in the Twenty-First Century*; Ori Brafman and Rod Beckstrom, *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations* (New York: Penguin Books, 2006); Bousquet, "Chaoplectic Warfare or the Future of Military Organization"; Ben Zweibelson, "Let Me Tell You About the Birds and the Bees: Swarm Theory and Military Decision-Making," *Canadian Military Journal* 15, no. 3 (Summer 2015): 29–36; Yagil Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War," *Defence Studies* 14, no. 3 (2014): 310–32.

³⁶⁴ Chapter four details the use of rhizomes by Naveh in his military design concepts. He would draw from postmodern theory such as Deleuze and Guattari's "War Machine" usage of rhizomes.

to Clausewitzian 'centers of gravity' in war, providing one postmodern deconstruction of a strong modern military epistemological construct.

Yet not all contemporary adversaries appear rhizomic in organizational form or function, and many clear and dangerous enemies remain in a Westphalian ordered nation-state form. However, while adversarial nation-states remain significant threats, their actions no longer necessarily follow the modern or traditional frameworks for war and 'actions short of war' as before. Along with nation-states, non-state actors are increasingly able to assume state-like capabilities and characteristics for applying organized violence despite not being 'states.' Today, "ungoverned by hierarchical rules, today's networked actors are increasingly polymotivated and pursue a spectrum of criminal and terrorist activities."³⁶⁵ Antagonist groups such as Hezbollah, previously understood as a 'proxy' under the Iranian nation-state and a regional threat tied to particular geo-political and cultural frameworks is now presented as an entirely new sort of threat requiring new thinking, new terminology, and a change in how militaries understand and act in order to deal with it. Levitt posits: "The challenge Hezbollah poses has become global in nature...[it] can no longer be seen as an Iranian proxy and terrorist organization alone; it is now a powerful military force, a globally lethal terrorist organization, and a complex criminal and money laundering network."³⁶⁶ The modern interpretations of proxy terror elements are falling short within the postmodernity context for war, although many of the modern war effects such as targeting Hezbollah leadership still have significant results notwithstanding.

The analytic processes championed in the modern war frame are increasingly fragile or even irrelevant in the suggested postmodern war movement. This indicates another significant aspect of a shift away from the nation-state centered modern war construct towards something different and requiring new ways of thinking about war. Fussell and Lee illustrate the paradoxical "cause-effect" relationship of terror attacks across the world in 2003 prior to the invasion of Iraq by the most technologically advanced, resourced and trained military force arguably in human history. U.S. Special Operations Forces should be most able to conduct analytic optimization of war beyond most any other rival on the planet, yet "by the end of the year, there had been more terrorist attacks in Iraq alone than there had been in the entire world in 2003. And it only got worse. The forces that comprised the Special Operations Task Force had clear and undeniable points of superiority...despite all of these advantages, it was clear by 2004 that AQI was somehow outpacing some of the world's most highly trained and well-funded units."³⁶⁷ Despite nearly unlimited resources and almost comical technological

³⁶⁵ Dishman, "Terrorist and Criminal Dynamics: A Look Beyond the Horizon," 137.

³⁶⁶ Matthew Levitt, "Hezbollah's Criminal Networks: Useful Idiots, Henchmen, and Organized Criminal Facilitators," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 173.

³⁶⁷ Christopher Fussell and D.W. Lee, "Networks at War: Organizational Innovation and Adaptation in the 21st Century," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael

overreach against these low-tech, poorly equipped and informally trained adversaries, the U.S. military elite could only strike at an increasingly illusive and rapidly expanding enemy movement that seemed immune to virtually every indoctrinated method in the book.

Yet many critics of this postmodern movement continue to defend the Westphalian modern frame for what war is and how non-state actors, regardless of their capabilities for organized violence, are not about to displace the state or threaten Clausewitzian dominance anytime soon. Giddens presents a compelling and extensive critiques of postmodernism in his book *The Consequences of Modernity* by defending war in modernity:

But there are some key respects in which [non-state actors, business firms, groups] cannot rival that of states- especially important here are the factors of territoriality and control of the means of violence...All modern states have a more or less successful monopoly of control of the means of violence within their own territories. No matter how great their economic power, industrial corporations are not military organizations (as some of them were during the colonial period), and they cannot establish themselves as political/legal entities which rule a given territorial area.³⁶⁸

Yet Giddens' argument holds an ontological stance that reinforces the Westphalian Order as a principle defining political structure of modernity; that organized violence is directly linked to political choice and generated from clear borders and territorial possession within which exist a population, culture, economy, and a national identity of some form. Giddens and others reject postmodern arguments that will be presented here coming from the postmodern philosophers considering war and whether Clausewitzian logic is now inverted, deconstructed, or increasingly irrelevant. Giddens himself challenges some aspects of Clausewitzian logic within the narrow nation-state confines of 'total war' applications in the nuclear age of warfare,³⁶⁹ however this should not be conflated with postmodern arguments that operate from dissimilar ontological and epistemological stances. Despite Giddens' opposition to the idea of a 'postmodern war', his appreciation of modernity and organized violence pivoting away from previous war logic since 1945 is consistent with many postmodern arguments to be presented.

World War II provides the clearest representation of societies and their militaries seeking a rationalized and scientific way to apply organized violence within a modern war frame. The success of World War II also would penetrate deep

Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 372.

³⁶⁸ Giddens, *The Consequences of Modernity*, 70–71.

³⁶⁹ Giddens, 75.

into military services and shape their belief systems profoundly, as Builder articulates in his RAND study of the U.S. Army, Air Force and Navy.³⁷⁰ Militaries extended these belief systems well into the late twentieth and early twenty-first centuries with greater technological advances, extensive military doctrine and sophisticated military professionalization that would prepare them for victory in a modern war era, but not in postmodernity. Gray would critique this over-emphasis by modern militaries seeking to become the primary goal to reduce the complexity of war through rigid use of numbers and formulas. He critiques them of becoming over-reliant on a system of war rules and procedures that become ineffective and even irrational despite the original intent.³⁷¹ Fussell and Lee diagnose the failings of American and allied forces in Iraq as an institutional misunderstanding of postmodernity of war where the logic and methods applied remained entirely modern:

As in most hierarchies, the [U.S. Special Operations forces in Iraq 2003] were grounded in the fundamental belief that information is power and that the ability to gather information from multiple silos and synthesize it into knowledge and insight that others could not produce is the source of ultimate power and respect. But playing an industrial-age game while the external system is operating by the rules of the information age adds incredible risk and is destined for failure.³⁷²

Arguments supporting a 'postmodernity' of war advocate that the Westphalian order, previously dominant for the last three to four centuries, is now either in jeopardy or already dismantled. The contemporary and emergent threats to the Westphalian order are no longer other nation-states, empires or even proxies controlled and resourced by parent states, but an *alternative to the nation-state*. Stern posits after the elimination of al-Zarqawi in 2006, ISIL "formed a hybrid criminal organization, proto-state, and apocalyptic cult that flaunts its brutality over social media... Thus, in 2006, the organization was already beginning to see itself as an alternative to a state."³⁷³ These alternatives are able to exist now, in the technologically advanced, socially networked, and hyper-integrated reality of the twenty-first century where modernity (nation-state form) is confronted by postmodernity (alternatives to the nation-state). Farah supports this position by highlighting the tensions between the modernist system of governance and military affairs with contemporary security challenges:

³⁷⁰ Builder, *The Masks of War: American Military Styles in Strategy and Analysis*.

³⁷¹ Gray, *Postmodern War: The New Politics of Conflict*, 95.

³⁷² Fussell and Lee, "Networks at War: Organizational Innovation and Adaptation in the 21st Century," 372.

³⁷³ Jessica Stern, "ISIL and the Goal of Organizational Survival," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 194.

The emergence of a bloc of states that has a fundamentally different understanding of the role of government and rule of law than those espousing a liberal democratic model have altered and accelerated the convergence of [transnational organized criminal] groups and some terrorist entities...The shattering of the once-shared Westphalian consensus has created a new and dangerous dynamic where groups traditionally viewed as illicit actors (e.g., the FARC, Hezbollah, and Russian organized crime groups) can seek not only sanctuary but state sponsorship for their ideological and economic objectives...A state that has chosen to play a new game with its own rules is quite different from a state playing by the Westphalian system but struggling with endemic violence, corruption, or governance issues.³⁷⁴

What is far less clear is whether any new methodology for warfare is emerging to replace the traditional, linear and mechanistic modes for thought and action in modern warfare. Indeed, the next several chapters attempt to demonstrate that military design theorists and practitioners are the only champions of a new way of warfare, as well as in some cases a new way of realizing war itself. Postmodern military advocate and former Israeli Defense Force Division Commander Gal Hirsch posits:

Time and time again it has been demonstrated that the old, classic concept of decisive victory is irrelevant in asymmetric warfare. Continuous learning and accumulated achievements are more relevant. An army must learn how to transform from a wall into bricks, and when necessary, to master the ability to collect all its bricks into a new wall, according to the context....War entails learning and creating. It is a continuous process of creation, contradicting what has been created, reconstruction, and so on and so forth- all under harsh conditions and under great pressure. The division commander's greatest challenge is the continuous translation from the vast accumulation of operational understandings to the techno-military realm. From idea, concept, and creation, to plans and orders, briefings and debriefings, training and preparations for the mission. It isn't easy. Laying the bridging network between the echelons and the components of military actions is a work of art. I believe that this is the art of war in our time.³⁷⁵

³⁷⁴ Farah, "Convergence in Criminalized States: The New Paradigm," 188–89.

³⁷⁵ Gal Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch* (Jerusalem: Gefen Publishing House, Ltd, 2016), 343.

Note that instead of emphasizing 'military science' as what is more popularly expressed in modern warfare, Hirsch discusses the artistry and perpetual iterations of learning, experimenting, synthesizing, and communicating new and potentially paradoxical or destructive ideas in war for the military organization. This is a postmodern stance, and although few have articulated as clearly and publicly as Hirsch there is a pattern of emergent growth in the embrace of these radical ideas within militaries.

Taking the sociological position in postmodern theory first discussed in the introduction, Moskos proposes that the emergent postmodern threat shifted to that of ethnic violence and terrorism.³⁷⁶ Here, postmodern acts of war are not clearly aligned with specific nation states or prone to isolation and prediction. This reinforces the ideas of the last section where individual actors and groups now are disrupting what had previously been monopolized exclusively by nation-state capabilities for organized violence. Virilio targets the Israeli attack on Beirut in 1969 as the shift where nation states adapted terrorist behaviors in order to defeat perceived postmodern threats, ushering in a postmodern era of perpetual state-crimes, economic war machines, and the disappearance of politics in any traditional format able to arbitrate concerning organized violence.³⁷⁷

McFate later posits a similar argument evoking some postmodern perspectives with: "traditionalists cannot contemplate wars without states, even though such wars surround us."³⁷⁸ The postmodern adversary could apply instruments of state power without needing to be a nation state in the modernist Westphalian model³⁷⁹; the postmodern multipolar dynamic could explore the application of organized violence in novel ways previously unimagined or potentially unreachable from modern or premodern societies.³⁸⁰ Williams in his conclusion in "The Global Crisis of Governance" proposes a post-Westphalian model for the twenty-first century where "variations on state-building based on a Westphalian ideal...is increasingly passé...in the twenty-first century, the only forms of governance that are likely to be sustained in large swaths of the world are those that are, in effect, post-Westphalian."³⁸¹ Gilman, writing similarly, proposes that

³⁷⁶ Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 25; Moskos, Williams, and Segal, *The Postmodern Military: Armed Forces after the Cold War*, 14.

³⁷⁷ Virilio and Lotringer, *Pure War*, 41–42.

³⁷⁸ McFate, *The New Rules of War*, 182.

³⁷⁹ Hilary Matfess and Michael Miklaucic, "Introduction: World Order or Disorder?," in *Beyond Convergence: World Without Order* (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), ix.

³⁸⁰ Examples of the Arab Spring and the use of smart-phone technology, social media, and hacking online platforms is valid here; previous revolutions and insurgencies applied similar acts of violence but were organized and made decisions differently. Premodern war featured plenty of insurgencies and unconventional warfare. However, those contexts lacked the different capabilities, new domains for war such as cyberspace, and the modes for sharing information and increasing networks of people and ideas that the postmodern world enjoys prolifically.

³⁸¹ Williams, "The Global Crisis of Governance," 41.

contemporary insurgencies reflect a post-Westphalian postmodernity where “the replacement of the Westphalian ideal of uniform authority and rights within national spaces [occurs] by a kaleidoscopic array of de facto and de jure microsovereignties.”³⁸² This indeed suggests a shift in governance from a modern military movement into what is postmodern for the application of organized violence.

The postmodern argument also includes concepts where destruction is not necessarily of pure physical ends and means, but also where the social construction of reality and rich networks of information and relationships are now exchangeable with tangible bombs and territory. “The world is crisscrossed by networks, some based on ties like ethnicity or nationality, others on shared ideas, concerns or ideology...advancements in communication technology, especially the ability to meld reality and fantasy...confuse the young and the unstable who then feed each other’s delusions via virtual communications.”³⁸³ Reality exchanges with fantasy, and the virtual with the tangible to blend society into hybrids that may lose track of where one ends and the other begins.

Sookermany notes: “the postmodern describes a world in continuous change where existing knowledge is under constant pressure and meaning ‘floats.’”³⁸⁴ In these paradoxes, one can apply postmodern theory to deconstruct why in Vietnam “in order to save the village, we had to destroy it” and other appropriate contradictions. Virilio illustrates this in *The Information Bomb* where he describes an inversion of modernity due to globalization, technology, speed of information, and social networks where reality still attempts to apply organized violence through military forces:

For the US general staff, then, the pips are no longer inside the apples, nor the segments in the middle of the orange; *the skin has been turned inside out*. The exterior is not simply the skin, the surface of the Earth, but all that *is in situ*, all that is precisely localized, wherever it may be. There lies the great Globalitarian transformation, the transformation which extraverts localness- all localness- and which does not now deport persons...but deports their living space.³⁸⁵

Bloomfield, Burrell and Vurdubakis support Virilio’s position through an organizational theorist perspective by positing twenty-first century warfare was becoming ironically symmetric in the effects of organized violence yet through

³⁸² Nils Gilman, “The Twin Insurgencies: Plutocrats and Criminals Challenge the Westphalian State,” in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 54.

³⁸³ Steven Metz, *Armed Conflict in the 21st Century: The Information Revolution and Post-Modern Warfare* (Carlisle, PA: Strategic Studies Institute, 2000), 7.

³⁸⁴ Sookermany, “Military Education Reconsidered: A Postmodern Update,” 312.

³⁸⁵ Virilio, *The Information Bomb*, 10.

different means. High-technology nations could employ precision war drones that “hide patiently in the skies dealing unseen death” yet low-technology non-state groups using terror could “also hide in plain sight among urban crowds and migrant flows” where the violence once applied is rapid, unexpected, and decisive.³⁸⁶ The technological advancements of the nation-state in this postmodern world would adapt similar terror-like qualities, while resource-restricted decentralized adversaries sought to use terrorism in war to address critical vulnerabilities of the post-industrial nation-states and their sophisticated yet vulnerable networked societies.³⁸⁷ There is a sense of dark comedic undertones in this treatment of war, which leads into later discussions of the postmodern comedian of war.

While the modernist military form relied on a single overarching metanarrative on defining belief structures concerning race, gender, sexuality, ethnicity, and ideology within the application of a military organization, the postmodern military would disrupt and challenge this within many industrial, western or Anglo-Saxon influenced societies. The transition from large-scale mandatory drafts to an all-volunteer military service, the elimination of status-based or bloodline concepts for officer service so that merit based promotions occurred, and the inclusion of previously undesired groups for combat roles on the basis of ethnic, religious, gender or lifestyle represent the fragmentation of once dominant military metanarratives.³⁸⁸ The professionalization of the military force took on career structures and a managed body of knowledge that required full-time specialized people selected by ability and skill.³⁸⁹ This in turn would calcify in modern military organizations, creating contexts that postmodern military theorists could highlight as counterintuitive to the overarching desires of warfighting institutions and the application of organized violence.

Postmodern Military Arguments and Critiques:

As stated in the last chapter, one of the major challenges with focusing the postmodern military argument is that few using the term ‘postmodern’ can agree on a definition, or common epistemological structure for their logical positions.³⁹⁰ Some rely on the same paradigm as that employed by the modernist military form, such as using a functionalist paradigm to promote a modern war frame that merely needs to be adapted or incrementally improved to better deal with *war in*

³⁸⁶ Bloomfield, Burrell, and Vurdubakis, “Licence to Kill? On the Organization of Destruction in the 21st Century,” 11; Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 208–9; McFate, *The New Rules of War*, 221–33.

³⁸⁷ Williams, “The Global Crisis of Governance.”

³⁸⁸ Moskos, “Toward a Postmodern Military: The United States as a Paradigm,” 22–25.

³⁸⁹ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*; Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*; van Creveld, *The Training of Officers: From Professionalism to Irrelevance*.

³⁹⁰ Grant Martin, “Re: Draft Postmodern Chapter Zweibelson Thesis Work,” September 19, 2019.

postmodernity, as McFate, Williams, Gorka, Atran, Dishman and others advocate.³⁹¹ Dishman's conclusion warns: "states will face unprecedented challenges to maintaining and developing instruments of power [such as militaries] in the face of a nimble and resourceful competitor,"³⁹² and Lockhart and Miklaucic defend the modern military system with "the best hope to retain and build on this progress is to preserve the system of effective sovereign states...and adapt the system to the needs and realities of the twenty-first century."³⁹³ Gorka demands the West "be able to effectively assist our allies, defeat our shared enemies, and secure the Republic once more."³⁹⁴ These military academics acknowledge the context of war and modernity has shifted, that our militaries and governments have failed to realize this or adapt to the changes, and that warfare must be approached differently in postmodernity than what was previously accepted as sufficient for earlier security challenges. Yet, this stance does not endorse postmodern theory, nor advocate for postmodern interpretation or associated deconstruction of the modern war frame in order to replace it or provide a postmodern alternative. This first group is larger, and contains advocates that profess a postmodernity of warfare, and/or employ a postmodern style that draws from postmodernism but only to retain or improve the existing modern war frame still underpinned by the functionalist paradigm, as well as often an epistemological fixation on a stratification of functionality, with a causal system of inputs and outputs in war that link political goals to military end-states.³⁹⁵

This second group that employs postmodern theory do so both endorsing the aforementioned postmodernity of war, a postmodern style of inquiry, but also utilizing postmodernism in order to challenge, disrupt, and deconstruct dominant war frames of modernity. This can be accomplished through direct application of postmodern philosophical theory, or through social paradigm theory where different social paradigms generate dissimilar (even incommensurate) ontological and epistemological structures for making sense of warfare as well as war itself. The next several chapters contain different commercial and military design methodologies where designers are demonstrating either being in the first or second group. Paparone, in his sociological study of military organizations, doctrine, and design theory emphasizes social paradigm theory and a postmodern style of inquiry and engagement while also incorporating postmodernism through theory as operationalized within select social paradigms.³⁹⁶

Paparone offers what he describes as within a Lyotard theoretical frame (drawing from postmodern theory) where "postmodernism, is more of an attitude toward the socially and or materially constructed world of

³⁹¹ McFate, *The New Rules of War*; Williams, "The Global Crisis of Governance"; Gorka, "Adapting to Today's Battlefield: The Islamic State and Irregular War as the 'New Normal'"; Atran, "The Islamic State Revolution"; Dishman, "Terrorist and Criminal Dynamics: A Look Beyond the Horizon."

³⁹² Dishman, "Terrorist and Criminal Dynamics: A Look Beyond the Horizon," 150.

³⁹³ Lockhart and Miklaucic, "Leviathan Redux: Toward a Community of Effective States," 299.

³⁹⁴ Gorka, "Adapting to Today's Battlefield: The Islamic State and Irregular War as the 'New Normal,'" 367.

³⁹⁵ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 116–17.

³⁹⁶ Paparone, 105–46.

modernity...postmodernism is an alternative stance- that stance is to criticize an otherwise unchallenged modernism.”³⁹⁷ Another advocate of postmodernity and use of a postmodern style, Martin offers additional context with regard to postmodernism and military affairs, proposing, “the conservative scholars- and most of the military- view the term [postmodernism] with intense distaste, blaming it for identity politics, political correctness, neo-Marxism, the pronoun wars, intersectionality madness, the never-ending oppressed/offended narratives, etc.”³⁹⁸ Martin goes on to suggest progressive or liberal disdain (American political terminology assumed) accuses postmodernism of be largely disruptive without any scientific rigor within the replacement effort following the disruption. Norwegian military postmodernist and war college educator Sookermany is also within this smaller secondary group where postmodernity and postmodernism can be utilized within military design praxis. In a series of group e-mail exchanges with this author, Sookermany concurs with Paparone and adds, “in my use I tend to see it as a conceptualization of an alternative understanding, mindset or practice.”³⁹⁹ Sookermany’s lengthy correspondence is worthy of full inclusion below:

The term [postmodernism] is deceitful as it labels something as coming after (post) the modern, hence we are immediately drawn to the concept of periodization. And from there we think of it in terms of eras. Foucault and others [warned] us of this, arguing the concept of periodization itself is a modern construct. He, and I believe Lyotard, rather talk of a postmodern movement. I tend to agree, thus if I were to quarrel a bit with [Paparone] I would argue that in a Kuhnian sense I see the postmodern as the moment of crises in normal sciences. I do not see Kuhn as a postmodernist, but applying a conception of Derridean deconstruction to Kuhn I argue that the postmodern is found in-between two states of the modern. But bear in mind, I am not talking of the in-between as the era in-between, I am talking of the mode, the attitude in the space- constantly looking for other, different perspectives, angles, understanding and so on. Thus, by modern I imply an understanding of the normal, the mainstream that which to some extent is or has become taken-for-granted. In a Feyerabedian way this is where anything goes- who has the best idea? Which eventually is (temporarily) solved by who are able to amount the sufficient support for their theory, mindset or even practice that for that sake to become the next taken-for-granted normal. Writing on or in the vicinity of the postmodern is challenging, as readers are bound

³⁹⁷ Christopher Paparone, “Re: Draft Postmodern Chapter Zweibelson Thesis Work,” September 18, 2019.

³⁹⁸ Martin, “Re: Draft Postmodern Chapter Zweibelson Thesis Work,” September 19, 2019.

³⁹⁹ Anders Sookermany, “Re: Draft Postmodern Chapter Zweibelson Thesis Work,” September 19, 2019.

to have their particular understanding of what it is, which leaves the author with a responsibility to make his or her case visible.⁴⁰⁰

Sookermany above mentions multiple postmodern theorists while also addressing Kuhn and paradigm theory, while discussing modern and postmodern for war frames. In an interesting yet expected paradox, the military design community's utilization of postmodern theory once detected by postmodern theory advocates outside of the military draw concern. The application of postmodern theory by the military itself is somewhat ironically at odds with the concepts originally intended for its own criticism and potential destruction; militaries ought not adapt and incorporate the concepts composed in opposition of their own existence.⁴⁰¹ Primary source postmodernist philosophers that originally criticized modernist military form and function actually inspired the first of the military postmodernist theorists, such as Naveh, Sookermany, Paparone, Gracier, Beaulieu-Brossard, Jackson, Zweibelson, Butler-Smith, Dufort and others.⁴⁰² Military practitioners that have both applied postmodern theory in combat or security contexts (and recorded these accounts or published them) include Hirsch, Whale, Martin, and Zweibelson.⁴⁰³ This might be unexpected with respect to the original intent and direction of postmodern theory in the 1970s-80s, and potentially the military experimentation with postmodern theory originally designed to challenge traditional power structures such as military instruments of power could make military design newcomers the uninvited guests of this blending of disciplines and theory.

Nonetheless, military design uses these theories and attempts to integrate them within security contexts to ultimately enable and further empower military institutions. The aforementioned military postmodernists draw from earlier postmodernists that examined war through a postmodern frame, yet these critical predecessors did not attempt to generate novel meaning and behavior of a military so that a postmodern force might gain future advantage. Nor likely would traditional military organizations of the 1970s-80s be particularly interested in such pursuits, outside of select and marginalized exceptions.⁴⁰⁴ Virilio, Baudrillard, Foucault, Deleuze, Guattari, Chia, Ranciere, Julien, and others provide the shoulders upon

⁴⁰⁰ Sookermany.

⁴⁰¹ Interestingly, this author has previously published military applications of postmodern theory since 2010 and has on multiple occasions been challenged by postmodern academics that found the application of such ideas by the military (part of the state-centric power system) as contradictory to the original postmodern intent. See also: Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," in *Concepts at Work: On the Linguistic Infrastructure of World Politics* (Ann Arbor: University of Michigan Press, 2020), 1.

⁴⁰² Not all of these authors self-identify as 'postmodern' and some may even reject such labeling. However, their utilization of postmodern concepts in military contexts for various design theoretical and practical applications permits the author to use this very loose categorization.

⁴⁰³ These examples are presented in chapters four through six of this project.

⁴⁰⁴ In particular, the U.S. Army's brief experimentation with New Age theories in the 'Delta Force' Special Operations organization will be discussed in this project. This unit would later become the subject of a major motion picture called *The Men Who Stare at Goats*.

which military postmodernists now stand upon. All of these postmodern philosophers contributed to the rise of military design theory and practice across most militaries today. Graicer, Butler-Smith, Naveh, Ryan, Beaulieu-Brossard and others describe the significance of postmodern ideas upon the military design movement, as well as the difficulty in relaying those challenging concepts across the broader military community.⁴⁰⁵

In perhaps the most well documented and public examples of direct postmodern design applications in warfare, Gal Hirsch detailed his incorporation of Deleuze and Guattari's 'War Machine' chapter from their book *A Thousand Plateaus*. Hirsch, an Israeli Special Operations Commander, would use postmodern theory directly in his Galilee Division's war preparations in 2005 prior to the Second Lebanon War. Hirsch would particularly focus on the concern of Israeli soldier abductions which had become a powerful terror tactic within the Israeli security context. "Every week we convened planning and learning groups to evaluate possible scenarios...I personally led battalion and company commander gatherings which were held on a regular basis, where we thoroughly briefed, learned, and discussed lessons."⁴⁰⁶ While Hirsch learned postmodern military design theory from Naveh and this period will be explored in great detail in the fourth chapter, some useful initial summarizations can be offered here for the reader. Hirsch's unit would term the operational development for dealing with potential abductions as well as their broader response to the threat of war as the 'War Machine,' a direct lift from the Deleuze and Guattari chapter. Virilio also employs the concept in *The Information Bomb* in a different context of art exhibits, sexuality, and the ever-drifting edge of 'obscenity' understood by society.⁴⁰⁷ Thus, 'war machines' are conceptual and not directly controlled or driven by causal human decisions; they drift and transform social understanding as they move. Hirsch explains the SOD-inspired activities of his division for Israeli military operations:

During the preparation processes for war, a designated team conducted weekly brainstorming sessions addressing systemic needs, from conceptualization to operational representation, in tactical structures and battle techniques...These meetings raised again and again the understanding that in our northern border, as in any campaign, we were operating in a unique context, and it was essential to build a tailor-made package suitable for the situation. We codenamed our response toward the threat of war "War Machine,"

⁴⁰⁵ Alice Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought," in *Cluster 3* (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces, Canadian Forces College, Toronto, Canada: unpublished- Canadian Forces College internal document, 2016), 1-5; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020; Graicer to Zweibelson, "Re: A Question for You Four (and Shimon) for My Introduction Research Chapter," April 13, 2020; Shimon Naveh, Interview with BG (Ret.) Shimon Naveh, digital transcript, November 1, 2007.

⁴⁰⁶ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 203.

⁴⁰⁷ Virilio, *The Information Bomb*, 49-50.

and built separate “machines,” or operational solutions, for each segment along the border.⁴⁰⁸

This postmodern incorporation into military practice was not merely in name; Hirsch’s ‘war machine’ concept shared multiple characteristics pulled out of the Deleuze and Guattari philosophy and appropriated for this new state apparatus for applying organized violence. The Galilee Division’s ‘War Machine’ required its logic to remain context related, with “different contexts [leading] to different types of machines, and besides being an organizational framework, it was also ready to assimilate and adapt to specific contexts, and could become an autonomous system for a given context and specific need.”⁴⁰⁹ ‘War Machines’ are part of a series of challenging postmodern concepts introduced by Deleuze and Guattari, including ‘assemblages’ which has also been presented in military applications as a new and alternative way of thinking about war.⁴¹⁰ The incorporation of these ideas is difficult, requiring careful introduction and language refinement. Hirsch’s unit focused their design concept on changing and complex signatures, where it was supposed to “sustain multidimensional regional control, blended into the environment...its organization was versatile and modular- in different contexts it would be able to absorb changes in its formation and types of resources, both from a command standpoint and as related to coordination and implementation of the maneuver.”⁴¹¹ Whether the unit successfully accomplished this or if it is possibly Hirsch’s rose-tinted reflection of his time in command cannot be decidedly concluded from the operational results of his unit. Yet his personal accounts at least demonstrate a clear attempt to apply postmodern theory into what the same postmodern theorists would decry as the ‘state apparatus of power’ that their concepts were meant to disrupt and deconstruct, not assist and enable in warfare. That his unit applied these concepts and succeeded creates another post-mortem paradox: would a military using new design concepts be successful despite them and only due to existing modern planning foundations, or would those planning foundations caused greater failure than if postmodern ideas were not introduced? In Hirsch’s examples as well as subsequent military design attempts in the American forces, proponents of both sides would become entrenched on this issue.

While assuming a sociological approach appreciating a postmodernity of warfare but without postmodernism therein, Moskos et al. approach the concept of the postmodern military shift with an emphasis on organizational studies and social science. They look at how militaries in postmodernity have changed or still require incremental, evolutionary developments along social, cultural, and ethical lines for

⁴⁰⁸ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 203.

⁴⁰⁹ Hirsch, 203–4.

⁴¹⁰ Ben Zweibelson, “Three Design Concepts Introduced for Strategic and Operational Applications,” *National Defense University PRISM* 4, no. 2 (2013): 87–104.

⁴¹¹ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 204.

defense policy and administrative considerations within postmodernity. The military form and function as rendered in modernity is no longer sufficient. Technological advancement devoid of sociological concern will not make these changes, and Moskos frames these challenges with his co-authors so that while technological development clearly contributes to new and advanced military lethal capabilities, the sociological transformation towards a postmodern military adapts subjective, socially constructed elements of reform.⁴¹²

Sookermany also supports this critique of unchecked technological development for war, citing Kaldor by proposing that the postmodern shift for militaries has occurred due to sociological rather than technological transformation. "There has been a revolution in military affairs, but it is a revolution in the social relations of warfare, not in technology."⁴¹³ Social sciences frequently draw from postmodern aspects of rejecting physical science reductionism and positivism,⁴¹⁴ and within military contexts the emergence of military social science studies coinciding with postmodern critiques of war theory; however sociology is not directly interchangeable with postmodernism. In Moskos et. al's case, they collectively frame a theoretical model of military transformation of function by addressing the organizational structure, mission, and socially directed behaviors without moving beyond any philosophical considerations beyond that of functionalism.⁴¹⁵ Moskos and numerous military sociological treatments of the military in postmodernity retain a scientific extension of the functionalist paradigm and do not attempt to challenge or deconstruct this from postmodern alternative frames.

Mäder, in addressing the British military within postmodernity of warfare makes a similar sociological focus on British military doctrine development. He frames this within this postmodern era of significant social transformation, with technology taking a backseat to how those social values interpret new technological assimilation for war.⁴¹⁶ Again, these approaches embrace postmodernity without engaging in postmodernism to challenge the modern sociological frames that posit this modernity-to-postmodernity war shift. By focusing their scope to social context concerning a postmodern shift in defense organizations concerning gender identity, military roles, strategic role, relationship with the nation-state, and the change in

⁴¹² Moskos, "Toward a Postmodern Military: The United States as a Paradigm"; John Williams, "The Postmodern Military Reconsidered," in *The Postmodern Military: Armed Forces after the Cold War*, ed. Charles Moskos, John Williams, and David Segal (New York: Oxford University Press, 2000), 265–77; Moskos, Williams, and Segal, "Armed Forces after the Cold War."

⁴¹³ Sookermany, "On Developing (Post)Modern Soldiers," 55.

⁴¹⁴ Boisot and McKelvey, "Integrating Modernist and Postmodernist Perspectives on Organizations: A Complexity Science Bridge," 419.

⁴¹⁵ Putnam, "The Interpretive Perspective: An Alternative to Functionalism," 40–44.

⁴¹⁶ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 190.

service selection, Moskos and his sociologist contemporaries produce a social science argument on postmodern military function.⁴¹⁷

There appear to be some overlap and conceptual interplay between sociologists and postmodern philosophers peering at this modern-postmodern military transformation. Postmodern philosophers and postmodern sociologists both somewhat agree that the transition between the modernist military and a postmodern one occurred in the mid-to-late twentieth century where the collapse of communism, the end of the Cold War, the rise of technological real-time information, and the advancement of international, plural networks forced militaries into major transformative contexts.⁴¹⁸ Moskos et. al observe: "Postmodernism began to infiltrate social theory by the early 1980s and to subvert absolute values and metaphysical foundations... Postmodernism subverts absolute values and introduces a profound relativism into discourse."⁴¹⁹ While Moskos cites 'postmodernism', his examination of military debate and transformation return to an ontological stance that societies have entered the context of postmodernity, and while his usage of postmodernism interchangeably with 'postmodern' muddies the water, at best he and his co-authors operate in a postmodern style that does not challenge dominant ontological or epistemological constructs of the modern military war frame.

Many of the institutional processes established in the premodern military form began to transform, buckle or fade away as the modern military frame matured through the twentieth century towards the late-modern and postmodern developments. Lineage began to have far less impact on military officer selection and progression, while color, creed and social standing also became opportunities for military service instead of barriers.⁴²⁰ The elimination of the draft and the rise of an all-volunteer force⁴²¹ coupled with a shift away from total-war high intensity conflicts appeared at the time of Moskos' and collaborators' writing in the late 1990s to indicate a postmodern shift towards peacekeeping and humanitarian missions.⁴²² Their argument may be diminished by the events of September 11th, 2001 and the last twenty years of counter-terrorism endeavors in Afghanistan, Iraq and other regions of the world have made for much more active and lethal military activities. However, their position that the postmodern shift away from pure military tasks and roles and towards significant non-military ones remains valid nonetheless considering global security trends. Some arguing the same postmodern

⁴¹⁷ Moskos, Williams, and Segal, "Armed Forces after the Cold War," 1-5; Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 30; Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 26-27.

⁴¹⁸ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 21-25.

⁴¹⁹ Moskos, Williams, and Segal, "Armed Forces after the Cold War," 4.

⁴²⁰ Williams, "The Postmodern Military Reconsidered," 268-72.

⁴²¹ Sookermany, "On Developing (Post)Modern Soldiers," 21.

⁴²² Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," 5; Moskos, Williams, and Segal, "Armed Forces after the Cold War," 3; Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 9-10.

shift wrote these positions after the start of the U.S. led invasions of Afghanistan and Iraq and thus were aware of the shift towards expeditionary counterinsurgency activities after 9-11 terror attacks.⁴²³ The postmodern military would decompose the traditional sense of military identity to include roles, purpose, loyalty to the nation-state, and function.⁴²⁴

The apolitical role of military professionals as defined in the modern military war frame would also be disrupted by an increasingly politically active and less neutral postmodern military professional.⁴²⁵ The stoic military leaders of the Great Wars, often summarized with quotes by general officers such as Patton illustrate a military professional as apolitical and in service of the nation regardless of personal political values. "I am in the pay of the United States government...if I vote against the administration, I am voting against my commander in chief" as Patton once stated on the need to remain above the fray of political winds.⁴²⁶

Yet in the postmodern movement beyond the familiar trappings of modernity and war, officers that attempt to continue the stoic apolitical stance of "notable senior officers who expressed that they chose not to vote while in uniform...[generals] Ulysses Grant, George Marshall, George Patton and Dwight Eisenhower among them"⁴²⁷ are becoming a minority, according to Ham and others. Ham critiques the modernist stance on apolitical officers by offering that a military officer must remember "our oath of office requires you to embrace those decisions as your own and to fulfill those orders and directives to your fullest ability. To do otherwise is to fail in your obligations as an officer."⁴²⁸ The postmodern military professional can now be politically active and even express contrary views to mainstream or conventional politics, provided they do not violate regulations for rules of professional conduct and behavior. War in postmodernity blurs the previously clear divisions between politics and the apolitical application of organized violence by a military instrument of power for foreign policy objectives.

The technological developments extending human capability as well as duration of optimized military effort/activity now challenge the modernist military personnel system. The 'freshness date' for produce no longer serves as a useful metaphor when considering military professionals and their capacity to contribute

⁴²³ Boisot and McKelvey, "Integrating Modernist and Postmodernist Perspectives on Organizations: A Complexity Science Bridge"; Lucas Jr., "Postmodern War"; Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," 4; Sookermany, "On Developing (Post)Modern Soldiers"; Sookermany, "Military Education Reconsidered: A Postmodern Update"; Tetreault and Haines, "Postmodern War and Historic Memory."

⁴²⁴ Moskos, Williams, and Segal, "Armed Forces after the Cold War," 4-5.

⁴²⁵ Don Snider, "America's Postmodern Military," *World Policy Journal* 17, no. 1 (Spring 2000): 51.

⁴²⁶ M.I. Cavanaugh, "I Fight for Your Right to Vote. But I Won't Do It Myself," *The New York Times*, October 19, 2016, online edition edition, sec. Opinion, <https://www.nytimes.com/2016/10/19/opinion/i-fight-for-your-right-to-vote-but-i-wont-do-it-myself.html>.

⁴²⁷ Carter Ham, "Get out and Vote but Obey Your Oath, General Tells Officers," *Army Times*, August 7, 2017, <https://www.armytimes.com/opinion/2016/10/19/get-out-and-vote-but-obey-your-oath-general-tells-officers/>.

⁴²⁸ Ham.

in terms of age, peer group, time in service, or performance by linear career goals. Soldiers not only can be of any gender but also an expanded range of ages well outside the traditional areas of career progression. These developments in the postmodern military era were introduced with advanced technology to mitigate strength or hardship concerns, and coupled to this the demands of military service now are no longer limited to the young and spry. Further, the homogeneous career paths of traditional military professionals are antiquated in light of how dynamic and nonlinear contemporary professionals in commercial and non-military disciplines move and develop. In order to attract the best possible talent for military roles and careers, the postmodern military form is already beginning to shift towards incorporating multiple alternative personnel recruitment and promotion concepts.⁴²⁹

As Moskos et. al observe, the postmodern military moved away from involuntary conscription and therefore while enabling an all-volunteer military for most nations,⁴³⁰ the postmodern shift also includes a decline of the mass army, the reduction of senior political leaders in government with veteran backgrounds, and a smaller percentage of the society taking on the burden of military service. This also presents a growing divide between the political elites and a smaller, more professional military, and “an increasing marginalization of the military within their host societies” in part due to a smaller percentage of society even knowing or having direct contact with a serving member of the military.⁴³¹ How and why people serve in militaries in postmodernity changed from modernity (particularly the last few centuries) including racial, gender, ethnic, ideological, economic, and merit considerations. If the premodern, feudal war frame favored elite bloodlines and titled nobility, modernity would open up military career opportunities to a more educated, skilled middle class that across the Anglosphere remained largely male and white.⁴³² Postmodernity would deconstruct and disrupt the modern military frame, with female combat roles and inclusion of homosexuality and alternative lifestyles a more recent development.

⁴²⁹ Lee Berthiaume, “Canadian Forces Looking at Recruiting Elite, Special-Forces Soldiers Right off the Street,” news, Global News Canada, March 6, 2019, <https://globalnews.ca/news/5029229/canada-special-forces-soldiers-recruit-street/>; Matthew Cox, “Retired General: Train, Pay Army and Marine Infantry as an Elite Force,” news, www.military.com, February 14, 2019, <https://www.military.com/daily-news/2019/02/14/retired-general-train-pay-army-and-marine-infantry-elite-force.html>; Matthew Cox, “No Grunts Under 26, \$250K Bonuses: DoD’s Most Radical Ideas to Transform the Infantry,” news, www.military.com, July 6, 2019, <https://www.military.com/daily-news/2019/07/06/no-grunts-under-26-250k-bonuses-dods-most-radical-ideas-transform-infantry.html>; Stephen Losey, “Air Force Aims to Modernize Recruiting amid Growing Challenges,” news, Air Force Times, November 2, 2018, <https://www.airforcetimes.com/news/your-air-force/2018/11/02/air-force-aims-to-modernize-recruiting-amid-growing-challenges/>.

⁴³⁰ Moskos, Williams, and Segal, *The Postmodern Military: Armed Forces after the Cold War*, 18.

⁴³¹ Bradford Booth, Meyer Kestnbaum, and David Segal, “Are Post-Cold War Militaries Postmodern?,” *Armed Forces & Society* 27, no. 3 (Spring 2001): 337.

⁴³² The sixth chapter addresses this pattern of white, male military identity as dominant across Canadian, Australian, UK and American militaries until after WWII and experimentation with integration. Female combat roles is a much more recent development.

On military career progression and postmodern disruption of the centralized hierarchical form, the merit-based promotion system developed for the modern military form is now challenged by the postmodern notions of subjective personal skill, individuality, talent, and emergent and nonlinear military needs that violate the factory-style sequential path that is optimized to produce the preferred output of senior and specialized military performer.⁴³³ For the postmodern military force operating in uncertain, unpredictable contexts, "this means a transition from the hierarchy and rigidity of the modern mass-army model toward the model labeled postmodern by Moskos and his colleagues, where differences based on rank, branch, and service are deemphasized."⁴³⁴

Many of these postmodern military advocates wrote during the 1990s through 2001 during a period of military transformation away from the Cold War period of large defense funding, high-intensity war preparation, and clear military goals of containment, deterrence, or destruction entirely within Westphalian, state-on-state warfare.⁴³⁵ The 1990s created a period of diminishing political interest in large, expensive and lethal militaries, where foreign policy applications shifted towards humanitarian roles, peacekeeping, and extensive social experimentation with traditional armed forces for the social or cultural needs of the larger society.⁴³⁶ Booth, Kestnbaum and Segal critically address the topic of post-Cold War militaries and whether they qualify as 'postmodern' by examining whether postmodern social theory improves the understanding of contemporary armed forces. They also considered whether entirely new cognitive tools of analysis are required for such postmodern military transformation, or if instead this is merely "another repackaging [of terms] to rekindle interest in comparable issues."⁴³⁷

Through the emergence of social media, technology and near instantaneous connectivity throughout the world including active war zones, soldiers exchange roles with media in formal and informal ways. "Soldiers themselves have become journalists of sorts, posting web logs of their combat activity to social networking sites such as Facebook and Twitter."⁴³⁸ The popularity of humorous cartoons such as "Doctrine Man" and satirical blog sites such as "the Duffel Blog" across military

⁴³³ Gregory Washington, "Staffing the Postmodern Army," *Military Review*, December 2002, 31; Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 46–52; Sookermany, "Military Education Reconsidered: A Postmodern Update," 314.

⁴³⁴ Booth, Kestnbaum, and Segal, "Are Post-Cold War Militaries Postmodern?," 326; Moskos, Williams, and Segal, *The Postmodern Military: Armed Forces after the Cold War*.

⁴³⁵ Booth, Kestnbaum, and Segal, "Are Post-Cold War Militaries Postmodern?"; Gregory Foster, "The Postmodern Military: The Irony of 'Strengthening' Defense," *Harvard International Review*, Summer 2001, 24–29; Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 1; Moskos, Williams, and Segal, *The Postmodern Military: Armed Forces after the Cold War*; Snider, "America's Postmodern Military."

⁴³⁶ Foster, "The Postmodern Military: The Irony of 'Strengthening' Defense," 28; Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," p.24; Snider, "America's Postmodern Military," 50.

⁴³⁷ Booth, Kestnbaum, and Segal, "Are Post-Cold War Militaries Postmodern?," 321–23.

⁴³⁸ Geraghty, "The Nature and Nurture of Military Genius: Developing Senior Strategic Leaders for the Postmodern Military," 31.

communities blurs the line between information and misinformation, satire and outright criticism, and propaganda and counter-narrative. Military media and information sharing has in postmodernity shifted from when media professionals could clearly delineate who was part of their recognized clan, and who was not. "The explosion of different views about the world mirrors itself in the stupendous dynamic of the media techno-culture. Metaphorically, the (post)modern individual is homeless, deprived of a solid home by multiple realities, and floating in a plethora of information."⁴³⁹ The technological as well as societal changes reflected in postmodernity now facilitate entirely novel expressions of military news coverage and information dissemination. The notion of any unifying 'metanarrative' which can comprehensively capture all subordinate narratives of a complex reality is false from the postmodern perspective.

Booth et. al reinforce this with: "Postmodernism... rejects the legitimacy of this or any other metanarrative, and refers to the growth of social movements based on gender, racial, ethnic, or sexual orientation differences as examples of "identity politics," in which the disenfranchised are seen as not benefiting from, and not having the opportunity to alter, the dominant institutions of society."⁴⁴⁰ The usage of postmodern theory is only for deconstructing existing power structures of military modernity, not for the military forces *themselves to apply* in how and why they frame war and warfare, as Naveh and others would propose. Mäder also highlights the notion of changing values in postmodern society (postmodernity), where "trends like individualism, egalitarianism, risk adversity, media and entertainment culture or transparency of government- had a direct impact on the military's distinct set of values."⁴⁴¹ Transformation of militaries becomes the primary focus of advocates of warfare in postmodernity, while military designers would (in the most radical applications) move further and demand militaries incorporate postmodern theory to destroy existing modern war frames. The postmodern gaze would place nothing as 'sacred' or 'off limits' in attempts to deconstruct, critique, and transform within the entire military organizational form and function towards war and warfare. Along the way, just as 'design' would create confusion by meaning different things to different groups, 'postmodern' would cause similar problems in articulating very different ideas on the design of war and warfare.

Postmodern Philosophy and a Deconstruction of All Things War:

Postmodern philosophers began discussing war and militaries toward the late 1970s, first with pioneers in postmodern theory largely accusing the modernist military industrial complex as part of the socially constructed structure of violence and power that needed deconstruction, exposure and elimination. Deleuze and Guattari represent one of the earlier and quite influential of military postmodernists (postmodernism oriented on war and warfare), despite their clear anti-military stance. They make this clear in compositions such as their 'Treatise on

⁴³⁹ Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," 3.

⁴⁴⁰ Booth, Kestnbaum, and Segal, "Are Post-Cold War Militaries Postmodern?," 331.

⁴⁴¹ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 304.

Nomadology- The War Machine' chapter in *A Thousand Plateaus: Capitalism and Schizophrenia*.⁴⁴² Their work would quickly be followed by more provocative postmodern theory addressing the military when Baudrillard asserted during the Gulf War build-up that "the Gulf War will not take place" in January 1991.⁴⁴³ His postmodern argument provoked significant outrage and debate from security professionals during the Gulf War build-up period. After the war actually began, Baudrillard followed up with a series of provocative essays asserting that "the Gulf War did not take place" after the end of formal hostilities in February 1991.⁴⁴⁴ His essays take a pure, postmodern assault upon the established and mainstream belief systems and power structures that define the modernist military frame. The modern war frame depended on a shared state-appreciation of the Westphalian Order, and a war logic underpinned by Clausewitzian beliefs.

Clausewitz and *On War* remain perhaps the most significant war philosophy composed in modernity,⁴⁴⁵ with significant utilization across the industrialized world particularly since the 1980s when Summers advocated American military education learn from Vietnam failures by studying *On War*.⁴⁴⁶ His maxim that 'war is an extension of politics by other means' would be quoted throughout contemporary military strategic and operational doctrine and theory, forming a clear foundation of a single, arguably functionalist view of warfare with an unchanging 'nature of war' underpinning it. War was something understood exclusively through science, and while scientific analysis might not pierce the veil on everything in war (fog and friction, chance), only scientific knowledge and proper analytical reasoning could ever generate anything of value for the modern military frame.

Yet postmodern philosophers when studying war and militaries were the first to invert Clausewitz, and deconstruct his logic through postmodern perspectives. Deleuze and Guattari in their 'War Machine' chapter reverse this, stating that "politics is an extension of war by other means", in that the war machine "takes charge of the aim, appropriates the States, and assumes increasingly wider political functions."⁴⁴⁷ Derrida would challenge the Westphalian ontological stance that 'war' could only be conducted by nation-states with respect to politics. Derrida as a postmodernist would place 'human war' beside other types of war, including 'the war of natural elements' within which humans, animals, and the world itself experiences different wars that enabled distinct comprehension and experience.⁴⁴⁸ While Derrida would permit Clausewitzian war as one of many types of war (thus deconstructing Clausewitz's maxim), others would invert these same maxims, and

⁴⁴² Deleuze and Guattari, *A Thousand Plateaus*.

⁴⁴³ Paul Patton, "Introduction to 'The Gulf War Did Not Take Place,'" in *The Gulf War Did Not Take Place*, by Jean Baudrillard (Sydney, Australia: Power Publications, 2009), 1.

⁴⁴⁴ Baudrillard, *The Gulf War Did Not Take Place*.

⁴⁴⁵ Peter Paret, "Clausewitz," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 186–213.

⁴⁴⁶ Harry Summers Jr., *On Strategy: A Critical Analysis of the Vietnam War* (Novato, California: Presidio Press, 1982).

⁴⁴⁷ Deleuze and Guattari, *A Thousand Plateaus*, 419–21.

⁴⁴⁸ Derrida, *Of Grammatology*, 284.

playfully enable paradox, irony, and the exploration of alternative signs and meanings to be considered.

Foucault also makes this inversion argument of modernity and Clausewitzian logic quite early (in respect to postmodernism and examining war theory) in 1980, the same time that Summers is promoting a Clausewitzian revival for the U.S. Army to explain the Vietnam strategic blunders. Ironically, Summers' efforts would catapult the study of *On War* into every major military professional education program and potentially solidify Clausewitzian logic into subsequent generations of military officers more successfully than any earlier generation could. Prior to 1980, *On War* was rarely considered in western military education. However, postmodernists would in the 1980s-forward posit the Clausewitzian logic had run its course by World War II and no longer represented reality in the postmodernity of war. Foucault argues that politics and power are "war continued by other means" and posits that political power perpetually reinforce this through meaning, narrative, language, creating an 'unspoken warfare' even when active war activities are not yet occurring.⁴⁴⁹ Baudrillard in framing a postmodern false reality (simulacra) that has replaced the actual world posits that:

The pacification (or the deterrence) that dominates us today is beyond war and peace, it is that at every moment war and peace are equivalent...thus one can completely miss the truth of a war: namely, that it was finished well before it started; that there was an end to the war at the heart of the war itself, and that perhaps it never started. Many other events (the oil crisis, etc.) *never started*, never existed, except as artificial occurrences- abstract, ersatz, and as artifacts of history, catastrophes and crises destined to maintain a historical investment under hypnosis.⁴⁵⁰

Naveh would use Foucault, Baudrillard, Derrida, and Deleuze and Guattari's deconstruction of Clausewitzian war theory to challenge modern military logic and insert postmodern design as an alternative; one that did not advance or evolve the war logic of modernity but deconstructed, disrupted, and exposed it as false. This is significant in that as Naveh begins to use postmodern theory within the military, the rest of the military institution continues the pattern of ignoring or rejecting postmodern theory and continuing to defend Clausewitz, Jomini, and other institutionally accepted war theorists of modernity. Naveh's early work therefore becomes a primary source for early adaptation of postmodern theory, and the theorists he drew from would become foundational to how Naveh would shape an alternative war frame for postmodernity and the application of organized violence.

⁴⁴⁹ Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon, Vintage; 1st American Ed Edition (New York: Vintage Books, 1980), 90-91.

⁴⁵⁰ Baudrillard, *Simulacra and Simulation*, 38.

Foucault would be a major source for military postmodern constructs as well as inspiration for military designers to apply his concepts towards deconstructing modern military analytic processes. Foucault also directly addresses how war might change, in order to give the 'modern-to-postmodern war shift' that this research is grounded upon needed validation. Gray summarizes Foucault's suggestions that war is changing due to "changes in the actual material knowledge of a technoscience", "the influence of official or other organized power" that over time can directly transform the governing rules of a system,⁴⁵¹ and the "insurrection of subjugated knowledges" where criticism "changes the regime of the production of truth."⁴⁵²

Here, Foucault is drawing insight from paradigms featuring subjective epistemological framing and thus challenge the sterilized objectivity of any analytic "truth" concerning war as espoused in functionalism. The zenith of functionalist dominance concerning the application of organized violence would be best demonstrated in the Vietnam War, where McNamara's 'Whiz Kids' mindset would dedicate American war logic for over a decade measuring body counts, bombing missions, and other clearly analytical interpretations of attempting to reach a military strategic goal or 'victory' as understood from earlier Westphalian and Clausewitzian 'total war' experiences.

Postmodernists assert that war has been understood in a false narrative previously, cast as an illusion so that larger assemblages of power can maintain organizational form over entire societies. The modernist war theory arguments of Clausewitz, Jomini and Machiavelli that combine natural physics epistemological structure with a causal ontology of political-military goals reached by organized violence in logistically formed ways and means are rejected and replaced by postmodern positions.⁴⁵³ Deleuze and Guattari indeed reverse the famous Clausewitzian prescription with, "this is the point at which Clausewitz's formula is effectively reversed; to be entitled to say that politics is the continuation of war by other means...a war machine that takes charge of the aim, appropriates the States, and assumes increasingly wider political functions."⁴⁵⁴

Foucault, cited by Gray in his postmodern treatment of war since 1945, also creates a deconstruction of Clausewitz's famous maxim with: "politics is war continued by other means" in a system that is "the continuation of war" with an "end result [that] can only be...war."⁴⁵⁵ Virilio deconstructs the Clausewitzian maxim further by enabling the social construction (and distortion) of reality to blur action and perception between organized violence and the narratives representing them: "There is no war, then, without representation, no sophisticated weaponry without psychological mystification. Weapons are tools not just of destruction but also of

⁴⁵¹ Foucault, *Discipline & Punish: The Birth of the Prison*.

⁴⁵² Gray, *Postmodern War: The New Politics of Conflict*, 99.

⁴⁵³ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 1-5.

⁴⁵⁴ Deleuze and Guattari, *A Thousand Plateaus*, 421.

⁴⁵⁵ Gray, *Postmodern War: The New Politics of Conflict*, 37; Foucault, *Discipline & Punish: The Birth of the Prison*, 244.

perception.”⁴⁵⁶ Yet none of these challenges to Clausewitzian logic are presented in any contemporary military doctrine; their application exists only in select military design theory and contexts.

Naveh and others would challenge the supreme epistemological standards of modernist military logic by disrupting and deconstructing Clausewitz, thus invoking institutional outrage from modernist military educators, practitioners and defenders of established military doctrine and methods. Again, these examples of deconstructing and challenging Clausewitz are done through postmodern philosophy, while critiques of Clausewitz rendered within a functionalist paradigm acknowledging war is now entering an era of postmodernity is different. Gorka, in addressing the novel challenges of the Islamic State provides a valid example of this where he critiques Clausewitzian logic for war without adapting a postmodern philosophical position:

We must go beyond Westphalian and Clausewitzian understandings of war as they apply to the most prevalent form of armed conflict, which is undeniably what has been called “irregular.” This demands adaptation not only for our armed services and our warfighters, but also for the way we think as a nation about war itself- what its purpose is and how our enemies will attempt to achieve their objectives in “unconventional” ways...This too has to do with how war is “returning to type” and the way our enemies are motivated to fight in ways informed by pre-Clausewitzian mores...Not only has Baghdadi [Islamic State leader prior to American elimination] demonstrated his capacity to capture and hold the territory for a caliphate, he has marked himself as meeting the Islamic criteria to do so. This has very little to do with Clausewitzian appreciations of war...[The Islamic State] is a fundamentally un-Clausewitzian enemy which typifies how the worldwide movement of violent actors who follow the ideology of “global jihad” understand war.⁴⁵⁷

The postmodern military movement thus becomes one that inverts and deconstructs the logic of Clausewitz that previously provided structure and rationalized meaning in the modernist military era. Virilio and Lotringer suggests along similar ‘post-Clausewitzian’ lines that in the emergent postmodern war frame, “politics is losing its role as arbiter of conflicts.”⁴⁵⁸ These postmodern positions are grounded in alternative paradigms and thus raise the tension between modernist military theorists and those of postmodern ones to one of paradigm

⁴⁵⁶ Paul Virilio, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller (London: Verso, 1990), 6.

⁴⁵⁷ Gorka, “Adapting to Today’s Battlefield: The Islamic State and Irregular War as the ‘New Normal,’” 354–58.

⁴⁵⁸ Virilio and Lotringer, *Pure War*, 62.

incommensurability.⁴⁵⁹ While writing on postmodern architecture (of which deeply influenced Naveh and his military design approach), Tschumi presents a postmodern treatment on the application of organized violence that rejects the modern state-centered construct. He posits two types of violence, where the first is *formal violence* that “deals with the conflicts between objects.” This can be form versus form, or disruption inflicted “by any new construction on its surroundings.”⁴⁶⁰ The second type of postmodern violence for Tschumi is *programmatic violence* that “encompasses those uses, actions, events and programs that, by accident or design, are specifically evil and destructive.”⁴⁶¹ The architectural construction of a concentration camp is one example here, and Tschumi’s framing of two types of violence demonstrate a counter-Clausewitzian logic with paradox, non-state centered orientation, and a blurring between the tangible and the intangible.

Before the military design movement, none of these postmodern concepts would influence or interact within the modern military war frame, nor appear in any military doctrine, methodology, practice or education. Military design is thus entirely a postmodern development, necessitated on the increasingly incommensurate modernist military applications of thought and action for war and warfare; the legacy modes for war-making would not produce the promises of increasingly sophisticated and evermore lethal technology and analytic optimization. The vulnerability of the modern war frame would produce chips and vulnerabilities in World War II, but the structure would lay exposed in the Vietnam War, a massively expensive ‘techno-war’ where the leading superpower western industrialized nation would be strategically defeated by enemies that were not supposed to win, nor were the methods applied ever supposed to fail in such quantified contexts.

The Vietnam War, at least for the United States would span roughly a decade with initial advisory participation in the early 1960s through a final withdraw of forces in 1975. This war would be one of extremes, with the most technologically advanced western superpower nation engaging against largely a guerrilla-styled, low-tech and poorly resourced non-state adversary. The war would be perfectly managed with analytic optimization, yet profoundly mis-applied with tragic outcomes and a long period of national soul-searching for the United States and especially the U.S. Army afterward. The Vietnam War would also become the first conflict to have postmodern philosophy applied to it, with many of the postmodern theories emerging during the same period and potentially in some ways because of it. Arguably in part due to the overarching Cold War and Nuclear Age of warfare, Vietnam’s high-profile position as a ‘hot war’ is significant for seeking an example of any shift away from the modern war frame. Gibson, in a historic analysis of the Vietnam War as a ‘Technowar run by war-managers’ uses Foucault frequently in his framing of why the Vietnam War failed, how the military used a flawed pseudo-

⁴⁵⁹ Gioia and Pitre, “Multiparadigm Perspectives on Theory Building”; Schultz and Hatch, “Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies”; Weaver and Gioia, “Paradigms Lost: Incommensurability vs Structurationist Inquiry.”

⁴⁶⁰ Tschumi, *Architecture and Disjunction*, 134–35.

⁴⁶¹ Tschumi, 138.

scientific lens to the application of organized violence, and how the overemphasis on 'objectivity' and a scientific categorization of knowledge would fail to realize the importance of narrative, meaning, subjectivity, and complexity in war:

Technowar thus monopolizes "organized scientific discourse" through multiple, but centralized relationships among high-level bureaucratic position, technobureaucratic or production logic in the structure of its propositions, and the conventional educated prose style. The debate on Vietnam occurs within this unity. As Foucault says, "Every educational system is a political means of maintaining or modifying the appropriation of discourse, with the knowledge and the powers it carries with it."⁴⁶²

Foucault is popular with military proponents in that warfare has entered (or is entering) an era of postmodernity, although the deeper epistemological positioning of various advocates place some on the side of using postmodern concepts without embracing a postmodern displacement of the modern functionalist paradigm (a postmodern style), while a minority of advocates readily advocate using postmodern theory directly. Gray, in his *Postmodern War: The New Politics of Conflict* uses concepts from Foucault, Latour and others in what he terms "a toolkit" because of their utility and also what Gray admiringly calls their theoretical "beauty" while holding to an agnostic positioning that within postmodernity there is no longer any objective "truth" of any theory taking a superior status over another.⁴⁶³

Lyotard states the postmodern world is all about challenging the supremacy of science in that positivist learning is compartmentalized, and a language game is being waged where only analytic knowledge is valued and placed above all other knowledge forms.⁴⁶⁴ Derrida, in explaining the origins of all language posits that "language is originally metaphorical," placing even the scientific, positivist lexicon of modernity as insufficient to objectively describe topics such as war in such a way as to sidestep the subjective, contextual, and socially constructed reality that humans experience.⁴⁶⁵ Foucault, Derrida, Lyotard along with other postmodernists such as Baudrillard are in tension with one another, overlap as well as interplay between their postmodern views on reality as well as war. While this research focus is not to articulate the specifics of postmodern philosophy and instead introduce readers to the primary argument that military design methodologies by and large accomplish greater institutional reflection, experimentation and exploration through

⁴⁶² Gibson, *The Perfect War: Technowar in Vietnam*, 467; Michel Foucault, "The Discourse on Language," in *The Archeology of Knowledge*, by Michel Foucault, trans. Rupert Swyer (New York: Pantheon Books, 1972), 227.

⁴⁶³ Gray, *Postmodern War: The New Politics of Conflict*, 8.

⁴⁶⁴ Lyotard, *The Postmodern Condition: A Report on Knowledge*, 41.

⁴⁶⁵ Derrida, *Of Grammatology*, 295.

postmodern theory than without, a general outlining of major postmodern theorists is warranted.

Liotard, covered in greater detail in the next chapter for how the 'postmodern comedian of war' differs from commercial and civilian design theory, posits that only through humor and irony might the established 'truths' of any belief system be revisited, challenged, disrupted and deconstructed. Here, he works in parallel with Baudrillard's own postmodern critiques of the First Gulf War in the early 1990s. Lyotard posits that when a dominant belief system uses its logic to attempt to reach some 'nominal definition' or in the military modern frame, reduce complexity in war down to universal 'principles' or 'rules' of warfare, the dominant belief system is attempting to terminate any regressive, iterative discourse of whether that belief is true or not.

Once the tenets are codified in a military doctrine, the practitioners are therefore unable to challenge said tenets of the military logic and can only iteratively attempt to create the success depicted within doctrine by following the form and only deviating in functions toward the overarching form itself. "It puts a stop to the dissolution of discourse in the infinity of displacements by stopping the view at a point"⁴⁶⁶ such as the near-universal agreement across militaries (and societies) that the First Gulf War was a near-perfect validation of Clausewitzian military procedures set within the backdrop of a Westphalian political landscape. Baudrillard, in playing the 'comedic disruptor' would write highly controversial essays such as proposing "The Gulf War Did not Take Place" so that he would act in what Lyotard means for the postmodern provocateur. By pointing out the ruse at the very site of its outpost, Baudrillard opens back up previously silenced discourse and uses humor (provocatively and antagonistically) to open new dialogue at the epistemological level for societies concerning war.⁴⁶⁷

In the same period where aforementioned sociologists and complexity theorists as well as political scientists frame a tremendous period of disruption between the fall of the Berlin Wall, the end of the Cold War, and the eventual shocking terror attacks of September 11th, 2001, postmodern theory began making inroads into mainstream military thought. This occurred at the creative initiative of Shimon Naveh, the focus of chapter four. Later, his work inspired the spread of these postmodern military concepts across the world through applied military professional education institutions such as the U.S. Army School of Advanced Military Studies, as explained in chapter five. "The reading lists of some contemporary military institutions include...the writings of those theorists who have expanded the notion of space, such as Gilles Deleuze, Felix Guattari and Guy Debord...the military-architectural 'shadow world' is currently generating more intense and better funded urban research programs than all university programs

⁴⁶⁶ Jean-Francois Lyotard, "Humor in Semiotheology: A Semiotician Becomes Alarmed," in *Toward the Post-Modern*, ed. Robert Harvey and Mark Roberts, trans. Mira Kamdar, Philosophy and Literary Theory (New Jersey: Humanities Press, 1993), 83.

⁴⁶⁷ Baudrillard, *The Gulf War Did Not Take Place*; Alex Vernon, "The Gulf War and Postmodern Memory," *The Wilson Quarterly* 25, no. 1 (Winter 2001): 68–82.

put together.”⁴⁶⁸ The disruptive ‘design insurgency movement’ inspired by Naveh’s original work would spread to Canada, the United Kingdom, and Australia in various military experiments and debates on war, as the sixth chapter explains.

Interestingly, this turn of events where militaries themselves would begin assimilating postmodern theory and applying these concepts towards the application of organized violence to benefit the state was somewhat a surprise to the postmodern philosophy community. As most postmodernists associated military forces as extensions of the very nation-state power structures they sought to confront and deconstruct, the military assimilation of postmodern theory itself created a paradox. Thus, the overlap of postmodern theory with postmodern military practitioners represented a new counter-culture not only within the larger defense community but also within the very discipline of postmodern philosophy where the military form was framed as the target of disruption and deconstruction.

On the antagonistic stance towards modernist nation states and their militaries, Deleuze and Guattari frame them with, “the State-form, as a form of interiority, has a tendency to reproduce itself, remaining identical to itself across its variations and easily recognizable within the limits of its poles, always seeking public recognition”⁴⁶⁹. They use the concept of ‘interiority’ to address convergent logic processes within institutions of power, as well as clearly defined and managed knowledge management systems that are curated and protected by the institution.⁴⁷⁰ On the fluid nature of war, Deleuze and Guattari refer back to Virilio to distinguish the organized violence of man-made war as distinct from hunter-prey animalistic violence.⁴⁷¹

War is something socially constructed by humanity, and also beyond state control from a postmodern perspective. “The war machine, with breeding and training, institutes an entire economy of violence, in other words, a way of making violence durable, even unlimited.”⁴⁷² The postmodern argument on war is one of the illusion of control, the false narrative generated by systems of traditional power, and the continued domination of human expression by these abstract constructs that operate beyond the comprehension and influence of societies attempting to apply violence to accomplish various strategic goals. Deleuze, Guattari, Virilio, and Baudrillard make various arguments on the illusion of control, and Baudrillard goes further to suggest that society has manufactured a totally false form of reality within which populations now wage war.

Baudrillard introduces the concept of “hyperreal” in postmodern war, where the persistent manipulation and application of images, symbols, and socially constructed information would replace reality with a ‘simulacra’ that replaced actual war with a false copy of war that in itself was a copy without any relationship

⁴⁶⁸ Eyal Weizman, *Hollow Land: Israel's Architecture of Occupation* (New York: Verso, 2007), 187.

⁴⁶⁹ Deleuze and Guattari, *A Thousand Plateaus*, 360.

⁴⁷⁰ Zweibelson, “Three Design Concepts Introduced for Strategic and Operational Applications.”

⁴⁷¹ Deleuze and Guattari, *A Thousand Plateaus*, 396.

⁴⁷² Deleuze and Guattari, 396.

to reality.⁴⁷³ “For Baudrillard, the possibility of real war is dead, replaced at this stage in history by the bizarre logic of deterrence...[the] events in the [Persian] Gulf for Baudrillard do not constitute a war, but a “simulacrum of war, a virtual event which is less the representation of real war than a spectacle which serves a variety of political and strategic purposes on all sides.”⁴⁷⁴ Foucault weaves the same emphasis on a socialized construction of signs and symbols, encoded so that people link ideas in order to link realities; their perception of the world is not nearly as directed by tangible artifacts as it is by preconfigured narratives, emplotments, and the deciphering of signs generated by the power relationships shaping how the world actually functions.⁴⁷⁵

Baudrillard demonstrates a radical position of postmodern war that relies heavily on the social construction of reality. It is one where the saturation of images, symbols and narratives into the shared collective through technology and media created a false reality, while other postmodern military advocates echo this position using less provocative means. Tetreault and Haines argue that postmodern war is “highly mediated by technology which both creates and adjusts the observer’s “experience” of the war, and illustrate the impact of technology and the observer’s imagined war frame through battlefield photography occurring first in the mid-nineteenth century up through the live video feeds of the First Gulf War as well as video ‘smart bomb’ targeting feeds and ‘point of view’ media capture from the lead soldier’s perspective.⁴⁷⁶ All of this information can be manipulated, whether to sterilize content and avoid the public seeing any friendly forces dying, or to manipulate political adversaries and opposition, such as actress Jane Fonda’s controversial role in the Vietnam War or the crisply edited smart bomb footage in the Gulf War that never showed any actual gore or death.

Sookermany, in addressing the need for embracing postmodern pedagogy in military education in this new postmodern era of war, uses the postmodern philosophical strategies of emancipation, deconstruction, vocabulary, dialogue, diversity and aesthetics to argue an alternative way to professionalize militaries to think differently and make sense of the irregular and uncertain reality that is the postmodern world.⁴⁷⁷ The emancipation concept is popular in postmodern literature, found in the work of Ranciere, Pritscher, and others.⁴⁷⁸ Deconstruction is foundational to postmodernism, where they destroy limitations to an infinite array

⁴⁷³ Baudrillard, *Simulacra and Simulation*; Baudrillard, *The Gulf War Did Not Take Place*.

⁴⁷⁴ Baudrillard, *The Gulf War Did Not Take Place*, 8; Booth, Kestnbaum, and Segal, “Are Post-Cold War Militaries Postmodern?,” 334.

⁴⁷⁵ Foucault, *Discipline & Punish: The Birth of the Prison*, 24–110.

⁴⁷⁶ Tetreault and Haines, “Postmodern War and Historic Memory,” 14–16.

⁴⁷⁷ Sookermany, “Military Education Reconsidered: A Postmodern Update.”

⁴⁷⁸ Jacques Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, trans. Kristin Ross (Stanford, California: Stanford University Press, 1991); Conrad Pritscher, *Einstein & Zen: Learning to Learn* (New York: Peter Lang Publishing Inc., 2010); Shimon Naveh, “The Australian SOD Expedition: A Report on Operational Learning” (Unpublished manuscript, December 2010); Zweibelson, “The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts.”

of epistemological interpretation, consequently introducing different paradigms that expand the horizon of human comprehension.⁴⁷⁹

Sookermany also includes John Boyd, an influential U.S. Air Force fighter pilot and military transformative theorist demonstrating the application of postmodern concepts as well as style⁴⁸⁰ in the application of 'destruction' towards military institutional thought and postmodern stances on transformation. Boyd was an important visionary who in the late 1970s and 1980s influenced the U.S. Air Force and U.S. Marine Corps to consider complex decision-making and the notion of destruction as an essential part of the perpetual process of creation and expansion in war.⁴⁸¹ Postmodernists use an epistemologically diverse vocabulary to disrupt, challenge and potentially destroy power structures of the military legacy system in order to deconstruct meaning. The postmodern epistemology breaks with the modernist one in that "the modern belief in a universalistic epistemology is replaced with a personal and contextualized involvement in defining the 'truth.'"⁴⁸² This paradigm shift implies a difference in logic, as well as the language and metaphoric devices associated therein to make sense of war.

Language is essential in forming and codifying institutional thought and standardizing organizational behaviors, yet the very language used to create cognitive prisons can also be turned upon itself in order to liberate the postmodern military sense-maker from their own iron cages.⁴⁸³ Deleuze and Guattari take a postmodern stance on the relationship between institutionalized language and the act of creating new meaning and words while disrupting and destroying existing

⁴⁷⁹ Philippe Beaulieu-Brossard, "Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts" (outline written in the course of fieldwork, University of Ottawa, Canada, June 1, 2015); Christopher Bingham and Steven Kahl, "The Process of Schema Emergence: Assimilation, Deconstruction, Unitization and the Plurality of Analogies," *Academy of Management Journal* 56, no. 1 (2013): 14–34; Paul Cilliers, "Complexity, Deconstruction and Relativism," *Theory, Culture & Society* 22, no. 5 (2005): 76–94; Deleuze and Guattari, *A Thousand Plateaus*; Lewis and Grimes, "Metatriangulation: Building Theory From Multiple Paradigms"; Preiser, Cilliers, and Human, "Deconstruction and Complexity: A Critical Economy."

⁴⁸⁰ It is controversial to suggest Boyd would agree to the label of 'military postmodern theorist', as much of his work sought a scientific and rationalized world within which a military could think faster and more cunningly. However, several of his concepts such as "destruction and creation" share overlap with postmodern ideas of the same period, and Boyd's self-appointed role as a disruptive agent of change likely would support some positions that Boyd had postmodern qualities whether intentional or coincidentally.

⁴⁸¹ John Boyd, "Destruction and Creation" (Unpublished manuscript, 1976), http://www.goalsys.com/books/documents/DESTRUCTION_AND-CREATION.pdf; Frans Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (Routledge, 2006); Sookermany, "Military Education Reconsidered: A Postmodern Update," 316.

⁴⁸² Sookermany, "On Developing (Post)Modern Soldiers," 62.

⁴⁸³ Paul DiMaggio and Walter Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," *American Sociological Review* 48, no. 2 (April 1983): 147–60; Mary Jo Hatch and Dvora Yanow, "Methodology by Metaphor: Ways of Seeing in Painting and Research," *Organization Studies* 29, no. 1 (2008): 23–44; Paparone, "On Metaphors We Are Led By"; Ricoeur, *Time and Narrative*; Tsoukas, "The Missing Link: A Transformational View of Metaphors in Organizational Science"; Hayden White, *Tropics of Discourse: Essays in Cultural Criticism* (Baltimore: John Hopkins University Press, 1978); White, *The Content of the Form*.

forms. "The necessity of not having control over language, of being a foreigner in one's own tongue, in order to draw speech to oneself and 'bring something incomprehensible into the world'" helps frame their postmodern concept of 'exteriority' where creative nomads can move and explore novel concepts unshackled from the institutional demands of the interiority.⁴⁸⁴ In Delanda's study of Deleuze and Guattari's 'assemblage theory', he further adds that 'exteriority' and 'interiority' do not relate to spatial relationships, rather "with these two concepts...we can define social wholes, like interpersonal networks or institutional organisations that cannot be reduced to the persons that compose them, but do not totalize them either."⁴⁸⁵

In Deleuze and Guattari's 'War Machine' chapter, they frame the game of chess as a war metaphor, with a game-form of 'interiority' in that chess rules and play render a sequenced, regulated "coded war, with a front, a rear, battles."⁴⁸⁶ Yet an individual piece cannot destroy an entire game system synchronically, whereas for 'exteriority' the postmodernists use the Chinese strategic game of 'Go' as an example of smooth space where one Go piece indeed can do what a rook, pawn or queen cannot. The systemic quality of these essential postmodern concepts thus ontologically rejects the reductionist nature of modern military decision-making. As Delanda remarks on this point, "any emergent whole always has a larger extension than that parts of which it is composed."⁴⁸⁷ There are abstract, conceptualized relationships that cannot be sliced up through analytical optimization or objective methodological inquiries; linearity is also irrelevant in any scientific sense. Naveh would implement many of Deleuze and Guattari's postmodern ideas of war into his systemic operational design for the Israeli military.

Another postmodern concept Sookermany provides is that of diversity, which is dissimilar from the concept of military diversity offered by postmodern sociologists such as Moskos and others mentioned earlier. While the sociological argument for military postmodern diversity centers on increasing diversity of gender, sexual identity, ethnicity, as well as ethical and moral diversification into military formations, the postmodern philosophical concept of diversity addresses entirely abstract human qualities of comprehension for a postmodern reality. "As a pedagogic strategy [diversity] is closely connected with the struggle for theoretical difference and plurality over uniformity and sameness, and therefore, in educational practice with the willingness to look for other understandings, perspectives and ways of doing."⁴⁸⁸ Gray takes postmodern gender transformation in war further by applying Foucault's 'Technowar' construct and positing that the rise of artificial intelligence and 'human-machine teaming' in warfare may alter notions of gender irrelevant. "As soldiers become more like cyborgs, their gender identity becomes blurred...it seems the female soldier's identity is beginning to collapse into the

⁴⁸⁴ Deleuze and Guattari, *A Thousand Plateaus*, 378.

⁴⁸⁵ Manuel Delanda, *Assemblage Theory*, paperback edition (Edinburgh EH8 PJ: Edinburgh University Press, 2016), 10.

⁴⁸⁶ Deleuze and Guattari, *A Thousand Plateaus*, 353.

⁴⁸⁷ Delanda, *Assemblage Theory*, 16–17.

⁴⁸⁸ Sookermany, "Military Education Reconsidered: A Postmodern Update," 322.

archetype soldier persona, creating a basically male, vaguely female, vaguely mechanical image."⁴⁸⁹

Deleuze and Guattari express the need for diversity in thought with their concept of the 'nomad', a traveler able to explore and create new knowledge outside of the interiority of the state-form interiority. "It is now easy for us to characterize the nomad thought that rejects this image and does things differently...it does not ally itself with a universal thinking subject but, on the contrary...it does not ground itself in an all-encompassing totality but is on the contrary deployed in a horizonless milieu that is a smooth space."⁴⁹⁰ This epistemological diversity of thought on war and warfare (form and function), to include paradoxical ones become a major theoretical feature of military design methodologies introduced in the fourth chapter with Naveh's foundational work in the Israeli Defense Force. Postmodern military designers would be challenged to become nomads, and wander the cognitive landscapes of their institutional interiorities outward into the exteriority of greater war potential, to discover 'beyond the pale.'

Military Design: A Meta-Methodology using Multi-Perspectival Reflexivity

Modern military history is filled with examples of individuals creating non-doctrinal solutions that work for the entire organization despite the institutional emphasis on maintaining habituated action patterns.⁴⁹¹ Paparone, Jackson, Beaulieu—Brossard, Dufort, Gracier and other military academics suggest that the latest revolution in counter-culture thinking and military innovation in the twenty-first century is demonstrated by the decentralized somewhat fragmented military design movement.⁴⁹² Paparone articulates this alternative military minority group with the following:

The design school is arguably a Lyotardian *petit recit*, introduced by a somewhat deviant segment of the military community led by military intellectuals such as Brigadier General (Ret.) Shimon Naveh, the founder and former head of the Israel Defense Forces' Operational Theory Research Institute. This school of thought is particularly countercultural and orients practice on paralogical communicative processes.⁴⁹³

⁴⁸⁹ Gray, *Postmodern War: The New Politics of Conflict*, 175.

⁴⁹⁰ Deleuze and Guattari, *A Thousand Plateaus*, 379.

⁴⁹¹ Paparone, "How We Fight: A Critical Exploration of US Military Doctrine," 10.

⁴⁹² Philippe Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond" (unpublished draft provided by author, University of Ottawa, Canada, 2016); Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; Ofra Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 21–37; Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers," 14–31; Paparone, "How We Fight: A Critical Exploration of US Military Doctrine," 13.

⁴⁹³ Paparone, "How We Fight: A Critical Exploration of US Military Doctrine," 11.

If the diverse community of military designers have one overarching commonality, it might be a desire to deconstruct the existing legacy system and stimulate innovation, change and divergent thinking towards gaining some future advantage for the military organization in a complex system.⁴⁹⁴ In a 2019 Tel Aviv interview, Naveh provides this observation on how designers destroy to make the necessary cognitive space to create. This disruptive dynamic begins focused inward, upon the self:

Everyone talks about innovation. Change, transformation... everybody talks about transformation- but nobody is transforming anything. Because in order to change, you have to destroy. Not physically, to burn, to kill...you have to very much reject... ignore...move to the side... something that you possess, that you hold dear, and all of the sudden, it is irrelevant. The very first step to innovation is destruction.⁴⁹⁵

Although the notion of 'destruction' paired with military creativity stimulates literal contexts, Naveh is addressing the need to tear down cognitive barriers that the institution regularly builds up and protects. He shares this idea of 'destruction to creation' with fellow military maverick Boyd.⁴⁹⁶ Naveh acknowledges postmodern philosophy as his primary inspiration, but also holds Boyd in high regard.⁴⁹⁷ 'Destruction' in various disciplines does now receive attention as a cognitive requirement to make space for innovation.⁴⁹⁸ While commercial design does this in different yet overlapping applications, the common association with security forces and violence make for challenging abstract discussions on the need for destroying to make room for new ideas in war. Commercial design does not, in the execution of its own methodology for new user experiences and products, promote the disruption and destruction of dominant client or consumer logics themselves. Military design instead does at times promote this sort of revolutionary, radical and highly disruptive output, as Hirsch offers from an Israeli military perspective:

I went from studying mechanical action patterns based on checklists to analysis of operational molds by their signatures [using Naveh's

⁴⁹⁴ Sookermary, "Military Education Reconsidered: A Postmodern Update," 311.

⁴⁹⁵ Naveh and Graicer, Naveh audio 15OCT2019 18min02sec Day 2 morning.MP3, 15:43.

⁴⁹⁶ Boyd, "Destruction and Creation"; Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*.

⁴⁹⁷ Deleuze and Guattari, *A Thousand Plateaus*.

⁴⁹⁸ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century"; Sylvain Bureau, "Entrepreneurship as a Subversive Activity: How Can Entrepreneurs Destroy in the Process of Creative Destruction?," *M@n@gement* 16, no. 3 (2013): 204-37; Mireille Coral, Jeff Noonan, and Paul Chislett, "Destructive Creation," *Alternate Routes* 27 (2016): 313-25.

design methodology]- high, low, combined, controlled, and sub-low signatures. From classic advancement to subtly gradated concepts of permeation, diffusion, and infiltration. From old-school attack to nuances of pouncing, developing the cloud of wasps, and refinement of the concept of swarms. You might say that as a commander, I had found a synergistic combination of field manuals and protocol with poetry and prose, or in management terminology, the importance of philosophy alongside that of business management. They each had their place, and I cannot do without either of them.⁴⁹⁹

Despite Hirsch's useful inclusion of commercial and military fields above, the development of military design and commercial design would largely remain independent. As contexts for war and commerce are distinct, the terminology as well as the design logic would develop largely independently. Military design emerged independently from the earlier manifestations of commercial design methods and concepts.⁵⁰⁰ While the term 'design' is confusingly applied in a wide range of meanings from Industrial Era-inspired operational planning in the late Nineteenth Century, attributed to Soviet forces again in World War II for military campaigns,⁵⁰¹ and again observed in Anglo-Saxon forces during the 1980s, the precise development of military design theory is clouded with controversy and disagreement.⁵⁰²

The military design movement (in general) is the first expression of a postmodern military logic applied to a postmodern military context, cast within a postmodern world. Thus, warfare is becoming *postmodern*, societies are entering *postmodernity*, and some necessary perspective on war transformation requires *postmodernism*. The fourth and fifth chapters will distinguish between those that are attempting multi-perspectival reflexivity over those that are largely pilfering terms and isolated concepts to attach to existing single-paradigm legacy military decision-making frames (make the modern war frame work in postmodernity). Previous attempts for militaries to remain in modern form or to function using modern, traditional decision-making methodologies within postmodern contexts have met with frustration, surprise and strategic failure. Perhaps the most well-known examples of military design applied to combat can be found in Israeli

⁴⁹⁹ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 130.

⁵⁰⁰ Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers," 14.

⁵⁰¹ Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*; Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 44–58.

⁵⁰² Ofra Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design," *Experticia Militar*, October 2017, 30–37; Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers," 14; Kelly and Brennan, "Alien: How Operational Art Devoured Strategy"; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 90–91.

Commander Brigadier General Gal Hirsch's personal efforts to apply Naveh's concepts between 1998-2006. He acknowledges the beginning of this movement for western militaries into the postmodern as a search for something needed and new. "In the mid 1990s, Western militaries began developing new concepts in operational art...[at OTRI with Naveh] I was realizing that war can be waged as an art form, in its broadest context...advanced military analysis cannot be developed using standard operating procedures and checklists alone. Another ingredient is needed, a different methodology and completely different way of learning."⁵⁰³ These new ideas would challenge the existing modern war frame, and as Naveh would encourage, some things needed destruction if only to make space for creation.

Efforts to absorb postmodern concepts and incorporate them into modernist decision-making methodologies have also been fraught with problems. This is where less is destroyed, and more of the modern frame is preserved so that it might function in postmodernity without anything but incremental, evolutionary refinements; the ontological and epistemological constructs remain uncontested this way. As military design insider Ryan explains, the two camps that emerged were the design purists, or "home team" that were rejected by the institution and exclusively used dense, sophisticated design concepts within very small networks of liked-minded postmodernists. The "away team" wanted to oversimplify postmodern design, rendering it back into established modernist doctrine and structure. "The 'Away Team' was better received by students. But because none of these students were required to challenge their fundamental beliefs, they were never able to really reframe. Their design projects simply perpetuated the dominant instrumental approach to problem solving."⁵⁰⁴

In Ryan's critique of the military design movement written in 2016, the international multidisciplinary design movement remained fragmented, essentially still a nascent community. There were few avenues to learn design formally, and even fewer organizations willing to proactively apply design to real-world military challenges. Meanwhile, the institutional skepticism and apprehension with the sophisticated and challenging design concepts did not make for a welcoming atmosphere for those few willing to apply design to war. As Ryan points out, "for officers who were naturally attracted to design, there were few pathways for them to develop mastery of design. If they were lucky enough to be accepted to SAMS, they would take one course on design. There was nowhere to go after that to further specialize in design, and no active communities of practice" (Ryan, 2016). Military design was, from the mid-1990s through the next two decades largely an isolated and boutique experience for self-selecting practitioners to engage and study.

While Ryan was reflecting on his experiences in military design tracing back through the last decade into 2005, the period of 2005 to 2015 was potentially a

⁵⁰³ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 126-27.

⁵⁰⁴ Alex Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," *The Medium* (blog), November 4, 2016, <https://medium.com/the-overlap/a-personal-reflection-on-introducing-design-to-the-u-s-army-3f8bd76adcb2>.

critical incubation period for military design development, critical self-examination, and experimentation. Since 2015, multiple design professional military programs appear to have expanded and in select cases, flourished and influenced other military design development⁵⁰⁵ To frame this new mode of war logic, the metaphor of 'postmodern military comedian' is introduced as an alternative to the existing heroes and managers of war.

The Military Comedian: A Metaphor for the Postmodern Reflexive Disruptor

While the metaphors of 'hero' or 'manager' for broad movements in military organizations is already found across multiple military researchers when addressing premodern or modern military organizations and behaviors, the association of 'comedian' for this proposed postmodern era of war is intentionally provocative. Comedy as well as play, irony, and the deconstruction of the existing military frame are hallmarks of the postmodern approach.⁵⁰⁶ This is particularly expressed in controversial or dramatic examples of where war and comedy intersect. Actor and director Mel Brooks, having served in World War II as a Jewish American and witnessing firsthand much of the horrors of genocide and war, would later stimulate discussion and critical reflection on war and humor by making a movie in 1967 that shocked audiences with a dancing, singing Adolf Hitler. Brooks stated in an interview: "The Jews were horrified. I received resentful letters of protest, saying things like: How can you make jokes about Hitler? The man murdered six million Jews."⁵⁰⁷ For many, the comedic efforts of Brooks addressed something that even comedy was forbidden from focusing upon.

What Brooks provides as a comedian as well as a war veteran is what the postmodern military comedian illustrates in reflective practice, critical awareness of dominant frames and structures,⁵⁰⁸ and the deconstruction of irrelevant or obsolete structures in order to introduce transformation and emergent advantage.⁵⁰⁹ Brooks

⁵⁰⁵ Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation"; Philippe Beaulieu-Brossard, "Critique for Action: Outline of a Craft Turn in Security Practices" (submitted to Security Dialogue; Author's draft, June 2018); Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies"; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers"; YouTube JSOU User et al., *Advanced Military Design, Panel of International Experts: IMDC Conference, Ottawa, CA-Part 2 Q&A*, MP4 (Ottawa, Canada: IMDC Conference 2018, 2018), <https://www.youtube.com/watch?v=xx6SH3kSazA&spfreload=10>; Imre Porkolab and Ben Zweibelson, "Designing a NATO That Thinks Differently for 21st Century Complex Challenges," *Defence Review: The Central Journal of the Hungarian Defence Forces* 146, no. 1 (2018): 196–212; Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)."

⁵⁰⁶ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 2.

⁵⁰⁷ Mel Brooks, With Comedy, We Can Rob Hitler of his Posthumous Power, interview by Lars-Olav Beier, digital transcript, March 16, 2006, <https://m.spiegel.de/international/spiegel/spiegel-interview-with-mel-brooks-with-comedy-we-can-rob-hitler-of-his-posthumous-power-a-406268.html>.

⁵⁰⁸ Schön and Rein, *Frame Reflection*, 34–46; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

⁵⁰⁹ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*; Boyd, "Destruction and Creation"; Bureau, "Entrepreneurship as a Subversive Activity: How Can Entrepreneurs Destroy

implied some of this by remarking: "it is impossible to take revenge for 6 million murdered Jews. But by using the medium of comedy, we can try to rob Hitler of his posthumous power and myths... It is an inverted seizure of power. For many years Hitler was the most powerful man in the world and almost destroyed us. To possess this power and turn it against him -it is simply alluring."⁵¹⁰ Prior to Brooks, entertaining giant and silent film star Charlie Chaplin mocked the German dictator as well in "The Great Dictator", stating "Hitler must be laughed at," and would apply humor in order to "force his audience to think of Hitler as both a monster and a human being."⁵¹¹

Both Chaplin and Brooks faced significant outrage as well as criticism during the production of their Hitler-centric performances, with Chaplin even getting urged by President Franklin Roosevelt in 1939 to continue making the film, regardless of Nazi sympathy and fear that the topic was inappropriate for the entertainment industry.⁵¹² Brooks was inundated by angry letters from fellow Jews, while Chaplin who was not Jewish would also face condemnation. As the zenith of the modern war frame is often associated with World War II, this pattern of modern war frames beginning to crumble or fracture extend well into the late twentieth century and into the twenty-first. In a contemporary example of military comedy in a tragic sense of bureaucracy-run-amuck, Lockhart and Miklaucic describe both the American security approach to Afghanistan:

The political process [in 2001 after American forces invaded Afghanistan] held to its timetable and worked remarkably smoothly. It was accompanied by an effort to build- or resuscitate- the organs and institutions of state that would make the high-level political promises a reality in the towns and villages across the country [of Afghanistan]...First, the initiatives were prepared in such a way that they could be designed, led, and managed by Afghan leaders and managers, with either no or very minimal foreign expert technical assistance...But as the air machine lumbered into gear for large-scale implementations, some key design lessons were lost. It veered from a small footprint to a massive footprint...The state became a parody of itself- creating the sovereignty paradox- and as its leaders increasingly claimed sovereignty, the trust of the population declined.

in the Process of Creative Destruction?"; Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 5.

⁵¹⁰ Brooks, SPIEGEL Interview with Mel Brooks.

⁵¹¹ US Holocaust Museum, "Charlie Chaplin's Cinematic Takedown of Adolf Hitler," Medium, October 22, 2018, <https://medium.com/@HolocaustMuseum/charlie-chaplins-cinematic-takedown-of-adolf-hitler-c40a3a2150c9>.

⁵¹² War Is Boring, "Charlie Chaplin Made Hitler Cry," Medium, June 3, 2014, <https://medium.com/war-is-boring/charlie-chaplin-made-hitler-cry-17f8c7d611f9>.

The country was kept afloat- and its people employed- on the back of a larger and unsustainable foreign presence.⁵¹³

Not to be outdone, the American policy and security apparatus would take to the Iraqi invasion two years later with renewed gusto in attempting to apply modern military power projection coupled with modernist political logic within what would become a complex security challenge. The case can be made that the setting within postmodernity would be a key contributor to why previously sound practices and concepts no longer functioned the same, although defenders of the modernist frame might offer that the Iraqi invasion itself was full of fundamental planning and strategic errors and would have failed in any context. Lockhart and Miklaucic reflect: "To be clear, there was no serious thought or plan for building the Iraqi state after the toppling of Saddam Hussein for a simple reason. Then President George W. Bush and his national security leadership envisioned a swift military demonstration of shock and awe, and an early exit from Iraq. The Iraqi state would simply restore itself."⁵¹⁴ This of course did not happen,⁵¹⁵ and the United States with allies plunged into a boiling counterinsurgency that to this day has not rendered a stable or functional Iraqi state without significant foreign support and assistance.

A postmodern treatment of these strategic failures and policy paradoxes would provide strong elements of irony as well as a retrospective dark comedic element. In a 2006 interview with the *Newport News Daily Press*, Iraqi War planner Brigadier General Mark Scheid would admit that Secretary of Defense Donald Rumsfeld threatened to "fire the next person" who mentioned the need for a postwar plan. In a tragic and somewhat comedic context for readers aware of the catastrophic outcome of Rumsfeld's strategic blunder, he instructed the planning team that "everything we write in our plan has to be the idea that we are going to go in, we're going to take out the regime, and then we're going to leave...we won't stay."⁵¹⁶ Defenders of modern planning doctrine can easily make a case that strategic failings do not convict the entire logic; postmodern comedians might continue to show a pattern of perpetual failings to conceptualize complex reality in postmodernity as grounds for why military design as a different logic is most needed to prevent such events from occurring.

Returning to Hitler, mocking perhaps the most potent twentieth century symbol of dictatorship, cruelty and institutionalized, genocidal violence through

⁵¹³ Lockhart and Miklaucic, "Leviathan Redux: Toward a Community of Effective States," 304.

⁵¹⁴ Lockhart and Miklaucic, 308.

⁵¹⁵ The author, as a member of the 173rd Airborne Brigade participated in the 2003 Iraqi Invasion with the unit entering Iraq from the north in Kurdistan and liberating the city of Kirkuk. Throughout the entire planning sequence and into the first month of combat, the tactical and operational level understanding of the national war strategy matched the aforementioned 'in and out in six months or less, the Iraqis will secure their country and things will be fine' until by mid-April 2003, events proved otherwise.

⁵¹⁶ News Services, "Rumsfeld Forbade Planning for Postwar Iraq, General Says," *The Washington Post*, September 9, 2006, sec. Washington in Brief; Lockhart and Miklaucic, "Leviathan Redux: Toward a Community of Effective States," 308.

comedic devices of satire and paradox is risky if just for comedic success to walk a fine line. These entertainers saw their deconstruction and critical examination of Hitler as a way to weaponize comedy against the socially constructed belief system and even the legacy of the Nazis, yet the weight of such a topic meant that taking comedy into areas 'off limits' or 'too far' actually illustrate social frame boundaries and suggest epistemological and ontological constructs. Comedians routinely do this concerning most everything in society; however the extreme example of comedians targeting the Nazi regime provide an ample example of overlap between war, humor, and the postmodern role of contradiction, paradox, alternative perspectives and deconstructionism. In order to do this, one must utilize divergent thinking, imagination, disruptive innovation and creativity to move the audience into the comedic frame.

In a slightly more implicit example of the postmodern tension between creative experimentation and adherence to the centralized military order, Israeli Special Operations Commander Gal Hirsch provides his reflection on this paradoxical quality in war. "A commanding officer in the field often encounters this leadership and command dilemma: how much to stick to the order, and how much to act according to its spirit and take the initiative and at times even perform contradicting actions."⁵¹⁷ While conventional modern military doctrine terms this as an aspect of 'mission command', when Hirsch is articulating this tension he is also advocating postmodern applications. Hirsch's use of postmodern design theory in the Israeli Defense Forces between 1998-2006 is presented in detail in the fourth chapter.

Another element of tension between modern military management logic for the application of organized violence and that of postmodern philosophy is raised by Gibson in his critique of the Vietnam War. While war-managers and technocrats would promote a particular and pseudo-scientific narrative of the war in terms of public discourse as well as internal military strategic decision-making, the subjective and 'non-scientific' knowledge constructed by participants that contradicted the modern scientific view were discounted. "Soldiers' novels, memoirs, poems, and interviews repeatedly contradicted the systems formulations of the [Vietnam War] Technowar. Gibson would draw from Foucault to critique Vietnam, thus employing postmodern style and also incorporating postmodernism as a means to deconstruct the modern war frame.

The warrior's knowledge falls under Michel Foucault's conception of "*subjugated knowledges*." Such knowledge is below the threshold of "scienticity" ...that such stories or accounts do not follow the social and intellectual rules governing who can be a serious thinker and the correct form for serious ideas and important facts."⁵¹⁸ Foucault's contrast between the McNamarian 'technobureaucratic or production logic' and that of the 'unpoetic poetic' demonstrates a significant difference between subjectivity and objectivity and

⁵¹⁷ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 330.

⁵¹⁸ Gibson, *The Perfect War: Technowar in Vietnam*, 462.

epistemological preferences on interpreting war. The warrior might construct knowledge on war using non-scientific methods and techniques, articulating their war insights through stories, poems, memoirs, interviews and music but are “disqualified because of their genre and their speaker. Nonfiction is valued over fiction and the high-ranking officer’s memoirs are more important than any grunt’s” as Gray explains.⁵¹⁹ The postmodern comedian of war could not even be realized in this modern rationalized bias, where any humor or comedy regardless of the transformative or needed reflexive qualities therein would be cast away as ‘trench dribble’ and irrelevant to measuring war analytically. “McNamara insisted on numbers to explain the war,”⁵²⁰ while Lyotard would retort that “humor says that there is no correct point of view...be he prince or scholar.”⁵²¹

Gibson’s application of postmodern philosophy also demonstrates both his historical recognition that the Vietnam War is a war set in postmodernity, but also an uncommon example of a military historian applying postmodern philosophy toward a conflict defined within postmodern context. There is often a sense of dark humor or tragic irony in these examples, where the modern military system continues along despite itself, and only when considered in retrospective do critiques seem to gain some validity while also framing the original military logic in tragic, even absurd terms. Spivak, in his translator’s preface of Derrida’s *Of Grammatology*, emphasizes the importance of playfulness in Derrida’s systemic framing of knowledge well beyond analytical engineering seriousness. “The reason for *bricolage* is that there can be nothing else...signs will always lead to sign, one substituting for another, playfully...it is in the field “of play, that is to say, of infinite substitutions”...all knowledge, whether one knows it or not, is a species of *bricolage*, with its eye on the myth of “engineering.””⁵²² Derrida does not take on the cold reductionist logic of natural science in exploring postmodern synthesis of complex reality through knowledge production outside of and beyond scientific limits; Naveh would draw from this a similar playfulness in challenging the scientific way of warfare promoted by modernity.

Gray highlights the postmodern perspective on this tension between the ‘technical-military discourse’ that “claims universality for one specific (hyper-logical-rational) way of knowing” and that of others that are not hegemonic, that are engaged...always open because of their explicit denial of universality in an ironic understanding of their own irony.”⁵²³ Aptly, Gray concludes his book on postmodern war with a Fussell quote on the ‘black comedy’ of postmodernism and war: “What you have in the absurd is a passage clear through irony to despair so awful that it becomes blackly comic instead of darkly tragic. It’s very much a part of what I would

⁵¹⁹ Gray, *Postmodern War: The New Politics of Conflict*, 161.

⁵²⁰ Gray, 161.

⁵²¹ Lyotard, “Humor in Semiotheology: A Semiotician Becomes Alarmed,” 82–83.

⁵²² Gayatri Spivak, “Translator’s Preface,” in *Of Grammatology*, Fortieth Anniversary Edition (Baltimore: John Hopkins University Press, 2016), xxxviii.

⁵²³ Gray, *Postmodern War: The New Politics of Conflict*, 260.

call the postmodern atmosphere."⁵²⁴ That Gray would conclude his postmodern study of war with an emphasis on the comedy, paradox, irony and implied absurdity of war in postmodernity is significant, as is his incorporation of multiple postmodern thinkers to deconstruct and reframe war.

Conclusions: From Premodern to Modern to Postmodern War Theory

This chapter framed the relationship, epistemological structure and overlapping interaction between premodern, modern and a proposed postmodern military form and function for the application of organized violence. Within these war frames, military organizations employ specific decision-making methods, draw from certain definable belief systems that in turn generate organizational rules and regulations. This subsequently codifies select behaviors and actions while punishing or disenfranchising others. Yet few military researchers have entered the epistemological level of inquiry on any of these periods of war and warfare, and the concept of 'postmodern' for military form or function in war is decidedly controversial. This chapter delineates the various positions with some advocates proposing a societal shift from modernity to postmodernity and warfare. Others render the contemporary security challenges as different from earlier ones contextually without embracing the postmodern, yet demonstrate postmodern style in their arguments and ideas. A last, minority group employs postmodern theory to challenge and deconstruct both modern warfare and even 'war' by presenting postmodern alternatives. Throughout these variations, military designers will support some combination of these different stances on the application of organized violence.

Even for those that agree to use the term 'postmodern' for military studies, there is much disagreement on what it means or even stands for.⁵²⁵ Further, virtually no research currently exists to suggest that the postmodern military form expresses a novel and dissimilar sense-making methodology or methodologies that function in an epistemologically distinct manner from previous modern and pre-modern methods. Although arguing for the international relations discipline, Bousquet and Curtis see the potential for entirely novel discoveries within that field to only recently be possible since "some of the conceptual language of complexity simply did not exist more than a few decades ago."⁵²⁶ Lacking the concepts means that subsequently one also lacks the ability for form new terminology or employ novel metaphoric devices to render shape to these emergent ideas.

The same could be said for military organizational studies, strategy and decision-making methodologies. Prior to a few decades ago, none of the language or concepts existed that would begin to challenge the modernist military logic. Postmodernists use language as a point of departure to examine the relativistic

⁵²⁴ Gray, 260; Paul Fussell, "Conversations: Speaking with Paul Fussell," *The United States Institute of Peace Journal* 1, no. 8 (September 1989): 1,8.

⁵²⁵ Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," 1.

⁵²⁶ Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations," 59.

position concerning rationality,⁵²⁷ while the modern military frame seeks to equate conceptual structures in language directly into a logical equivalence with the artifacts and phenomenon in reality they are addressing.⁵²⁸ Design theory (especially through postmodern theory) challenges this rationalization, suggesting it is useful only in select instances with extremely simplistic and immediate ranges for prediction.⁵²⁹ This tension will be explored in subsequent chapters, and presents a distinct epistemological tension in how militaries choose to make sense of reality.

How militaries contemplate, act and reflect in war is significant for framing not just what and why militaries may be entering a postmodern form, but also how they are doing this and diverging away from legacy methods that function within different epistemological structures. Edwin Micewski, writing as an Austrian Brigadier General and academic in 2003, summarized the military postmodern transition:

With regard to the postmodern debate, the West is in transition. The current state of affairs is the period between the breaking apart of modernity and a postmodern future that has yet to arrive. In other words, if what we are designating as postmodernism is in reality the falling apart of modernist societies, bringing about this profound heterogeneity in the wake of the disappearance of great ideologies, where may be hope of meaning and direction found in this upcoming age of postmodernism. Then, postmodernism does not necessarily have to be a continuation of modernism or its further strengthening, but could rather become a transgression of it and lead us ahead of the limiting modern dictate of positivist reason.⁵³⁰

The military design movement represents a postmodern shift away from the modernist military war frame; it is a movement concerning how and why armed forces and adversaries think and act concerning warfare as well as war itself. Within this shift, the design methods used indicate a distinct and novel way of making sense of war that previous modernist and analytic-based war methodologies were incapable of. This does not mean that military design will place military forces into ideal or optimized contexts where they might accomplish the modernist war goals of decisive victory, strategic accomplishment of pre-established goals, or even the application of organized violence in a manner that facilitates some emergent advantage over adversarial stakeholders. Instead, the military design movement offers a more sophisticated and dynamic mode for making sense of war in an

⁵²⁷ Kay, "A New Postmodern Condition': Why Disinformation Has Become So Effective," 4.

⁵²⁸ Mark Rutgers, "Be Rational! But What Does It Mean? A History of the Idea of Rationality and Its Relation to Management Thought," *Journal of Management History* 5, no. 1 (1999): 27–28; Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 170.

⁵²⁹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 132–33.

⁵³⁰ Micewski, "Education of (Military) Leadership Personnel in a Postmodern World," 8.

increasingly complex, dynamic and emergent context where premodern and modern processes and belief systems are insufficient, counter-productive, or in some contexts irrelevant. The first formal steps of this movement are introduced in the fourth chapter under the design experimentation of Naveh in the 1990s and his frustration with the IDF inability to think and grow beyond contemporary and increasingly insufficient frames.

The military design movement is still young and remains a minority perspective within professional military organizations and institutions. However, the first two decades of experimentation, development and growth from the first efforts in the Israeli Defense Forces in the late 1990s through the last two decades of multiple military campaigns of western alliances and partnerships across the Middle East, Africa and beyond now thrust the military design movement into a recognition that military design is its own recognizable discipline. At an epistemological level, the various military design methodologies share in their orientation, logic and paradigm preference an interest in disrupting the modernist or even pre-modernist confines of earlier war theories. As future chapters will demonstrate, some military design methodologies go further than others, while some have been successfully re-assimilated into modernist war methodologies in part due to the dominance of the modernist military paradigm and existing power structures.

Modern military doctrine has required armed forces to frame theoretical knowledge on war to be understood “as deducing rules, procedures and maxims that are commonly presented in handbooks, instructional manuals and so on, in a systematic step-by-step fashion, often related to a certain level of skill performance.”⁵³¹ Military design methodologies disrupt this form and function of military doctrine for decision-making in war contexts, creating a need for novel military knowledge production that falls outside of current doctrinal recognized forms.

The previously solitary and dominant war philosophies and ontological choices of the modernist era of war are now disrupted by postmodern war theory, calling into question previously unquestionable laws and principles of war.⁵³² The monopoly of violence remains the institutional orientation for formal security organizations,⁵³³ however the postmodern context again renders the earlier dominant military frame as insufficient in an exclusive sense-making role. Militaries cannot take an incommensurate position whether implicitly or overtly towards alternative paradigms in complex war in the postmodern era without risking irrelevancy and even complete elimination.

The shift from modern towards postmodern war renders many legacy systems into disarray; these transitions will continue to be disruptive and likely generate tremendous institutional strife and disagreement for military communities. Kilduff and Mehra, citing Giroux, Smircich and Calás, provide an

⁵³¹ Sookermany, “On Developing (Post)Modern Soldiers,” 78.

⁵³² Sookermany, “Military Education Reconsidered: A Postmodern Update,” 317.

⁵³³ Bloomfield, Burrell, and Vurdubakis, “Licence to Kill? On the Organization of Destruction in the 21st Century,” 3–8.

excellent closing comment for why postmodern thinking is essential in this new context of increasingly complex reality where the application of organized violence requires new ways of thinking and acting:

In postmodern research the goals are to challenge the content and form of dominant models of knowledge and also to produce new forms of knowledge through breaking down disciplinary boundaries and giving voice to those not represented in the dominant discourses. We argue that postmodern researchers, in pursuit of revolutionary challenges to conventional wisdom, can mix and match various perspectives or research styles for aesthetic effect or in order to contrast with tradition. This freedom to combine styles of discourse follows from the belief that no method grants privileged access to truth and that all research approaches are embodied in cultural practice that postmodernists seek to make explicit. The mixing and matching of diverse styles helps surface the cultural practice within which each style is embedded.⁵³⁴

While earlier arguments on the postmodern military and postmodern war contexts largely gravitated towards legacy ideas in war and whether the world had changed sufficiently to recognize some clear, definable shift where previous constructs no longer functioned or provided the same results, this argument on military design theory brings a new epistemology on the contemplation of war and novel ways to act and reflect within it. The application of design in military inquiry into challenging and difficult security challenges is significant in that the methodologies offered are, when using postmodernism as Naveh recommends, entirely contrary and disruptive to the modern analytical war frame.

Postmodernism is intended to be truly disruptive in that one does not merely substitute one methodology for another within the same preferred paradigm, or modify terminology within said methodology by replacing it with institutionally sanctioned alternate language. As Gray remarks: "the very definitions of science and war, scientists and warriors, are being contested. If postmodernism means anything in relation to war and science it is the inevitability of change."⁵³⁵ The war comedian is perhaps the most paradoxical and disruptive metaphoric device to propose as the emerging provocateur to the established military war-manager and premodern war hero, yet that in itself answers the question on 'why a comedian of war?'

Postmodern thought and action critically challenges existing frames for interpreting and acting in complex reality in order to illuminate the normally hidden institutional barriers that prevent divergent thought and the conditions for innovation.⁵³⁶ Postmodern applications seek out dynamic and seemingly impossible

⁵³⁴ Kilduff and Mehra, "Postmodernism and Organizational Research," 458.

⁵³⁵ Gray, *Postmodern War: The New Politics of Conflict*, 241.

⁵³⁶ Sookermary, "Military Education Reconsidered: A Postmodern Update," 311.

novel combinations of different constructs, assembled from various logics that normally would not interact or acknowledge one another.⁵³⁷ Ultimately, the perpetual requirement to innovate and gain novel advantage in the application of organized violence is a race that all stakeholders in future war embark upon. The emergence of this new sub-discipline of military design theory is the way forward for security studies professionals to make sense of future war.

The next chapter addresses a major epistemological tension in how humans apply design theory and that of other modes of decision-making and other activities to shape and transform reality to their desires. The complex and interdependent relationship between designing for commercial and civilian applications and that of designing for war are framed, as well as how and why militaries and civilian design disciplines interacted and inspired one another over the last century of major societal development and transformation. While throughout the twentieth century war and commerce would create profound contexts for new ways of thinking and acting with design methodologies, by the last few decades of the twentieth century neither the military nor commercial design fields would appear to appreciate or understand this complex relationship. This has created confusion and institutional barriers that cause today's military design movement to struggle with creating meaningful transformative impacts in various military organizations worldwide even at the disadvantage of postmodern theory as explained in this chapter.

Design is misunderstood as well as the particular contexts, epistemological frameworks, and entire paradigmatic applications in commerce and war by entire disciplines seeking to apply design beyond the original methodological intents of their particular community of practice. The next chapter explains these tensions, and explores the 'how' and 'why' of the last century's development of formalized design constructs for different endeavors in human creativity, experimentation, and desire to shift the future toward normative goals.

⁵³⁷ Kay, "A New Postmodern Condition': Why Disinformation Has Become So Effective," 1–5.

Chapter 3: Designing for Commerce and Designing for Violence⁵³⁸

The ultimate job of design is to transform man's environment and tools, and by extension, man himself. Man has always tried to change himself and his surroundings, but only recently have science, technology, and mass production made this more nearly possible.

- Victor Papanek⁵³⁹

Conventional problem-solving requires us to stop the world, isolate the problem, and come up with a one-off solution...this approach is curiously nonexperimental, and underlying it is the apparent need to attain complete closure before the solution is put into action.

- Kees Dorst⁵⁴⁰

Design must continuously redesign its discourse and itself.

- Klaus Krippendorff⁵⁴¹

This chapter frames modernist design communities of practice as emerging in the last two centuries and orienting toward the core design domains of either designing for commerce (user experiences, new products) or designing for organized violence (security activities, policies, enforcement and power). Although one might design for governance as well, without the state, group or actor's ability to apply organized violence to enforce any such other agency activity concerning governance would be impossible. While the modern design frame coincides with the birth of the Industrial Revolution and the shift from low-scale artistry to mass-produced artifacts,⁵⁴² the twentieth century features the emergence of formal schools and design communities of practice complete with unique language, methods, culture, and philosophies on design.

⁵³⁸ Early drafts of this chapter were published or presented in part in the following presentations: Ben Zweibelson, "Designing through Complexity and Human Conflict: Acknowledging the 21st Century Military Design Movement," in *Design Lecture with Phil Gilbert and Ben Zweibelson on Military Design and IBM Design Movements* (SPADE 2018: Rethinking Defense and Security in the Digital Age, Copenhagen, Denmark: IBM, 2018); Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay."

⁵³⁹ Papanek, *Design for the Real World: Human Ecology and Social Change*, 21.

⁵⁴⁰ Kees Dorst, *Frame Innovation: Creating New Thinking by Design*, Design Thinking, Design Theory (Cambridge, Massachusetts: MIT Press, 2015), 15.

⁵⁴¹ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 1.

⁵⁴² Giddens, *The Consequences of Modernity*, 11.

Although the military profession is often separated from civilian or commercial ones due to their unique roles and contexts for action, this chapter explains the development of parallel and overlapping design paths for commercial and military professions.⁵⁴³ The last two decades of military design development represents certain security forces entering a postmodern war context where modernist war logics are critically rejected, transformed, or potentially reconfigured entirely. Expectations that civilian design directly caused military design are disproven here, and the deeply interwoven and complex relationship between designing for commerce and designing for the application of organized violence are explained. The postmodern military comedian is presented as the appropriate metaphoric device through which security forces can understand this profoundly different way of thinking about reality, war, and the organization's form and function therein.

Regarding the thesis, this chapter provides necessary framing of the modernist form and function for 'design' at the ontological and epistemological level. One essential epistemological tension is between the commercial/civilian design domain and that of the military or security force domain. While design is done in both, the form and function of design differs for commerce and war. This chapter subsequently frames the modernist and postmodernist transition for militaries where a modern war frame of the military organization and the function of how they construct and curate knowledge as well as make decisions and act differs from the postmodern military form and function.

Modern military function is expressed through policy, military doctrine, and decision-making methodologies such as the 'Joint Planning Process' (JPP), or the U.S. Army's 'Military Decision-Making Process' (MDMP). Postmodern military function is expressed best through military design, which utilizes different concepts, language and methods compared to civilian and commercial existing design processes. This chapter frames these critical distinctions in order to introduce the fourth through sixth chapters featuring various military design logics within Israeli, American, Canadian, Australian and British militaries.

As addressed in previous chapters, the word 'design' means so many different things depending upon the person, the situation requiring a design application, as well as the various disciplines or fields that an organization is knowledgeable upon concerning design. Design theorist Archer, in attempting a 'science of design' primarily for architectural, industrial and commercial design considers it to mean "to make the plans and drawings necessary for the construction of" and "to fashion with artistic skill or decorative device."⁵⁴⁴ Design theorist Dorst takes a much broader approach, seeing design as a process that dates back to prehuman ancestors and abstractly represents the urge "to consider a situation,

⁵⁴³ Commercial design can also be insufficient when addressing design in academia or for non-profit applications. This chapter will specify the term 'civilian design' as a distinction between designing for commerce and designing for activities that are not limited to commerce.

⁵⁴⁴ Archer, "The Structure of Design Processes," 5.

imagine a better situation, and act to create that improved situation,"⁵⁴⁵ while design theorist Fuller offers that design can be "a weightless, metaphysical conception or a physical pattern...when we say there is a design, it indicates that an intellect has organized event into discrete and conceptual inter-patternings...the opposite of design is chaos."⁵⁴⁶ Boland and Collopy address the creative risk and managerial strategy of design as different from traditional planning with: "the design attitude appreciates that the cost of not conceiving of a better course of action than those that are already being considered is often much higher than making the "wrong" choice among them."⁵⁴⁷

Thus designing (in the broadest sense) is about creating something new that provides some advantage to the user or organization, yet the essential requirements to create this 'newness' is paradoxical to routine planning activities and requires entirely dissimilar ways of thought and action. Humanity needs both, and as societies interact commercially as well as through policy and application of instruments of state power including security forces, the design of commerce and the design of organized violence exist. Yet are these areas of design application different, overlapping, or potentially similar enough to render design methods with equal output regardless of whether one is designing architecture, industry, advertising or conducting counterinsurgencies and unconventional warfare in different populations? This chapter intends to answer that question and demonstrate where, how and why humans design by context, purpose, and organizational frame.

Across contemporary security forces, 'design' also means a wide variety of things and evokes both positive and negative reactions as well as institutional confusion. As the last chapter explained, the premodern and modern military periods were oriented towards convergent thinking, uniformity, improved prediction, and for more recent militaries, a strong reliance on technological developments to increase speed and access of information in war. Speed in modern war would be understood in clear, analytic and quantifiable constructs; the modern managers of war could run military campaigns using a scientific, objectified appreciation of 'time.' Postmodern theorists would challenge this. Gray, in framing the postmodern era of war, cites Virilio and Lotringer on time: "Speed becomes crucial: There is a struggle...between metabolic speed, the speed of the living, and technological speed, the speed of death."⁵⁴⁸ The postmodern deconstruction of 'speed' would take on alternative, paradoxical meanings beyond the analytical. Premodern and modern militaries would place particular emphasis on the meaning of words, with first an internalized and later an analytic or objective emphasis for war, while postmodernists would entertain multiple, paradoxical meanings that

⁵⁴⁵ Dorst, *Frame Innovation: Creating New Thinking by Design*, vii.

⁵⁴⁶ Buckminster Fuller, "Introduction," in *Design for the Real World: Human Ecology and Social Change*, by Victor Papanek (New York: Pantheon Books, 1971), vii–viii.

⁵⁴⁷ Richard Boland Jr. and Fred Collopy, "Designing Matters for Management," in *Managing as Designing*, ed. Richard Boland Jr. and Fred Collopy (Stanford, California: Stanford Business Books, 2004), 4.

⁵⁴⁸ Gray, *Postmodern War: The New Politics of Conflict*, 40; Virilio and Lotringer, *Pure War*, 140.

prohibit purely ideological, objective or analytic interpretations and if anything, challenge them.

Design in a security context places a premium on the latter approach, while typically disrupting and transforming the former in terms of novel military theory, language, methods, and doctrine. Design theorist Krippendorff stresses the importance of language as well as the potential incommensurability of one discourse rendering a reality entirely different from another. To design effectively, designers must be able to realize the limits of their own language by exploring beyond their own paradigm, and entertaining alternative language as well as being quite open to the need to create new language and retire outdated or insufficient terminology currently maintained by the organization.⁵⁴⁹ For militaries, attempts to define 'design' have been thus far insufficient in explanation which subsequently causes frustration and inadvertent rejection of design concepts.

For this chapter, 'design' in security applications refers specifically to the military enterprise of generating novel and innovative tactical, operational and strategic concepts in order to gain advantage in a complex and emergent context where established methodologies and practices are no longer sufficient alone. Designers, as design theorist Rittel posits are 'need fulfillers' but range from designing fulfillment of existing needs to the essential innovation required for designers to generate fulfillment of an emergent, still unrealized need that is beyond the horizon of the organization's expectations.⁵⁵⁰ There are design needs in commerce as well as design needs in war; how interchangeable they are is the focus of this chapter.

Militaries today are in greater need of design, yet within security forces and across the civilian and commercial design world few theorists have been able to explain design *outside of their own particular school, field or institution*. Complexity theorist Snowden critiques most civilian design approaches as overly reliant on articulated needs of the customer and not towards unarticulated ones that they are likely unaware of. "If you look at that in military innovation and in industry innovation, it's when somebody creates something that they didn't know they needed, where you make progress. 'Customers first' is not necessarily a good idea, if you assume the customers know what they want."⁵⁵¹ Buchanan provides another useful summary of why 'design' is such a challenging term to define across a range of practitioners as well as diverse design contexts:

Despite efforts to discover the foundations of design thinking in the fine arts, the natural sciences, or most recently, the social sciences, design eludes reduction and remains a surprisingly flexible activity. No single definition of design, or branches of professionalized practice

⁵⁴⁹ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 2.

⁵⁵⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 139.

⁵⁵¹ David Snowden, *Dr. David Snowden IMDC Lecture: "The Application of the Cynefin Framework in Military Design,"* mp3 (Budapest, Hungary, 2020), 6:02, audio recording from live event.

such as industrial or graphic design, adequately covers the diversity of ideas and methods gathered together under the label.⁵⁵²

Ultimately, design is about change; the need to reflectively practice while appreciating that the tools one used yesterday may be not only useless tomorrow, but irrationally favored to prevent the discovery of new ones.⁵⁵³ Krippendorff posits a design philosophy that is epistemologically informed of various contextual frames in which design is practiced, yet within his proposed meta-framework for human-centered design discourse he does not address design in security contexts specifically.⁵⁵⁴ He does leave the door open by promoting a dynamic design philosophy that continues to critically reflect and transform itself through continued discourse, particularly across paradigmatic tensions.

One tension between military design as an expression of human thought and that of convergent, established military practices framed here as traditional strategy and operational planning is the difference between efficiency and effectiveness. Convergent processes can feature an incremental gain in efficiencies so that clearly defined goals and objectives as originally crafted can be reached faster and with lower strain on resources and organizational interest. However, the act of becoming more efficient does not correlate directly into becoming more effective in complex systems; effectiveness frequently requires innovation, imagination, and a willingness to break away from the very practices that an organization might be attempting to improve efficiency with.⁵⁵⁵

This is the first of several core tensions between how militaries plan actions from a historic and analytic orientation, and how they design change through invoking a systemic and imaginative, forward facing perspective. For a minority of military professionals that support design methodologies in some capacity, they generally adhere to a single and frequently service-designed mode for doing design.⁵⁵⁶ This design methodology typically attempts to bridge into contemporary military planning methods, and frequently draws from the same language, cognitive processes, as well as epistemological and ontological underpinnings as well. The more radical forms of military design face greater adversity in acceptance and use due to this core tension triggering both confusion as well as institutional defense of one over the other.

⁵⁵² Buchanan, "Wicked Problems in Design Thinking," 5.

⁵⁵³ Weick, "Drop Your Tools: An Allegory for Organizational Studies"; Klaus Krippendorff, "Principles of Design and a Trajectory of Artificiality," *Product Development & Management Association* 28 (2011): 416.

⁵⁵⁴ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design."

⁵⁵⁵ Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019, 1:03:40.

⁵⁵⁶ The next two chapters expand on this point considerably. Within the application of civilian design methods and the focus of this chapter, the same community self-preservation and tribalism also is valid.

Adversity to military design does not end there. Some vocal critics within military communities reject the application of 'design' as a descriptive moniker entirely when considering future activities within security contexts. They operate cognitively from an efficiency-based orientation that demands better iterations of the contemporary planning or strategy-making; the argument frequently used is that planning is 'proven to work' while any design action that ushers in experimental ideas, new language or unfamiliar war applications are 'unproven' and inherently less likely to succeed. Several of these perspectives will be provided in the next several chapters as design experimentation is chronicled in the Israeli, American militaries and across the Anglosphere.

The next three chapters will unpack more of the institutional resistance to military design along with design application failures in different militaries. This chapter explores the epistemological, ontological, and associated methodological differences between design and modern (analytic, rationalist, reductionist) military planning. Again, 'design' refers to an articulated or unarticulated expression of military self-reflection within complexity in order to generate security-oriented innovation and/or emergent organizational transformation in thought or action. This is done to provide that organization with greater relevance and advantage in emergent and future contexts. This chapter also presents the first epistemological and ontological study of commercial and military design constructs. Although there have been studies of select commercial and civilian design concepts⁵⁵⁷ such as Buchanan, Nelson and Stolterman, Papanek, Rittel, Dorst, Archer, Krippendorff, Weick and Schön, these theorists do not address military design methods or designing within security contexts.

Several researchers do either mention military interest in commercial design methods, or in Weick's case make several design studies of military and para-military organizations, they do not address military frames for design in security contexts. Of the smaller military design community of practice, Naveh, Paparone, Jackson, Beaulieu-Brossard, Ryan, Graicer, Dufort, van der Veer, Mitchell, Martin and others address various military design methodologies and theory, however few mention commercial design interplay or overlap. Only recently and after publication of earlier draft versions of this research have a select few military researchers began to explore the meta-relationship of designing for commerce and designing for organized violence.⁵⁵⁸

⁵⁵⁷ As addressed in the introduction chapter, there is a distinction between commercial and civilian design perspectives although they frequently interact and overlap. Civilian design is in the academic pursuit and knowledge curation of design theory as well as practice, whereas commercial design is the direct application of the many types of civilian design theory toward commerce and the actual development of novel products and new user experiences.

⁵⁵⁸ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Jackson; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit."

Defining 'Design' in Contemporary Usage:

Generically speaking, the term 'design' developed largely within the twentieth century after multiple military organizations in World War II struggled with complexity and increasingly difficult challenges with scale, size, and emergent conditions in the swirling context of total war.⁵⁵⁹ The First World War was arguably the first 'total war' involving the mobilization of entire societies towards the complete destruction and defeat of other nation-states, and as Malešević offers, it also was the last war of the Feudal Era. "The medieval warrior legacy remained firmly entrenched such that by the beginning of the twentieth century most European states were still ruled by the landed aristocracy."⁵⁶⁰

The rapid industrialization of western societies created a vibrant, socially mobile reality sustained by economic growth, scientific progress, and increasingly powerful bureaucratic militaries. Industrial design methods, schools, and communities of practice sustained these new nation-states, provided them the weapons and capacity to wage vastly more violent wars, and the appetite for winning said wars would enrich industrial design practice further. Giddens, in defining the consequences of modernity, places direct relations "between military power and industrialism, one main expression of which is the industrialization of war."⁵⁶¹ Designing for industry and designing for industrialized warfare would become implicitly integrated into the rapidly expanding nation-state as premodern societies gave way to the modern Westphalian Order. In terms of all contemporary commercial design, their direct lineage is explored in this chapter as directly integrated into society and war in the twentieth century.

Once more, the word 'design' means different things to different groups, to include within military organizations.⁵⁶² Of which, only recently have military designers and civilian designers begun to explore these discourses and overlaps.⁵⁶³

⁵⁵⁹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 23.

⁵⁶⁰ Malešević, *The Sociology of War and Violence*, 259.

⁵⁶¹ Giddens, *The Consequences of Modernity*, 60.

⁵⁶² Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers."

⁵⁶³ Gilbert and Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson"; Phil Gilbert, "The Art of War: Accelerating Innovation by Scaling the Design Mindset" (lecture, Innovation Methodologies for Defense Challenges (IMDC) conference 2019, Lancaster, UK, February 27, 2019),

https://www.youtube.com/channel/UCL7hOd0ihWzmJlga_Y4wCJg; Zweibelson, "Designing through Complexity and Human Conflict: Acknowledging the 21st Century Military Design Movement";

Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers"; YouTube JSOU User, *The Sublime: Is It the Same for IBM and Special Ops?*, MP4 (Tampa, Florida: Joint Special Operations University, 2019),

<https://www.youtube.com/watch?v=IUNm852We0o&spfreload=10>; Adam Cutler, "IBM Design - Operationalizing Artificial Intelligence" (lecture, JSOU design lecture series 2019, JSOU Campus, Tampa, Florida, November 14, 2019), <https://www.youtube.com/watch?v=wFqkXMyCl0U>; Aaron

Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)" (under consideration for the U.S. Army University Press (draft version in author's possession January 2020), January 2020).

First, the term itself has been loosely associated with various military modes of thinking and organizing throughout the twentieth century. Some military scholars now interpret 'design' retrospectively so that earlier operational planning and strategy might qualify throughout the twentieth century (or earlier), in that the management of multiple theaters and campaigns in war seen in World War II might therefore be one way to correlate 'design' to military activities. However, this is not a suitable nor comprehensive definition of 'design' for several significant reasons. In most cases of 'design' in military theory and doctrine in the twentieth century, the term is synonymous with the design or construction of military campaigns and major operations.

This use of the term in military contexts implies a hierarchical and integrated form of military planning where the 'design' is the abstract and highest level of strategy and perhaps political interaction, with all subsequent planning subordinate to the military design. Doctrinally, this occurred in the early 1980s in the west. The highly influential 1982 edition of the American Army's Field Manual 100-5 first introduced German and Soviet recognition of operational art and the 'design' of campaigns and operations. This interpretation of 'design' would "spread through the Anglophone world like a virus...[With] minor variations in spelling, the same definitions had appeared in British, Canadian, and Australian doctrine by the early years of the 1990s where they remain relatively unchanged to this day."⁵⁶⁴

Many military professionals when hearing the term 'design' often refer to this doctrinal interpretation as the single-frame context for 'design' in strategic and operational application. If anything, 'traditional design' may better clarify what militaries consider a direct extension of planning into higher abstraction, while non-traditional and disruptive design methodologies of the contemporary form and function represent the shift away from modern war toward a postmodern one. As Rittel states, "design proceeds from the abstract to the concrete," thus designing must begin in abstraction.⁵⁶⁵ The commercial and much more popular understanding of the term 'design' is also problematic, plagued by many different fields of practice debating and disagreeing over what it means and represents.

Commercial Assimilation of the Military Industrial Mode: Designing Products

The influence of military modes of organizing and acting would accelerate the industrialization of war, and subsequently project these successful decision-making and design efforts back into the non-military fields of human enterprise. Malešević argues this with "it is crucial to emphasize that these industrial techniques originated, and were developed first and foremost, for military purposes...from the second half of the nineteenth century onwards, science, technology, administrative organization and the military power of nation-states

⁵⁶⁴ Kelly and Brennan, "Alien: How Operational Art Devoured Strategy," 61–62.

⁵⁶⁵ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 96.

became so integrated and interdependent that now it is almost unthinkable that they would operate independently."⁵⁶⁶

While Malešević was discussing industrialization at large, the design methodologies therein are addressed in greater detail by commercial design theorists such as Papanek, Rittel, Buchanan, Nelson, Stolterman and Dorst. Industrial design represented the first modern form of 'design' according to Papanek in his 1971 volume on the 'ecology of design.'⁵⁶⁷ However, as Malešević proposes a casual rejection of war and violence as the necessary precursors for nearly all industrialization and modern bureaucratic form and function, while there are exceedingly few civilian design theorists that mention any military connection with industrial design origins. Gray reinforces this modern sociological or policy blind spot for acknowledging (or studying) the post-1945 industrial military complex where technology, science, academia and industry are deeply integrated into creating greater and greater weapons of war for the military client.⁵⁶⁸ Organized violence accelerated industrialization for humanity, which in return the Industrialized Age ushered in modern 'total war' violence unlike anything previously seen. Today, commercial and civilian design communities practice design that stems from a commerce-violence relationship, yet contemporary design may no longer recognize the linkages.

The first modern design educational enterprise started in Germany in 1919 and was called the 'Staatliches Bauhaus,' more commonly referred to as 'Bauhaus' or 'school of building' when translated from German.⁵⁶⁹ Originally an eclectic home for combining industrialized crafts with new styles and ideas from the fine arts disciplines, it would blossom into a powerful industrial design movement that included architecture, graphic design, advertising, interior design and above all, an intellectual growth for creative design expression.⁵⁷⁰ The eventual demise of the Bauhaus schools is significant as the overlap and interplay between military institutions and commercial design enterprise came to the forefront in a striking example of this perpetual relationship between designing for war and designing for commerce. The founding of this first modern design school came as a result of the first World War, where German society stood disillusioned and dejected by 1917.⁵⁷¹ Of the many German military officers that survived the war only to return to a broken society, Walter Gropius would in his own intellectual soul-searching develop the vision to establish this radical and disruptive school of design.⁵⁷² Gropius wrote

⁵⁶⁶ Aaron Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare* (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2013), 76–78.

⁵⁶⁷ Papanek, *Design for the Real World: Human Ecology and Social Change*.

⁵⁶⁸ Gray, *Postmodern War: The New Politics of Conflict*, 230.

⁵⁶⁹ Peter Gossel, ed., *The Bauhaus: 1919-1933; Reform and Avant-Garde*, trans. Maureen Roycroft Sommer, Basic Art Series 2.0 (Slovakia: TASCHEN, 2019), 15.

⁵⁷⁰ Magdalena Droste, *Bauhaus: 1919-1933*, ed. Angelika Taschen and Nicole Opel, trans. Jane Michael and Karen Williams, Second Edition (Poland: TASCHEN, 2019), 30–40; Papanek, *Design for the Real World: Human Ecology and Social Change*, 23–24.

⁵⁷¹ Ellen Lupton and J. Abbott Miller, eds., *The ABCs of [Triangle, Square, Circle Shapes]: The Bauhaus and Design Theory*, Second (New York: Princeton Architectural Press, 2019), 40.

⁵⁷² Droste, *Bauhaus: 1919-1933*, 26–27.

about his war experiences and a desire to: “start building [his] life anew;” that in the chaos that was the interwar period Germany, he hoped “that through a new art, a new order could be created. Gropius called for a unification of the arts.”⁵⁷³

Not only would war bring about the conditions to create the first design school, but war would also cause the closure of it. Bauhaus occupied the interwar period of 1919-1938 nearly perfectly, inhabiting a difficult and increasingly tense position in German society as a disruptive, counterculture and source of innovation as well as controversy in an unstable and chaotic period. The German Nazi regime in 1933 forced the closure of the Bauhaus schools due to an association of the school with communist intellectual thoughts as well as the disruptive, critical and influential influence of the Bauhaus community of practice upon European society.⁵⁷⁴ The Nazis elimination of the Bauhaus would provide a useful twentieth century example of a modern military bureaucracy recognizing design education as a threat to their power and desire to influence society through the application of organized violence.

Despite the closure of the Bauhaus in 1933, the radical ideas and most importantly the modern exploration of design with art, multiple new theories and the need to scale design education to a larger and more structured format would deeply influence subsequent commercial as well as military design developments. The Bauhaus movement promoted an ‘anti-academic arts school’ andragogy for fusing avant-gardist strategies with emergent technology and mixed disciplines.⁵⁷⁵ Design educators and advocates of the Bauhaus school would exit Germany and in the 1930s-1950s open up similar schools across Europe and North America.

In 1953, Bill, Aiche-Scholl and Aicher founded the Ulm School of Design or *Hochschule für Gestaltung*. The Ulm School would only last a little over a decade but would extend the Bauhaus design philosophy forward. Horst Rittel, as a professor of the Ulm School would emigrate to California to introduce the foundations of human-centered design thinking to the University of Berkeley and elsewhere, helping usher in the next major commercial design movement. All of these commercial design educational developments would link back to the realities of the twentieth century’s industrialization, total-war application of organized violence, and the societal reactions to changing cultural, technological, and societal belief systems.

Formally, schools for industrial design emerged in the early twentieth centuries and were commonly associated with industry to include war and the ability to wage them using advanced technology and larger populations. Although potentially unpalatable in retrospection for designers seeking purely altruistic or aesthetic motives for design development, the largest consumers of design outputs and design requirements in the last two centuries are nation-state militarized instruments of power. The need to mobilize an entire state economy and population for total-war activities would usher in the twentieth century track record of

⁵⁷³ Lupton and Miller, *The ABCs of [Triangle, Square, Circle Shapes]: The Bauhaus and Design Theory*, 43.

⁵⁷⁴ Gossel, *The Bauhaus: 1919-1933; Reform and Avant-Garde*, 92.

⁵⁷⁵ Gossel, 15.

unprecedented death and violence, as well as sophisticated multidisciplinary fusions of art and science through design thinking.⁵⁷⁶

During the twentieth century and after World War II, a generation of military professionals as well as those in the war-production industry would continue industrial design practice in expanding fields of design application well beyond the focus of organized violence.⁵⁷⁷ Design thinking became mainstream in architecture, products and services, advertising, and urban planning.⁵⁷⁸ Here, the design of new products and user experiences set in an industrialized economy would mature and expand the application of design thinking well into the twentieth century.⁵⁷⁹ Interestingly, contemporary commercial design communities appear largely unaware or unwilling to attribute the demand for modern industrial design methods to the voracious consumer appetite for war tools by the first nation-states and their instruments of organized violence. If anything, militaries are seen as opponents and state apparatuses of censorship of design, such as the Nazis shutting down the Bauhaus design schools within Germany in 1933. Select postmodernists such as Virilio have espoused a belief that all aspects of organized society to include industry, cities, and general human progress are a result of war, or at least the preparation of war- however, these positions appear to be in the minority across various disciplines addressing the intersection of war and societal progress.⁵⁸⁰

Design as an ever-expanding multi-discipline community of practice continued to develop in commercial and academic contexts throughout the mid-twentieth century. Yet this maturation in the 1950s and forward largely occurred outside of the original military context from which it was born. The original design thinking demands of the first World Wars would largely stagnate within military organizations; the highly analytic mode of decision-making and planning would move towards a positivist epistemology and the expectation that increased control and prediction would make complex war contexts 'solvable.'

Even within civilian design disciplines, theorists such as Archer and Simon in the 1960s would promote a positivist design logic to break design problems "into its logical parts, independent of time"⁵⁸¹ denoting a reductionist epistemological proclivity across military and civilian fields alike. The rise of military managers such as McNamara and a generation of 'Whiz Kids' using analytic optimization methodologies applied to military goals created an industrialized military complex that consumed designed materials for war, but itself fixated largely on linear reductionist planning to use those war tools.⁵⁸² Thus, in the 1950s-1990s there are significant patterns and branches of military theoretical development, new doctrine, and novel practice within western militaries, but there is little evidence of any

⁵⁷⁶ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 3.

⁵⁷⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 3.

⁵⁷⁸ Archer, "The Structure of Design Processes," 3.

⁵⁷⁹ Krippendorff, "Principles of Design and a Trajectory of Artificiality," 411-12; Buchanan, "Wicked Problems in Design Thinking," 9; Archer, "The Structure of Design Processes," 5.

⁵⁸⁰ Virilio and Lotringer, *Pure War*, 19.

⁵⁸¹ Archer, "The Structure of Design Processes," 42.

⁵⁸² Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 13-15.

significant deviation from the core ontological and epistemological underpinnings of the same military paradigm used in World War II. This occurred against a vibrant backdrop of commercial design innovation and expansion into many new disciplines and fields. Militaries would make sense of reality and attempt to wage war in much the same cognitive mode, albeit with new technology and embarking into nuclear, information, and increasingly complex social contexts.

Although design theorists and philosophers might argue over whether violence or economic production first triggered modern design in a 'chicken or the egg' paradox, the arrival of the modern military frame for war and a separate yet interacting modern frame for designing commerce ushered in dramatic change for both. In what had previously been a localized, artisan affair for products and user experiences, the industrial design movement launched universal, widespread production with a trade-off in artisan quality for low-cost, mass-produced and reliable alternatives.⁵⁸³ While the shoes that one purchased previously were tailored to the user and made to last a lifetime with regular repair, the standardized shoes of the first design revolution would be cheaper, disposable, widely available and quickly incorporating new technology as well as fashion cues. Products designed would be viewed on their utility, functionality, and also their aesthetic value as applied to large markets.⁵⁸⁴

Industrial design generated a tension between the artisan strengths of craftsmanship, time and availability with the rapid expansion of speed, uniformity, and disposability. For Archer, designers *were different from artists* in that the ideological adherence to 'creating art for art's sake' is not the same as designing for the consumer's interests.⁵⁸⁵ Modern design shattered the Old-World economies as well as how societies interacted, traded, and went to war. Meanwhile, despite the militaries of the twentieth century largely ignoring the design thinking movement after the Second World War, commercial as well as academic enterprise paid attention. This paralleled the post-war military migration of able-bodied workers into the civilian workplace where many industries began using design concepts beyond the original WWII applications. This led to a wide and increasingly divergent range of many of the organizational capabilities of modern militaries reapplied for commercial forms of knowledge management, decision-making, administration and logistics. In industry in the 1950s and beyond, industrial design branched off into many new directions, and would later address complex issues of empathy, multiple stakeholders, creativity and organizational flexibility.⁵⁸⁶

From industrialized modes of designing for violence as well as economic capitalism, design rapidly spread through the various disciplines of architecture, art, advertising, public administration, engineering, and other sub-fields though the mid-twentieth century. Further, the mass exodus of experienced military professionals after the conclusion of the Second World War provided a massive

⁵⁸³ Dorst, *Frame Innovation: Creating New Thinking by Design*, 42.

⁵⁸⁴ Krippendorff, "Principles of Design and a Trajectory of Artificiality," 411.

⁵⁸⁵ Archer, "The Structure of Design Processes," 66.

⁵⁸⁶ Krippendorff, "Principles of Design and a Trajectory of Artificiality," 415-18.

infusion of industrialized professionals across industry. What had previously been applied in a total-war, whole-of-society mobilization to achieve difficult strategic goals would now transfer those bureaucratic as well as decision-making activities into pure commercial settings.

Industrial design would craft superior products and user experiences, but it also frequently created great things that were misused or not needed at all. New vehicles would fail to sell despite being designed to function well, and urban renewal housing projects would construct perfectly crafted buildings only to later tear them down due to not enough people living in them. Krippendorff would address design failure in this regard with the importance of designers needing to make things meaningful to the culture it is being used in. Designers that violate this axiom risk failing; designers that disregard it may just be designing for themselves and only accidentally for others.⁵⁸⁷

Taking a postmodern architectural perspective, Kilduff and Mehra describe the rise of modern city planning and architectural endeavors of the post-World War II societies as a primary stimulant for change. These positivist oriented epistemological stances of modern city planning attempt to calibrate humans as qualitative components of a large, mechanistic system. While human-centered design theorists discuss the lack of synthesis and empathy by these urban planners, postmodernists dispute the epistemological choices of the modernist stance for artifacts such as new buildings that are built efficiently but produce user dissatisfaction nonetheless. Kilduff and Mehra explain:

One of the major reasons for postmodernist architects' disenchantment with the modernist style...was the perceived failure of the "machine-for-living" ethos. The giant housing projects, for example, that disfigure the cities of the world appear, from a postmodernist perspective, to lack any connection to classical ideals of harmony with surroundings...Postmodern architecture, by contrast, seeks to both comment upon, and integrate within, such features of the environment that promote a sense of continuity with the local past.⁵⁸⁸

Whether from a postmodernist perspective or due to the institutional failings of various optimized and analytically planned industrial design efforts, by mid-twentieth century a design paradigm shift would occur to incorporate many of the previously marginalized or discounted elements of complex reality for human societies. The minority stakeholders, concepts of empathy, critiques of modern epistemological positions on optimization, reductionism, efficiencies, and other design aspects of the bureaucratic industrialization of the modern world would be

⁵⁸⁷ Krippendorff, 413.

⁵⁸⁸ Kilduff and Mehra, "Postmodernism and Organizational Research," 469–70.

highlighted or revisited. Subjective concepts such as empathy, and the messiness of paradox and emergence would feature prominently in new design thinking, often overlapping in expressions of postmodern theory as well.⁵⁸⁹

Mid-Century Tensions: The Shortfalls of Purely Industrial Design

Independent of military considerations on 'designing' abstract things and organizational forms, the rise of commercial design thinking in the twentieth century provided significant development and growth that would influence and later extend into military design endeavors.⁵⁹⁰ First, the industrial designer emerged from artistry to render artifacts into mass production using the technology and values of the Industrial Revolution.⁵⁹¹ The rise of the industrial designer brought with it a growing tension between timeless artisans and what could be described as a growing gap between technologically enhanced functionality and artisan individuality.⁵⁹² Particularly since the Industrial Revolution, military dependence on sophisticated technological capabilities to execute increasingly organized and more powerful applications of violence has increased.⁵⁹³ Militaries capitalize on the scientific methodology underpinning such technology, while simultaneously armies continue to struggle with adaptive strategies and innovative thinking more associated with 'military art' versus the science of warfare.⁵⁹⁴ This tension between classical artisanship and mass production through advancing technology and enhanced social networks reflects not just a significant paradoxical theme for humanity's design for lifestyles as well as organized violence, but also a major tension for this research on how and why the postmodern military design transformation is underway in the twenty-first century.

A brief summary of this meta-design tension is relevant here for establishing the chapter arrangement here. Consider how the cobbler artisan of old could craft shoes tailored just to one customer's feet, but the range and scale of that pool of potential customers was limited. If the local shoemaker was known for hundreds of miles as the best cobbler that money could buy, it was access to that talented artisan that created and also limited shoe opportunity. Pre-industrialized society had commercial enterprise fueled largely by artisans, while in parallel those same

⁵⁸⁹ Kilduff and Mehra, 453–60.

⁵⁹⁰ Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers," 1–17.

⁵⁹¹ Buchanan, "Management and Design: Interaction Pathways in Organizational Life," 54–59; Jorgen Nielsen and Lars Andreasen, "Design and Co-Design of Project-Organized Studies," in *Situated Design Methods*, ed. Jesper Simonsen et al. (London: MIT Press, 2014), 52; Papanek, *Design for the Real World: Human Ecology and Social Change*, 22–24.

⁵⁹² Dorst, *Frame Innovation: Creating New Thinking by Design*, 1–10; Papanek, *Design for the Real World: Human Ecology and Social Change*, 137–42.

⁵⁹³ Malešević, "The Organization of Military Violence in the 21st Century," 460.

⁵⁹⁴ Keith Hoskin, "Management and Design: A Historical Reflection on Possible Future Relations," in *Managing as Designing*, ed. Richard Boland Jr. and Fred Collopy (Stanford, California: Stanford Business Books, 2004), 143–50; Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, 8–14; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 44–50; Papanek, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 10–16.

societies featured military artists and rather localized war-making skills, knowledge production, and a rather customized and pre-industrial manner of producing armies for war. There is an important similarity in artistry in commerce and that of organized violence. Word of a superior shoe will spread for miles and increase demand; while word of particularly gruesome sanctioned acts of violence do the same to shape societal actions of a target population⁵⁹⁵ once word of that custom handiwork is shared.

Local artistry in commerce produced highly tailored results, while local artistry in war would similarly produce highly gruesome results that could extend popular coercion through fear despite the localized application of violence.⁵⁹⁶ Pre-modern armies often applied politically sanctioned organized violence in gruesome yet limited fashion, with this shifting away from excessive and intentional displays of cruelty towards greater military proficiency, scale, and destructive effects in the modern era of war.⁵⁹⁷ As the last chapter established, western industrialized nations primarily in Europe dramatically adapted to this shift first, leaving most other militaries around the world behind. They would, while moving with the vanguard of the Industrial Revolution, become the first to professionalize military forces and shift away from the artisan content and form that had previously defined organized warfare for millennium.⁵⁹⁸

The rise in production coinciding with the professionalization of tradecraft and standardization occurred in parallel with the shift of classical military forces towards their modernized nation-state counterparts. Mass-produced organized violence in modernity would be just as far-reaching as mass-produced goods, and although the scale of death and destruction would vastly increase, this technologically enhanced capacity for violence could only be expressed in a cumulative bureaucratization of that violence.⁵⁹⁹ In other words, the weaker nation might draw and quarter or publicly behead individuals but not come close to the horror of genocidal gas chambers or the cold, impartial lethality of an atomic bomb. A custom pair of shoes differs from mass-produced ones, while humans applying organized violence locally through simple technology must terrify opponents through excessive brutal action towards a sample of the population. This becomes unnecessary and impractical when a society can wield technology and deliver impersonal high-yield application of violence wholesale.⁶⁰⁰

In the twentieth century at the height of industrialized commercial and military success, industrial design again shifted due to societies recognizing some of the inherent limitations in design oriented towards analytic optimization, efficiencies, and mass production through universalized form and function. Yet

⁵⁹⁵ Malešević, *The Sociology of War and Violence*, 258.

⁵⁹⁶ Malešević, "The Organization of Military Violence in the 21st Century," 464–67.

⁵⁹⁷ Foucault, *Discipline & Punish: The Birth of the Prison*, 32–64; Malešević, "The Organization of Military Violence in the 21st Century," 467.

⁵⁹⁸ Malešević, *The Sociology of War and Violence*, 146–49.

⁵⁹⁹ Malešević, "The Organization of Military Violence in the 21st Century," 464.

⁶⁰⁰ Malešević, *The Sociology of War and Violence*, 128–29.

initial industrial design, oriented on universal optimization would run into difficulties as complex reality rejects efforts to subjugate human value into these sterile categorical modes of logic.⁶⁰¹ Yet initially and largely due to the exceptional demands of the industrializing militaries seeking to apply mass-production at greater and greater scale in war, the industrial design movement would launch modern design of the twentieth century. This would occur first in the commercial design enterprise,⁶⁰² and only later would subjective concepts such as 'empathy' and alternative perspectives on reality stimulate disruption and transformation in western industrialized military form and function.

On Empathy and Multiple Stakeholders: The Rise of Human-Centered Design

By the late 1950s, various industrial design methods within a range of commercial disciplines would begin encountering challenges that relate to rather subjective topics that did not appear 'solvable' using objective, analytic processes alone. Dynamic and complex systems featured a 'messiness' or sophistication that prevented any solution from working,⁶⁰³ and often featuring a 'wickedness' that denied previous solution frames from being reapplied to future ones.⁶⁰⁴ Often, the best optimized industrialized solutions would meet all design requirements, yet unexpectedly fail in unforeseen ways when applied to the real world. Unexpected perspectives, groups of marginalized or ignored stakeholders, and unanticipated second and third-order effects created chaos out of the best applied design efforts. This reflected an ever-increasingly sophisticated world where information, technology, cultures and ideas could change how humans made sense of reality and acted within it. White's postmodern study of 'content' and 'form' and how people construct narratives even while attempting to remain entirely objective provides significant insight here.⁶⁰⁵ The analytic optimization of industrialized design methods could only deliver so much before breaking down. This seeming irrational quality and dynamic, ever-changing complex context demanded alternative ways to think about human thought and action to include designing for those needs.

The ability to empathize with others and provide user experiences and design complex projects where multiple stakeholders held paradoxical needs and views would spawn the need for a new way of designing.⁶⁰⁶ Human-centric design would rise up out of the flaws and lack of empathy and societal consideration of the first design movement. In the mid-twentieth century, the foundations of this second

⁶⁰¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 128–30.

⁶⁰² Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers," 6–14.

⁶⁰³ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–57.

⁶⁰⁴ Jeff Conklin, "Wicked Problems and Social Complexity," in *Dialogue Mapping: Building Shared Understanding of Wicked Problems* (CogNexus Institute, 2008), <http://www.cognexus.org>; Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*.

⁶⁰⁵ White, *The Content of the Form*, 66–69.

⁶⁰⁶ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 2–4.

design wave⁶⁰⁷ would be established by design theorists such as Horst Rittel, Victor Papanek, Bruno Munari, and Melvin Webber moving against the 'design science' constructs contributed by the analytic-oriented design theory proposed by Bruce Archer and Herbert Simon.⁶⁰⁸ The former wanted to increase the awareness of humans within the design process and design context, while the latter sought to marginalize or even eliminate human volatility from what could be a more efficient and stable design logic. In the human-centered design applications, 'design' is an innovative, highly creative, and cross-disciplinary tool⁶⁰⁹ that differs significantly with positivist based military analytic decision-making methodologies that the post-WW2 militaries of the same period would continue to hold to.

Although outside the scope of this research, the different epistemological and methodological positions of Simon, Archer, Rittel, Webber, and Papanek demonstrate the increasingly sophisticated and multidisciplinary scope of design for complex, dynamic contexts. Essentially, Rittel in the late 1950s pioneered much of the theoretical and educational groundwork for human-centered design despite many of his lectures not being published publicly until 2010,⁶¹⁰ Simon and to a lesser extent Archer shaped the meta-discussions on the orientation of design as a practice⁶¹¹ in the 1960s. Although Simon was a pioneer in framing design as a distinct discipline, he is criticized of taking a positivist approach and rendering design as an engineering rationalization that sought objectivity over subjectivity;⁶¹² this would create subsequent design introspection later on the topic of 'empathy' that his work would lack. As Krippendorff critiques, "[Simon's] positivism led to what we now recognize as a universalist epistemology which is no longer suitable in information-rich environments such as ours."⁶¹³ Rittel similarly criticized a purely positivist approach within science as insufficient in designing for action in complex reality. Archer promoted a rationalized 'science of design' thesis using mathematical equations and geometric graphics to isolate design from artistry, moving closer to Simon's orbit and attempting to render the subjective qualities of design artistry as also reducible to scientific measurements and procedures.⁶¹⁴

⁶⁰⁷ Stephanie Di Russo, "A Brief History of Design Thinking: The Theory [P1]," digital online blog, *Ithinkidesign* (blog), January 18, 2012, <https://ithinkidesign.wordpress.com/2012/03/31/a-brief-history-of-design-thinking-the-theory-p1/>.

⁶⁰⁸ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*; Herbert Simon, *The Sciences of the Artificial*, Third Edition (Cambridge, Massachusetts: The MIT Press, 1996); Papanek, *Design for the Real World: Human Ecology and Social Change*; Bruno Munari, *Design as Art* (New York: Penguin Books, 1966).

⁶⁰⁹ Papanek, *Design for the Real World: Human Ecology and Social Change*, xxii.

⁶¹⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*; Chanpory Rith and Hugh Dubberly, "Why Horst W.J. Rittel Matters," *Design Issues* 23, no. 1 (Winter 2007): 72–74.

⁶¹¹ Simon, *The Sciences of the Artificial*.

⁶¹² Rittel in multiple original lectures addresses his disagreements with Simon's theory. See: Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 45.

⁶¹³ Krippendorff, "Principles of Design and a Trajectory of Artificiality," 413.

⁶¹⁴ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 24–25; Archer, "The Structure of Design Processes," 70–78.

Regardless, Simon's pioneering work influenced many subsequent design efforts in the 1970s-80s, and critical theorists such as Papanek disrupted and dismantled cherished design beliefs of the commercial practices and capitalistic constructs to advocate alternatives.⁶¹⁵ By the early 2000s, Krippendorff advocated for a philosophy doctorate for design, and the core argument that "design must continuously redesign its discourse and itself."⁶¹⁶ He would advocate that designers apply their design principles also to themselves, indicating that even the current popular design methodologies across the commercial design world were temporary and needing to be challenged, deconstructed, and replaced with novel, emergent forms of design.

Sociologist Tsoukas reinforces this on promoting a dialogical approach to the creation of new knowledge. "Novel combinations create new categories to describe or bring about changes in something familiar...the new concept may have *emergent attributes*, that is, attributes that are different from those of either of the constituent parts."⁶¹⁷ Tsoukas, Schön and Krippendorff (each drawing from organizational theory or philosophy) emphasize the important of 'thinking about thinking' in order to disrupt one's own frame, break through set epistemological choices by realizing and then stepping beyond them.⁶¹⁸ Krippendorff would advocate for an epistemologically informed 'philosophy of design' that acknowledges differing design paradigms as well as the perpetual transformative nature of design practice itself.⁶¹⁹

Human-centered design broadly addresses the prominence of human perspective within the design methodology of bringing organizations and individuals the innovation that is needed but does not yet exist. The first designer to describe design in this sense was Buchanan with: "the problem for designers is to conceive and plan what does not yet exist, and this occurs in the context of the indeterminacy of *wicked problems*, before the final result is known."⁶²⁰ Buchanan appears to be modifying early design theory on wicked problems as first created by Rittel in the 1950s-1960s,⁶²¹ as well as possibly some early 'science of design' theory proposed by Archer.

Archer, while advocating a positivist orientation on design, emphasizes the "element of innovation is always present in design" while describing the overall purpose of design activities relates to the planned production of something (product, user experience) or to be fashioned with artistic skill; mere description of existing and known artifacts is not an act of design for Archer. It must have "at least

⁶¹⁵ Papanek, *Design for the Real World: Human Ecology and Social Change*.

⁶¹⁶ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 1.

⁶¹⁷ Haridimos Tsoukas, "A Dialogical Approach to the Creation of New Knowledge in Organizations," *Organization Science* 20, no. 6 (December 2009): 946.

⁶¹⁸ Gero and Kannengiesser, "An Ontology of Donald Schön's Reflection in Designing"; Donald Schön, *Displacement of Concepts* (London: Tavistock Publications (1959) Limited, 1963).

⁶¹⁹ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 1-4.

⁶²⁰ Buchanan, "Wicked Problems in Design Thinking," 18.

⁶²¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 110-17.

a modicum of originality.”⁶²² Later, designers Nelson and Stolterman would promote a similar design definition echoing Buchanan’s theme,⁶²³ and military designers Naveh and Graicer provide similar phrasing in their overarching approach in military applications covered in the next chapter.⁶²⁴ Problems in human-centered design are framed within complexity where the users must be deeply considered, design is done holistically, and purely analytic approaches devoid of synthesis and extensive theoretical development will be entirely insufficient and potentially hazardous.⁶²⁵

Whereas industrial design relies heavily upon analytic optimization towards greater efficiencies and developments,⁶²⁶ human-centered design focuses on the irrational, subjective, and often nonlinear aspects of humanity⁶²⁷ that industrial design methods routinely marginalize or seek simple majorities to streamline. Design models emerge out of experimentation with complexity theory, new organizational concepts, as well as non-western cultural traditions and patterns.⁶²⁸ The first wave of industrialization designed towards centralized control, the rise of bureaucratic organization, and standardization⁶²⁹ that quickly became favorites of militaries yet problematic for designers seeking customization.

Empathy-based design methodologies first emerged in the early 1960s and quickly became mainstream in various design fields as well as across design academia by the 1980s.⁶³⁰ Human-centered design, as a meta-design mindset, recognized that the strengths of industrial design’s ability to optimize, engineer, and accelerate efficiency gains could frequently miss the mark and result in well-designed products failing. That failure was not necessarily due to flaws in the design output although certainly many new products were defective or poorly designed. Rather, designers by the mid-twentieth century began to appreciate that some things could be designed strictly within an industrial methodology that did not consider or explore vital systemic tensions or minority perspectives.⁶³¹ Krippendorff, in critiquing the early over-engineering emphasis of design theory

⁶²² Archer, “The Structure of Design Processes,” 7.

⁶²³ Nelson and Stolterman, *The Design Way*.

⁶²⁴ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning MP3, 0:38.

⁶²⁵ Jesper Simonsen et al., eds., “Situated Methods in Design,” in *Situated Design Methods* (Cambridge, Massachusetts: MIT Press, 2014); Mintzberg, “Patterns in Strategy Formation,” 944.

⁶²⁶ Naomi Stanford, *Guide to Organisation Design: Creating High-Performing and Adaptable Enterprises* (London: Profile Books Ltd, 2007), 47–50.

⁶²⁷ Haridimos Tsoukas, *Complex Knowledge: Studies in Organizational Epistemology* (New York: Oxford University Press, 2005), 290–93.

⁶²⁸ Stanford, *Guide to Organisation Design: Creating High-Performing and Adaptable Enterprises*, 23; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 22–37.

⁶²⁹ Nielsen and Andreassen, “Design and Co-Design of Project-Organized Studies,” 52.

⁶³⁰ Papanek, *Design for the Real World: Human Ecology and Social Change*; Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*; Rith and Dubberly, “Why Horst W.J. Rittel Matters.”

⁶³¹ Frank Gehry, “Reflections on Designing and Architectural Practice,” in *Managing as Designing*, ed. Richard Boland Jr. and Fred Collopy (Stanford, California: Stanford Business Books, 2004), 19–35; Papanek, *Design for the Real World: Human Ecology and Social Change*; Tschumi, *Architecture and Disjunction*; Krippendorff, “Principles of Design and a Trajectory of Artificiality,” 415.

such as Simon's, saw the reason of design product failures as part of the emphasis on a centralized hierarchical mode of industrialized design:

Simon came to celebrate hierarchy and the kind of mono-logical rationality that is typically pursued in the design of highly functional products. In the human use of artifacts, the application of this technologic creates the need of forcing diversity into common frameworks, applying uniform standards on subordinates by a central authority, a government, a leading industry- including by "ingenious" designers...Simon could not anticipate the trajectory of artificiality we seem to be pursuing. He could not experience that hierarchical systems of some complexity hardly survive in democratic, market-oriented, and user-driven cultures...Design tasks involving teams or stakeholders can no longer be organized hierarchically. Although traditional designers might decry the loss of control that hierarchies provided, chaos, heterarchy, diversity, and dialogue are the new virtues that design must embrace today.⁶³²

Analytic optimization and improved efficiencies without subjective or even irrational qualities that involve human emotion, curiosity, amusement and other non-objective constructs were not just relevant but essential. This tension is explained by Krippendorff in that a purely engineering mindset or discourse will rationalize reality and attempt to 'solve' problems by optimizing techniques and search for strategic approaches to achieve predetermined 'ends.' This highly industrialized mode of designing through analytical science creates a reality that precludes the best qualities of design. "Science inquires into what is, design into what could be."⁶³³ Attempts to remove subjectivity and empathy from any design methodology may instead purge any design opportunity from it, and subsequently delivering a well-engineered but useless outcome. The very qualities that earlier industrial designers had attempted to marginalize or eliminate entirely from manufacturing and production processes apparently were instead critical to the notions of creative destruction, innovation, exploration and opportunity in human design.⁶³⁴

This paradox meant that in complex systems, sometimes the inferior VHS tape would outsell the superior Beta-Max, or the construction of well-designed low-income housing would need to be torn down decades before their forecasted expiration date due to the failure of the city design to facilitate enough low-income

⁶³² Krippendorff, "Principles of Design and a Trajectory of Artificiality," 415.

⁶³³ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 2.

⁶³⁴ Boyd, "Destruction and Creation"; Bureau, "Entrepreneurship as a Subversive Activity: How Can Entrepreneurs Destroy in the Process of Creative Destruction?"; Coral, Noonan, and Chislett, "Destructive Creation"; Dorst, *Frame Innovation: Creating New Thinking by Design*; Rodolphe Durand and Jean-Philippe Vergne, "No Territory, No Profit: The Pirate Organization and Capitalism in the Making," *M@n@gement* 15, no. 3 (2012): 264-72.

citizens to seek to live in them. Some automobiles that perform better than competitors are nonetheless unable to sell as well as their rivals or are otherwise pushed out of the market by inferior competitors able to market in unexpected ways. Moving from the commercial design disciplines to military ones, late twentieth-century western military forces struggled with the paradox of high technology, well-funded professional militaries losing the strategic advantage to dramatically inferior funded and equipped adversaries in Vietnam, Somalia, Iraq, Afghanistan, Africa, and elsewhere.

By the 1970s, formal civilian design schools existed touting various methodologies as well as entire disciplines for different design applications. In the 1980s and 1990s, multiple academic programs stood up and significant research on different design approaches occurred across various disciplines, fields, and human endeavors. Jackson provides a useful summary of this commercialization of a human-centered design process where companies such as IDEO popularized the method depicted in the figure below:

Teaching of design thinking methods have proliferated within higher education institutions since the mid-1990s, accompanied by a revival of its processual aspects. This revival was triggered by Richard Buchanan's influential 1992 article *Wicked Problems in Design Thinking* which broadened the focus of private-sector design from *product to service* design. Buchanan also substantially developed a two-tiered process of problem definition and problem solution that had been advocated by various earlier design thinkers, [popularizing] this approach to the point where it has since become central to the design methodologies taught by most civilian higher education institutions. These methodologies include *participatory design, user-centered design, interaction design, transformation design* and *service design*...to give merely a few examples. While their details differ, each of these design methodologies includes a problem defining (also called problem framing) component and a [problem-solving] component.⁶³⁵

After the success of private-sector efforts to standardize and monetize a human-centered design sequence, universities such as Stanford developed their own education programs such as the 'd.school' that would teach design with an emphasis on sociological components previously ignored by earlier commercial design constructs. IDEO in particular has packaged design thinking in a profit-oriented and highly compressed educational package where students can attend short workshops of several days to learn their design methodology. Critics of this

⁶³⁵ Aaron Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force," *Australian Journal of Defence and Strategic Studies*, Joint Studies Paper Series, no. 3 (December 2019): 3.

compressed format include ethnographers and complexity theorists that reject the notion of a two-day workshop in design being useful in accomplishing the deep cultural study for truly complex challenges beyond superficial or topical design requirements. One critic of IDEO's methods and a competitor in the same market is complexity theorist Snowden, creator of the 'Cynefin Model'⁶³⁶ and a proponent of deep ethnographic studies relying on meta-data and design software:

Design thinking and ethnography has become terribly linear and terribly modified in the last couple of years. It is now being rolled out by IDEO as a series of two-day courses with certificates. When people get into two-day courses and certificates, it is the 'end of days' for novelty and ethnography. What happens here is the expert does the interviews and they call it ethnography. Now real ethnography is deep emersion for years or months in a situation, and you don't see that from IDEO.⁶³⁷

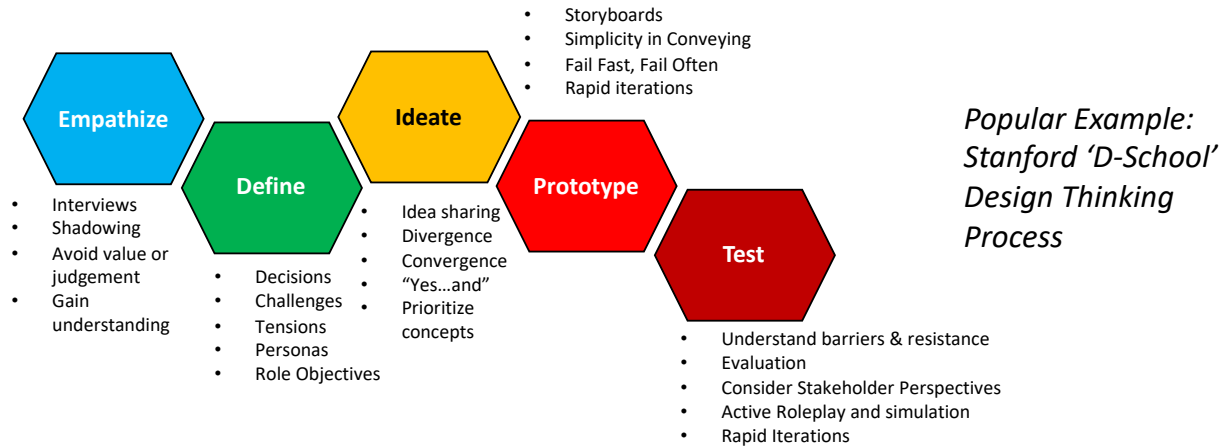
While some critics challenge the brevity of the IDEO approach as well as the overly commercialized context for design education, the model itself has been for two decades the most popular and likely most utilized human-centered design methodology in commercial, civilian and even select governmental and military sectors.⁶³⁸ There are hundreds if not thousands of variations on the IDEO original 'hexagonal' design methodology across various commercial design disciplines today. The original modes developed are depicted in the below figure and are an iterative sequence commencing with 'empathize', then 'define', followed by 'ideate', and then 'prototype' that leads to 'test'.

Figure of the Dominant HCD methodology: IDEO's Hexagonal Model for Designing

⁶³⁶ David Snowden, "A Leader's Framework for Decision Making," *Harvard Business Review*, November 2007, 1-14.

⁶³⁷ Snowden, Dr. David Snowden IMDC Lecture: "The Application of the Cynefin Framework in Military Design," 5:05.

⁶³⁸ Harold Nelson, "Advance Design DA 4500 (Draft) Spring 2016 Syllabus" (Naval Postgraduate School, n.d.).



The core human-centered design methodology starts with 'empathy' including extensive interviews, appreciation and considering alternative perspectives. Thus, the designer needs to frame various tensions concerning key stakeholders including the consumer, the producer, and also those within the system that may influence either of those groups. In the epistemological map below the methodology in the figure above, 'empathy' is expressed as either the exploration of multiple paradigms or possibly projecting a single dominant paradigm upon all other stakeholders. This occurs when a designer frames their 'empathy' so that their personal or cultural values are displaced onto actors that do not share similar ones, resulting in misunderstood or irrelevant empathetic frames. The pursuit of designing with multiple paradigms is an important feature of modern commercial as well as some (but not all) military design methodologies. Krippendorff provides an excellent summary with:

Discourses construct vastly different realities into which the ideas of a discourse are inscribed and in turn become available for inquiry and elaboration...Different discourses not only construct *incommensurate realities*, their pursuit of different *paradigms* yields different kinds of knowledge: Experiments are not treatments, and neither are technical inventions. Finally, discourses create their own *communities of experts* whose members may not be able to communicate across discourses.⁶³⁹

Krippendorff uses the term 'discourse' here as the mode in which designers will use language and reflect not just on the language and content therein, but the metaphors above the language that reveal the epistemological and ontological underpinnings that outline a paradigm. As the next chapter will explain, military designers use postmodern theory to explore the 'metarules' of tropes that are

⁶³⁹ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design," 2.

conveyed exclusively through metaphors and narrative. Thus, a basis in postmodern theory concerning narratives, tropes and metaphor such as Foucault, White, and Ricoeur is essential for exploring epistemological limitations and boundaries within one's paradigm.⁶⁴⁰ Designers self-aware of their own paradigm and willing to explore alternative ones that relate to the design topic will gain greater cognitive space for ideation and new definition of the design challenge without remaining limited to a single-paradigm terminology that might be insufficient or inappropriate for appreciating the topic of design inquiry.⁶⁴¹ A lack of postmodern theoretical understanding can render a designer insufficient in realizing metaphoric meaning or reflexive practice; they may only perpetuate existing institutional tropes without knowing or wondering why.

In the subsequent (although iterative) periods of 'definition' and 'ideation', the epistemological assumptions occurring in human-centered design are structured to define new ways to accomplish new design outcomes within the design objectives for the producer. These design experiences may be a new product, a new user experience, or a development within the organization so that the organization gains advantage in the future emergent system. The 'ideation' portion of the human-centered design methodology is at the epistemological level attempting to foster conditions for design innovation and disruptive ideas that can, in the iterative fashion of the design process, increase cognitive risk for the designer (and/or design group, organization) so that divergent thinking occurs as well as deeply critical reflective practice. Other design methodologies such as the British 'double diamond' design methodology feature clear iterations of divergent and convergent design activities. The 'double diamond' is explained in detail in the British design section in the sixth chapter, but features many methodological similarities to the IDEO hexagonal model explained here.

Prototyping and testing, done in the last two portions of the human-centered design methodology exist for an iterative process that gradually moves from highly divergent ideation concepts towards tested design innovations that meet some established or emergent concept of success. Epistemologically, it is illustrated here with three distinct possible future outcomes of any human-centered design endeavor. The system is continued so that the designer establishes a production model with profit for the producer and the consumer(s), or potentially the design deliverable radically disrupts and transforms the market towards a novel, emergent form. In these outcomes, the design is a "game changer" where all other stakeholders and rivals must adapt according to this design innovation or remain in their legacy system behaviors and sustain damage. Lastly, the market may reject this design output, even if the concept is highly innovative and novel. In the case of design failure, the human-centered design practitioner will re-enter the

⁶⁴⁰ Foucault, "The Discourse on Language"; Ricoeur, *Time and Narrative*; White, *The Content of the Form*; White, *Tropics of Discourse: Essays in Cultural Criticism*.

⁶⁴¹ Gioia and Pitre, "Multiparadigm Perspectives on Theory Building"; Lewis and Kelemen, "Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox"; Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies."

methodology and conduct reflection in order to respond, reconsider, ideate further and adapt.

Despite the developments of human-centered design toward a commercialized and somewhat self-marketed version seen today across various universities, design consultation groups, design labs and other inclusive groupings, some of the earlier commercial design theory promoted first by the Bauhaus in the early twentieth century and later in the 1960s seems to have been assimilated or displaced. In the sequential IDEO-inspired 'hexagonal model of design' methodology that announces it is iterative and not necessarily a step-by-step process, the human-centered design methodology appears to nonetheless have become a sequenced process that is still linear in nature and phased with a 'problem definition' and 'problem solution' epistemology.⁶⁴² Several of the military design methodologies in the next two chapters also share this organizing logic. Rittel, as one of the visionary design theorists of the human-centered design movement in the 1960s and a professor of the *Hochschule für Gestaltung Ulm* as well as later a prominent design educator at the University of Berkeley, sought to disrupt this linear model for designing.⁶⁴³

Rittel would propose that the 'problem definition' sequence is analytic in nature, where designers essentially 'reverse engineer' their design sequence by defining a problem and then specifying all of the necessary solution requirements that the successful design solution normatively should possess.⁶⁴⁴ Instead, Rittel advocated the design challenge of 'wicked problems' while drawing upon complexity theory to propose nonlinear, emergent and dynamic design systems. As Buchanan explains, "the linear model of design thinking is based on *determinate* problems which have definite conditions. The designer's task is to identify those conditions precisely and then calculate a solution. In contrast, the *wicked problems* approach suggests there is a fundamental *indeterminacy* in all but the most trivial design problems."⁶⁴⁵ Rittel would advocate for design theory to appreciate the properties of wicked problems in that they cannot be solved in isolation, and any solution is a one-shot effort that both changes the system and produces design consequences that are non-reversible. These design challenges are unique, systemically linked to larger and more abstract problems across an increasingly complex system, and the designers are fully responsible for their own actions.⁶⁴⁶

Thus, designers for the pursuit of commercial enterprise ought to critically reflect upon all contemporary design methodologies and consider whether they adhere to Rittel's philosophical stance on designing in complexity, or if their community's preferred methodology may unintentionally be limiting them to a

⁶⁴² Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–58; Archer, "The Structure of Design Processes," 8–9.

⁶⁴³ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 7.

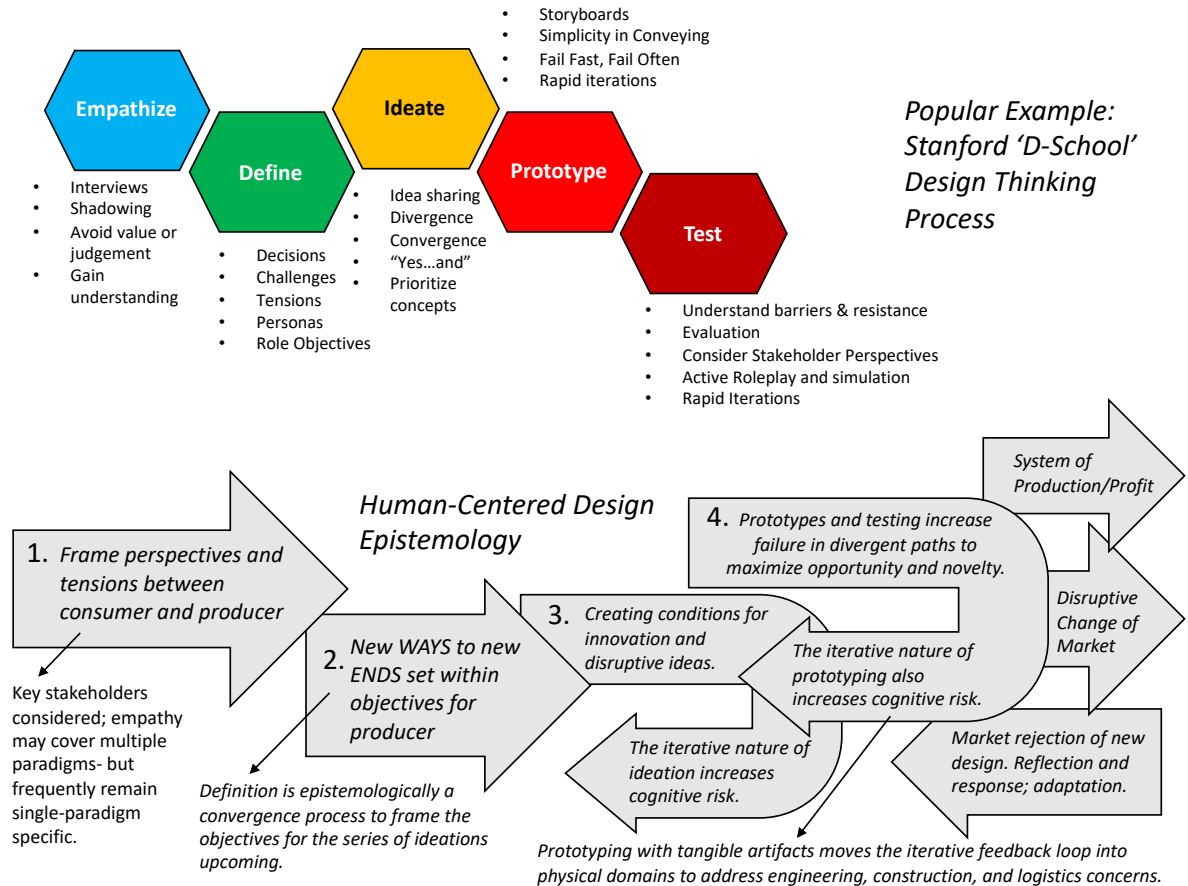
⁶⁴⁴ Buchanan, "Wicked Problems in Design Thinking," 15.

⁶⁴⁵ Buchanan, 15–16.

⁶⁴⁶ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*; Horst Rittel and Melvin Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973): 155–69.

'problem definition-problem solution' epistemology.⁶⁴⁷ The figure below is the author's interpretation of the IDEO-developed 'hexagonal design methodology' depicted earlier where instead of presenting the methodology of the earlier graphic, the one below attempts to provide the epistemological choices of that design methodology drawing from Rittel, Buchanan, and Krippendorff.

Figure of Author's Depiction of IDEO Hexagonal Design Epistemological Underpinnings:



The above figure presents one way to epistemologically frame how the IDEO hexagonal model functions for designers. While these epistemological stances might be debated by design practitioners, there does not exist any contemporary example of an epistemological case-study of any commercial or military design methodology other than isolated abstract discussions found in the work of Rittel, Buchanan, and Krippendorff among a few others. The IDEO design methodology is held to Rittel's framing of 'problem definition-problem solution' epistemological foundations due to

⁶⁴⁷ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

the intentional graphic depiction of a linear sequence of design actions implicitly followed by a majority of human-centered design practitioners.

Although it exceeds the scope of this research, future studies of various designers using an IDEO inspired design methodology may support this finding or potentially demonstrate different results. The more significant issue is that across all of the existing design literature available, there does not seem to be any formal epistemological study of any design methodology. Design would be done in somewhat loose methodological processes throughout the 1960s-80s, until pedagogic demands of the 1980-90s combined with more sophisticated commercial design activities to render 'branded' design methods such as the IDEO model. Buchanan, in framing how Rittel and other design pioneers in the 1960s sought to change design away from rigid, industrialized sequences that relate strongly to analytic planning processes, presents a useful argument on how designers must employ a methodology that integrates the nature of the artificial in complex human experience:

This argument is a synthesis of three lines of reasoning: the ideas of designers and manufacturers about their products; the internal operational logic of products; and the desire and ability of human beings to use products in everyday life in ways that reflect personal and social values. Effective design depends on the ability of designers to integrate all three lines of reasoning. But not as isolated factors that can be added together in a simple mathematical total, or as isolated subject matters that can be studied separately and joined late in the product development process.⁶⁴⁸

When considering Buchanan's position presented above, the IDEO hexagonal design methodology depicted in the last two figures presents several challenges. If designers apply that method but take each step in isolation and in a rigid sequential process, they may become susceptible to doing what Buchanan warns against. If a design methodology positions a designer to think about a complex challenge within a reductionist frame,⁶⁴⁹ they may begin using simplistic mathematical logic⁶⁵⁰ that favors objective and analytic reasoning at the expense of the subjective and irrational. In some ways, the looser design methods and exploration of design philosophy prominent in the 1960-80s might be considered a 'golden age' of designing for commerce, with the developments in the 1990s potentially a retrograde of sorts back into earlier twentieth century prescriptive design processes.

For example as Archer proposes, the property of 'beauty' cannot be expressed analytically through some rationalized scale, because "there are no units

⁶⁴⁸ Buchanan, "Management and Design: Interaction Pathways in Organizational Life."

⁶⁴⁹ Alexander, *Notes on the Synthesis of Form*, 1-5.

⁶⁵⁰ Foucault, *The Order of Things*, 56-57.

of beauty.”⁶⁵¹ This is not a condemnation of IDEO design practitioners; rather, a cautious observation that the epistemological choices of any design methodology may influence the designer toward a multiparadigmatic and multidisciplinary expression of design,⁶⁵² or toward a single-paradigm and even single-discipline approach. Archer explored this in his 1968 design thesis seeking to establish a science of design with:

Different design problems, and different classes of design activity, will call for different techniques and different emphases at various stages. There is no suggestion here that all design should be conducted according to a given formula- only that the logic of any design problem may be better perceived against the background of a common framework.⁶⁵³

Archer devotes much of his thesis toward framing all design actions within an analytic structure using mathematical articulation supported by geometric graphic depiction; here he appears to consider all design applications as different in commercial context (architectural design, engineering design, industrial design) that can be united generally under some unifying design common framework. Subsequent design theorists in the 1970s-1980s disrupt this by presenting alternative paradigms in which design becomes quite dissimilar in application.⁶⁵⁴ Many designers are unaware or unwilling to commit to this level of multi-paradigmatic design practice or meta-framing which contributes to contemporary tribal behaviors among design disciplines as well as misapplication of design concepts such as ‘empathy’ when the single-paradigm frame causes the designer to project their own beliefs upon others.

In the next three chapters, military designers face a similar challenge and an epistemological study of contemporary military methods will be demonstrated to indicate this same problem. Additionally, commercial design and military design both share a preference of ‘ends-ways-means’ logic⁶⁵⁵ that supports what Rittel framed as the traditional ‘problem definition-problem solution’ epistemological structure. This also is a potential design hazard in that as Rittel and other design

⁶⁵¹ Archer, “The Structure of Design Processes,” 12.

⁶⁵² Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 9–11.

⁶⁵³ Archer, “The Structure of Design Processes,” 3.

⁶⁵⁴ Gero and Kannengiesser, “An Ontology of Donald Schön’s Reflection in Designing”; Donald Schön, “The Crisis of Professional Knowledge and the Pursuit of an Epistemology of Practice,” in *Teaching and the Case Method, Instruction Guide*, by Louis Barnes, C. Roland Christensen, and Abby Hansen (Boston, Massachusetts: President and Fellows of Harvard College, 1987), 241–54; Papanek, *Design for the Real World: Human Ecology and Social Change*; Gioia and Pitre, “Multiparadigm Perspectives on Theory Building”; George Ritzer, *Sociology: A Multiple Paradigm Science* (Boston, Massachusetts: Allyn and Bacon Publishing, 1980).

⁶⁵⁵ Archer, “The Structure of Design Processes,” 16–17; Meiser, “Ends + Ways + Means = (Bad) Strategy”; Monk, “End State: The Fallacy of Modern Military Planning.”

theorists explain, complex systems are dynamic and resist oversimplification as well as the incorporation of legacy planning terminology and logic. There are few design challenges that are both complex and 'solve-able.' However, in the design of commerce, the production of new products and new user experiences does seem more compatible with 'problem solution' as a tangible artifact, whereas in the next two chapters the military challenges facing contemporary designers rarely offers an equivalent.

For human-centered design methodologies, they often are extremely useful for organizational transformation, creating conditions for innovation, and gaining positions of advantage in emergent future systems. Human-centered design is oriented towards new products, user experiences, and gaining market advantage within competitive dynamics. Defense oriented organizations use human-centered design developed outputs. They also use industrial design outputs. More importantly, these defense organizations working within dynamic conflict environments also require unique design methodologies dissimilar from human-centered and industrial design methods.

Buchanan describes this tension with: "Industrial design tends to stress what is *possible* in the conception and planning of products; engineering tends to stress what is *necessary* in considering materials, mechanisms, structures, and systems; while marketing tends to stress what is *contingent* in the changing attitudes and preferences of potential users."⁶⁵⁶ The inclusion of empathy and the incorporation of dissimilar stakeholders in commercial design methodologies would introduce complexity theory, new organizational theory, sociology, and a deliberate tilt away from the grip of natural sciences in designing differently for a complex reality.⁶⁵⁷

Meanwhile, the military by and large was absent from this, except for isolated and anecdotal interactions with commercial design applications.⁶⁵⁸ There are select examples of some radical, counter-culture concepts experimented with in militaries such as the U.S. Army's temporary and largely classified 'First Earth Battalion' construct.⁶⁵⁹ This small and eccentric organization demonstrated a wide range of blended disciplines to include new-age philosophy, radical perspectives on gender, age, sexual identity, holistic medicine, and the exploration of psychic powers for war, yet this classified and wildly counter-culture entity was only briefly entertained and subsequently disbanded.⁶⁶⁰ Led by Special Forces Officer Jim Channon, he would critique the Vietnam War failure with the comedic irony that

⁶⁵⁶ Buchanan, "Wicked Problems in Design Thinking," 20.

⁶⁵⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 25–28.

⁶⁵⁸ Papanek, *Design for the Real World: Human Ecology and Social Change*, 162.

⁶⁵⁹ Select elements of the First Earth Battalion concept paper demonstrate several design concepts as well as numerous 'New Age' philosophical ideas that were popular in the 1960-70s and coincided with significant military introspection and frustration as the Vietnam War came to a close. The group was highly controversial and eventually disbanded and rejected by the larger force.

⁶⁶⁰ Jim Channon, "The First Earth Battalion: Ideas and Ideals for Soldiers Everywhere" (declassified U.S. Army internal concept paper, 1979), <https://www.scribd.com/doc/21926670/The-First-Earth-Battalion-Field-Manual>.

“we relied on smart bombs instead of smart people.”⁶⁶¹ Although Channon’s ideas were aggressively rejected in the 1980s by the U.S. Army, by the early 2000s Channon would be invited to the Army’s top school for intellectual development at Fort Leavenworth, Kansas. The next generation of military intellectuals were surprised at first but over time welcomed his radical ideas, according to the Commandant of the U.S. Army School of Advanced Military Studies at that time. However, that school leader also recalls that the school’s faculty were less than enthusiastic at these disruptive, alternative views.⁶⁶²

Again, militaries would use the labors of industrial and human-centric design efforts by incorporating them into military activities, yet the epistemological framework of military strategies as well as organizational form continued to operate in a linear, centralized and Machine-Age frame that embraced positivism in the preferred modern military framing of war. Select military theorists would begin including complexity theory and postmodern concepts such as Air Force aviator and strategist John Boyd; however, he would apply his concepts to enhance the established military planning methodology and did not advocate a stand-alone alternative mode of thinking and acting in war.⁶⁶³ Only in the late 1990s would a formal military design emerge in a non-traditional application and spread across the industrialized West.

The work of Israeli military designer Shimon Naveh will be addressed later in the next chapter. His work would become the first deliberate rejection of modern military strategy and decision-making in war, and would spawn multiple imitations, variations, and controversial reactions. Frequently called a heretic or worse, Naveh would stimulate discussion as well as controversy across the globe as multiple militaries experimented with his ideas over the last three decades. This would stimulate a recognizable shift from the modern military doctrine’s traditional positivism and efforts to establish set procedures to solve largely known problems towards the appreciation and management of ‘wicked problems.’⁶⁶⁴ Shifting from the desire to ‘solve’ complex military problems toward a management of messy, ever-changing military situations would be a massive and disruptive enterprise. First, some key distinctions need to be made between designing for organized violence and that of commercial design in a capitalistic enterprise. Otherwise, militaries should have in the twentieth century simply adapted commercial design methods to existing planning.

Differences Between Designing for Industry and for Organized Violence

The design philosophy applied in multidisciplinary practice and expressed in this chapter frame the core distinctions between ‘military design’ and other forms of design thinking. This section addresses several key differences between military

⁶⁶¹ Gray, *Postmodern War: The New Politics of Conflict*, 205.

⁶⁶² James Greer to Ben Zweibelson, “Re: Re: First Earth Battalion Doctrine,” January 3, 2020; James Greer and Michael Shaler to Nathan Schwagler, “RE: Jim Channon,” October 27, 2019.

⁶⁶³ Boyd, “Destruction and Creation”; Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*.

⁶⁶⁴ Conklin, “Wicked Problems and Social Complexity.”

design contexts and non-military (industrial, economic) where other more frequently encountered design methods are dominant. This is relevant to both practitioners of military design, strategy, and the associated fields of commercial design in that currently each of these design communities of practice appear to lack any shared understanding of their differences and overlap. There are major distinctions at the ontological and epistemological level between various military design schools, creating a current design landscape where multiple communities of practice operate,⁶⁶⁵ at times incommensurately or in isolation of others addressing similar complex security challenges. Beaulieu-Brossard and Dufort have used metaphors such as 'design nomads', 'archipelago of designers', 'reflective military practitioners' and even the title of: 'Breaking Down Silos of Excellence' for the first international military design conference.⁶⁶⁶ Paparone has used 'multidisciplinary' designers as well as 'multiparadigmatic' in framing the same movement.⁶⁶⁷

Single-discipline designers also express extensive confusion over epistemological distinctions, paradox and interplay; typically, most design practitioners are single-disciplinary and non-reflective on their own design epistemological underpinnings.⁶⁶⁸ For example, some military strategists that discount any utility of 'design' beyond existing military terminology such as the Army's doctrinal model for design methodology do this without realizing how other ways of designing are different and potentially relevant to the challenge at hand.⁶⁶⁹ As military design is a minority sub-discipline for security studies and largely unfamiliar to civilian designers, many of these commercial designers potentially reject the military establishing a different design application for organized violence. Instead, some assume that militaries might simply adapt existing commercial design methods to apply to complex security challenges misinterpret how security contexts are distinct from commercial design ones. Interestingly, this is routinely done at select advanced military education programs where a pure commercial design model is taught for immediate application in military contexts.⁶⁷⁰ Thus, across the

⁶⁶⁵ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 4–15.

⁶⁶⁶ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2016; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices"; Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies"; Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; JSOU User et al., *Advanced Military Design, Panel of International Experts: IMDC Conference, Ottawa, CA-Part 2 Q&A*.

⁶⁶⁷ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Paparone and Squier, "Reframing Leadership at the Eisenhower School."

⁶⁶⁸ Haridimos Tsoukas and Mary Jo Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity," *Human Relations* 54, no. 8 (August 2001): 1001.

⁶⁶⁹ For example, two Army design articles written by Fort Leavenworth advanced education faculty feature no acknowledgement of any other design praxis to include Israeli design that established the U.S. Army design that the articles focus on. See: Wayne Grigsby et al., "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process," *Military Review* XCI, no. 1 (February 2011): 28–35; Thomas Graves and Bruce Stanley, "Design and Operational Art: A Practical Approach to Teaching the Army Design Methodology," *Military Review*, August 2013.

⁶⁷⁰ Harold Nelson, "Advance Design DA 4500 (Draft) Spring 2016 Syllabus" (Naval Postgraduate School, n.d.); Harold Nelson, Interview with Harold Nelson on design concepts, January 28, 2017 by

multidisciplinary design landscape, there are numerous 'Towers of Babel' where different practitioners operate unaware of one-another, and often using terminology and methods that are misunderstood or unrecognized by others.⁶⁷¹

Some of the biggest differences concerning military and commercial design deal with the context for each. Security organizations seek a monopolization of the application of organized violence. Essentially any organization attempting to secure a geographical location within which humans occupy and certain behaviors are desired requires some monopolization of violence. From local police departments to drug cartels, terrorist groups, organized crime syndicates, or national armed forces must be able to present the ability to accomplish some form of organized violence in order to shape and guide various behaviors and deter others. Violence here is specifically tied to 'organization' in that individual acts of violence are different and not applicable in this context. Malešević makes this distinction in *The Sociology of War and Violence* where individual violence tends to be isolated, whereas organized violence that manifests in war requires significant preparation and organization on behalf of the group of humans attempting to compel the organization to execute said violence.⁶⁷²

As this research focuses on militaries in western industrialized (largely European) nations, it looks at how their security contexts involve this attempt to gain a monopoly on organized violence over other rivals, adversaries and key stakeholders. This monopolization can be expressed in passive and quite localized manners such as the presence of a police car on the side of a highway causing passing drivers to slow down, as well very aggressive demonstrations of organized violence such as high-intensity combined-arms effects of artillery, aerial bombing and assault helicopters supporting armored vehicles and dismounted infantry raiding a compound of enemy.⁶⁷³ Both of these activities change human behavior, and either directly or indirectly express a capacity for organized violence. Militaries thus must think, act, and reflect on their thinking and acting in security contexts addressing the ontology and epistemology concerning this organized violence in order to adjust methodologies and experiment with novel ones as the emergent, dynamic conditions in complex security contexts change.

Commercial forms of design do develop novel products and enhance user experiences that are clearly intended for military use. Commercial design methodologies can also demonstrate some application towards difficult problem solutions that a military requires within a war context, particularly if the application

Ben Zweibelson for doctoral research project, written transcript, January 28, 2017; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"

⁶⁷¹ Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Grant Martin, "War Planning and Design Thinking 'Outside of the Box,'" October 15, 2017; Grant Martin, "Deniers of 'The Truth': Why an Agnostic Approach to Warfare Is Key," *Military Review*, February 2015.

⁶⁷² Malešević, *The Sociology of War and Violence*, 90–98.

⁶⁷³ An individual conducting a violent act is different, in that the law enforcement apparatus in place to deter or defeat such individuals is an example of organized violence.

is nested within a specific design field or area of inquiry. For example, army psychological operations efforts using posters and leaflets to influence an enemy or other population likely will benefit from advertising and graphic design experts, while architectural design experts can be brought in to help determine building vulnerabilities in targeted bombing or other destructive munitions in a military context. The distinction made here is that while commercial design can develop products and user experiences that are directly intended for use by a military or other entity in the pursuit of the monopoly of violence, the commercial enterprise does not ever do this directly. The design mission of the commercial sector ends at the transition from an economic transaction between client and producer. The context in which the item is designed and how and why it is applied are, in security forces two different things.

For instance, industrial designers can design and build a new rifle, a different form of tear gas, or perhaps special humanitarian meal packages. They might design and produce an infinite variety of war tools as well as conceptual constructs for intended utilization in the application of organized violence. What they cannot and do not address is the application of these tools within a complex security context. The security organization is charged with thinking and acting with the range of designed tools as well as designed ideas. In the example of the new rifle, tear gas, and humanitarian meals, it is entirely up to the security force in that context to design how and why they might use any combination of these tools, as well as deal with the design consequences within a complex and emergent security context. The requirements at the ontological, epistemological levels for security design are distinct and unlike commercial ones. Thus, all associated design methodologies nested in these different ontological and epistemological stances will be unlike commercial design models.

The application of violence is not a user experience, nor a novel product. It is also hardly ever a 'solution' - rather it is a managed assemblage of various solutions and experiments that systemically produce change in a complex system...it is nonlinear, emergent, and there is no 'end-state' or finish line to hang a finite 'solution' or 'goal' construct upon.⁶⁷⁴ This of course conflicts not only with commercial design methods, but also more importantly with legacy system military strategy and operational planning logics. The application of organized violence is dynamic, and not contained within pure economic or capitalistic confines. Many militaries have used inferiorly designed tools or applied them in non-standard ways, with war remaining a uniquely social and collective context where many paradoxical and nonlinear, unexpected outcomes manifest. Others have possessed the vastly superior designed idea or item, yet somehow misapplied it or failed to achieve security goals despite having the "better" designed product or user experience.

In another key distinction, militaries work through a monopolistic process of production and employment towards the application of organized violence, unlike

⁶⁷⁴ Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," 2.

all other businesses where design occurs. Militaries tend to routinely enjoy what a business is most often denied- the ability to completely control all aspects of a commodity, resource, or activity. Militaries are usually the monopolies for state defense by default, as a national instrument of power would not oblige competition from within the state for the same exercise of power. Within military organizations, there is only one way to produce a commando, a specialized ordinance disposal technician, or a fighter pilot. They have to enlist or join that particular service, attend and pass that training, and be assigned in those positions.

There is no other alternative way such as studying under a competing program outside of the military or using their own distance-learning approximation. This means that armed Forces have exceptional control over the quality, quantity, and application of many aspects within their organization as state-sanctioned monopolies. This also means that unlike businesses where specialized professionals routinely move from industry to industry, the military monopoly restricts professionalization to very rigid and sequential career paths. This can impact flexibility, innovation, and divergent thinking.

A third way in which militaries differ through context is the level of restriction for that organization to apply more of its abilities, resources, and methods. For businesses, the more restrictive an environment becomes, the more expensive it is to perform business in that context. In military contexts, the higher the intensity for violence and the collapse of society within that conflict region, the more expensive it becomes for nearly all business to occur. However, an inverse tends to occur for most militaries in that the lower the intensity of violence, the greater the restrictions become for even routine activities. International peacekeeping activities represent some of the most restrictive military contexts where a security force is usually under the oversight and control of multiple local, national and even international authorities. Yet the higher the intensity of conflict become, militaries subsequently see a dramatic expansion of options coupled with a reduction of control and restrictions. If a military finds itself fighting for the very survival of a nation's existence, nearly all restrictions are removed.

Militaries are unlike all commercial industry in that they are, by their established nature as state-sanctioned instruments of power, able to be directed into extremely dangerous contexts by political decision-makers. Further, only in the military context does a security organization tolerate the distinct possibility of severe injury, death and destruction within not just the application of military power in real conflict environments, but also in the rehearsal, practice, and training environments that exist only to simulate and prepare the organization to operate in actual conflict contexts.⁶⁷⁵ While many commercial enterprises chose to operate in hostile, austere or otherwise dangerous contexts in pursuit of profit and advantage against competitors, the key operating term is 'choice' in that a military instrument of power does not have final authority on where or when it chooses to operate.

⁶⁷⁵ Janowitz, *The Professional Soldier: A Social and Political Portrait*, xv.

Militaries, particularly those western industrialized ones addressed in this research, enjoy industrialized state wealth, power and abilities, and are the single expeditionary entity for their national government. This means they are capable of expressing organized and state-sanctioned violence as an extension of that national will to act. Clausewitz clearly frames this with 'war is an extension of policy by other means.'⁶⁷⁶ Militaries in the modern context exist solely to project the threat or application of organized violence out into hazardous, hostile, lawless, or otherwise crisis-stricken geographic part of the world where military presence provides that nation's policy makers with distinct advantage. These militaries will operate in these contexts at the direction of their political superiors and attempt to accomplish strategic goals on behalf of political policy makers regardless of the level of risk, danger, or other notion of threat that otherwise would influence all commercial enterprises differently. Militaries can inform political leadership of the extraordinary costs associated with high-risk security activities, but they do not get to decline the directive to act.

This raises the last key distinction for why military design differs contextually from all other forms of design. While all businesses can go out of business, nearly all militaries are immune from elimination, even at the defeat of a nation. Armies are defeated and although the individuals within that army may be removed, some security force will be restored and used for the nation or territory for the security and defense of that area. Militaries are not businesses, and they are not-for-profit enterprises that happen to cost quite a bit of money to run. There are business aspects within militaries, as well as many business-like behaviors, qualities and relationships. *Yet militaries are not businesses*, and consequence the direct application of business-inspired design done without addressing these uniquely military contexts will be insufficient for military-specific challenges that military organizations must address.

Militaries, as non-profit entities operating as monopolistic instruments of state power, frequently become victims of maintaining and continuing projects that are not profit-driven, especially long after any commercial enterprise would have abandoned them or gone bankrupt. IDF commando and postmodern designer Hirsch, in his autobiography would offer the following on how militaries frame the concept of 'profit' as distinct and unrelated to commercial contexts: "Unlike the business world, in the military realm, the "profit" is reflected by the ability to create an effective and timely operational response."⁶⁷⁷ As profit is perhaps one of the most fundamental characteristics defining commercial enterprise, this dissimilar military interpretation of it makes for profound consequences when a commercial design methodology is applied (or more likely misapplied) to security challenges within a military context. Militaries can also continue self-destructive behaviors where profit is not a factor (in the same regard) because they conduct activities through political, societal or institutional consensus instead of profit. This occurs through policy,

⁶⁷⁶ Parete, "Clausewitz."

⁶⁷⁷ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 132.

public demand, culture, internal organizational self-interests, or often a combination of all of these. Commercial enterprises are unable to do this except possibly at extremely high cost and at tremendous risk to their future existence, while militaries have no similar concern.

Even defeated militaries retain their general form and function, although the participants likely change, and the victor may impose significant sanctions or changes to their future form. Regardless, military historian Builder (as well as Gray, from a postmodern war position) argue that militaries also tend to perform activities that may be counterproductive to national interests as long as they reinforce or strengthen institutional goals within that military, which is yet another manifestation of this difference between commercial and military enterprises.⁶⁷⁸ The institutional self-preservation aspect of militaries does coincide with commercial and economic competition, however the interesting paradox illustrated here is that a military might fail at its primary national goal even when it exists to directly provide those actions, while commercial enterprise has no qualms with a company re-inventing its core purpose regularly to remain relevant in changing conditions.

Many marine organizations remain wedded to amphibious operations and airborne infantry units to mass-tactical vertical envelopments despite the future feasibility and effectiveness of such activities. Air forces struggle with the possibility of unmanned aviation systems pushing out the need for human pilots, and most militaries continue to find cyberspace and professionals that perform military activities within cyberspace as subordinate and generally second-order to physical-domain military forces that 'actually can hold terrain and apply violence directly to the enemy.' Commercial enterprise does not compete in these contexts, nor do companies that refuse to adapt to change survive very long in open capitalistic markets.

The Postmodern Comedian: A Controversial Descriptor for Design

As presented in the previous content comprising this research, the notion of humor is a decidedly modern concept and largely incompatible for military applications in premodern settings. Comedy was certainly embraced by societies prior to the seventeenth century, yet the mode of a more secular wit "as that which can encourage the use of reason and guide the sociability of *sensus communis*"⁶⁷⁹ versus more of a horseplay or silliness form of premodern periods. Linked to military and political applications, premodern militaries had no tolerance or expectation of utility for comedy concerning war, except perhaps for one weak association.

The court jester was founded upon premodern centralized hierarchical power structures that permitted a comedian to entertain the King and his court. These jesters could at times be the only people to state certain things or mock the

⁶⁷⁸ Builder, *The Masks of War: American Military Styles in Strategy and Analysis*; Gray, *Postmodern War: The New Politics of Conflict*, 172.

⁶⁷⁹ Critchley, *On Humour*, 83.

nobility and their actions, provided it was contextually entertaining and within the accepted behavioral norms of that premodern society. Critchley, in depicting the transition between premodern forms of humor and the more recognized modern form cites Brewer with: "the tradition of court jesters does not survive the seventeenth century in England...the last recorded fool being Henry Killigrew appointed to William III in 1694."⁶⁸⁰ The Feudal Era royal fool (or Jester) would nonetheless be an outlandish character, featured in various card games and gaining special meaning in Tarot card games as well as other societal beliefs. Historically, the 'fool' would be special, unusual, and a dynamic element of the game where even the normal numbering rules would not apply to the fool card. There is a lengthy history here of association with unconventionality, disruption, paradox or randomness.

Critchley goes on to observe that the transition from premodern to modern humor shifted from the earlier mode of "a religious or courtly tradition of buffoonery and tomfoolery, a tradition that is sustained by the satirical ribaldry that appears (or at least appears to us) to undermine it."⁶⁸¹ This transitions to a more secular, democratic mode of wit and cunning that attempts to weave reason with socialized and collective decision-making. The departure of the premodern fool brought the arrival of increasingly vocal and critical militaries willing to use humor internally for morale, critical reaction to institutionalisms, as well as opinions upon leadership and the strategies or practices of organized violence therein.

As the modern comedic content was addressed briefly in previous research content with examples of popular war cartoons, songs, and foxhole activities, it still remained a grassroots and unofficial form of communication and expression within the military ranks. Patton's infamous reaction to meeting cartoonist Bill Mauldin in 1945 on the front is indicative of the modern military manager reaction to humor. Mauldin penned the wildly popular 'Willie and Joe' comics that appeared in military newspapers and routinely depicted fat, dirty, and undisciplined troops doing outrageous yet entertaining things within the war setting. The soldiers loved 'Willie and Joe' while some senior leaders felt quite differently. Mauldin, upon meeting Patton was expecting some sort of compliment or recognition for his contribution to the war effort. Instead, Patton admonished him. He is quoted as exclaiming: "I don't know what you think you're trying to do, but the krauts ought to pin a medal on you for helping them mess up discipline for us."⁶⁸² Managers in the modern military era would often not see the same value in humor for war as their subordinates would.

The postmodern era of warfare disrupts this, by harnessing many of the introspective and paradoxical qualities of the comedian. Comedians are often seen as a variation of the philosopher, where they see the world "under what some philosophers call an *epoché*, a certain bracketing or suspension of belief."⁶⁸³

⁶⁸⁰ Critchley, 82.

⁶⁸¹ Critchley, 83.

⁶⁸² Mauldin at War, 1943-1945; last accessed 26 January 2018 at: <https://www.loc.gov/rr/print/swann/mauldin/mauldin-atwar.html>.

⁶⁸³ Critchley, *On Humour*, 88.

Comedians place shared practices and institutions into question, “showing them in a new light, by taking the comedy of recognition and turning the whole thing on its head.”⁶⁸⁴ Baudrillard posits that all war today in postmodernity no longer possesses “the ideological seriousness of war,”⁶⁸⁵ and that a simulacra or ‘copy without an original’ of society (and war) is better realized with these heretical, pagan-like, ironic or comical perspectives that dismiss the ‘seriousness’ of previous war frames.

Kilduff and Mehra reinforce this by observing, “postmodernism, then, involves a search for the nonobvious, the counterintuitive, and the surprising.”⁶⁸⁶ Lyotard provides a chapter on humor as it relates to *semiotheology* (the study and logic of signs; applied in this case to western religion) that is applicable here in both the postmodern treatment by Lyotard and the aforementioned overlap of military and religious organizations in the second chapter. Lyotard assigns particular postmodern relationships between ‘paradox’, ‘irony’, ‘humor’, ‘ruse’, and ‘criticism’ that are not employed in any modernist sense. “Irony is therefore to be invented, to be encountered step by step and without our being able to take inventory of it...while irony is a nihilism of signification, humor maintains itself in the affirmation of tensions.”⁶⁸⁷ This requires further unpackaging.

What Lyotard challenges the reader to imagine is that humor functions at a meta-methodological level independent of any particular social paradigm or societal construction of reality to include the languages, signs and symbols therein. An event could occur and two military combatants could find something ironic or comical despite them both interpreting the event through entirely dissimilar worldviews and belief systems. Or one might find an event humorous while another struggles to understand the comedy as their belief system is not able to “get the joke” contextually. Although Lyotard’s chapter addresses humor with respect to an ideological treatment of tensions between Marxist theory and western economic and ideological structures, his postmodern explanation of humor here is significant. “The weapon on the side of ordinary people is ruse, the only machine capable of making the weakest the strongest. Ruse has humor as its accomplice.”⁶⁸⁸ Humor in the postmodern application by Lyotard (as well as Derrida)⁶⁸⁹ is entirely disruptive, an agent of provocation and deconstruction, operating above and beyond the mechanics of a social paradigm and therefore epistemologically, in keeping with Naveh’s original vision of Systemic Operational Design fundamentals to be presented in the fourth chapter.

In a recent interview by the author, Naveh states that military designers are perpetually seeking commonality within what seems to be a diverse context, where “design learning is based on paradox. Unlike conventional learning, we take

⁶⁸⁴ Critchley, 87.

⁶⁸⁵ Baudrillard, *Simulacra and Simulation*, 38.

⁶⁸⁶ Kilduff and Mehra, “Postmodernism and Organizational Research,” 474.

⁶⁸⁷ Lyotard, “Humor in Semiotheology: A Semiotician Becomes Alarmed,” 80.

⁶⁸⁸ Lyotard, 81.

⁶⁸⁹ Spivak, “Translator’s Preface,” xxxviii.

something in common...everything we do [as designers] is using paradox.”⁶⁹⁰ Again, Naveh explains military design drawing heavily from postmodern influences such as Deleuze and Guattari. Most SOD courses Naveh has executed require student readings of their ‘War Machine’ chapter where the philosophers discuss the paradox of gaining novel insight (through designing, Naveh implies) with that of philosophers and artists interacting with societies that resist new, radical ideas. Deleuze and Guattari offer: “Nature propels the philosopher into mankind like an arrow; it takes aim but hopes the arrow will stick somewhere. But countless times it misses and is depressed at the fact...The artist and the philosopher are evidence against the purposiveness of nature as regards the means it employs, though they are also first-rate evidence as to the wisdom of its purpose.”⁶⁹¹ It is the author’s assertion that comedians are of course artists, and Naveh’s application of postmodern ideas within military design links the experimental failures of artistry in war with the postmodern proposals of philosophers such as Deleuze and Guattari, nesting their disruption with the new mindset of military designers attempting to transform how war is understood, and warfare implemented.

The disruptive nature of comedic inquiry is intentionally provocative, but also playful so that the heretical concepts of the designer might in a military organization be considered even if only by a minority of the social group. Not all comedy is postmodern; in fact, postmodernism and comedy may merely overlap in several shared virtues of disruptive thought, divergence, improvisation, imagination, paradox, surprise, and irony. Hirsch, from an Israeli military leader’s frame applying military design to leap out of convergent and traditional military logic into iterative experimentation and military improvisation against dynamic and complex adversaries remarks: “during those days [of studying military design with Naveh], I began to understand principles of force application in greater depth than ever before- far beyond the linear, mechanical aspects. A force can be deployed using endless variations of functionality, profiles, and signatures, all tailored to the context and the need.”⁶⁹²

The improvisation aspect aforementioned by Hirsch would become a common theme in the disruptive, dynamic, and radical nature of military design that differed greatly with earlier military managerial and heroic typesets for leaders to emulate. The postmodern comedian of war acts as a disruptor not just of adversarial systems in a conflict, but more importantly toward one’s own organization and institution of power in general. Baudrillard reinforces this with why postmodern inquiry incurs laughter: “For why does one laugh? One only laughs at the reversibility of things, and sex and death are eminently reversible figures. It is because the stake is always reversible between masculine and feminine, between

⁶⁹⁰ Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 9min19sec Day 1 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019.

⁶⁹¹ Deleuze and Guattari, *A Thousand Plateaus*, 377.

⁶⁹² Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 131.

life and death, that one laughs at sex and death...it is obscene and makes one laugh.”⁶⁹³

Whereas the modern military machinery is geared for Clausewitzian war logic set within the movements of the Westphalian nation-state, the postmodern conceptualization that there is no single dominant frame, no ultimate ‘truth’ model to test reality, and the application of humor acts as a disruptive device to pull back the curtains on the attempts of various socialized belief systems and cast light upon the inner workings. Baudrillard’s application of humor in postmodernity inverts what modernity categorizes and separates through codification and structures; sex and death, life and death, male and female...these things are to be taken seriously by scientists yet Baudrillard asks one to “laugh, deeply laugh” at the postmodern declaration of reality.⁶⁹⁴ Postmodernism does not permit any single frame or logic to gain some higher authority over all other competing ideas and forms of knowledge. Lyotard frames this with:

In the use of words and business, no metalanguage, no distance is established or correct in and of itself. Instead, there is an infinite number of possible distances that, from conventional measure, approach the smallest and the greatest. There is no yardstick, no metron; the gods are ungraspable, the point of view of a god unassignable. But if there is no sure measure, are we then thrown into the dizziness of infinities? Is our alternative either a factiously anchored wisdom or mute truth and madness...Humor says “there is no correct point of view, neither the things of this world, nor its discourses form a tableau- or if they do, it is only by the arbitrary decision of the beholder, be he prince or scholar”...Humor does not invoke a truth more universal than that of the masters; it masters for being a minority. Humor wants rather to have this recognized: *there are only minorities*.⁶⁹⁵

In this new era of war postmodernity, many aspects of comedic inquiry can be explored using postmodern concepts, and the military incorporation of postmodern theory in design tends to illicit provocative and disruptive consequences not unlike that of comedy upon the social order. The following transcript is an excerpt from an interview conducted by the author with Naveh:

Naveh: “The J3 [Israeli Joint Operations Officer] last night really performed like a jester. I mean, a joker...amazing...[he] was amazing.”

⁶⁹³ Baudrillard, *Simulacra and Simulation*, 145.

⁶⁹⁴ Baudrillard, 145.

⁶⁹⁵ Lyotard, “Humor in Semiotheology: A Semiotician Becomes Alarmed,” 82–83.

Zweibelson: "Do you think that is what helps bring people from the middle, where they do not realize where they are, to the edge [of their frame]?"

Naveh: "It is a good idea... a nice idea. Yeah, using this metaphor- premodern hero, modern manager, postmodern jester."

Schwagler: "The thing about the jester, historically speaking, is they do not have a long shelf life."

Naveh: "Yes, that is also true."⁶⁹⁶

The postmodern application of comedy then is that of perpetual disruption, iterative critical and creative reflection with no favoritism toward one belief system or epistemological framework over another. Lyotard's postmodern explanation of 'ruse' as the disruptive device employing humor as an accomplice is significant in how military design is only able to deconstruct and disrupt the dominant military paradigm of modern warfare using postmodern theory. As modern military 'science' rests on a foundation of analytic optimization and a scientific methodology that perpetually renders military scientific praxis as self-relevant (the military General applying Jomini or Clausewitz wrong is defeated...because they failed to obey their clear lessons in warfare), only the postmodern exposure of the 'ruse' using humor to amplify the paradoxes in logic can perform as the jester, opening the eyes of the king. Particularly when military doctrine insists on a universal, timeless application of scientific rules and principles of warfare, Lyotard states that "to point out the ruse at the very site of its outpost...this is what the gods of antiquity did when one of them claimed to be the only true god...if (whatever your feelings on the subject [are]) you don't accept as correct our fixed point of view, you are mad- and vainly so- for you will not change the things you claim to mock."⁶⁹⁷ The postmodern comedians of war first move to expose ruses of the modern military frame, and then in comedic applications continue to exploit paradoxes of logic, overlap, and interplay between the logic of the military's 'self' and that of 'Others' within a complex security context.

Not all design methodologies engage with postmodern concepts the same. As framed in the last chapter, designing in postmodernity is different than using design concepts with a postmodern style, while using postmodernism to disrupt modern design is itself uniquely distinct. Yet in each of these engagements with the postmodern, various design perspectives provide alternative ideas, critical and also divergent thinking toward with a designer might reexamine the modern design logic. Kilduff and Mehra explain: "Postmodernism, then, is among other things, a call for renewed attention to the history of the field, and an affirmation of the relevance of important work regardless of its placement in some mythical modernist progression. Thus, postmodernists both celebrate tradition and deny the myth of

⁶⁹⁶ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

⁶⁹⁷ Lyotard, "Humor in Semiotheology: A Semiotician Becomes Alarmed," 82-83.

progress.”⁶⁹⁸ In this continuation of the postmodern design experiences, militaries wrestle with designing warfare in postmodernity, extending a postmodern style to warfare, as well as considering postmodern treatments of war itself through design. Militaries have developed an eclectic array of design methodologies to generate different strategic opportunities, with a rather tangled web of terminology, concepts, and mixed methods. This may also contribute to the numerous challenges various armed forces as well as governmental organizations experience in applying design to security affairs, although this remains a vigorously debated subject.⁶⁹⁹

Militaries also appear challenged to recognize design endeavors clearly within their own enterprises as well as the strategic design efforts of others when they differ on ontological as well as epistemological levels. Some continue to reinforce traditional strategic frames while assimilating postmodern elements piecemeal, while others are more opportunistic on postmodernism for military applications. As they make sense, organize and act within complex conflict situations, militaries strive have their strategy-making efforts considered as “an ongoing aggregative world-making activity and not a solid and static thing”.⁷⁰⁰ This promotes iterative ‘frame building’ in design of the world around the designer but also of the institutional, social constructions of what reality is and means for designers. The designer cannot be removed from the world in order to better comprehend the design requirements, as the designer is intricately attached and part of the complex reality where design is applied. The aforementioned analytic design efforts of Archer, Simon and a sterile ‘science of design’ is unobtainable, while designing within a reality where symbols, language, meaning, and narratives render a rich yet paradoxical soup of design possibilities is better appreciated through the postmodern lens.

Canadian design theorist Beaulieu-Brossard observes that postmodern concepts such as those offered by Deleuze & Guattari “offer mental representations carrying narrative framing, political and instrumental functions,”⁷⁰¹ and that militaries can use these to restructure their overly analytical and reductionist perspectives on complex security challenges. Beaulieu-Brossard bases his position upon studying military design activities of the American, Canadian and Israeli militaries between the 1990s and today.⁷⁰² These processes provide unique abilities to defense professionals that practice design with postmodern concepts, in that they might “generate a plot giving intent to actors, meaning to artifacts and weaving sequences of events constituting stories.”⁷⁰³ In studying military design, Beaulieu-Brossard assesses both the postmodern theory woven into design

⁶⁹⁸ Kilduff and Mehra, “Postmodernism and Organizational Research,” 459.

⁶⁹⁹ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

⁷⁰⁰ Chia, “Organization Theory as a Postmodern Science,” 114.

⁷⁰¹ Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2016, 3.

⁷⁰² Beaulieu-Brossard, “Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts”; Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2016; Beaulieu-Brossard and Dufort, “Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies.”

⁷⁰³ Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2016, 3.

methods such as the Israeli SOD, while also researching the key sources of postmodernism and how they relate or conflict with military belief systems in use.

The relationship of symbols, values and assumptions to the tangible artifacts in reality is a postmodern idea shared by Foucault, White, Ricoeur and presented in various cyclic models by Hatch as well.⁷⁰⁴ 'Emplotment' and the relationship of meaning, signs, symbols, and narrative are postmodern idea created by postmodern philosopher Paul Ricoeur and developed further by Hayden White to challenge and deconstruct modernity.⁷⁰⁵ Military design as a movement represents the first definable community of practice within the armed forces willing to apply these concepts to organized violence, at least in select groups and 'design tribes'. This is indeed what first drew Beaulieu-Brossard to study the military design movement, as explained in the sixth chapter. Beaulieu-Brossard is one of a growing minority of military scholars, educators and researchers examining security affairs and postmodern strategy making in the twenty-first century.⁷⁰⁶

Military design educator Butler-Smith argues that applying postmodern theory directly to how a military understands warfare as well as war itself is quite valuable in the practice of security studies. "If the design product is to be discourse, then postmodernism becomes a strategic tool for military practitioners- in the process of destruction and reconstruction. Deconstructing narrative, exploring narrative construction, the relationship between representation and time- all terribly useful stuff."⁷⁰⁷ Postmodernism in terms of directly drawing theory into military practice remains disruptive, controversial and brings with it a host of other challenges. For a military designer interested in deconstructing strategy and exploring radical alternatives, design is a tremendous conceptual vehicle yet beset with tensions in terminology, epistemological incommensurability, ontological instability of previously unquestioned beliefs, and the application of design methods using postmodern stylings. Most significantly, the modern military war frame is positioned to view with significant skepticism any knowledge generation that differs from a validated, repeatable, and entirely analytic logic concerning warfare.

Buchanan frames this tension between the scientific community using analytic logic and that of designers that will use a wide range of concepts including postmodern theory. "This creates one of the central problems of communication between scientists and designers, because the problems addressed by designers seldom fall solely within the boundaries of any one of these subject matters."⁷⁰⁸ Supporting this notion, the importance of designers today able to view complex challenges from a multiparadigmatic perspective is also emphasized by Paparone in

⁷⁰⁴ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*.

⁷⁰⁵ Ricoeur, *Time and Narrative*, 1:31-51; White, *The Content of the Form*.

⁷⁰⁶ Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*.

⁷⁰⁷ Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought," 72.

⁷⁰⁸ Buchanan, "Wicked Problems in Design Thinking," 14.

military design contexts⁷⁰⁹ and Krippendorff more broadly for design practice in general:

The understanding that designers need to have is an understanding of other users' or other stakeholders' understanding. This is an understanding of understanding, or second-order understanding for short. Second-order understanding assumes that others' understanding is potentially different from one's own....First-order understanding is mono-logic, second-order understanding radically breaks with the widely shared illusion that scientists could take a God's-eye view of a world...Second-order understanding also is dynamic in that it accounts for the possibility that artifacts change their users' meanings in use, that new artifacts always intervene in their user's understanding, and that we too change our understanding in the process of designing artifacts with and for others.⁷¹⁰

Military design is thus different from civilian design in the potential destructive creativity found in this postmodern-modern tension. The postmodern approach in design "indicate a desire to break old categories."⁷¹¹ Even if key stakeholders within the design context do not employ such a perspective, the designers attempting to use a postmodern design frame may gain valuable insight into the larger system, or potentially generate significantly divergent options from taking a different position on the challenge. If the goal of the military is to change into a truly novel and innovative future form that provides advantage in security contexts, then the logic of using the same legacy frame exclusively will only preserve the dominant social paradigm, prevent critical reflection on the assumed belief system for war and warfare, and ignore any paradoxes or outlier information that cannot be analytically rendered or verified through future design or planning. Advocates of a postmodern design approach to war suggest a 'paradigm shift' is in order for contemporary militaries as they engage in postmodernity and a different type of warfare.

Sookermany wrote extensively on this proposed postmodern transformation for militaries in the twenty-first century for the Norwegian military. Addressing what he suggests is a paradigm transformation for militaries, their worldview has shifted from a modern, Westphalian and orderly one towards a postmodern context requiring military postmodern form and function. Whereas the modern military worldview was associated with universalism, structure and objectivity, the

⁷⁰⁹ Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation"; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Christopher Paparone and George Reed, "The Reflective Military Practitioner: How Military Professionals Think in Action," *Military Review*, April 2008, 66–76.

⁷¹⁰ Krippendorff, "Principles of Design and a Trajectory of Artificiality," 417.

⁷¹¹ Buchanan, "Wicked Problems in Design Thinking," 11.

postmodern soldier would see responsiveness to contextuality, complexity and constructivity.⁷¹² Sookermany highlights a key tension not just in this transition from modernity to postmodernity, but how critics of postmodernism (theory) in military applications will have significant difficulties in ever participating in meaningful dialogue with postmodern proponents. The two groups appear to talk past one another, implying some of the arguments of 'paradigm incommensurability' that formed the earlier social paradigm theories of the 1970-80s.⁷¹³

Sookermany's argument attempts to: "show how the application of a modern versus postmodern worldview fosters two almost diametrically opposing understandings of what constitutes good military skills."⁷¹⁴ This oppositional positioning of potentially incommensurate views makes for fierce division as well as the metaphoric 'circling of wagons' in military organizations at various levels of education and professional development seeking to avoid postmodern concepts entirely, and on those grounds reject the appropriateness of military design for any real use.⁷¹⁵ In some cases, opposition relates to Sookermany's thesis that traditionalists set within the modern war frame are largely unable to appreciate concepts beyond their own social paradigm limits (that of functionalism),⁷¹⁶ while in other cases opposition comes from institutional biases and cultural norms.⁷¹⁷ This also supports Kuhn's argument on the paradigm shift between a legacy paradigm and the novel one that makes the former merely a special case within the new one.⁷¹⁸

Critics of postmodernism's value in military application abound across military institutions in western militaries, with skeptics such as Naval professor and strategist Vego arguing: "Postmodern philosophers had a total disregard for the definitions of various terms...Deleuze's and Guattari's books contain a handful of intelligible sentences...the language is designed to be unintelligible to conceal an absence of honest thought. Baudrillard's writings are full of nonsense."⁷¹⁹ Kilduff and Mehra, citing Thompson and Giddens, reinforce this bias on postmodernism with, "postmodern writings are derided for their unintelligibility...and [are]

⁷¹² Sookermany, "On Developing (Post)Modern Soldiers."

⁷¹³ Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry," 565-74; Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies," 529-36.

⁷¹⁴ Sookermany, "On Developing (Post)Modern Soldiers," 3.

⁷¹⁵ Milan Vego, "A Case Against Systemic Operational Design," *Joint Forces Quarterly* 53 (quarter 2009): 70-75.

⁷¹⁶ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 97-98.

⁷¹⁷ Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought"; Ofra Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?," *Experticia Militar*, October 2017, 22-29; Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)"; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016; Huba Wass de Czege, "[Non-DoD Source] On Design," June 16, 2016.

⁷¹⁸ Kuhn, *The Structure of Scientific Revolutions*.

⁷¹⁹ Vego, "A Case Against Systemic Operational Design," 71.

dismissed for reducing research to textual analysis.”⁷²⁰ There is substantial evidence to support Vego’s belief on postmodern suitability for military education and practice if anecdotal; a cursory review of institutionally sanctioned military reading lists, advanced military syllabi including readings and sources, and critical rejection of postmodern topics across academia for military applications is prominent.

For example, no postmodern books have appeared on any Chief of Staff reading list.⁷²¹ Efforts to find military or security studies articles addressing postmodern concepts are rare and obscure. Further, they are largely absent from most professional military curriculum on strategy or operational concepts. They are common in commercial design education and within design communities oriented towards commerce, but not in military ones. Some postmodern books exist in dust-covered stacks in military libraries due to faculty removing them from student curriculums because the concepts seemed “too difficult to understand or apply.”⁷²² Yet in the last decade, those few military theorists writing on postmodern applications to strategy, military transformation and decision making in complexity operate in a small yet growing minority. Beaulieu-Brossard and Dufort in particular have studied this growing community of practice; their particular design journey is explained in the sixth chapter for how the Canadian Armed Forces have embraced military design.⁷²³

Vego’s position against systemic operational design also indicates a broader concern Butler-Smith had regarding military intellectualism and the divergence of perspectives in military academia. “Probably twenty-five percent of my officer victims (and an incalculably smaller percentage of faculty) had the patience to work through the dense philosophical writings of the likes of Haden White and Paul Ricoeur.”⁷²⁴ This anti-intellectualism stance is generally limited to postmodern applications for organized violence, and not towards institutionally sanctioned ideas espoused in popular military works. One can be a military intellectual provided they read the accepted works. Jackson, Zweibelson and Simonds explore this by addressing the absence of particular and frequently alternative perspectives in

⁷²⁰ Kilduff and Mehra, “Postmodernism and Organizational Research,” 453.

⁷²¹ Zweibelson, “Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases.”

⁷²² At Fort Leavenworth, Kansas at the ‘Ike Skelton Combined Arms Research Library (CARL) for example, the Deleuze and Guattari ‘A Thousand Plateaus’ book was purchased in 2006-2007 for SAMS students and faculty. In private correspondence with SAMS faculty Butler-Smith (as well as her unpublished “Operational Art to Systemic Thought” draft article, she confirmed that hundreds of copies of this postmodern book are collecting dust in the library due to its removal from the SAMS design program by 2009.

⁷²³ Beaulieu-Brossard and Dufort, “Introduction to the Conference: The Rise of Reflective Military Practitioners”; Beaulieu-Brossard and Dufort, “The Archipelago of Design: Researching Reflexive Military Practices”; Beaulieu-Brossard and Dufort, “Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies.”

⁷²⁴ Butler-Smith, “Operational Art to Systemic Thought: Unity of Military Thought,” 72.

military literature on mainstream defense reading lists.⁷²⁵ Chia outlines this tension as well at the epistemological level for strategy-making preference, with “modernist though places more importance on generalized concepts and categories than on the actual particulars of experience...as a consequence, visible *end-states* and *outcomes* are elevated over processes of change.”⁷²⁶ Subsequently, traditional military works appear to calcify institutional adherence and reject challenges to their ideas once they are indoctrinated into set practices, terminology, military education and cultural beliefs on the nature of war.

Design theorist Papanek, writing from a commercial design perspective, also wrote of this concerning the larger design institution as a criticism in the early 1970s against the moral corruption of designers, warning, “we have failed to distinguish the means from the ends, and we have made mechanical what should have remained manual, and we have made automatic that which might have been more rationally replaced with an entirely different system.”⁷²⁷ In the modernist system of mechanical strategy framing, all war plans are reached simply by reverse engineering or “working backward along the chain”⁷²⁸ to perform optimized analysis of Clausewitzian warfare set within a Westphalian state-sanctioned form for war. While Clausewitz’ ‘On War’ remains in most every major military institution of advanced study as well as plenty of senior leader required reading lists for various services, counter-arguments rejecting Clausewitz such as Rapoport’s introduction to the Penguin paperback 1968 version of ‘On War’ are summarily dismissed.⁷²⁹

Postmodern strategy therefore focuses on the ability to understand the origins and limitations of institutional habits of thought, to ‘think about our thinking’ and “remain concretely sensitive to local societal attitudes and aspirations; to detect deeply unconscious cultural idiosyncrasies; to be able to track emergent technological trends and their consequences; to understand shifting political affiliations and public perceptions; to grasp the prevalent social moods, inclinations, and capacities.”⁷³⁰ The postmodern strategist or policy-maker must be able and willing to explore these topics extensively. In terms of the comedian’s role in larger society, Critchley observes, “jokes tear holes in our usual predictions about the empirical world. We might say that humour is produced by a disjunction between the way things are and the way they are represented in the joke, between expectation and actuality.”⁷³¹ The disruptive qualities of humor parallel the

⁷²⁵ Aaron Jackson, Ben Zweibelson, and William Simonds, “Intellectual Spring Cleaning: It’s Time for a Military ‘Do Not Read’ List; and Some Sources That Should Be on That List,” *Defence Studies Journal* 18, no. 2 (April 25, 2018): 131–46.

⁷²⁶ Chia, “Organization Theory as a Postmodern Science,” 118.

⁷²⁷ Papanek, *Design for the Real World: Human Ecology and Social Change*, 258.

⁷²⁸ Francois Jullien, *A Treatise on Efficacy Between Western and Chinese Thinking*, trans. Janet Lloyd (Honolulu, Hawaii: University of Hawai’i Press, 2004), 36.

⁷²⁹ Rapoport, “Editor’s Introduction to On War”; Jackson, Zweibelson, and Simonds, “Intellectual Spring Cleaning: It’s Time for a Military ‘Do Not Read’ List; and Some Sources That Should Be on That List.”

⁷³⁰ Chia, “Organization Theory as a Postmodern Science,” 123–24.

⁷³¹ Critchley, *On Humour*, 1.

postmodern qualities of military design, particularly in those methodologies relying directly on postmodern theory, engaging in a postmodern design style, and entertaining a design for warfare within postmodernity.

If the military designer, by drawing from controversial and often blacklisted source material such as postmodern theory is the cognitive disruptor of the modern war frame, then the first to emerge on this scene would bear the title of 'first postmodern comedian of war.' The next chapter covers this individual, Brigadier General (retired) Shimon Naveh of the Israeli Defense Forces. Naveh would attempt to challenge and shatter the dominant military war frame of modernity, by demonstrating the changes in warfare brought on by society's transition into postmodernity. He would draw from dense, challenging postmodern theory and attempt to integrate it into a new postmodern military style of sense-making and action set within postmodernity; Naveh would as a postmodernist attempt to deconstruct, disrupt, and ultimately change the modern military frame for war by demonstrating its diminishing value as well as the bold alternatives only available through direct application of postmodern rather than modern theory and language.

Chapter 4: Self-Disruption, Military Design and Israeli Heretics

When war is seen as determined by rational laws, it is only logical to leave nothing to chance and to expect that the adversary will throw his hand in when he has been brought into position where the game is rationally lost. The result of considering war as mere science or at least of overvaluing the rational element in military affairs leads easily to the view that war can be decided quite as well on paper as on the battlefield.

- Felix Gilbert ⁷³²

When ends are perceived as ultimate truths, underpinned by unquestioned scientific authority and the ethical certainties of humanism, then all means become valid. In this context the question of the use of violence is often transformed into a question of mere efficiency...modern ideological doctrines with their inclusive, universalist rhetoric of collective solidarity provide the most potent, but also the most uncompromising, social mechanism of group mobilization, able to justify the most extreme forms of violence.

- Siniša Malešević⁷³³

Theories, diagnoses, strategies and plans serve mostly as plausible interim stories that mix ignorance and knowledge in different patterns.

- Karl Weick⁷³⁴

Prior to the initial experimentations of military design theory within the Israeli Defense Forces (IDF) in the late 1990s, there was no 'postmodern' mode of military thought and action. While advocates of postmodernity might offer that societies and their militaries were already well into a postmodernity of war, and some experimental military theorists were demonstrating some postmodern *style* in their ideas, no one had attempted to use postmodernism through theory and practice toward the military institution itself, nor directly in a combat or security context. Instead, virtually every modern as well as a majority of impoverished or developing military forces used some variation of the mechanistic, linear decision-making methodology maximized through the last two centuries of industrialized warfare coupled with increasingly analytic organizational form and function. Until the late twentieth century where militaries became frustrated with the limitations

⁷³² Felix Gilbert, "Machiavelli: The Renaissance of the Art of War," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 30.

⁷³³ Siniša Malešević, *The Sociology of War and Violence* (Cambridge, United Kingdom: Cambridge University Press, 2010), 83.

⁷³⁴ Karl Weick, "Improvisation as a Mindset for Organizational Analysis," *Organizational Science* 9, no. 5 (October 1998): 550.

of technological rationalized decision-making in war would opportunities arise in the form of the first postmodern comedians of war.

The first and arguably the most difficult to understand of available military design methodologies and military design theorists is Israeli retired general Shimon Naveh, the focus of this chapter. While there was civilian design prior to Naveh, as well as numerous examples of postmodern stylized efforts in military contexts such as select elements of John Boyd's work⁷³⁵ and arguably features of Channon's *First Earth Battalion* concept, there was no postmodern military decision-making (theory) that operated in a distinct, separate and largely antagonistic mode until Shimon Naveh offered his original concepts.⁷³⁶ As his novel war theory would perplex, frustrate, offend, and inspire equally over the last three decades, he fits the title character in this research as the first formal postmodern military comedian for war, and the father of the military design movement.

The military design movement has in the span of roughly twenty-five years grown from a single theoretical application within a minority group of a military service into a full-fledged international community of practice with tremendous variation therein. Military design currently exists in multiple formats, in doctrinal as well as practitioner-generated constructs, and across a diverse spectrum of epistemological, ontological, as well as sociological variations.⁷³⁷ Although some express in purist form a disruptive, postmodern mode of sense-making in war drawing from postmodern theory, others draw inspiration from aspects of this postmodern intent or style while remaining tightly wedded to dominant modern

⁷³⁵ Boyd himself likely would resist the descriptor of 'postmodern thought' due to his explicit adherence to general systems theory and an epistemological urge to use mathematics and analytic logic to enhance military decision-making in complexity. However, his philosophy of blending the concepts of destruction and creation as well as other aspects of human social distortion of a complex reality do overlap into many postmodern arguments. His disruptive role in the 1970s-80s in the US Department of Defense also share commonality with postmodern theory on the role of the disruptive reformer to the institutional dominant forms.

⁷³⁶ John Boyd, "Destruction and Creation" (Unpublished manuscript, 1976), http://www.goalsys.com/books/documents/DESTRUCTION_AND-CREATION.pdf; Frans Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (Routledge, 2006); Jim Channon, "The First Earth Battalion: Ideas and Ideals for Soldiers Everywhere" (declassified U.S. Army internal concept paper, 1979), <https://www.scribd.com/doc/21926670/The-First-Earth-Battalion-Field-Manual>.

⁷³⁷ Philippe Beaulieu-Brossard and Philippe Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners" (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces, Canadian Forces College, Toronto, Canada: University of Ottawa and the Canadian Forces College, 2016); Philippe Beaulieu-Brossard and Philippe Dufort, "The Archipelago of Design: Researching Reflexive Military Practices," *The Archipelago of Design: Researching Reflexive Military Practices*, 2017, www.militaryepistemology.com; Aaron Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)" (under consideration for the U.S. Army University Press (draft version in author's possession January 2020), January 2020); Ben Zweibelson and Imre Porkolab, "Designing a NATO That Thinks Differently for 21st Century Complex Challenges," *Defence Review: The Central Journal of the Hungarian Defence Forces* 146, no. 1 (2018): 196–212; Jeffrey van der Veer, "The Rise of Design: Why an Innovative Concept Is Emulated in Armies around the Globe" (Master thesis of Military Strategic Studies, The Netherlands, Royal Netherlands Defence Academy, 2015), <http://militaryepistemology.com/the-rise-of-design/>.

military belief systems, so that 'design' is assimilated into institutionally sanctioned military planning.⁷³⁸ Others still entertain war in postmodernity without accepting direct military design applications, or if only to sample select design terms to assimilate. 'Purists' of the 'postmodernity/postmodernism' variety will be addressed first with this chapter explaining the original postmodern military design theory of the Israelis largely through the experimental work of Naveh.

Those that remained closely within war frame for modern military war while adapting select aspects of military design will be addressed more extensively in the next two chapters, as well as the existing tensions ongoing in the contemporary military design community between these purists and pragmatic challengers. They are discussed in this chapter with respect with the institutional resistance and selective assimilation of design by the IDF only. Interestingly, an overarching tension across these different tribes of design (as well as outward through civilian design disciplines) appears to be a lack of awareness and potentially demonstrating elements of paradigm incommensurability across the military design community of practice. Some willingly embrace the idea of becoming the postmodern military comedians of war and disruptive agents of the established system,⁷³⁹ while others reject this in favor of attempting to refine the modern military manager or inspire the legacy hero for war applications. Yet even the ritualized, romanticized war hero is in postmodernity being deconstructed or challenged; Gray offers that the traditional "male" gender of warriors "is collapsing, although it was never absolute."⁷⁴⁰ The dominance of the masculine warrior almost exclusively throughout premodern and well into the modern war movement would in postmodernity finally be disrupted.

This chapter explains the development of design done at a meta-methodological level involving multi-perspectival reflexivity and how, in postmodern contexts it differs from these convergent, analytic and planner-oriented modes of directing action in war. Design is used to challenge the deeply held, often ritualized or cherished war beliefs such as the military hero construct, masculine roles in warfare, the prominence of a natural-science order to war, and so-on. Nothing is off limits, and for military designers applying postmodernism, everything ought to be questioned. Postmodern designers posit that modern analytic planning or strategy conducted in the postmodernity is increasingly fragile and incompatible; the incorporation of disruptive, radical design into this relationship is both dynamic as well as apparently essential for postmodern militaries to gain useful and novel advantage in an increasingly complex and confusing world. The cycle of technologically fueled tactical success in warfare nested in seemingly perpetual

⁷³⁸ Ryan provides this metaphor in his design blog with 'purists' associated with Naveh and his work, and the pragmatic design assimilators with the topics of the next chapter. See: Alex Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," in *Cluster 2* (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces, Canadian Forces College, Toronto, Canada: University of Ottawa and the Canadian Forces College, 2016).

⁷³⁹ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 2.

⁷⁴⁰ Gray, *Postmodern War: The New Politics of Conflict*, 170.

strategic disconnects and policy failings helps open the door to the more radical postmodern military arguments.

However, some military design methods are epistemologically structured to actually reinforce these detailed planning methodologies of the legacy war frame despite their creation owing to postmodern theoretical expressions for organized violence in war. This group refers back to Ryan's "away team" metaphor where design is applied potentially in a postmodern style, or within postmodernity yet still retaining and defending the core legacy war frame for modernity. They are designing to preserve or incrementally reinforce the traditional Westphalian Order and state-centric organized violence within Clausewitzian, ordered logic. Still grouped under the moniker 'design', these multiple design methods feature significant institutional, cultural and methodological variance and will be explored extensively in the next two chapters, yet their birth will occur in this chapter. They feature epistemological tensions and overlap within each other in military contexts, while also extending to additional tension and overlap with design methods for commerce.

This chapter frames the origins of military design, to include inspirational disciplines, intellectual contributions, experimentation and the prominent role of mavericks, heretics and comedians of violence. It defines the distinction between modernism's emphasis on analytic optimization, ends-ways-means logic and technical rationalism⁷⁴¹ with how the military postmodern design movement challenges these deeply held beliefs; the designer becomes the jester, the disruptor... the joker that delivers organizational reflection and reframe through seemingly eccentric intellectual activities⁷⁴² and imagination concerning war. Design, in a pure sense, "changes the possibilities and makes things possible that were not possible before...it changes the needs systems and objectives of people."⁷⁴³ In pure postmodern design form, they disrupt and deconstruct the organization using design constructs, systemic thinking, and alternative paradigms.⁷⁴⁴ In design modes that hold far closer to the dominant modern military frame, they appear to reinforce existing mechanistic planning methodologies, sanctioned terminology and supporting doctrine while also creating small spaces for transformation. Hirsch supports this notion of the postmodern war comedian and why they are valuable for institutional transformation into postmodernity with:

A conceptual-organizational change on such a scale is a matter for the highest leadership and necessitates a farsighted command...Primarily,

⁷⁴¹ Jeffrey Meiser, "Ends + Ways + Means = (Bad) Strategy," *Parameters* 46, no. 4 (Winter 2016): 82; Jean-Pierre Protzen and David Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning* (New York: Routledge, 2010), 11–15; Brian Bloomfield, Gibson Burrell, and Theo Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century," *Organization* 24, no. 4 (2017): 3–8.

⁷⁴² Simon Critchley, *On Humour, Thinking in Action* (New York: Routledge, 2002), 16–22.

⁷⁴³ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 140.

⁷⁴⁴ Preiser, Cilliers, and Human, "Deconstruction and Complexity: A Critical Economy," 261–64.

we need the courage to enter new battlegrounds, step into dark new realms, and venture into a conceptual no-mans-land. A true leader will also retain the different, the nonconformist (even eccentric) individuals in his organization- there are many of those within the ranks of the special forces, and they could constitute an important asset in the staging of a breakthrough.. Provided that one is aware of the conceptual fixation and restrictive paradigms, these nonconformist individuals can be the ones to embrace hardships as opportunities for leading to breakthroughs.⁷⁴⁵

Hirsch, a student of Shimon Naveh, would be part of the first wave of postmodern military designers willing to apply these concepts to real-world security contexts. Naveh would become the original postmodern military comedian for not just his own Israeli Defense Forces, but across the world and into many of the most powerful and advanced militaries of the industrialized west. Naveh would inspire other war comedians such as Hirsch to attempt radical transformation in the IDF, and outward into American, Canadian, British and Australian militaries in varying degrees to directly or indirectly do the same. The next three chapters chronicle these events, and the experimentations of postmodern designers for war. Those that attempted said utilization of postmodern concepts early in the movement often faced rejection, admonishment or even early retirement from military service, while in the emergent growth of a bubbling design insurgency in the last decade, more and more design practitioners are able to apply postmodern concepts and experiments with less institutional backlash or outrage. Potentially, the broader acceptance of war's postmodernity and a growing frustration with earlier war frames established in modernity might be opening minds to entertain postmodern ideas, whether rendered in the stylings of postmodernists or drawing directly from postmodern theoretical lenses.

While some of the leading military institutions across the western alliance of partnered nations feature a particular and often divergent journey from modern military rationalism towards postmodernist design, many others have not yet embarked on such a journey and remain wedded to a deeply positivist⁷⁴⁶ strategy-making methodology.⁷⁴⁷ Of the most prominent design movements across the world, this chapter focuses on the Israeli Defense Forces as the primary innovators and experimenters of the earliest example of a meta-methodology involving multi-perspectival reflexivity for war applications. Their ideas would spread and later influence the American Army and Marine Corps, the Australian Defence Force, the Canadian Armed Forces, European militaries and more.

⁷⁴⁵ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 430–31.

⁷⁴⁶ Mary Jo Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, Third Edition (Oxford, United Kingdom: Oxford University Press, 2013), 12.

⁷⁴⁷ Meiser, "Ends + Ways + Means = (Bad) Strategy"; Paparone, "How We Fight: A Critical Exploration of US Military Doctrine"; Bousquet, "Chaoplexic Warfare or the Future of Military Organization."

One possible reason for the rapid spreading of these radical ideas on postmodern warfare may be the perpetual combat readiness and validation of the Israeli Defense Forces and their high status among western industrialized nations. Arguably, radical ideas emerging from a lesser known military or from one with less relevant combat experience might not be considered as readily, although this is one possible explanation.⁷⁴⁸ While the Israeli original version of military design as well as later variants are explained in this chapter, the fifth and sixth chapters will explain and critique the other international offspring that largely do not take such a provocative position (postmodern stylings) or attempt to employ postmodern theory as readily. In some cases the gaining organization's bureaucracy would receive direct from Naveh the fundamental design concepts and subsequently reject or heavily modify them beyond recognition.⁷⁴⁹ There are also numerous smaller groups, novel design applications, and emerging communities of security professionals as well; these newer groups appear to draw inspiration from one or more of these larger design communities or from commercial design influences that comprise chapters three through five of this research.⁷⁵⁰ Some organizations immediately leap into design experimentation, while others have taken much more gradual and skeptical transitions.

Regardless of how fast or slow a military venture into military design, the single-paradigm adherence (functionalism) to using modern military planning methods may be insufficient in twenty-first century contexts. Some military design methodologies feature greater flexibility for divergent and innovative strategies in conflicts, while others orbit closer to traditional legacy methodologies involving

⁷⁴⁸ This point is based on a personal exchange between Philippe Beaulieu-Brossard and the author in February 2020.

⁷⁴⁹ In 2005, Naveh provided this core SOD document in doctrinal format to TRADOC only to have them largely reject it and substitute with 'Army Design Methodology' by 2010. See: Shimon Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, Version 3.0, unpublished draft (Fort Monroe, Virginia: Concept Development & Experimentation Directorate, Future Warfare Studies Division, US Army Training and Doctrine Command, 2005).

⁷⁵⁰ Aaron Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit," The Archipelago of Design Blogs (blog), March 4, 2018, <http://militaryepistemology.com/multiparadigm2018/>; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices"; Ben Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay," Small Wars Journal, January 2019, <https://smallwarsjournal.com/jrnl/art/multidisciplinary-design-movement-frame-realizing-industry-security-and-academia-interplay>; Christopher Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation," in Design Thinking: Applications for the Australian Defence Force, ed. Aaron Jackson and Fiona Mackrell, editor's manuscript pre-publication version, Joint Studies Paper Series 3 (Canberra, Australia: Defence Publishing Service, 2019), 1–18; van der Veer, "The Rise of Design: Why an Innovative Concept Is Emulated in Armies around the Globe"; Alex Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," The Medium (blog), November 4, 2016, <https://medium.com/the-overlap/a-personal-reflection-on-introducing-design-to-the-u-s-army-3f8bd76adcb2>.

positivist constructs and reverse-engineered⁷⁵¹ 'ends-ways-means' epistemological structures.⁷⁵² This is a primary difference between a design meta-methodology that prefers multi-perspectival reflexivity and those single-design-methodologies that operate exclusively from a single-paradigm mode. Multi-paradigmatic concepts for military design permit the ability to move past paradigm incommensurabilities, and entertain ontological and epistemological 'interplay'⁷⁵³ that is foundational to Naveh's original military design proposed logic.

Mintzberg frames this tension as one where "design is used to develop custom-made solutions or to modify ready-made ones."⁷⁵⁴ Custom-made design is divergent and disruptive, while ready-made solutions reflect military plans and pre-established policies or drills. For those that endorse a postmodern shift in strategic approaches in conflict contexts (postmodernity), they appear to share some common origins as well as key influences. Some military design comedians are able to practice more openly, while others continue to remain behind the scenes, disrupting as heretics from within the institution. Some designers are openly radical proponents that have challenged the larger military institution in an effort to openly disrupt the paradigm-blindness of a single-perspectival insistence that is non-reflexive⁷⁵⁵ and bureaucratic, yet this is frequently the far more dangerous path for a designer to embark upon. Naveh is clearly one of those, as are select professionals that have embarked upon a similar path of military reform through postmodern theory and disruptive application.

Contemporary commercial forms of design as addressed in the last chapter overlap and interplay with military ones, but even in defense-industrial contexts the form and function of different design methods produces sometimes incommensurate or insufficient results.⁷⁵⁶ Ultimately, the military design form and

⁷⁵¹ Robert Chia and Robin Holt, *Strategy without Design: The Silent Efficacy of Indirect Action* (New York: Cambridge University Press, 2009), 27.

⁷⁵² Meiser, "Ends + Ways + Means = (Bad) Strategy"; Monk, "End State: The Fallacy of Modern Military Planning"; Travis Homiak, "Is There Checkmate in the Game of 'Go'? The Sufficiency of U.S. Military Thinking on War in the Age of Postmodern Conflict; Dissertation Research Proposal" (Dissertation Research Proposal, Canada, Royal Military College of Canada, 2018).

⁷⁵³ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies"; Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay"; Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry"; Gioia and Pitre, "Multiparadigm Perspectives on Theory Building"; Lewis and Grimes, "Metatriangulation: Building Theory From Multiple Paradigms."

⁷⁵⁴ Henry Mintzberg, Duru Raisinghani, and Andre Theoret, "The Structure of 'Unstructured' Decision Processes," *Readings in Decision Support Systems*, 1976, 142.

⁷⁵⁵ Haridimos Tsoukas and Mary Jo Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity," *Human Relations* 54, no. 8 (August 2001): 1001.

⁷⁵⁶ Phil Gilbert and Ben Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson" (lecture, Innovation Methodologies for Defense Challenges (IMDC) conference 2019, Lancaster, UK, February 27, 2019),

<https://www.youtube.com/watch?v=tU1MYaAzoxk>; Phil Gilbert, "The Art of War: Accelerating Innovation by Scaling the Design Mindset" (lecture, Innovation Methodologies for Defense Challenges (IMDC) conference 2019, Lancaster, UK, February 27, 2019),

https://www.youtube.com/channel/UCL7hOd0ihWzmJlga_Y4wCJg; Adam Cutler, "IBM Design - Operationalizing Artificial Intelligence" (lecture, JSOU design lecture series 2019, JSOU Campus,

function of choice remains deeply nested in their preferred paradigm, and generally supports existing doctrine, terminology, and detailed planning practices common to the security organization, as the next chapters will address.

Frequently, the institutional pull of the modern military paradigm appears to be altering the experimental paths of these postmodern design expressions. This will also be demonstrated in these next few chapters with design examples from real-world applications, designer accounts, and observations from contemporary theorists studying the military design movement. Why this is occurring and how it will unfold in the next generation of military professionals? It is in this dynamic cognitive space where these ideas are unfolding now, across the military international institution through debate, application, reaction and experimentation. This is also why Naveh is characterized here as the original postmodern comedian of war. In a touching example of irony, Naveh draws direct inspiration from postmodern philosophy whereas the authors of these original, disruptive works potentially and the current postmodern community might be dismayed at, or even refute the result. The military 'state apparatus' appears to be experimenting and incorporating their radical concepts for reforming warfare and war. Postmodernism was intended originally to defeat existing power structures, yet Naveh and others would 'flip the script' and instead embrace postmodernity in war, as well as postmodernism in reconfiguring how warfare occurs, and what militaries should think about war itself.⁷⁵⁷

Postmodern War, Military Comedians and the Self-Disruption of Design:

Postmodernism seems quite disruptive when applied in military contexts, often because of what postmodern theory intends to do with respect to modernity. Interestingly, the very language and ideas of postmodern theory seem antagonistic as well as incommensurate in some regards to the modern war frame, which may add to the institutional antibodies that surge at first sight of it.⁷⁵⁸ "Another challenge with narrative in curriculum comes from the very environment created by postmodernism itself and the prevalence of its influence on our assumptions about reality" according to Butler-Smith.⁷⁵⁹ Postmodern thought had flirted with military institutions throughout the twentieth century, whether buried in obscure philosophical works such as Deleuze and Guattari's 'War Machine' chapter,⁷⁶⁰

Tampa, Florida, November 14, 2019), <https://www.youtube.com/watch?v=wFqkXMyCl0U>; YouTube JSOU User, *The Sublime: Is It the Same for IBM and Special Ops?*, MP4 (Tampa, Florida: Joint Special Operations University, 2019), <https://www.youtube.com/watch?v=IUNm852We0o&spfreload=10>; Ben Zweibelson, "Designing through Complexity and Human Conflict: Acknowledging the 21st Century Military Design Movement," in *Design Lecture with Phil Gilbert and Ben Zweibelson on Military Design and IBM Design Movements* (SPADE 2018: Rethinking Defense and Security in the Digital Age, Copenhagen, Denmark: IBM, 2018).

⁷⁵⁷ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020, 1–2.

⁷⁵⁸ Kay, "A New Postmodern Condition: Why Disinformation Has Become So Effective," 1–3.

⁷⁵⁹ Alice Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought," in *Cluster 3 (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces)*, Canadian Forces College, Toronto, Canada: unpublished- Canadian Forces College internal document, 2016), 72.

⁷⁶⁰ Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987); Ofra Graicer, *Two Steps Ahead: From Deep Operations to*

Baudrillard's engagement with the 1990 Gulf War, or subtly in the unpublished PowerPoint presentations of U.S. Air Force Colonel John Boyd.

Boyd would in the 1970s-1980s disrupt American military thinking using some postmodern concepts, moving throughout the community in a grass-roots style of influencing the institution to reflect on organizational form and function, although the bulk of his arguments centered on general systems theory and not intentionally into postmodern theory.⁷⁶¹ Boyd therefore is one of the 'postmodern stylists' where his work is absent of postmodern theory, nor does he discuss postmodernity and war. Boyd would defend Clausewitzian logic as well as the overarching modern war frame of the Westphalian Order while adding important ideas on complexity and systems thinking to improve the modern war frame.

In the same period of Boyd within the 1970s-1980s, postmodern theorists from outside of the military institution would confront war, offering alternative and radically different perspectives. Foucault, Deleuze and Guattari, Tschumi, Baudrillard, Lyotard and others in the 1970s-1990s would first treat war and warfare through postmodern theory, while subsequent theorists continued the discussion through present day. Contemporary postmodern philosophers such as Alliez and Lazzarato would make profound and disruptive arguments concerning Clausewitz, war and the relationship of capitalism, industry and total war in *Wars and Capital* yet outside of their limited audience few in the security disciplines consider their ideas.⁷⁶² Modernists like Boyd would attempt to shift the military war frame in postmodern style while still incrementally defending and advancing the core Clausewitzian foundations, whereas the postmodernists attempted to deconstruct and disrupt Clausewitz for alternative logics entirely. They would do so from outside the military institution, and within any observable motive to help militaries in that the arguments are antagonistic and often categorized as 'anti-military.'

Yet in the 1990s one military visionary thinker would formally craft postmodern concepts into a new methodology that would challenge the traditional decision-making methodology of an entire military organization,⁷⁶³ and would do so inside of the military itself. Naveh would feature the insider-perspective and credentials of the modern war leader, yet operate in a postmodern style of Boyd, and go beyond by adapting postmodern theory so that a postmodern war frame could be generated for militaries to operate in postmodernity and transform into postmodern organizations *able to understand and apply organized violence differently than previously*. Although not alone in his quest to disrupt the legacy

Special Operations- Wingate the General, Special Edition (Dayan Base, Tel Aviv, Israel: Israeli Defense Forces, 2015), 39.

⁷⁶¹ Boyd, "Destruction and Creation."

⁷⁶² Éric Alliez and Maurizio Lazzarato, *Wars and Capital*, trans. Ames Hodges (South Pasadena, California: Semiotext(e), 2016), 36.

⁷⁶³ Ofra Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?," *Experticia Militar*, October 2017, 22-29; Ofra Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 21-37.

mode of Israeli war thinking, he drew from contemporary IDF thinkers and innovators to render arguably the first postmodern military logic for war.⁷⁶⁴ This Israeli senior military officer and postmodern academic would usher in a new way of thinking about war, strategy making, and military organizational form in complex contexts that differed greatly from those of modernity and warfare.

In the 1990s, while a majority of the industrialized west wandered in the post-Cold War landscape of downsizing militaries and a rapid expansion of low-intensity peacekeeping around the world,⁷⁶⁵ the IDF experimented with a variety of novel concepts for organizing, creating defense strategies, and acting within conflicts for military application.⁷⁶⁶ Some new and competing constructs, such as 'Effects Based Operations' (EBO) sought a highly centralized, nodal network where high technology military systems could precisely target and collapse entire enemy organizational structures, enabled by the splashy arrival in that decade of 'smart bombs', stealth fighters, and other amazing new weapons promising surgical precision.⁷⁶⁷ Even within the IDF an intellectual battle would occur from the late 1990s through the 2006 Hezbollah War over whether military design, EBO, or niche applications such as 'swarm theory' should be the new adapted frame for thinking and acting in war.⁷⁶⁸

Despite the majority of military practitioners continuing towards technologically advanced solutions for applying organized violence using ever-greater degrees of precision, lethality, and efficiency, advanced industrialized militaries continued to encounter strategic failure and foreign policy quagmires against illusive and asymmetric opponents.⁷⁶⁹ By 1995, a small group of radical thinkers within the Israeli military took a new direction and considered a disruptive, eclectic blend of postmodern architectural design, complexity theory, organizational change, eastern philosophy as well as previously discounted

⁷⁶⁴ Naveh's contemporaries included Zvi Lanir, Dovik Tamari, Yosef Kuperwaser and others. While these individuals contributed to Naveh's ideas and potentially inspired him to further mature his concepts, Naveh would emerge in the late 1990s as the dominant face of Israeli postmodern military thought.

⁷⁶⁵ Markus Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002* (Bern, Germany: Peter Lang AG, 2004), 48-72.

⁷⁶⁶ Philippe Beaulieu-Brossard, "Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts" (outline written in the course of fieldwork, University of Ottawa, Canada, June 1, 2015); Ofra Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design," *Experticia Militar*, October 2017, 30-37; Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)"; Shimon Naveh, "Northern Storm: A Narrative of Reflective Command, Systemic Learning, and Operational Design 2002-2005"; Shimon Naveh, Interview with BG (Ret.) Shimon Naveh, digital transcript, November 1, 2007.

⁷⁶⁷ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 61-65; Andrew Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?," *Small Wars Journal*, September 20, 2010.

⁷⁶⁸ Yagil Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War," *Defence Studies* 14, no. 3 (2014): 310-32.

⁷⁶⁹ Lockhart and Miklaucic, "Leviathan Redux: Toward a Community of Effective States," 297-305; Gibson, *The Perfect War: Technowar in Vietnam*; Gorka, "Adapting to Today's Battlefield: The Islamic State and Irregular War as the 'New Normal,'" 353-64; Atran, "The Islamic State Revolution," 61-72.

postmodern philosophy, led by an Israeli Brigadier General of their paratroop infantry organization. This military maverick had completed his doctorate focusing on general systems thinking,⁷⁷⁰ a new interpretation of operational art in war, and initially a partial disruption of many existing military strategy and planning methodologies.⁷⁷¹ A small number of rising combat leaders in the IDF would go to the Operational Theory Research Institute (OTRI) and study these new, radical ideas and later experiment with them in real-world Israeli security challenges. Of them, Hirsch would be the most well-known and also for political reasons, perhaps the most infamous:

I had heard about OTRI and the team that taught the course, with their newfangled, weird concepts. I had also attended one of their classes at the brigade commanders' course and resented the aggressive, blunt and condescending attitude demonstrated by their lecturers...[yet later when attending OTRI] something was beginning to shift my perception of the subject and this team, especially after hearing a lecture by Dr. Shimon Naveh. He was crude, rude, and impatient, but the effects of his words had on me was electric, challenging all my preconceived notions and generating a storm within me.⁷⁷²

Naveh would be the first to pair systems theory to war, while promoting his own interpretation of Soviet deep operations and 'system shock' from World War II as the basis for his argument of 'systemic operational design.'⁷⁷³ Later, he would mature his ideas further, introducing more esoteric postmodern concepts to entirely disrupt legacy planning logic except for tactical and technical considerations. The Israelis called their radical postmodern concept 'systemic operational design' or SOD, and it would subsequently generate controversy, intense debate, and international intrigue. It would center military institutions as within a postmodernity of war, where only postmodern ideas could disrupt existing and ineffective modern logics, in order to generate necessary yet radical military transformation. Although the Israeli political and military leadership would reject and exile the SOD experimenters by 2005, the movement by that point would spread

⁷⁷⁰ Ludwig von Bertalanffy, "General System Theory," *General Systems* 1 (1968): 1–10.

⁷⁷¹ Yotam Feldman, "Dr. Naveh, or, How I Learned to Stop Worrying and Walk through Walls," online social media and news blog, HAARETZ.Com (blog), October 25, 2007, <https://www.haaretz.com/misc/article-print-page/1.4990742>; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Eyal Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict" (*Archipelago of Exception: Sovereignities of extraterritoriality*, CCCB, Barcelona, Spain: self-published, 2005).

⁷⁷² Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 126–27.

⁷⁷³ Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (New York: Frank Cass, 1997).

across the west and later return back to Israel to reestablish permanently in their General Officer education program.⁷⁷⁴

When considering the frequency of conflict and threat of total national destruction (existential threats to nation-states as framed by the Westphalian Order), it is quite reasonable to find this new sort of thinking to emerge first in Israel. Israel had from the nation's founding been perpetually facing existential threats unlike most any other western nation. The asymmetric wars of the twenty-first century that would soon consume the industrialized world would subsequently prime the American, Australian, Canadian and British Armies to look towards Israel for something new as well in their times of critical reflection.⁷⁷⁵ Israeli emphasis on urban warfare as well as their high status as a well-experienced and successful western military force would give them further accolades in the eyes of the Anglosphere's militaries.⁷⁷⁶ This of course indicates the ritualization of war heroes dating back to premodern war frames.

However, a decade prior to the Anglo-Saxon introspection during periods of asymmetric war, the Israeli Defense Forces would be the first to embark on a similar cycle of self-examination fueled by institutional frustration with military failures, setbacks or a sense of creeping intellectual dormancy. Since the 1970s, Israeli military intellectuals grew increasingly disenchanted with the legacy military system of thought,⁷⁷⁷ resulting in a prominent counterculture movement emerging in the 1990s to offer Israel a new way to think about war, their geo-political position, and novel strategies that would challenge and disrupt the deeply cherished and ritualized beliefs of the Israeli Defense Force.⁷⁷⁸ These ideas would reframe war in a postmodern context, and dismantle existing modern war ideas in order to create postmodern alternatives through design.

⁷⁷⁴ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)"; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design."

⁷⁷⁵ British interest in design and alternative sensemaking models took a slightly earlier and different path with the UK embroiled in its own counterinsurgency in Northern Ireland earlier than the rest of the west. However, similar overlapping ideas appear in UK military doctrine beginning in the 2010 period, potentially due to UK military students being exposed to Naveh and SOD in American military schools as well as published SOD theory and debate. See: United Kingdom Ministry of Defence, *Joint Doctrine Publication 04: Understanding and Decision-Making*, Second (Bicester, United Kingdom: Development, Concepts and Doctrine Centre, 2016); United Kingdom Ministry of Defence, *Joint Doctrine Note 3/11: Decision-Making and Problem Solving: Human and Organisational Factors* (Shrivenham, Wiltshire, United Kingdom: Development, Concepts and Doctrine Section of the United Kingdom Defence Staff, 2011), www.mod.uk/dcdc.

⁷⁷⁶ Eyal Weizman, *Hollow Land: Israel's Architecture of Occupation* (New York: Verso, 2007), 188.

⁷⁷⁷ Philippe Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," in *Concepts at Work: On the Linguistic Infrastructure of World Politics* (Ann Arbor: University of Michigan Press, 2020), 2.

⁷⁷⁸ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 24–25.

Designing new Strategies in War: the Israeli Defense Force 2000-2005

Brigadier General Shimon Naveh of the Israeli Defense Force completed his doctoral studies at Kings College of London by 1995. He had focused his interests in using the general systems theory as originally developed by Bertalanffy's biological studies,⁷⁷⁹ campaign planning of Soviet and German forces in World War II and select aspects of postmodernism towards the challenges of the IDF at the end of the twentieth century. By the 1990s, some senior military professionals and academics were increasingly concerned with a lack of intellectual growth and organizational self-reflection within the Israeli military, coupled with a growing fear that enemies such as Hamas, Hezbollah, and hostile nation states were quickly adapting to traditional Israeli military methodologies and decision-making models.⁷⁸⁰ Others found any shift from traditional Israeli military studies to the fields of philosophy, anthropology or other seemingly unrelated field as irrelevant and potentially a waste of valuable resources for a country under perpetual existential threat.⁷⁸¹

Naveh drew from an eclectic and unusual range of fields such as architecture, sociology, philosophy, poetry, non-western military studies, and systems thinking to produce something novel that modern militaries had not yet realized *in any comprehensive and entirelyly distinct way*.⁷⁸² Thus, like the Bauhaus and Ulm School movements in commercial design throughout the twentieth century, Naveh sought to blend a wide range of disciplines, ideas, and techniques into novel and experimental constructs. Naveh, along with a few other fellow experimental thinkers developed an alternative decision-making methodology based upon general system thinking in security contexts, operational art at the level beyond tactical or technical effects, and postmodern architectural concepts for designing new ways of war that he labeled "Systemic Operational Design" or SOD.

The word 'operation' in Naveh's position is synonymous with 'experimentation', in that every operation is unique and completely tailored to the synthesis of designing in complexity; they are not tactical plans.⁷⁸³ In the earliest available draft SOD doctrine created by Naveh in English, he defines 'operational' with "the act of working out the form of something (as by making a sketch or outline or plan)."⁷⁸⁴ Naveh uses 'operation' as the reflective practice of doing the military thought-action, not in a traditional 'level of war' sense, and also links the activity to

⁷⁷⁹ von Bertalanffy, "General System Theory."

⁷⁸⁰ Shimon Naveh, "Between the Striated and the Smooth: Asymmetric Warfare, Operational Art and Alternative Learning Strategies" (Unpublished manuscript, undated), 2–3; Feldman, "Dr. Naveh, or, How I Learned to Stop Worrying and Walk through Walls"; Dima Adamsky, "The Israeli Revolution in Military Affairs," in *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel*, First (Stanford, California: Stanford University Press, 2010), 99–101.

⁷⁸¹ Alex Fishman, "How the Tides Have Turned for Gal Hirsch," Y-Net News.Com, August 29, 2015, online edition, <https://www.ynetnews.com/articles/0.7340.L-4695324.html>.

⁷⁸² Weizman, *Hollow Land: Israel's Architecture of Occupation*, 210–12.

⁷⁸³ Shimon Naveh and Ofra Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 15, 2019, 6:58.

⁷⁸⁴ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 2.

the term 'planning' in a more abstract form instead of the linear, sequential mode of military plans. Epistemologically, Naveh shifts from a single-paradigm logic (functionalism) relying on complexity theory (his emphasis on systemic thought) to a postmodern and frequently multiparadigmatic mode of design inquiry which would lead to significant interdisciplinary tension coupled with dense language that is often paradoxical and emergent through various formations.⁷⁸⁵ This new meta-methodology would demand 'reflective practice' or 'thinking about one's thinking' in war that would be difficult for many students to grasp. Naveh uses numerous common military terms in different ways as a postmodernist, triggering immediate confusion for those expecting the terms to retain their legacy system content. His work has been heralded, scorned, sought after, discarded, and experimented with around the globe for three decades, with significant growing interest occurring in the last decade alone.

Naveh's war 'meta-methodology' is oriented towards the operational level of warfare and also takes a purely Israeli context; their security strategy is significantly more unified than those of many western nations.⁷⁸⁶ There are many examples of Naveh's SOD being used at tactical levels as well, although usually within some overarching operational linkage such as in numerous Hirsch examples in the IDF between 1999-2006 that are provided throughout this research. However, Naveh exclusively educated senior military leaders⁷⁸⁷ on SOD which resulted in those that accepted and incorporated design to be at the high operational and national levels of authority.⁷⁸⁸ In the larger military industrial complex of western society outside of Israel, most militaries avoid teaching generals about design and instead focus on mid-level officers in a staff capacity, as the next two chapters explain.

In some ways, the relationship of general officers and education is difficult to appreciate, particularly across nations such as Israel and those in the Anglosphere. For design at least, the IDF do not promote these ideas *until* officers achieve the rank of general officer, while in militaries such as America, Canada and in Europe, design is offered at subordinate levels while generals need to prioritize other qualities and leave learning design theory to others.⁷⁸⁹ Snowden, in promoting his Cynefin model for design applications views the relationship of a designer and a general as one where designers need to learn how to talk to generals, and generals do not need to learn design theory. "If you try to sell them on the theory, or a creativity course, they

⁷⁸⁵ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 4.

⁷⁸⁶ Some political scientists might offer that Israeli national strategy is also more simplistic as their existential threat is clearly defined by regional enemies that routinely enable proxies and surrogates within the Israeli area of operations and area of interest.

⁷⁸⁷ In his first period of design education from the 1990s through 2005, Naveh largely educated Israeli colonels with sporadic access to general officers. Later, he would teach to field grade level officers in the American and Australian militaries from 2005-2013. Later still, he would teach exclusively to senior colonels and general officers from 2013 onward.

⁷⁸⁸ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 33.

⁷⁸⁹ There are of course exceptions here and multiple general officers in the American, UK, Canadian and Australian militaries take active roles in advocating design as well as perpetuating self-education therein. However, 'military design' is less featured in war colleges across the Anglosphere than other topics for the FO/GO, save exceptions such as the Israeli General Officer School in Tel Aviv.

have better things to do with their lives.”⁷⁹⁰ Snowden’s pragmatic view of design theory, educational needs of general officers, and the need for design specialists is indicative of dominant PME trends at this time. This illustrates a tension between whether the senior military leadership should change how they think or whether a design methodology can be scaled effectively across an organization without the leadership understanding the core theoretical nuances.

In a 2019 interview with this author, Naveh discusses the cultural differences between Israeli military design contexts and that of larger forces such as the American military: “There are some cultural differences between you guys and us, because in your culture...your system, the general never designs. The design is being done by his staff. In our case, the general does the design himself.”⁷⁹¹ Naveh often expresses a personal bias that *only a general can perform design*, and since Naveh himself was a general, only he could properly mentor other generals and have the status and experience to teach them. This at times would be contradicted by the success of his co-educator, Ofra Graicer who is not a general (nor male in a male-dominant profession) yet has taught design with Naveh for decades.⁷⁹² Further, Naveh’s emphasis on General Officer education from the early 2000s through the time of this writing has resulted in a larger element of senior retired or active duty Israeli officers aware of SOD rather than any group of junior subordinates at the tactical level.⁷⁹³ Despite Israeli doctrine now featuring design concepts, the only formal design education still provided in the Israeli Defense Forces is Naveh and Graicer at the General Officer School in Herzliya, part of the northern district of Tel Aviv.

It is significant to note the ambiguity of documentation on Naveh’s contributions to this military postmodernist movement as well as the challenges concerning Israeli military classification procedures and Hebrew to English translation barriers. Naveh’s work largely remains unpublished, existing predominantly in private correspondence, undated manuscripts, PowerPoint presentations, as well as a few key student monographs and proprietary items done under military contract.⁷⁹⁴ Only a few designers close to Naveh have written about him or his work, with Gracier, Ryan, Hirsch, Beaulieu-Brossard, Zweibelson and

⁷⁹⁰ Snowden, Dr. David Snowden IMDC Lecture: “The Application of the Cynefin Framework in Military Design,” 7:32.

⁷⁹¹ Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 9min19sec Day 1 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019.

⁷⁹² Ofra Graicer, Graicer audio 15OCT2019 17min04sec Day 2 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 15, 2019, 2:00.

⁷⁹³ Naveh, in personal correspondence with the author in 2010 stated that mid-grade officers such as Majors and Lieutenant Colonels might be the better audience for military design; however, in 2019 during recorded interviews in Tel Aviv with the author, Naveh reflected back on this and shifted his position back to one that the proper target audience for systemic operational design were General Officers. In 2006-2010 Naveh was shunned by the Israeli War College but accepted as a mentor and educator at the U.S. Army School of Advanced Military Studies, yet by 2019 this relationship reversed and Naveh was again working at the Tel Aviv Israeli War College while essentially banished from Leavenworth.

⁷⁹⁴ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army.”

select former students describing or transcribing his thoughts.⁷⁹⁵ Hirsch's autobiography on his IDF career includes numerous real-world examples of his struggles to apply SOD concepts in war with mixed results, as well as the institutional resistance of the modernist, traditional military reacting at the radical, disruptive ideas of postmodern design. Yet aside from Hirsch and a few other lesser known examples, few military practitioners have publicly published on military design experimentation *in combat*, leading to significant research challenges as well as a difficult narrative to demonstrate to skeptics that this mode of design thinking has merit. Hirsch himself was an early skeptic while attending OTRI in 1998-1999:

I felt that I was dealing with advanced material, but I had my doubts as to its practical applications. The methodology was indeed suited for dealing with ever-changing and adapting enemies, especially those acting in a decentralized manner, organized in cells, and learning quickly, such as terror organizations and guerilla fighters. But how would I convey these ideas to regular military units, which are based on standard operating procedures, checklists, orders and themes such as simplicity and conformity? How would they adapt to high-tempo changes such as these? Did we even have a choice, if we wanted to remain relevant?⁷⁹⁶

Weizman's extensive study of Naveh and the Israeli design experiment from 1995 through 2006 is potentially the most popular primary source material outside of direct communication with Naveh or his extremely small network of trusted design agents and practitioners such as Hirsch. However, there are concerns with Weizman's assessment of Naveh due to his own political and ideological motives for his larger book project within which the IDF and design reflect a supporting role in topic and chapter location.⁷⁹⁷ Naveh has written unpublished documents that exceed his available published work concerning design, cited frequently in this project. He also has densely formatted and highly abstract PowerPoint slide presentations⁷⁹⁸ sharing some similarity with the USAF pilot and theorist John Boyd, although once more these presentations are largely unpublished and available only

⁷⁹⁵ Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army"; William Sorrells et al., "Systemic Operational Design: An Introduction" (US Army School of Advanced Military Studies Monograph, Fort Leavenworth, Kansas, May 26, 2005), ATZL-SWV, OMB No. 0704-0188; Ketti Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006).

⁷⁹⁶ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 128.

⁷⁹⁷ Weizman, *Hollow Land: Israel's Architecture of Occupation*; Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict."

⁷⁹⁸ One example of Naveh's dense, cryptic presentation slides can be found here: Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict," 199.

through correspondence with Naveh or his inner circle of trusted design agents.⁷⁹⁹ Naveh has not supported any form of design doctrine either, advocating against it for Israel as well as any military seeking to codify design. Always an enigma, Naveh did draft up some doctrinal products for the IDF and the U.S. Army in the 2004-2005 period, perhaps in an early effort to gain momentum by appeasing the institutional thirst for design in doctrine.⁸⁰⁰

Naveh, like many other military disruptive thinkers and visionaries before him such as Boyd as well as other military change agents like Napoleon, has left the bulk of professional writing to others. While Naveh's doctoral thesis exists as a published book, it does not feature a clear, methodical explanation of his theory on design. The 1996 book *In Pursuit of Military Excellence* is a challenging read that features a trail of intellectual 'breadcrumbs' through difficult terminology, dense prose and extensive footnotes to show some of his intellectual journey toward creating military design.⁸⁰¹ In Ryan's recollection of his time with Naveh during the 2005-2009 period they worked together, he had "thus far refused to put his theory into writing...he was reluctant to document a practice that was still evolving and defied proceduralization."⁸⁰² Ryan likely was unaware of Naveh's draft SOD doctrine titled *Designing Campaigns and Operations to Disrupt Rival Systems* written in 2005 for TRADOC's Future Warfare Studies Division, as that document was not widely circulated and remains unpublished to this day.⁸⁰³

In the 2005-2010 period for SOD, Naveh's work was most accessible through student monographs largely produced at the U.S. Army School of Advanced Military Studies where multiple attempts were made to clearly explain Naveh's ideas.⁸⁰⁴ Naveh did join with some co-authors for a contracted monograph attempting to

⁷⁹⁹ Many of the documents acquired by this author occurred in direct communication with Naveh, Graicer, or Butler-Smith from 2010-2019. All of these documents are addressed in detailed footnotes and this research's bibliography.

⁸⁰⁰ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

⁸⁰¹ Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*.

⁸⁰² Ryan, "A Personal Reflection on Introducing Design to the U.S. Army."

⁸⁰³ Graicer provided this document to the author in 2020 after Naveh discovered it in storage. These unpublished, largely uncirculated documents present a serious challenge to academic study of military design. The issues with design doctrine and similar 'version' concerns is articulated in the next two chapters. This makes for a challenging landscape for any literature review of design.

⁸⁰⁴ Sorrells et al., "Systemic Operational Design: An Introduction"; Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative"; Jelte Groen, "Systemic Operational Design: Improving Operational Planning for the Netherlands Armed Forces" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); Barrett Bernard, "Systemic Operational Design: Bringing Efficacy to the Operational Level of War" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, February 2007); Victor Delacruz, "Systemic Operational Design: Enhancing the Joint Operation Planning Process" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, May 2007); Craig Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); Robert Dixon, "Systems Thinking for Integrated Operations: Introducing a Systemic Approach to Operational Art for Disaster Relief" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006).

explain military design as an alternative to the U.S. Army publication of 'Army Design Methodology' in 2010, although this document was not widely published nor embraced by advanced military schools such as those at Fort Leavenworth.⁸⁰⁵ In recent years, he has relied on his primary design educational partner to promote his latest ideas and opinions as well as her own contributions in her journal articles, conference engagements and academic exchanges.⁸⁰⁶ Naveh has as of 2020 apparently begun writing once more, although at this point it is unknown whether he will be persuaded to publish any new ideas formally.⁸⁰⁷

Additionally, standard Israeli military practice largely restricts from public view most documents and doctrine for security reasons. On Israeli design doctrinal products, very few are available or circulated, with some translated selections and personal recollections even more scarce for research. There is one exception to this with an English translated version of Israeli military design doctrine that was published in 2015 and available to the public in circulated hard copies, yet still a difficult document to access. Neither Naveh nor Graicer were consulted during the writing and both theorists reject the utility and logic of the work, making the research value of this one Israeli design doctrinal publication limited and difficult to assess.⁸⁰⁸ This particular Israeli doctrine remains unclassified and in English, yet still is in low circulation and largely unknown to English-speaking audiences. Hirsch's autobiography, only recently published in 2016 and a decade after the controversial and highly politicized Second Lebanon War (where Naveh's SOD would be criticized and linked directly to operational failures) would be one of the few primary sources demonstrating active SOD application within the IDF publicly presented.

Hirsch's autobiography, published in 2016 would be a decade late in advocating the value of OTRI's new postmodern methodology, Naveh's ideas and Hirsch's own direct applications of design against real-world security challenges as set within postmodernity. This delay in part was caused by IDF senior leadership censorship of Hirsch in what became a lengthy character assassination and political battle on assigning operational blame in the fallout from the Second Lebanon War

⁸⁰⁵ The author, while a student at SAMS in 2010-2011, received a copy of this monograph from Naveh outside of the program due to it not being accepted for the current 2010-2011 military design curriculum. Naveh disseminated a stack of these books to the few student seminars willing to meet with him outside of class and off campus. See: Shimon Naveh, Jim Schneider, and Timothy Challans, *The Structure of Operational Revolution: A Prolegomena, A Product of the Center for the Application of Design* (internally produced publication: Booz Allen Hamilton, 2009).

⁸⁰⁶ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)"; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design."

⁸⁰⁷ Ofra Graicer to Philippe Beaulieu-Brossard, Ben Zweibelson, and Christopher Papparone, "Re: [Non-DoD Source] Panel Participation," February 14, 2020. Personal correspondence from Graicer over e-mail.

⁸⁰⁸ Graicer confirmed this in personal correspondence with the author in November 2019. See: Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels" (Israeli Defense Force Training and Doctrine Division, November 2015).

outcomes. This conflict resulted in great damage to the opposing Palestinian forces yet it also created a firestorm of negative media coverage and political outrage, to include the SOD theories and language used to inflict said combat damage. Around 2002, Hirsch would initiate Operation Defensive Shield planning for the Israeli CENTCOM headquarters by conducting systemic operational design sessions:

At Kibbutz Ma'ale Hahamisha we held a systemic operation design (SOD) session, which is a form of situational assessment and knowledge-development meeting. It was chaired by J&S [Judea and Samaria] Division Commander Brigadier General Benny Gantz, who would later become the IDF's twentieth [IDF Chief of General Staff]. I led the development of the toolbox for realizing the principles of leveraging, and called this approach TSSBBE, standing for **tightening** (the grip around the Palestinian Authority territories), **shaping** (engineering projects intended to improve defenses, construct new roads, block routes, "re-obstacalize" the area, and encircle towns that served as launch sites for terror activities), **stings** (short-term raids with small- and low-signature forces), **butts** (heavy, high-signature raids, intended to grab and hold areas for longer periods of time), and **easing** (so as not to drag the entire Palestinian population into a full-scale popular struggle, there was a need to funnel pressure and make it easier on those members of the population who were not involved in terror.⁸⁰⁹

Hirsch would provide some of the most detailed examples of SOD real-world application set within an exceptionally challenging counterinsurgency campaign. Unfortunately, it ultimately would also end his career. Hirsch's broad narrative is also one of outrage and retribution against character assassination, political infighting at senior levels of the IDF, and what Hirsch saw as a total misunderstanding of SOD as well as the value Hirsch saw in applying it to the operational and tactical challenges of fighting a complex counterinsurgency opponent. His and select published interviews and articles by Naveh and Graicer are the minority counter-narrative⁸¹⁰ to much more dominant arguments that SOD had demonstrated great failings in the Second Lebanon War whether due to logic, terminology, inculcation or application.⁸¹¹ Regardless, the Israeli military design movement within a generation

⁸⁰⁹ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 163.

⁸¹⁰ Naveh, Interview with BG (Ret.) Shimon Naveh; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design"; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Shimon Naveh, "Northern Storm: A Narrative of Reflective Command, Systemic Learning, and Operational Design 2002-2005."

⁸¹¹ Weizman, *Hollow Land: Israel's Architecture of Occupation*; Vego, "A Case Against Systemic Operational Design"; Adam Elkus and Crispin Burke, "Operational Design: Promise and Problems," *Small Wars Journal*, 2010, 16-17.

from the mid-1990s through 2015 spread across the western network of military partners and continues to make new, provocative ripples upon international cognitive waters of military praxis in the twenty-first century.

Critics of SOD as well as Naveh's status of 'design movement father' frequently argue that many innovators and visionaries introduced complexity theory and creativity for military application well before Naveh did so in the late 1990s,⁸¹² or that Naveh confused militaries by introducing incompatible and superfluous disciplines.⁸¹³ Some design researchers also suggest that Naveh owes a great deal of design theory to the earlier work of Boyd.⁸¹⁴ However, not a single previous military innovator introduced a formal alternative methodology that disrupted an existing military thinking frame and provided a completely different manner to make sense of complex reality in war on the scale that Naveh and his contemporaries did by the early 2000s in Israel.⁸¹⁵ Naveh would position war in postmodernity, demand a postmodern war style, and provide postmodernism as the theory of choice for dismantling the modern war frame in order to generate transformation and alternative war logic.

Although SOD had many developmental problems as well as political and social issues during the 2000-2005 first integration period for the IDF, it was the very first complete offering of an alternative decision-making methodology to the western dominant "way" for framing and making sense of militaries in war.⁸¹⁶ Naveh and his small group of intellectual military professionals established what would later be called the Operational Theory Research Institute or OTRI. In this new think tank, military and civilian interdisciplinary scholars developed a system of theory as well as an alternative methodology that transcended and, in many ways, entirely disrupted formal military planning.⁸¹⁷ Designers using SOD tended to encounter challenges not just in applying design to complexity, but also in later delivering those SOD design outputs into the hands of operational planners expecting clear and explicit concepts. Hirsch reflects on the new education he received at OTRI in the late 1990s:

⁸¹² Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?"; Weizman, *Hollow Land: Israel's Architecture of Occupation*, 212.

⁸¹³ Milan Vego, "A Case Against Systemic Operational Design," *Joint Forces Quarterly* 53 (quarter 2009): 70-75; Adamsky, "The Israeli Revolution in Military Affairs," 99-101; Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War."

⁸¹⁴ van der Veer, "The Rise of Design: Why an Innovative Concept Is Emulated in Armies around the Globe," 25-26.

⁸¹⁵ Jeb Downing, "White Paper: Introduction to SOF Operational Design" (Unpublished manuscript in author's private collection, January 5, 2015), 3-5; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?," 24-26.

⁸¹⁶ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army."

⁸¹⁷ Downing, "White Paper: Introduction to SOF Operational Design"; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?," 24-26; Aaron Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare* (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2013), 12-13.

The investigative method I learned to implement systemically analyzed the gaps between my system and that of my rival, in a relevant context. These gaps necessitated new definitions, sometimes revolutionary. Here the need for new conceptualization may be crucial. Many times we find that the existing terminology is not suitable and cannot appropriately describe reality and the measures needed to face it, so new and updated terms are born. It is impossible to fight current campaigns using the terminology of past wars. New language creates new realities, and new realities create new terminology.⁸¹⁸

SOD was radical then as it remains today in its third evolution as employed by Naveh and the Israeli Defense Forces since 2013.⁸¹⁹ SOD, in all three evolutions thus far in its twenty-five year existence seeks to appreciate complexity and emergence in complex systems by freeing itself of all roots from traditional military theory and practice. It rejects formalized analytic and linear planning as wholly insufficient for militaries except in the simplest of contexts.⁸²⁰ Although Naveh has advanced the framework over the years, the core concepts of SOD remain decidedly postmodern and multi-disciplinary, with a strong emphasis on crafting unique and highly tailored concepts for conflict application. There are no 'one size fits all' approaches, and mass-production through mechanization is furthest from the minds of those practicing Naveh's design concepts in security contexts.

This reinforces a common theme in postmodernism echoed by Kilduff and Mehra: "We emphasize a postmodernism that is, above all, eclectic rather than exclusive. Thus, our postmodern perspective seeks to include and use techniques, insights, methods and approaches from a variety of traditions."⁸²¹ The postmodern concepts, despite losing popularity in late twentieth century capitalistic culture, appear to thrive in a minority of military circles where "military use of theory for ends other than those it was meant to fulfil is not dissimilar to the way in which progressive and transgressive theoretical ideas were applied in organizing post-modern management systems in business and as efficiency indicators in technological culture."⁸²² Perpetual mixing of methods with experimental design constructs is the antithesis to structured, indoctrinated military practices but essential to SOD.

SOD introduced exotic and highly tacit concepts from post-modern philosophy such as 'rhizomes', 'assemblages', 'problematization', and

⁸¹⁸ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 128.

⁸¹⁹ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)."

⁸²⁰ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 78–79.

⁸²¹ Martin Kilduff and Ajay Mehra, "Postmodernism and Organizational Research," *Academy of Management Review* 22, no. 2 (1997): 457.

⁸²² Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict," 211.

'interiority/exteriority'⁸²³ that previously could only be located in the dense and abstract literature of post-modernists like Deleuze and Guattari.⁸²⁴ These difficult concepts are hardly widespread in the postmodern military, with what Beaulieu-Brossard aptly terms a 'minority of a minority of a minority' are finding inspiration in these ideas.⁸²⁵ SOD would incorporate Deleuze and Guattari's concepts of smooth versus striated spaces, drawing directly from war metaphors the postmodernists demonstrate in their writings with examples of the game of chess and western, striated and codified war space, and that of the Chinese game of Go, which operates under smooth space being territorialized or deterritorialized in a fluid, emergent manner.⁸²⁶ Naveh, cited in Weizman's study of Israeli design thinking in warfare, stated that "several of the concepts in *A Thousand Plateaus* became instrumental for us [in the IDF]...allowing us to explain contemporary situations in a way that we could not have otherwise explained....We wanted to confront the "striated" space of traditional, old-fashioned military practice with smoothness."⁸²⁷ Graicer, in detailing the concept within Israeli military application explains:

For an operational commander, then, systemic thinking involves the ability to think and act in two modes: inwardly (the way the system is organized, the relationships between its components, its ontology), and outwardly (the way one determines how the system relates to its ecology, what defines these relationships, and what determines its ontological manifestation).⁸²⁸

In SOD education, there frequently is tension over the obtuse and challenging language as well as Naveh's philosophical approach that demanded novelty in war required learning new words and using them in new contexts.⁸²⁹ This is potentially another reason why Naveh's style of infusing postmodern theory and terminology that are epistemologically dissimilar and often paradoxical to contemporary western industrialized thinking is not found in neither most other military adaptations of Naveh's design, nor in most any commercial design as covered in the

⁸²³ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 38-42; Naveh, "Northern Storm: A Narrative of Reflective Command, Systemic Learning, and Operational Design 2002-2005"; Ben Zweibelson, "Three Design Concepts Introduced for Strategic and Operational Applications," *National Defense University PRISM* 4, no. 2 (2013): 87-104.

⁸²⁴ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 80; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020, 1-30; Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict," 200-216.

⁸²⁵ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020, 4.

⁸²⁶ Deleuze and Guattari, *A Thousand Plateaus*, 352-53.

⁸²⁷ Weizman, *Hollow Land: Israel's Architecture of Occupation*, 200-201.

⁸²⁸ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 37.

⁸²⁹ Jeb Downing, "White Paper: Introduction to SOF Operational Design" (Unpublished manuscript in author's private collection, January 5, 2015); Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 1-5; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016.

previous chapter. SOD's dense language and graduate-level educational approaches would prove to be strengths as well as weaknesses in Israel and elsewhere. Naveh's inspiration from postmodernists such as Derrida would have him adapt postmodern positions on the fluid nature of language, where "languages are *sown*. And they themselves pass from one season to another," as Derrida explains.⁸³⁰ This makes for a perspective on theory, terminology, inter-disciplinary design and war something in strong contrast to the scientific war logic of modernity. Naveh's own meta-methodology at times appears incommensurate with its own theoretical demand to use systems logic (from a functionalist paradigm required of a majority of scientific theory)⁸³¹ while also employing postmodern theory that acts to deconstruct and disrupt the very logic of systems theory. Hirsch again provides necessary practical examples of SOD by how he would create new language and terminologies for SOD concepts within the IDF, but also face institutional resistance or rejection of these ideas:

The more I delved into this [Systemic Operational Design] process, the more I found myself inventing new and exciting words and phrases to describe and define reality- both the threat and the operational response. With time, some of my terms became a huge success and led to the introduction of meaningful content into the new form...There were, of course, failures. I coined the term 'snailing' to describe an operational mode used by special forces, where the objective is not always to engage the enemy, but to disengage, dig in, and lie low- like a snail recoiling within its shell- and carry out a designated mission. This was not typical of "regular" military forces whose default mode of operations was to engage the enemy and reach a decisive victory. Though the tactic was extremely successful, the terminology was not: people want to be lions, not snails, and the term elicited a fair amount of objection.⁸³²

Aside from the dense language demands and difficult theory, other critiques made SOD a difficult transformational pill to swallow. Naveh's own personal convictions on design not ever able to be clearly articulated in any form of structured policy, doctrine, or even program for curriculum makes SOD problematic for military institutions that have entire bureaucratic forms for the curation of military knowledge reliant on such ways. Critiques of Naveh's first form of design as provided by OTRI in the late 1990s through 2005 declared the concepts not just too theoretical and difficult for the IDF to assimilate, but conceptually still far too

⁸³⁰ Derrida, *Of Grammatology*, 235.

⁸³¹ Linda Putnam, "The Interpretive Perspective: An Alternative to Functionalism," in *Communication and Organizations: An Interpretive Approach*, ed. Linda Putnam and Michael Pacanowsky (Beverly Hills: Sage Publications, 1983), 40-45.

⁸³² Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 129.

experimental to implement into organizational practice in such a short period of time.⁸³³ These tensions will be explored further in the various iterations of SOD meta-methodology throughout this chapter.

In the period of the 1990s through the early 2000s in Israel, there are mixed signals on whether the IDF wanted different military theories and practices, or whether the legacy concepts merely needed to be maintained and refreshed. Graicer described as a period where “the IDF at the time was not hearing drums of war and world attention laid elsewhere.”⁸³⁴ This may be a debatable retrospect in that other Israeli strategists found that period to be one of internal frustration and fear of increased nation-state as well as surrogate regional threat due to post-1990 developments. Beaulieu-Brossard remarks that the second intifada period from 2000-2005 sustained an “emergency atmosphere that proved unfertile for theoretical nuances” such as SOD implementation across the IDF.⁸³⁵ Hirsch also would reflect on the institutional resistance of the IDF toward the radical proposals of SOD within a transitional period where traditional methods were under assault and the defenders of these ‘tried and true concepts’ lashed back at obtuse language and experimental war theories:

There were many who did not recognize the fact that remaining relevant necessitated changing and reshaping the language. Not everyone understood the role language has so often played in revolutionizing a field. There was much ignorance and alienation, but I perceived this partly as my own failure. I should have led the revolution using different methods, which were more low key, quiet, sophisticated, and subversive. I should have led the train of change to its destination without sounding such a loud whistle and awakening those who prefer to sleep and wake up at the station.⁸³⁶

Regardless, the experimental form of design that was theoretical would be soon ushered into battlefield practice, potentially with too much haste and not nearly enough consideration for the sophistication of the theory and the difficult institutional barriers for changing the IDF in such fundamental cognitive ways.⁸³⁷ SOD would be implemented with some of the first examples of SOD utilization occurring in 2002 where Colonel Aviv Kochavi,⁸³⁸ a Naveh student of SOD, would

⁸³³ Adamsky, “The Israeli Revolution in Military Affairs,” 99–101.

⁸³⁴ Graicer, “Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD),” 24.

⁸³⁵ Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2020, 13.

⁸³⁶ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 129–30.

⁸³⁷ Adamsky, “The Israeli Revolution in Military Affairs,” 99–100; Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 212–15.

⁸³⁸ English variations of his name spelling include ‘Kokhavi.’ See also: [Yagil Henkin, “On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War,” *Defence Studies* 14, no. 3 \(2014\): 321.](#)

reframe his infantry brigade's urban operations when battling enemy forces in Balata in 2002.⁸³⁹

In this operational example, Kochavi termed his design construct 'fractal geometry' and inverted the traditional battlespace so that his infantry would maneuver only through the buildings and avoid the treacherous, booby-trapped streets that the enemy expected them to maneuver down. Using the metaphor of a worm eating its way through the apple, Kochavi demonstrated a useful early example of Israeli forces using SOD's disruptive ideas and achieving operational success. His unit did not suffer a single casualty aside from one accidental friendly injury due to alleged sniper misidentification in what was expected to be a very costly operation in blood and sweat.⁸⁴⁰ Between examples by Kochavi and Hirsch's recollections of using SOD in war, these IDF experimentations would become the dominant case studies for military design, as well as the primary targets of disputing design's utility in war by opponents of military design.

SOD, both in its original construct as well as in its latest (third) evolution catered to educating general officers or senior field grade officers in the Israeli Defense Forces as a form of inquiry that attempted to transform abstractions and novel concepts into an iterative series of cognitive frames.⁸⁴¹ Each would progressively lead towards concrete understandings that converged towards significant and emergent design deliverables. Weizman, in his conclusion over the first phase of SOD in the IDF, remarks: "critical theory provides the military with a new language with which it can challenge existing military doctrines, break apart ossified *doxas* and invert institutional hierarchies, with their 'monopoly' on knowledge...the language of post-structuralist theory was used to articulate a critique of the existing system, to argue for transformations and call for further reorganizations."⁸⁴² The work of Ranciere would echo this as yet another Naveh inspiration, where this 'old master' mode of controlling and directing all knowledge transfer from teachers to students would make the next generation of a discipline or community of practice entirely dependent on the 'masters' that would subsequently enforce the ontology and epistemology of the dominant frame.⁸⁴³ Ranciere would promote emancipation from this by destroying the 'old master' relationship to insert an 'ignorant schoolmaster' frame of exploration and nonlinear, emergent realization through postmodern ways.⁸⁴⁴ Using these new frames and operational concepts, the

⁸³⁹ Eyal Weizman, "Lethal Theory," Log 7 (Winter/Spring 2006): 53–77; Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict."

⁸⁴⁰ Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War," 322.

⁸⁴¹ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 25–26.

⁸⁴² Weizman, "Walking through Walls: Soldiers as Architects in the Israeli/Palestinian Conflict," 215.

⁸⁴³ Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, 21.

⁸⁴⁴ Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*; Zweibelson, "The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts."

generals could move between cognitive frames and help transform their organizations as well as influence future states in the complexity of war.⁸⁴⁵

Naveh's approach to SOD consisted of blending previously unrelated disciplines into a melting pot of concepts for military applications in ways that may initially appear counterintuitive. Nesting systemic thinking with postmodern philosophy in order to generate novel military perspectives on strategy, organizational form and creative action may rest in opposition with traditional military methodologies, doctrine and epistemological norms. This is not to suggest that users of the modern military war frame have not utilized complexity theory, or that architectural designers have not experimented with mixing systems thinking with sociology. Rather, Naveh represents the first of the military profession to formally incorporate multiple disciplines into an alternative sense making and decision-making, one that operates distinctly and independently of the legacy framework for planning military activities coherently.

The first SOD methodology originally consisted of seven iterative stages. Designers would conduct systems framing, and then frame a 'rival rationale' which later would be renamed 'system of opposition'.⁸⁴⁶ They would then follow a familiar design epistemological process of prototyping and experimentation. Naveh termed this as: "reframing operational heuristics and learning meta-theory...reframing initial system frame...problematization."⁸⁴⁷ This combination of systems theory and the emphasis on postmodernism and alternative paradigms creates very difficult intellectual paradoxes for SOD theorists to navigate. The lone case study of Naveh conducting this process is an unpublished self-written report by Naveh. He mentored a small team of Australian commandos to execute design; this example is further explored in chapter six under the Australian sub-sections as well.

Designers would move to reframe their 'strategy for transformation', and then conduct an operation framing as their last design stage. SOD's objective is "to deconstruct all assumptions, and to design the problem, metaphorically, and literally through mapping the system of the 'rival.'" ⁸⁴⁸ Although this chapter is not intended to be a by-sequence explanation or primer for 'how to do SOD', the concepts are explained briefly below and in the next figure. Additionally, outside of a small population of SOD practitioners that are largely Israeli Defense Force professionals, there are only a few documents that show any sort of detailed sequence of conducting design in Naveh's style, with most of them unpublished and largely uncirculated essays and PowerPoint slides done by Naveh.

⁸⁴⁵ Naveh, "Between the Striated and the Smooth: Asymmetric Warfare, Operational Art and Alternative Learning Strategies," 4.

⁸⁴⁶ In personal correspondence, Graicer recalled how Naveh originally used the term 'rival rational' for 1995-2006, and when they were working with the Australians in the 2006-2009 period Graicer would propose this new term instead.

⁸⁴⁷ Shimon Naveh, "The Australian SOD Expedition: A Report on Operational Learning" (Unpublished manuscript, December 10, 2010), 7.

⁸⁴⁸ Beaulieu-Brossard, "Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts," 6.

Designers would need to configure 'frames of understanding' first so that they were constructing a customized 'systemic inquiry' that was specific to their context; thus any SOD doctrine could not establish a design template. The template itself is crafted by the designers. SOD would require students to "construct frames of understanding about emerging ecologies and complex phenomena."⁸⁴⁹ Then, students would propose the conceptual and aesthetic artifacts resulting from their systemic inquiry into the security challenge. This would involve an iterative 'pattern of self-creating' where the design learning "regulated observation and observed systems in emerging strategic contexts."⁸⁵⁰ From there, Naveh's facilitators encouraged students to create a 'regime of systemic adaptive learning' where cognitive movement between conceptual frames would be realized through SOD's "operationalization" of design into a new plan of action. Each episode was unique, in that Naveh rejected traditional educational forms and substituted postmodern alternatives such as Ranciere's *Ignorant Schoolmaster* approach that centered learning and discovery entirely upon the students, with no 'master' pulling them along or demanding select paths to take.⁸⁵¹ As Naveh would perpetually frame and reframe his own understanding of SOD, each of the primary sources created largely from Naveh across several decades not only use different variations on core SOD themes, but Naveh can be observed as conducting SOD on how to explain what SOD is, how to implement it, and how to teach it.

Naveh's unpublished TRADOC doctrinal draft of SOD reads like a presentation where each part of his SOD geometric graphic from Phase 1 (see below) gets several dense paragraphs of Naveh prose, accompanied by lists of definitions explaining every major term in the corresponding paragraph. Even in this linguistic fidelity, the document is entirely unclear on how one actually went about doing any of the things such as "the purpose or role of operation framing is to explain the space continuum of the positioning of forces by providing the meta-frame for key ideas on how the operation will unfold."⁸⁵² Clearly, the document acts as a point of clarification for a designer already familiar with how and why SOD is performed, and not at all a document to be read by a SOD beginner embarking on their own attempt to 'do design.' Lastly, Naveh and Graicer readily admit that they approach design practice as artists, changing how they do it frequently and avoiding any sort of 'paint by number' stability otherwise sought out by military professionals desiring some doctrinal form.

Systemic Operational Design Figure (1995-2005 Phase 1):⁸⁵³

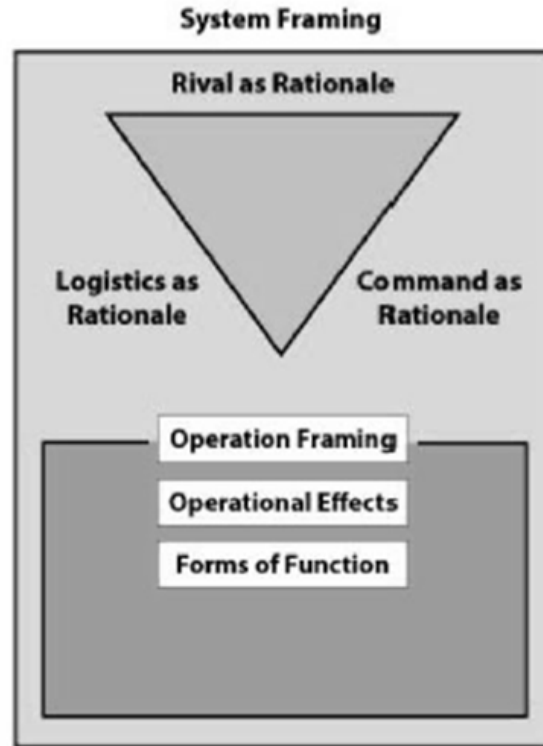
⁸⁴⁹ Naveh, "The Australian SOD Expedition: A Report on Operational Learning," 6.

⁸⁵⁰ Naveh, 6.

⁸⁵¹ Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, 14–15.

⁸⁵² Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 20.

⁸⁵³ Graphic acquired from: <https://medium.com/@aaronpjackson/a-brief-history-of-military-design-thinking-b27ba9571b89>



When Naveh and other SOD theorists coached and led design praxis, they described the methodology as “praxis of discovery or the perpetual cognitive operation of spiraling from *description* through *problematization* to *synthesis*.”⁸⁵⁴ Again, Naveh appears to be combining theory on wicked problems and complexity from theorists such as Rittel⁸⁵⁵ with entirely distinct concepts in postmodern philosophy,⁸⁵⁶ creating some rather difficult intellectual demands for SOD theorists to navigate. He offers a description of the designer journey towards “meta-cognitive awareness” where designers move between an emerging ontological awareness and the designer’s reflection upon their institution’s epistemological choices.⁸⁵⁷

This design emphasizes transformative qualities upon not just the ways of which an organization might craft new strategic options, but also deeply within the core institutional frame to challenge one’s institutional outlook upon war. Naveh observes that the first step of self-transformation of one’s own worldview represented the most demanding part of SOD.⁸⁵⁸ The first ‘step’ in SOD demands ‘system framing’ where SOD emphasizes a rationalization of the context using unique epistemic conditions; it also requests an examination of “conceptual tensions

⁸⁵⁴ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 9; Graicer, Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General, 33.

⁸⁵⁵ Protzen and Harris, The Universe of Design: Horst Rittel’s Theories of Design and Planning, 110–17.

⁸⁵⁶ Deleuze and Guattari, A Thousand Plateaus; Michel Foucault, “Discourse and Truth: The Problematization of Parrhesia” (lecture, University of California at Berkeley, November 1983), http://foucault.info//system/files/pdf/DiscourseAndTruth_MichelFoucault_1983_0.pdf.

⁸⁵⁷ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 10.

⁸⁵⁸ Naveh, 11.

between prevailing paradigm and the context in emergence,”⁸⁵⁹ creating a rather demanding intellectual endeavor well beyond any sort of traditional military planning method. The word ‘tension’ is not meant in a physics-oriented or objective sense; rather the postmodern framing of tensions for Naveh draws from the postmodern perspective of a fluid reality where signs, symbols, artifacts and codes interact within a plurality of forms and functions. Jullien, a postmodernist Naveh credits with some of the ‘sign’ theory found within SOD, provides in his study of Chinese and Western modes of thinking this example:

We know that every culture is plural, as much as it is singular, and that it is ceaselessly mutating; that it is led to homogenize itself at the same time as well as re-identifying itself, that it conforms but also resists; imposes itself as the dominant culture while, at the same time, provoking dissent against it. Official and *underground*: the cultural is always being unfolded and moving faster, but only between these two movements.⁸⁶⁰

These difficult postmodern concepts make for a challenging transition of military planners trained exclusively in modern analytic logic to begin to embrace postmodernism and war. In Naveh’s model for design education, some instructors estimated that ten to twenty percent of a typical SOD class would fail to achieve course objectives, largely due to those students being unable to let go of a ‘career planner’ mindset or due to academic limitations preventing them from processing SOD at the graduate level of instruction.⁸⁶¹ Some insisted on viewing time, reality, and the linkages of events as linear, causal, able to be analyzed and objectified so that war is rendered into modern logics exclusively. When Naveh offered postmodern alternatives such as Jullien’s disruption of time, the ‘silent transformations’ of reality where emergence is not dependent on individual observations but “infinitely gradual and not local but global, unlike action, and thus do not differentiate themselves, nor are they noticed in consequence... transformations are silent in a still more insidious...way, supported by our own very usage of language.”⁸⁶² To move from modern to postmodern logic is sometimes a death-defying leap for military professionals and not for widespread participation.

Naveh used postmodern theory to use ‘narrative’ in an entirely different manner than used in the modern analytic military frame. Any illusion of maintaining ‘objectivity’ was challenged, deconstructed and retired in favor of taking an interpretivist stance where, as White explains, “the narrative is a vehicle rather than

⁸⁵⁹ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 4–7.

⁸⁶⁰ Francois Jullien, *The Silent Transformations*, trans. Krzysztof Fijalkowski and Michael Richardson (New York: Seagull Books, 2011), 25–26.

⁸⁶¹ Downing, “White Paper: Introduction to SOF Operational Design,” 11–13.

⁸⁶² Jullien, *The Silent Transformations*, 98.

in the way that Morse code serves as the vehicle for the transmission of messages by a telegraphical apparatus.”⁸⁶³ SOD demanded systemic logic where the content of the discourse “consists as much of its form as it does of whatever information might be extracted from a reading of it...narrative utilizes other codes as well and produces a meaning quite different from that of an chronicle.”⁸⁶⁴ This postmodern stance requires designers to abandon functionalist assumptions on analytic objectivity concerning how the various stakeholders interact within war. This takes on a logic that must be tailored, constructed each time with considerable introspection and critical realization of one’s own mental framing of what war is or is not. This also frustrates the military planners seeking identification of a familiar, definable ‘problem’ that already has a corresponding ‘solution’ in the military cognitive toolbox maintained by contemporary doctrine and best practices.

Although a minority would never make it past the initial challenge of critical self-reflection, those students that did were quickly moving “through the crack in the wardrobe into Narnia”, as Butler-Smith described when dedicated design students would suffer through dense philosophical writings to become able to realize their own frame limits and move beyond.⁸⁶⁵ Once a designer moved to mindfulness, they could “transform their learning...transform their institutional organization...transform the observed ecology or environment.”⁸⁶⁶ The emphasis in this military design rested not in the solution, but in the learning that occurred in the journey each design practitioners reflexively self-examine the limits of their own cognitive frame in order to explore novel opportunities and entirely unique strategic considerations.⁸⁶⁷

To accomplish this, SOD emphasized a rigorous educational journey that later would be criticized as too abstract, dense, and elitist.⁸⁶⁸ Naveh’s original SOD again featured seven phases that would together comprise a ‘learning system’ for the students.⁸⁶⁹ Students of Naveh’s original design philosophy had to embrace a massive range of disciplines and read deeply into often abstract, poorly understood and frequently radical literature. The intellectual demands of SOD were extensive and likely a shock to most military professionals previously conditioned to a more mechanistic, reductionist mode of decision-making.⁸⁷⁰ Naveh would shift design students away from what Ranciere termed the ‘old master’ educational relationship and ‘emancipate’ their learning so that they were in control, moving in new

⁸⁶³ White, *The Content of the Form*, 41.

⁸⁶⁴ White, 42.

⁸⁶⁵ Butler-Smith, “Operational Art to Systemic Thought: Unity of Military Thought,” 72.

⁸⁶⁶ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 11.

⁸⁶⁷ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 15:19.

⁸⁶⁸ Vego, “A Case Against Systemic Operational Design,” 69–71; Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 214.

⁸⁶⁹ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 33–38.

⁸⁷⁰ Mintzberg, Raisinghani, and Theoret, “The Structure of ‘Unstructured’ Decision Processes,” 134.

directions and entering a postmodern mode of thought and reflection concerning andragogy of war and design.⁸⁷¹

SOD asks the designer to “rigorously investigate the significance of different values, goals, and practices between the rival and oneself to identify connections and logical relationships within the system.”⁸⁷² This not only required significant dedication, intellect and time, but it also demanded an expansive vocabulary that would frequently sour the experience of those on the receiving end of SOD deliverables. According to Graicer, “SOD methodology is both the product and the process- it generates paradigm (guiding frameworks) that allow performance while constantly challenging these frameworks, through which new trends are perceived. By doing so, it allows the *creation* of the box as well as the process of *thinking outside the box*.”⁸⁷³

For a period, some would cast military designers as ‘big brain’ and ‘ivory tower’ activities far removed from the gritty reality of which most military planners and strategists had to deal with on day-to-day affairs. There also appear to be major institutional barriers to finding and developing these exceedingly rare mental capabilities in large, industrial bureaucracies of modern militaries.⁸⁷⁴ Despite this criticism, Naveh and SOD educators recognized and even expected student frustration, as well as a majority of military professionals to essentially lack the intellectual rigor to survive the transformation.⁸⁷⁵ SOD was then and continues today to be “a lightning rod for controversy...[and] never fails to generate a lively discussion from those that know of its existence and purported use.”⁸⁷⁶

SOD expected student self-transformation to remain the most difficult educational challenge for the instructors to facilitate, and for the design students to experience. In Naveh’s unpublished reflections on teaching SOD as well as select interviews, he frequently discussed the process of design students experiencing a growing frustration, usually indicating to Naveh that they were “close to *cognitive culmination*...[leading] to an increase in meta-cognitive awareness.”⁸⁷⁷ Design teams undergoing SOD education would be observed to have mental exhaustion, and often only after iteratively failing in the SOD process would they achieve some “moment of illumination” after experiencing a “state of deep frustration.”⁸⁷⁸ In 2004-2006, some would not bother with learning SOD, with many Israeli officers at the time of Naveh’s grand experiment either finding little precious time to dedicate to learning

⁸⁷¹ Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, 7–20.

⁸⁷² Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 10.

⁸⁷³ Graicer, 33.

⁸⁷⁴ Adam Elkus and Crispin Burke, “Operational Design: Promise and Problems,” *Small Wars Journal*, 2010, 15.

⁸⁷⁵ Naveh, Interview with BG (Ret.) Shimon Naveh, 4.

⁸⁷⁶ Downing, “White Paper: Introduction to SOF Operational Design,” 13.

⁸⁷⁷ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 13.

⁸⁷⁸ Naveh, 17.

such challenging concepts, and many others believing it to be “utter nonsense”.⁸⁷⁹ SOD’s simultaneous demands of abandoning much of one’s previous military expertise and experience coupled with the highly sophisticated and dense literature comprising the new design foundations appeared to limit the quantity of student interest as well as those able to make the intellectual pilgrimage.

For SOD educators applying the concepts in the classroom, it seemed that only after students consciously complete a cognitive breakout could they coherently engage in “the cognitive exploitation which concerned revisiting the conceptual products constructed in the course of the previous days.”⁸⁸⁰ This element of deep frustration and self-transformation likely created some significant barriers for how Naveh and his team of design educators intended to transform the larger Israeli Defense Force, as well as subsequent experimentation across western strategic partners and allies.⁸⁸¹ The ‘reflective learning’ process for SOD utilizes a “thesis-anti-thesis-synthesis dialectic”⁸⁸² where designers iteratively play devil’s advocate to challenge design biases and experiment in theorizing and then inquiring into the system while learning.

Naveh would continue through the various incarnations of his SOD approach from the 1990s through 2019 to emphasize ‘postmodern discourse’⁸⁸³ and disagreement between designers on a team as an important yet mentally exhausting way to break free of self-imposed mental limits, as Tsoukas theorizes on for new knowledge construction.⁸⁸⁴ Naveh is more direct in presenting this with: “People think, ‘if you are my friend...you are my friend. You will support me! No, no...no. When there is a conflict of interest in a discussion, [pounds table] I will depose you! Because I am your friend, I know you.”⁸⁸⁵ Naveh seeks the deep critical reflection that people with commonality can use to foster debate, disagreement, and discourse to determine beyond the limits of their current frames. An epistemological interpretation of this first SOD methodology from 1995-2005 practice is depicted below based on the author’s synthesis of SOD research and study.

Figure of Author’s Interpretation of Initial 1995-2005 SOD Epistemology:

⁸⁷⁹ Matt Matthews, “We Were Caught Unprepared: The 2006 Hezbollah-Israeli War,” *The Long War Series* (Fort Leavenworth, Kansas: U.S. Army Combined Arms Center Combat Studies Institute Press, June 29, 2012), 28.

⁸⁸⁰ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 19.

⁸⁸¹ Weizman, *Hollow Land: Israel’s Architecture of Occupation*, 214–15.

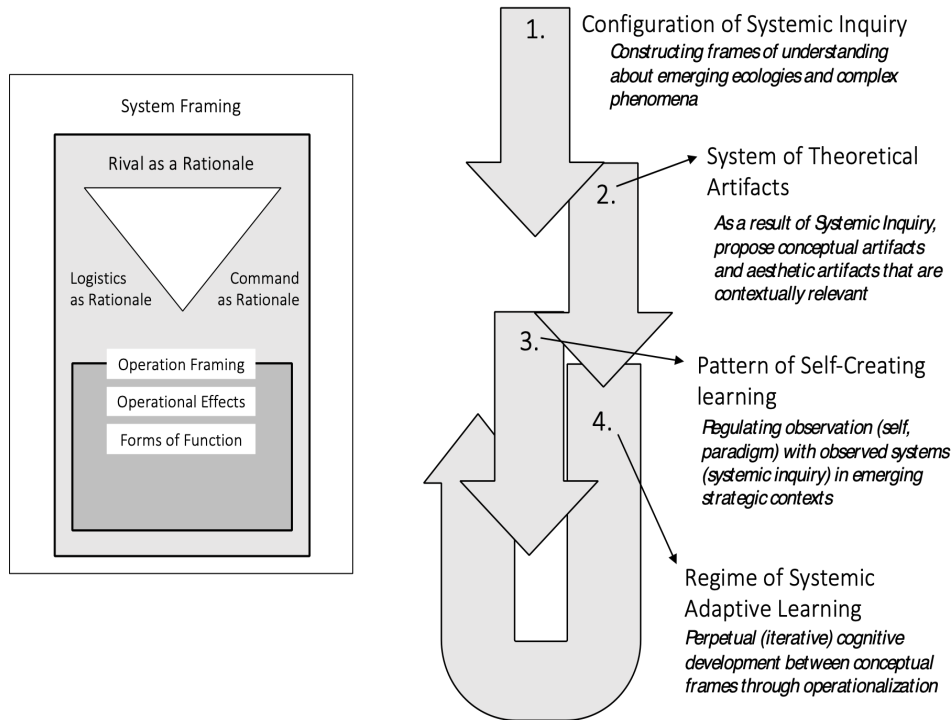
⁸⁸² Beaulieu-Brossard, “Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts,” 7; Graicer, *Two Steps Ahead: From Deep Operations to Special Operations-Wingate the General*, 33.

⁸⁸³ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 43.

⁸⁸⁴ Haridimos Tsoukas, “A Dialogical Approach to the Creation of New Knowledge in Organizations,” *Organization Science* 20, no. 6 (December 2009): 943–45.

⁸⁸⁵ Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019.

1995-2005 SOD's Design Epistemology



Naveh's first version of SOD occurred at OTRI in Israel starting in 1995 through OTRI's closure in 2005. During this first period as well as his current third phase of SOD from 2013-2019 in Herzliya again, Naveh only teaches design to General Officers. His few exceptions to this were early in the first phase where he did teach design to senior field grades such as Kochavi. Later, in the second phase of SOD evolution when Naveh and his design disciples traveled to America and Australia, Naveh would agree to teach mid-grade officers at Fort Leavenworth, Kansas and select Australian Special Forces personnel.⁸⁸⁶ Several of his SAMS students in Kansas were field grade officers then, but now are approaching senior officer ranks across the Anglosphere. Their recollections on Naveh and SOD as well as how they are implementing contemporary design ideas today are captured in the next two chapters through personal interviews and correspondence with the author.

Naveh would teach at SAMS from 2005-2009, travel to Australia at least once, and engage with American Special Forces in Tampa from 2009-2014. The author is himself a former student of Naveh during this period.⁸⁸⁷ Naveh, in a 2019 interview

⁸⁸⁶ Naveh, "The Australian SOD Expedition: A Report on Operational Learning."

⁸⁸⁷ The author attended the U.S. Army School of Advanced Military Studies at Fort Leavenworth, Kansas from 2010-2011 and was mentored in design by Naveh as well as Butler-Smith and Ryan. These three represented at the time the only SOD-focused design educators at the school, although Naveh was already not allowed on campus after 2009 and met with select students off-site. Butler-

explained that he considers junior officers incapable of learning design. "People have less and less experience at junior levels, and because they are young...the whole idea of design is to break the paradigms, to deconstruct...young people do not have the confidence to do that. They are young. Their minds are very much affected by doctrine. That is the frame for identity. Generals already know that doctrine does not work."⁸⁸⁸ As this interview was conducted in 2019 after a period of military downsizing and withdrawal by the United States in conflict zones such as Afghanistan and Iraq, Naveh appears to associate combat experience with the professional development of the military officer so that they can experience the limitations and failures of doctrine. In his frame, junior military personnel are too inexperienced to realize this, and the overarching institution has already codified doctrinal practices extensively into people that have yet to see the folly of doctrinal function in war.

While early SOD operated from 1995 through 2005, different evolutions and hybrids of it began emerging from those exposed to Naveh and his small circle of SOD practitioners. By 2013-2015, the SOD education teams for USSOCOM, the Joint Special Operations University, and associated military contractors used a shared term 'cognitive apprenticeship' defined as "learning through guided experience on cognitive and metacognitive...skills and processes" where "learners must work with more experienced others and with time move from a position of observation to one of active practice."⁸⁸⁹ Advanced military concepts such as SOD could not be delivered through passive learning, slide presentations or individual reading alone.

The value in design is not in the dense literature, presentations, or lectures concerning the content; everything is oriented instead on designer dialogue and debate. Naveh describes the importance of dialogue in design teams as thus: "The whole idea of [design] dialogue is learning through confrontation...through exploitation of the difference. The common issue is that we want to get the logic. We get there by exploiting the differences in our views...people have different experiences and perspectives, and we exploit it through the dialogue. Before [SOD first period of 1995-2005], we had to put much more effort to do this, but now [SOF third period of 2013-2019] it works beautifully."⁸⁹⁰ This concept of designing with 'difference' for fostering innovation is also recognized as foundational in Rittel's lectures on civilian design theory.⁸⁹¹

The IDF implemented SOD education by focusing exclusively on the senior leadership, with the first "Advanced Operational Command Course" or AOCC running six times "for eighteen consecutive weeks"⁸⁹² with an emphasis on philosophy and the fundamentals of systems thinking. Design formally entered

Smith and Ryan each have strong and at times paradoxical views on SOD as well as Naveh and design education in general.

⁸⁸⁸ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3, 1:04:25.

⁸⁸⁹ Downing, "White Paper: Introduction to SOF Operational Design," 8.

⁸⁹⁰ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

⁸⁹¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 48.

⁸⁹² Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 26.

Israeli military doctrine when the Chief of General Staff added a design chapter in the first IDF Operational Concept in 2004.⁸⁹³ While the first incarnation of military design into military doctrine represents a significant development across all modern militaries, for design purists such as Naveh it also represented a corruption of what disruptive design actually meant.

Naveh later wrote "just as literacy facilitates bureaucratic, administrative centralization, it also makes possible the codification and logical centralization of doctrine."⁸⁹⁴ Naveh continuously framed the role of the designer as an organizational heretic, playing against the authority of doctrine and in a decidedly postmodern position, disrupting and shattering existing worldviews.⁸⁹⁵ Reflecting on the past two decades of design development, Graicer views Naveh's design as the 'war machine' that coexists and competes with doctrine as the 'state apparatus' role. In her doctoral thesis, Graicer expands on this postmodern concept as utilized in design by Naveh:

That the state of war between sedentary people and nomads is a constant has already been established...That is, as a metaphor, most conflicts in this day (especially asymmetry becomes more central to war-making) bring about a confrontation between the state, which wishes to preserve the prevailing order (or status quo) and the war machine, an opposing side that wishes to alter it (or evolve). In other words, asymmetry stems from an engagement between two adversaries, one of whom is constrained by the paradigm but finds him/herself fighting someone who defies it altogether (challenging the framework or rules of the game).⁸⁹⁶

Thus, the multiparadigmatic approach for Israeli design would be self-disruptive at constantly examining and reframing reality and organized violence at the ontological and epistemological levels. They felt that war was beyond the threshold of postmodernity and the earlier IDF war logics based in modernity were now insufficient and likely counter-productive. Using difficult and disruptive ideas of postmodern thinkers such as Deleuze and Guattari on war, Naveh's new 'war machine' of cognitive disruption would move away from simplistic "blow-by-blow violence" or attrition-based total war violence of the modern war frame, but instead "the war machine, with breeding and training, institutes an entire economy of violence, in other words, a way of making violence durable, even unlimited."⁸⁹⁷ If war in modernity was defined by physical violence coupled with interaction and a state-driven political orientation for war action, this new idea of postmodern war,

⁸⁹³ Graicer, 26.

⁸⁹⁴ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 23.

⁸⁹⁵ Deleuze and Guattari, *A Thousand Plateaus*, 376–77.

⁸⁹⁶ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 39.

⁸⁹⁷ Deleuze and Guattari, *A Thousand Plateaus*, 396.

set in postmodernity for societies and explained through postmodernism would challenge and disrupt each of the modern 'eternal' qualities by proposing (and experimenting with) alternatives.

Designing for new ways to understand oneself and the disruption of traditional war theory required becoming aware of one's own paradigm and subsequently deconstructing it while traveling cognitively outward to seek out alternatives. This meant that designers must maintain paradigm self-awareness, and continuously engage in discourse to determine paradigmatic interplay, overlap, and tensions within a complex military setting. As doctrine represents the modern military war frame and a manifestation of a single preferred paradigm (functionalism) to create uniform and analytically optimized military conformity⁸⁹⁸, design could not actually be codified into existing Israeli (or any) doctrine. Postmodernism cannot be rendered in modern form, and modern military doctrinal structure is incapable of producing a postmodern narrative. Any attempt to codify design into military doctrine would fail, because military design *becomes the anti-doctrine to doctrine*. Naveh's design practice indeed featured the disruptive qualities of a military comedian, perfectly comfortable with dismantling cherished doctrinal form and function of the modern military paradigm in order to transform it, and shock it into a different, more relevant model for war.

There is also the irony that Naveh did attempt a few early efforts at crafting design doctrine, only to either have those concepts shelved in draft form or ignored entirely; subsequent doctrinal attempts not involving Naveh would evoke nearly as much of his scorn as perhaps his own self-loathing toward his own early versions of draft doctrine. Design inverts the given reality to posit alternatives, to imagine foreign states of mind.⁸⁹⁹ Chia and Holt, writing a decade later and apparently unaware of SOD, demonstrate such a postmodern treatment of 'spontaneous order' and emergent strategy making that also disrupts and rejects the modern strategic logic in a similar manner.⁹⁰⁰ White, a postmodernist Naveh and SOD practitioners drew extensively from, posits that complex reality is not nearly as understood in preconfigured narratives where one might coherently "see the end in every beginning."⁹⁰¹ This challenges the assumed objectivity of war when framed in a natural-science inspired logic that attempts to established perpetual laws, rules, and a fixed scientific language of warfare.

Mintzberg and others also researched the iterative, open-ended and 'unstructured' characteristics of strategic decision-making despite institutional preference to operate in predetermined 'ends-ways-means' logic.⁹⁰² The multiparadigmatic nature of SOD places it in Sookermany's research on what a postmodern military would be founded upon set within postmodernity. While the

⁸⁹⁸ Deleuze and Guattari, 402.

⁸⁹⁹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 142.

⁹⁰⁰ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 16–37.

⁹⁰¹ White, *The Content of the Form*, 24.

⁹⁰² Mintzberg, Raisinghani, and Theoret, "The Structure of 'Unstructured' Decision Processes," 136–37.

modern militaries of the Cold War (which again is offered as a growing postmodern context wherein militaries increasingly failed with modern logics) and earlier operated within a singular culture directing absolute values within a shared war frame for a military, a postmodern military would not. "Rather, [it] should be looked for within a variety of cultures, in a numerous amount of narratives, dealing with an indefinite number of issues, with an indecisive range of characteristics, from a variety of local history."⁹⁰³ Multiple competing paradigms, each engaged in the design discourse would exceed the modern military cognitive thresholds for doctrinal containment or single-paradigm, set methodological employment.

Despite Naveh being the father of the military design revolution, "at some point it went rogue; whereby the publishing of Design Manuals was to be the sign of its reduction *ad absurdum*, until its own father could not recognize it."⁹⁰⁴ Graicer later would argue that doctrine could be relevant, but also obsolete for SOD practitioners depending on the context, thus taking a more forgiving stance on doctrine than Naveh. She states, "SOD takes doctrine to be the apotheosis of the organization's intellectual journey, as much as the point of departure for the next journey."⁹⁰⁵ Using an architectural term for a church's southern library area, Graicer softens Naveh's anti-doctrine position by framing most military doctrine as useful if only to help designers frame where they are starting from so that they can cleanly leap further away. Graicer also may see the broader picture where even Naveh made some design doctrinal attempts, and that contemporary design doctrine including IDF versions do have a variety of SOD-esque qualities and ideas. Some design doctrine might be more useful than others, yet overall if militaries attempt to create design doctrine they are signaling to the entire force that 'design' is now acceptable as a new concept.

As quickly as SOD emerged within the previously traditional Israeli military landscape for decision-making and 'problem solving', it was extinguished.⁹⁰⁶ After the transition of leadership from Lieutenant General Ya'alon to Lieutenant General Halutz in 2006, the new Israeli Chief of Staff shut down OTRI and began to erase SOD and Naveh's group from any position of influence upon the IDF.⁹⁰⁷ By 2007 the IDF categorically rejected military design and Naveh as well as his supporters were no longer welcome in IDF training or education environments. This would remain unchanged in Israel for the next six years. From 2007 through 2013, Naveh and Graicer along with a small group of SOD theorists and educators would engage outside of Israel, essentially banished from teaching their concepts to the military

⁹⁰³ Anders Sookermany, "On Developing (Post)Modern Soldiers: An Inquiry into the Ontological and Epistemological Foundation of Skill-Acquisition in an Age of Military Transformation" (dissertation for the degree of Dr. Philos, University of Oslo, 2013), 36.

⁹⁰⁴ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 21–22.

⁹⁰⁵ Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?," 26.

⁹⁰⁶ SOD advocates against the concept of 'problem.' They are self-structured illusions that the self generates when one attempts to rationalize a complex, dynamic reality to the limited, convergent rules of the preferred paradigm. However, the term 'problem' is unavoidably used in military thought and even used in some SOD theory and doctrine likely due to the lack of alternative terms.

⁹⁰⁷ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 26.

force that originally welcomed their disruptive ideas. The maxim of “no man is a prophet in his own land” appears to apply here, where Naveh and his ideas would in the 2005-2013 period be valued only outside of Israel.

There is a great deal of political and interpersonal arguments over what precisely happened during the 2005-2006 period in the top leadership levels of the IDF, to include why SOD was suddenly abandoned. These arguments exceed the scope of this research, however both sides of the SOD debate will be summarized briefly in order to frame the expansion of military design out of Israel and into other militaries. Regardless of whether one Israeli military faction had better reasoning than the other on the validity of SOD in the 2005 combat application concerning Lebanon, ultimately Naveh's concept gained enough attention internationally for American and Australian militaries to invite him to present more. U.S. TRADOC would even entertain some former OTRI design products produced by Naveh that would be translated into English and considered in draft form, if only internally to their Future Warfare Studies Division.⁹⁰⁸ Simultaneously, SOD became a pariah of sorts within the IDF from 2006 until seven years later.

By June 2006 and just a few weeks before the Lebanon War broke out, the gradual expansion of military design methodology into the Israeli Defense Force was halted and all education as well as doctrine terminated.⁹⁰⁹ Advocates such as Naveh were dismissed from the OTRI facility and no longer welcome in IDF activities.⁹¹⁰ OTRI was disbanded and all SOD doctrine as well as practice in the Israeli military ceased by order of a new Chief of General Staff who as a career aviator categorically rejected the main cognitive stances that SOD advocated, instead encouraging concepts such as ‘effects-based operations’ that play to aviation reasoning and precise targeting.⁹¹¹

Although Halutz may also have not even understood the American inspired ‘effects-based operations’ concept either, and relied upon staff officers more versed in these new concepts to advocate their partial implementation. The 1990s and early 2000s for the IDF appear to be in retrospect a difficult period of experimentation and almost a tribal environment of various military groups advocating for various reforms, radical ideas, or legacy concepts. The subsequent Lebanon war was executed with a mix of some IDF applying SOD in tactical and operational missions primarily within ground forces, and the bulk of aviation and naval forces relying entirely upon traditional linear planning. The IDF was utterly

⁹⁰⁸ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

⁹⁰⁹ Naveh, Interview with BG (Ret.) Shimon Naveh.

⁹¹⁰ Naveh retired from active duty in the IDF as a Brigadier General in 1993, but as part of his retirement plan he was commissioned by the IDF as a civilian academic to write a doctoral dissertation on operational art, return to the IDF and establish the military think tank known as OTRI. These details were provided by Graicer in personal correspondence with the author.

⁹¹¹ Graicer, “Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?,” p.25-28; Graicer, “Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)”;

confused, with two different factions of pro and anti-SOD creating deep institutional tensions during the outbreak of an actual war.

Gracier, in recalling the overall approach to the Hezbollah threat, characterized the bias of the new Chief of General Staff, Dan Halutz as “shallow mindedness or one-dimensionality, as things seem from a cockpit...the IDF was headed by an aviator. Trained in the Israeli Air Force, he never participated in a command course at any level...and was totally ignorant when it came to Land or Naval force employment.”⁹¹² Unfortunately, there are no available rebuttals from Halutz available on the topic of SOD and intellectual development within the IDF for that period.

Naveh was far more critical in his assessment of Halutz, “he might have been a good fighter pilot...but he’s totally innocent of any education that could have prepared him for the challenge that awaited him as a general. Being both arrogant and ignorant, he never bothered, like so many generals, to really study. He’s the kind of man that, if you can’t really comprise your words into two lines, he’ll never go through it.”⁹¹³ Naveh does have a pattern of ‘ad hominin’ attacks on critics and those he feels have wronged him or the SOD movement, although the actions of being removed from service and banished from the IDF certainly provide ample justification for these stances.

After Halutz disbanded OTRI and ejected SOD as a concept, “SOD language became heretical. Those who were using SOD language...just fell back on conventional tactical language.”⁹¹⁴ The reliance on legacy terminology of the reductionist military planning logic violates a core postmodern quality of Naveh’s meta-methodology; the role of new ideas requiring entirely novel language and metaphor to usher them into being.⁹¹⁵ As Deleuze and Guattari explain this challenge: “the necessity of not having control over language, of being a foreigner in one’s own tongue, in order to draw speech to oneself and “bring something incomprehensible into the word”, such is the form of exteriority...the *Gemüt* that refuses to be controlled, that forms a war machine.”⁹¹⁶ Postmodern ideas must be presented using postmodern language, requiring significant intellectual growth beyond merely relying upon existing ‘known-known’ language and concepts framed exclusively in modernity for warfare.

Traditional military historians such as Yagil Henkin, an educator at the Israeli Defense Forces Command and General Staff College, would present the dominant skepticism toward military assimilation of postmodern terms and language with

⁹¹² Graicer, “Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?,” 28.

⁹¹³ Naveh, Interview with BG (Ret.) Shimon Naveh.

⁹¹⁴ Beaulieu-Brossard, “Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts,” 8.

⁹¹⁵ Tsoukas and Hatch, “Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity,” 989; Haridimos Tsoukas, “The Missing Link: A Transformational View of Metaphors in Organizational Science,” *Academy of Management: The Academy of Management Review* 16, no. 3 (July 1991): 581–82.

⁹¹⁶ Deleuze and Guattari, *A Thousand Plateaus*, 378.

“the same ideas can be expressed without using interpretive language.”⁹¹⁷ Although, in Henkin’s critique of this operation, he appears to confuse the biological application of swarm theory with that of SOD’s general systems theory and postmodern concepts within the IDF at that time. This would be a deep tension in the interface between postmodern design theory and the institutional defense of legacy thought in war.

By 2005, only Israeli colonels and first-star general officers had attended Naveh’s radical design education, however those that attended a SOD course were of a distinct minority out of the larger senior officer population of the IDF. Of those that attended a SOD course, “some dropped right after the first course, and others regularly abstained. Some students felt this teaching as imposed learning and the language as far too unfamiliar for what they were used to.”⁹¹⁸ Statistically, very few officers across the IDF’s centralized military hierarchy ever personally experienced or even understood SOD. This created in 2005-2006 an extremely challenging situation where the value of this new way of military decision-making would be tested in the realities of war. This minority of Israeli design thinkers, tutored by military heretics such as Naveh, would face exceptional institutional barriers to quickly expand SOD thinking broadly enough to disrupt the larger IDF orientation toward traditional mechanistic planning activities for war. Along the way, SOD had also accumulated many anti-designers that would see any setbacks or failures in war as ‘proof’ of SOD being a worthless enterprise.

By the eve of the war in 2005 only fourteen graduates of any previous SOD course remained on active duty in the IDF, with the vast majority of senior leaders unfamiliar or highly skeptical of SOD as a useful concept for war.⁹¹⁹ This lack of SOD educated leaders largely meant that Naveh’s original goal that “the wisdom of SOD would trickle down inside the units of all corps” did not occur in time for war, the ultimate test for new military concepts and organizational change.⁹²⁰ Not nearly enough IDF leadership understood the radical new concepts, with many that did understand SOD already purged from service seemingly deliberately before the war.⁹²¹ Hirsch reflects on the intentional and unfair removal of design theory, OTRI influence, and SOD advocates within the IDF in the months leading up to the Second Lebanon War:

A few months before the start of the 2006 Second Lebanon War, the [OTRI] institute’s prominence began to fade, for there were those who systematically acted to reduce its influence. It is true that Dr. Naveh and his people provoked substantial objection and even resentment

⁹¹⁷ Henkin, “On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War,” 321.

⁹¹⁸ Beaulieu-Brossard, “Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts,” 8.

⁹¹⁹ Beaulieu-Brossard, 8.

⁹²⁰ Beaulieu-Brossard, 8.

⁹²¹ Naveh, Interview with BG (Ret.) Shimon Naveh.

by a senior group within the IDF. It was no longer an academic, idea-driven debate. Because of this heightened cultural war, there were those who found ways to oust this group of scholars from within the ranks of the IDF, using various excuses. It was a sad and troubling move, and I believe also negative for the future of the IDF...Many senior officers and prominent institutions from other countries value and adopt the unique ideas that emanated from OTRI, yet here in Israel we didn't seem to find room for them and their ideas. A few weeks before the Second Lebanon War, I received a letter from one of OTRI's senior leaders, warning me that I was to be next, as the IDF senior leadership was tired of critical and transformational officers, representing the approach of OTRI. He warned that they would soon find a way to get rid of me and were only waiting for an opportunity.⁹²²

The retrospective accounting of the Israeli military misadventure in Lebanon itself is problematic, with numerous historic accounts either blaming Naveh's design concepts for the institutional confusion or ignoring systemic operational design entirely and placing culpability on Israeli infatuation with swarm theory,⁹²³ effects-based operations theory,⁹²⁴ or even a general accusation that the IDF had become smitten with the American military or other foreign army's latest technology, doctrine, or contemporary foreign policy.⁹²⁵ As Israel maintains many of their military skeletons locked away in classified closets, further research is needed to better appreciate the politics and in-fighting within the IDF for the period of OTRI leading up to the actual execution of the Second Lebanon War. One thing is clear: Naveh and SOD are convenient targets of blame for what likely is a much more widespread and complex pattern of institutional, political, and inter-personal reasons for the IDF's strategic failings.

In many aspects, Naveh sabotaged himself in how and why he went about educating the IDF initially on SOD. Naveh's own strategy of starting from the "top down" to educate senior leaders and subsequently get a trickle-down effect of SOD mastery through the operational and tactical levels was a failure in this first educational transformation effort. Afterwards, it would take multiple years for any medium or large military to again attempt such a transformation even in limited fashion in postmodern military decision-making, such as with a service, special unit, or through a professional military education center such as a war college. Naveh boldly tried to accomplish this in the IDF in less than half a decade and inculcate it

⁹²² Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 139.

⁹²³ Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War."

⁹²⁴ Matthews, "We Were Caught Unprepared: The 2006 Hezbollah-Israeli War," 64.

⁹²⁵ David Johnson, "The Second Lebanon War," in *Hard Fighting: Israel in Lebanon and Gaza* (Santa Monica, California: Rand Corporation, 2011), 18, www.jstor.org/stable/10.7249/mg1085a-af.10.

across the entire Defense Force sufficiently within the understanding that the organization would be in active war preparations or in war directly.

Naveh's andragogy on design educational implementation consisted of attempting to seed the senior IDF leadership with these radical concepts so that they could use their position and power to further drive SOD down to subordinate commanders and into tactical units. Yet far too many of the traditional decision-making methodologies were deeply cherished by the broader IDF. Prior to the Battle of Bint-Jebel, an exchange between a correspondent and the commander of the Golani Brigade demonstrates this major tension between the minority operational-level IDF leaders using SOD theory and that of tactical-level operators largely unaware or highly skeptical of the radical concepts. Then Colonel Gal Hirsch, a SOD enthusiast and disciple of the Naveh circle of postmodern military disruptors promoted the idea of "a swarm of hornets" as a metaphor both representative of SOD theory as well as potentially associated with swarm theory.⁹²⁶

Hirsch was the Israeli top operations officer (Joint Operations Officer or 'J3', Israeli Central Command) during the earlier 2002 demonstration of successful design by Colonel Aviv Kochavi. Colonel Tamir Yeda'i, the tactical-level commander of the Golani Brigade replied to the question of whether he was familiar with this new "swarm of hornets" concept with: "I am not familiar with the chirping of crickets."⁹²⁷ Yeda'i was not alone in skepticism of SOD's creation of new terms and assimilation of previously unconsidered theories into warfare such as swarming or other ideas that clashed with the traditional, mechanistic and highly engineering-centered language and doctrine for warfare. In response to these skeptics, Hirsch remarks on the introduction of maneuvering through design-induced 'swarm' with: "I valued this mode of operation...I proved its suitability during training and exercises throughout the preparation and learning period before the war. I viewed criticism and mocking of terminology such as the 'cloud of wasps' and 'humming effect', and the 'swarms' as a lack of creativity and imagination."⁹²⁸

This injection of new language with SOD would accentuate what was not just a tension in the IDF but across most western modern militaries; the battles between military intellectuals and those that prefer violence of action over thinking.⁹²⁹ Hirsch reflects on this in his autobiography with: "Intelligence turned overnight into a handicap, and intellectualism became "lack of combativeness..." the complaints on [SOD's] sophisticated language, detachment from the field, and nicknames such as

⁹²⁶ Henkin, "On Swarming: Success and Failure in Multidirectional Warfare, from Normandy to the Second Lebanon War," 312.

⁹²⁷ Henkin, 323. Henkin cites the original source for this quotation as Prisoners in Lebanon: The Truth about the Second Lebanon War by Ofra Shelah and Yoav Limor, p. 197 which is available only in Hebrew. This research relies on Henkin's translation to English in his own work.

⁹²⁸ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 318.

⁹²⁹ This charge of anti-intellectualism in militaries is addressed in this chapter with the IDF, in the next chapter in the American Army and Marines, and in the following chapter within the British, Canadian and Australian militaries for a variety of similar and overlapping cultural, geo-political or institutional reasons.

“astronaut” and “daydreamer” had acquired a foothold...I became known as a man of the book...not the sword. My propensity to write articles and brief senior foreign generals in English was considered by some a disadvantage.”⁹³⁰ This anti-intellectualism is not exclusive to the IDF, and is expanded in the next two chapters where similar sentiments are expressed in American, Canadian, British, and Australian militaries when considering military design concepts.

Despite this open hostility to SOD concepts in the IDF at senior levels, Hirsch in the 2005-2006 Lebanon War period would command the Galilee Regional Division and apply SOD concepts in multiple major operations. Later, he would be criticized for what was critiqued as a confusing application of SOD theory. However, an investigation by the Israeli national committee on his division's actions would refute this early criticism, with Hirsch publishing an autobiography detailing the investigation into his unit's actions, the preparations prior to the conflict, and the apparent political backstabbing that would subsequently lead to Hirsch becoming the scapegoat for strategic frustrations by Israel over the Second Lebanon War outcomes. Today, while Hirsch is retired yet politically active in Israeli security and politics, Yeda'i is a Major General in the IDF, commanding the Homefront Command, and has graduated Naveh and Graicer's design program in Tel Aviv. Graicer states that he is now an advocate of SOD.⁹³¹

Yet a pattern of institutional rejection and attempts to preserve the existing decision-making methodology remains prominent within the IDF as well as across the industrialized west in areas that militaries are experimenting with some version or inspiration of Naveh's work. Defenders of modern military decision-making and mechanistic, reductionist planning in war lashed out and swiftly reduced Naveh's SOD population of practitioners into what could be described as a military cult or fringe group slated for excommunication. While the first attempt to extinguish Naveh's postmodern group of war comedians did purge many from the IDF, the ideas were quickly spreading faster than the purging might contain the damage.

Israeli Revitalization after 2013: Unclassified English Design Doctrine

Naveh and his small band of SOD devotees would leave the IDF in 2005 and begin administering a nomadic form of design education to field grade officers and mid-grade professionals in international settings, largely in America but also to a limited degree in Australia, with special operations units as well as larger military schools for advanced war studies. Their use of 'nomad' again comes from a postmodern concept heavily used by Deleuze and Guattari of the travelling outside thinker, able to move in the exteriority and with intellectual freedom to self-disrupt, reinvent, and destroy the interior system by violating its rule structures.⁹³²

⁹³⁰ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 172.

⁹³¹ Personal correspondence with Graicer on February 23, 2020.

⁹³² Deleuze and Guattari, *A Thousand Plateaus*, 379.

This 'nomadic period' of SOD spanned 2005-2012 and is covered in greater detail in subsequent sections in this chapter. By 2013, something changed in the Israeli Defence Forces' perspective on design thinking and General Officer education. Naveh was invited back to teach once more in Herzliya to Generals that were students in their senior education program, and he was asked to bring his latest evolution of systemic operational design thinking. According to Beaulieu-Brossard, the Israeli Defense Force senior leadership observed "a lack of generalship and did not see an equivalent academic alternative [available to teach] than bringing Naveh back to nurture generalship."⁹³³ Since 2013, Naveh and Graicer have taught small groups of Israeli senior leaders from across their defense forces and also in various intergovernmental agencies in Israel, providing a form of SOD that according to both SOD educators is far more applicable and potent than the earlier forms. Their theory, methods of education, and philosophical outlook on design and the application of organized violence have all changed over the last twenty-five years and are explained in the next chapter where 'design failures' is the focus.

In terms of Israeli design doctrine, only one early version was produced during the first phase with OTRI from 1995-2005. This document was classified like most IDF military doctrine and written in Hebrew, thus largely unavailable outside of a minority military population within Israel. After the purge of SOD and the elimination of OTRI by 2005, no Israeli design doctrine existed and instead the strategic thought and operational practices would remain in recognizable modern functionalist forms associated with the industrialized west. Yet in 2013, the IDF changed direction and invited Naveh and his fellow design theorists back into their military professional development programs and two years later would produce an entirely new Israeli design doctrine.

This document would be published in Hebrew but also translated into English and made unclassified for a much broader availability. The doctrine features many elements of SOD theory, but also demonstrates a common pattern of contemporary military design doctrine. Similar to the American design doctrine that is addressed later in this chapter, this 2015 Israeli document attempts to bridge the challenging, esoteric SOD theory within the overarching Israeli strategic logic and a functionalist mode of decision-making associated with modern, analytic-oriented military planning.⁹³⁴ Thus, while this document is a second-coming design event for the Israelis and bears less resemblance to its original doctrinal predecessor from the late 1990s, it shares numerous overlapping concepts and compromises with U.S. Army design doctrine, Marine doctrine, and additional ancillary efforts in the Joint and international community concerning 'operational design' in military campaign planning.

In correspondence with Graicer in 2019, she explained the background on the 2015 Israeli design doctrine published by their J3 Head of Doctrine and Training Division, Brigadier General Moti Baruch. The brief twenty-five page document is

⁹³³ Personal correspondence between the author and Philippe Beaulieu-Brossard, February 2020.

⁹³⁴ Putnam, "The Interpretive Perspective: An Alternative to Functionalism," 34-45.

titled *“Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels”* and represents the first Israeli formal design doctrine since 2006.⁹³⁵ Baruch, himself a graduate of the second General Officer’s design course taught by Naveh and Graicer beginning in 2013 at the Herzliya (Tel Aviv) General Officer war college, applied a more recent systemic operational design theory offered by Naveh and Graicer toward an Israeli doctrinal product.⁹³⁶ Neither Naveh nor Graicer were involved in this Israeli design doctrinal development, and philosophically they both remain opposed to the intent of indoctrinating what “should only be taught through practice...those who still try to write it into a manual usually water it down or get it wrong in their attempt to explain in more plain language (like the [Army Design Methodologies], and also the Israeli attempts.”⁹³⁷

Baruch, serving at the time in 2015 as the J7 and head of the Israeli Doctrine and Training Division within the Israeli J3 Staff, may have received assistance from the Dado Center, which replaced the original OTRI think tank that Naveh founded in the mid-1990s in the Israeli Defense Force ⁹³⁸. While OTRI was disbanded in 2006 suddenly due to Israeli senior-level in-fighting, politics and confusion over the initial integration of systemic operational design into the Israeli officer corps, the role that this think tank provided would be rekindled by the Dado Center replacing OTRI that same year but minus the design interest until later.⁹³⁹ According to Graicer, the Dado Center has produced various military publications and research work, of which some are translated from Hebrew into English and select documents are available online. The Dado Center would foster this Israeli revisit to design thinking in doctrinal form by 2015.

Graicer reflects on the 2015 Israeli design document and why she and Shimon Naveh declined to participate in its development. First, they felt “we were burned from the first attempt to put [systemic operational design] into doctrine (an operational concept) in 2006...[this] was one of the reasons OTRI was ousted.”⁹⁴⁰ Second, Naveh and Graicer, despite being the top design experts and educators for the Israeli Defense Force and the exclusive educational providers to their General Officers at the Herzliya (Tel Aviv) General Officer education program, strongly reject the idea of placing design into military doctrine. In Graicer’s words in 2019, “all attempts to write it until now (including our attempts) become too weighted in language and ideas and thus work against us. That is why we believe it should only be taught through practice.”⁹⁴¹ In a postmodern perspective, efforts to take military

⁹³⁵ Israeli Defense Force Doctrine and Training Division, “Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels.”

⁹³⁶ Ofra Graicer to Ben Zweibelson, “Re: New Article out for Canada,” November 2, 2019.

⁹³⁷ Graicer to Zweibelson.

⁹³⁸ Graicer to Zweibelson.

⁹³⁹ Ofra Graicer to Ben Zweibelson, “FW: Re: Question on DADO Center Replacing OTRI,” January 10, 2020.

⁹⁴⁰ Graicer to Zweibelson, “Re: New Article out for Canada,” November 2, 2019.

⁹⁴¹ Graicer to Zweibelson.

design which essentially is anti-design, and render it into a doctrinal form is paradoxical; a joke is never funny once it has to be explained by the comedian. Either the comedy resonates in action, or it is a failed joke. Her observations on the 2015 Israeli design document are supported by the extensive operational planning language, functionalist paradigm manifestation, and the overall tone of this document when contrasted with much of Naveh, Graicer and other associated SOD theoretical work.

When compared to other contemporary military design doctrine, the 2015 Israeli design document remains brief, well-articulated in multiple areas, and overall far more flexible and broader in design scope than peer documents in the American, British, or Australian militaries. However, the non-participation of Naveh and Graicer clearly indicate where multiple sections of this Israeli document shift away from their core design teachings and continue to be influenced by mainstream western industrialized state military planning logic. While Naveh continuously speaks out against the perils of strategic oversimplification, the tactical corruption of operational thinking, and the fallibility of limited and mechanistic planning constructs, the 2015 Israeli design document features many of these violations, yet still is able to transmit some of the core elements of Naveh's self-disruptive postmodern philosophy. This indicates that once more, some design children spawn from Naveh's original vision continue to be corrupted and even assimilated by the very things Naveh set out to deconstruct and disrupt, to include military doctrine created by his own army, at the pen of his own recent General Officer graduates.

The first controversy in the 2015 Israeli design doctrinal document is its immediate and repeated linkage of design thinking to the production of a plan, where all design activities are directed to produce "a concept for a campaign or campaigns."⁹⁴² A second glaring contradiction is the emphasis on linking "familiar tactical patterns" with strategy, using the design process to develop "clear strategy" that is able to "suit both the needs and strategic aspirations as well as the existing tactical capabilities or those that are reasonable to strive for."⁹⁴³ Naveh has in both his writings, teachings, interviews and otherwise has argued the opposite of this approach, viewing design and planning as two entirely distinct and even at times unrelated or potentially paradoxical constructs. Interestingly, pioneering civilian design theorist Rittel disagrees, instead seeing no distinction between designing and planning.⁹⁴⁴

This epistemological tension between Naveh and civilian designers may merely be a translation issue or reflect Naveh's emphasis on the security contexts for design and how they differ from non-war contexts. Regardless, the 2015 Israeli design doctrine thus shares some commonality here with previously published American design doctrine and supporting academic military journal authors that

⁹⁴² Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels," 4.

⁹⁴³ Israeli Defense Force Doctrine and Training Division, 5.

⁹⁴⁴ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 2.

advocate a tighter relationship where design is a subcomponent of the overarching linear, mechanistic planning methodology.⁹⁴⁵

The 2015 Israeli design document reinforces this by defining the execution of design as consisting of “structuring the learning process” in a tailored, unique and contextually dependent style.⁹⁴⁶ Furthermore, this endeavor is entirely in the responsibility of the General Officer, for whom Naveh clearly sees as the primary and exclusive military designer capable of possessing the wisdom, power, and creative abilities to be the organizational change agent. The 2015 design doctrine echoes this by stipulating, “the major [Israeli headquarters], each according to its responsibility, are entrusted with leading the learning process, clarifying the preliminary strategic framework and developing the final product.”⁹⁴⁷ Therefore, the doctrine and Naveh remain in agreement that design in an Israeli style is exclusively a General Officer activity and skill, upon which all organizational transformation is dependent upon. “It is vital that the commander lead the knowledge development process and formulate together with his headquarters and the senior commanders the shared understanding that leads to action and to addressing a problem through a particular concept.”⁹⁴⁸

The Israeli design doctrine expresses a few concepts that are unusual in that across the rest of the industrialized western nations that produce military doctrine, hardly any will address political-military tensions and issues with vague or potentially flawed political guidance. The Israeli design doctrine carefully requests that political directives be clear but acknowledges that at times this is not possible. When political leaders are imprecise or vague in what they wish the military to do, the Israeli design doctrine actually directs any design process to include the clarification of these political tensions, and the consideration of alternative strategies.⁹⁴⁹ The General Staff Headquarters is advised to, when performing design, observe and analyze actors in a broader way than the command. This indicates that when doing design, the organization must look well beyond the limited, linear or causal relationships normally associated with the task-directed or mission-oriented emphasis⁹⁵⁰ that a service usually holds to for direct responsibility, role, and function.⁹⁵¹

⁹⁴⁵ Haridimos Tsoukas, *Complex Knowledge: Studies in Organizational Epistemology* (New York: Oxford University Press, 2005), 276; Wayne Grigsby et al., “Integrated Planning: The Operations Process, Design, and The,” *Military Review*, February 2011; Thomas Graves and Bruce Stanley, “Design and Operational Art: A Practical Approach to Teaching the Army Design Methodology,” *Military Review*, August 2013.

⁹⁴⁶ Israeli Defense Force Doctrine and Training Division, “Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels,” 9.

⁹⁴⁷ Israeli Defense Force Doctrine and Training Division, 8.

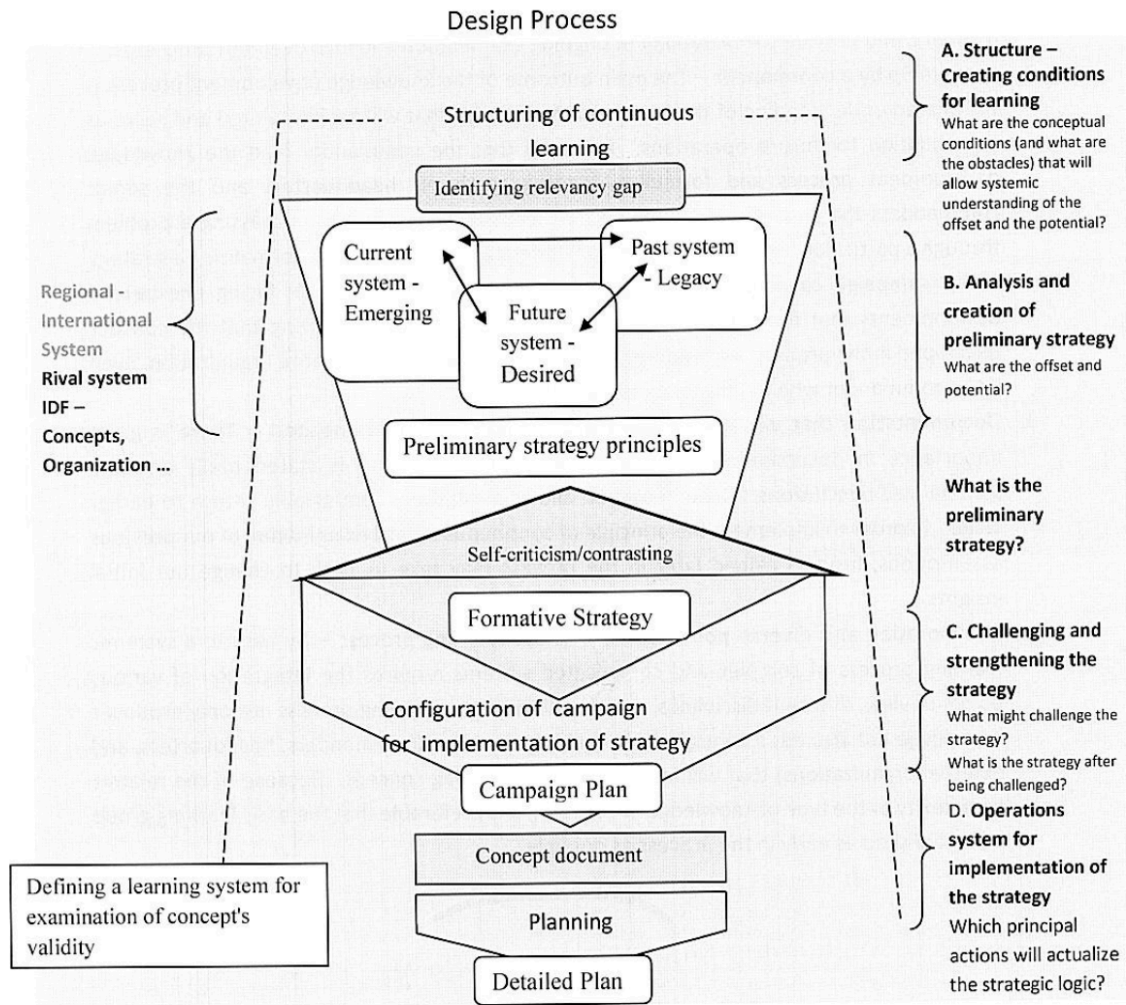
⁹⁴⁸ Israeli Defense Force Doctrine and Training Division, 11.

⁹⁴⁹ Israeli Defense Force Doctrine and Training Division, 14.

⁹⁵⁰ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 15:42.

⁹⁵¹ Meiser, “Ends + Ways + Means = (Bad) Strategy,” 81–86.

Figure from 2015 Israeli Design Doctrine: Diagram 2 for a 'Design Process'⁹⁵²



Surprisingly for a design document produced by the Israelis and presumably authored by graduates of Shimon Naveh's rigorous design education programs, the 2015 Israeli design doctrine arranges the design process in a series of well-defined stages with milestones or 'checklists' on how to pass each stage, as illustrated in the above graphic from the unclassified doctrine. This rather mechanical and sequential approach to design de-emphasizes Naveh's theoretical emphasis on iteration, flexibility, and novel experimentation with both form and function for design. This approach does keep with modern military design epistemology where instruction must remain explicit, clear, methodical, and reproducible in all anticipated applications.

⁹⁵² Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels," 12.

Despite Naveh's continued argument against overt description and the military fixation on problem-solving in solution-based methodologies,⁹⁵³ the 2015 design doctrine directs the designers to reach a defined state of the strategic system by defining the problem along with a framework of an initial strategy.⁹⁵⁴ Here, the doctrine appears to violate the core design theory concerning 'wicked problems' where not only should the conceptualizing for approaching these topics be flexible, but the notion of 'problem' cannot be pre-determined as linked to a necessary solution without rendering that problem definition as entirely unsatisfactory for the initial framing the designers ought to be undertaking.⁹⁵⁵ The 2015 design doctrine also features elements of operational planning and existing functionalist planning concepts⁹⁵⁶ such as the Newtonian physics-based "center of gravity" concept found in Joint and multiple American, Canadian, Australian and British military doctrines. In the "conceptualization and analysis of the rival system" section, the Israelis recommend using centers of gravity, which again runs contrary to the core teachings of Naveh and Graicer.

In a contradiction of systemic thinking and complexity theory core tenets, the Israeli design doctrine uses the paradoxical term "systemic centers of gravity,"⁹⁵⁷ fusing systems thinking with the reductionist, natural science metaphoric device of a 'center of gravity' that otherwise is exclusively used in military circles to emphasize a functionalist, highly objective worldview for war. Although this could be a translation error, the pairing of 'systemic' with 'centers of gravity' mixes incommensurate military concepts that draw from entirely dissimilar epistemological and ontological choices. 'Center of gravity' is in the industrialized west considered a heuristic aid within 'elements of operational art' and in American Army and Marine design doctrine are required cognitive tools for conducting design praxis.

The publication of the 2015 Israeli design doctrine reflects an evolution in Naveh's design education and praxis and an expansion of his core work into deeper institutional acceptance across the Israeli Defense Forces. This publication, despite not involving the theoretical parents of the design it promotes, demonstrates for the IDF and design a return to doctrinal form, as well as some patterns of design failing to fully integrate with militaries seeking to incorporate the strengths of design thinking within their larger institution. That Naveh and his top educators were not involved in the production of this Israeli doctrine is significant, in that the document

⁹⁵³ Meiser, "Ends + Ways + Means = (Bad) Strategy"; Jeremiah Monk, "End State: The Fallacy of Modern Military Planning" (Research Report, Air War College, Maxwell Air Force Base, Alabama, April 6, 2017); Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

⁹⁵⁴ Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels," 16.

⁹⁵⁵ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 110–17.

⁹⁵⁶ Putnam, "The Interpretive Perspective: An Alternative to Functionalism," 34–45.

⁹⁵⁷ Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels," 18.

has its authority and directive to influence Israeli military thought and action from the very same level of power and authority that continue to have Naveh and Graicer teach design at Herzliya *despite significant differences with what this formal design doctrine states*. Additionally, as the Israeli Defense Force demonstrates a British-like aberrance of doctrine historically, there is the question of how many in the IDF even know of the design doctrine or bother to apply it.

Naveh's offspring would direct and contribute authorship to this design doctrine, again indicating that while Naveh has a specific and quite sophisticated vision on what design means, he still struggles to gain true shared understanding or even clear representation of his ideas by surrogates within his organization and beyond.⁹⁵⁸ The 2015 Israeli document does reference other Dado Center works but does not mention or footnote a single Naveh or Graicer acknowledgement or text. Thus, both the Israeli contemporary design doctrine and the U.S. Army published design doctrine make no reference of Naveh's extensive contributions to military design despite their dependence on his ideas to create the doctrinal gaps requiring said publications. American doctrine does acknowledge other significant military theorists such as Clausewitz, Boyd, Mahan, Douhet, and others, demonstrating some potential institutional tensions on whether Naveh is given sufficient credit as the military design founding father.

The inclusion of functionalist operational art and linear planning concepts throughout the Israeli design doctrine indicate organizational confusion on why and how to best integrate design and planning, as well as likely an overriding bureaucratization concerning all doctrine and the requirement that even design must reference other existing and established works, to include Israeli operational art and Israeli strategic planning or campaign planning. The brevity of the Israeli design doctrine also suggests that any effort to explain design fundamentals to a military audience likely requires more than the twenty-five pages the Israelis permitted here. Just as the U.S. Army's original design chapter in *Field Manual 5-0* was a mere fifteen pages in length and considered insufficient and potentially confusing,⁹⁵⁹ the attempts by militaries to oversimplify and streamline design concepts into short doctrinal publications indicates a pattern of over-editing. Furthermore, it illustrates continued tension between modern military forms for knowledge curation and the self-disruptive qualities of postmodern military thought and action.

⁹⁵⁸ Philippe Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond" (unpublished draft provided by author, University of Ottawa, Canada, 2016); Philippe Beaulieu-Brossard and Philippe Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 273–89.

⁹⁵⁹ Anna Grome, Beth Crandall, and Louise Rasmussen, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration," U.S. Army Research Institute for the Behavioral and Social Sciences, no. Research Report 1954 (March 2012); United States Army, *Field Manual 5-0, Operations Process* (Washington, DC: Headquarters, Department of the Army, 2010), 5.

Naveh's alternative offering to design doctrine, written to coincide with the 2010 U.S. Army publication of 'Design' was 132 pages long.⁹⁶⁰ The 'Art of Design: Student Text' composed and published by SAMS faculty and students under Naveh's design inspiration weighed in at 332 pages, while the latest doctrinal 'technique' publications by both the U.S. Army and U.S. Marine Corps on design are in the hundreds of pages respectively.⁹⁶¹ The criticism of Graicer concerning design doctrine writers remains one where the compromises in non-design language, existing non-design concepts, as well as institutional pressures to conform to preferred doctrine length and formats likely make any output of design doctrine an incoherent and unwieldy document.

Throughout the last twenty-five years of experimenting, teaching and reframing military design, Naveh has advocated heavily against shackling design into doctrinal form. Instead, design should be expressed within a community of practice more like art where theory and practice are fluid, discourse is encouraged, and alternative perspectives welcomed. These components are largely eliminated in the construction of military doctrine so that the tenets of uniformity, explicit knowledge transfer, clarity, and reliability in application become uniform.⁹⁶² This is antithetical to postmodern design theory and remains a primary tension wherever militaries attempt to produce doctrine for design. Rendering 'best practices' into doctrine along with standardized institutional language is an example of modernity, while postmodern design cannot be expressed in an analytic, reproducible form stripped of postmodern language and concepts. Naveh in a 2019 interview with the author provided his summary of what military design should do:

In order to be able to disrupt yourself, you need an external mirror. Or, provide yourself a cognitive external scaffold which will enable you to look at yourself from the outside...to identify your biases, to identify the exact boundaries of your identity, to appreciate more critically your interests, etc. Once you identify them, it is easier to deconstruct or reinterpret or change them.⁹⁶³

Naveh's philosophy for self-disruption and change moves much more like artistic expression as well as how improvisation for jazz musicians, stand-up comedians and other creative artists function best. He draws inspiration in the postmodern idea of 'counterthoughts', which Deleuze and Guattari describe as:

⁹⁶⁰ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*.

⁹⁶¹ US Army Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)* (Washington, DC: US Department of the Army, 2015); School of Advanced Military Studies, *Art of Design: Student Text, Version 2.0, Version 2* (Fort Leavenworth, Kansas: U.S. Army School of Advanced Military Studies, 2010); U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology* (Quantico, Virginia: United States Marine Corps, 2017).

⁹⁶² Deleuze and Guattari, *A Thousand Plateaus*, 402.

⁹⁶³ Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 20min12sec Day 1 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019, 11:30.

“violent in their acts and discontinuous in their appearances, and whose existence is mobile in history...these are the acts of a “private thinker,” wherever they dwell...they destroy images.”⁹⁶⁴ There is the potential that military design is indeed a form of anti-design, never to be effectively captured in any formalized doctrinal publication without losing the essence that makes military design valuable. This also opens military design up to accusations of it being too abstract, undefinable, non-scientific, or less valuable to military practitioners when a suitable analytically optimized checklist is readily at hand with precise terminology and a proposed history of hypothesis validation supporting it.

Some military researchers have also offered the lackluster accomplishments of the IDF in the 2006 Hezbollah War as proof of SOD being a flawed concept, and that design’s overemphasis on postmodern theory and language is apparently incompatible with mainstream military practice and formal literature such as doctrine. “Postmodernism places a special emphasis on language, claiming that its ability to communicate the nature of reality is an illusion...postmodern thinkers jeopardize the integrity of the US constitutional system because they are naturally anti-institutionalists.”⁹⁶⁵ Just as Giddens recommends postmodernism remaining within the styles or movements for “literature, painting, the plastic arts and architecture,”⁹⁶⁶ proponents of the modern war frame feel such concepts have no business in the serious and entirely scientific pursuit of war.⁹⁶⁷

The 2006 Lebanon conflict criticisms leveled at SOD and Naveh should not be conflicted with these other tensions concerning design and doctrinal form. The significant political and educational issues occurring within the IDF at senior levels prior to 2005 are distinct from the institutional preference to value explicit forms of military knowledge over tacit ones, and the limited implementation window of the original SOD experiment seems too small an experiment to write off an emerging, controversial movement for the broader military community of practice. Naveh’s direction for teaching design to General Officers in a random and largely self-selecting manner as well as the highly eclectic and exotic language within SOD made any defense of SOD in the Hezbollah War equally difficult.

Again, Naveh was not doing himself any favors by refusing to inculcate his SOD concepts into even some theoretical papers or documents widely available to his organization, or to expand the availability of these radical concepts to multiple organizational levels within the IDF for faster distribution. As other military design educators would discover, sometimes the senior military officers are at times the wrong target for radical and transformative concepts where more junior leaders are overlooked.⁹⁶⁸ On the commercial side of design education and training, the vast

⁹⁶⁴ Deleuze and Guattari, *A Thousand Plateaus*, 376.

⁹⁶⁵ Kay, “‘A New Postmodern Condition’: Why Disinformation Has Become So Effective,” 4.

⁹⁶⁶ Giddens, *The Consequences of Modernity*, 45.

⁹⁶⁷ Vego, “A Case Against Systemic Operational Design.”

⁹⁶⁸ Paul Mitchell, “Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education” (tri-fold poster, Canadian Forces College, Toronto, Canada, 2015), https://www.doria.fi/bitstream/handle/10024/117634/MITCHELL%20Paul_poster_Designing%20

majority of human-centered design courses and programs cater to college-age students and university programs, as well as basic design modules for entry-level members of the work force. Large companies such as IBM invested significant resources pursuing an 'enterprise-wide' basic design education model not just for senior level executives or mid-management, but across their entire organization.⁹⁶⁹ Most militaries opt to avoid this with military design and focus on senior or mid-level officers.

Similar setbacks and design 'mutinies' will be explored in the remainder of this chapter for Naveh's various SOD incarnations and in the next two chapters across the globe in other emergent military design methodologies inspired by Naveh's original experimentation. As Naveh's ideas in 2005-2006 would be categorically rejected by the IDF and associated (potentially more for political reasons than theory) with the Lebanon War failures, he would simultaneously be lifted up as a military prophet of sorts by the Americans and invited to their most prestigious advanced military school located in the wind-swept plains of Kansas. This invitation would occur right in the middle of significant American military and political frustration in the boiling insurgencies of Iraq and Afghanistan.

Fort Leavenworth, Kansas and the Experimentation of Disruptive Design:

The U.S. Army's School of Advanced Studies (SAMS), located in Fort Leavenworth, Kansas has existed since the 1980s and is often defined as the 'tip of the intellectual spear' for the U.S. Army. Mid-career military professionals are selected from large pools of applicants to attend a second formal year of military professional education either immediately after the required year of intermediate level education, upon returning from successful branch-qualifying field positions across the military, as well as a smaller cohort termed 'Senior Fellowship' where Lieutenant Colonels and Colonels that successfully completed Battalion level command would attend SAMS for a two-year requirement as students and later instructors.

If military design represented a radical and novel development for transforming military organization and activities in war, SAMS would ideally be the best place for the inculcation and experimentation phase. For the American part of the military design transition out of Israel in 2005, SAMS is where the majority of intellectual curiosity, experimentation, and eventual implementation into the larger U.S. Army institution occurred. However, the time it took for a new or radical concept to be developed previously such as the AirLand Battle concept took over a decade, whereas the incubation to implementation period for design occurred in

Design,%20Teaching%20Strategy%20and%20Operations%20for%20Small%20Militaries.pdf?sequence=2.

⁹⁶⁹ Seth Johnson, ed., *IBM Design Thinking Field Guide Version 3.1* (IBM Corporation, 2015), ibm.biz/idt_fieldguide; Gilbert and Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson"; Gilbert, "The Art of War: Accelerating Innovation by Scaling the Design Mindset"; YouTube JSOU User, *Design at Scale: How Enterprise Design Thinking Alters How Large Organizations Operate*, MP4 (Tampa, Florida: Joint Special Operations University, 2019), <https://www.youtube.com/watch?v=-eqq7--yywU&spfreload=10>.

four years. This would prove problematic, as the next chapter will explain. The increasingly sophisticated design concepts that Naveh and others were working with would make this even more difficult to introduce into the much larger American militaries, while the rapidly escalating political and institutional demands for sudden improvement strategically and operationally would be responsible for accelerating design implementation well beyond reasonable expectations.

The SAMS program invited Naveh in 2005 to visit and provide design education, first in the original form of 'Systemic Operational Design' and later as a generic, more edited version termed 'design'. Prior to Naveh's formal integration into SAMS, his design concepts were already being initially circulated to isolated seminar discussions by Dr. Jim Schneider, a SAMS faculty member and friend of Naveh who had embraced design.⁹⁷⁰ Although some military academics might argue that faculty engaged in design-familiar topics well before the arrival of Naveh, those were done in relative isolation where new or controversial topics were not part of a larger and cohesive military decision-making methodology intent on replacing the traditional and dominant model available. Only SOD expressed itself this way as the first military design development. Also, while SOD drew from a range of disciplines and theories such as complexity theory, systems theory and sociology, other competing non-design concepts such as 'Effects Based Operations' also drew select interpretations from some of these areas and were also being experimented with across military academia through the 1990s. The perpetual doctrinal effort to standardize terminology and concepts would play a pivotal role in fostering greater confusion of these new ideas and language, further muddying the intellectual waters by 2005.

The shift from Israel to America in this new period of design education featured an important expansion into designing for strategic reasons. As Graicer explains, "once we moved to the States...we had to make our journey into the realm of strategy because before that, in Israel, we didn't bother talking about strategy...we didn't need it; we are not an empire...[Israel] is not running the world."⁹⁷¹ Once they began considering strategic aspects of designing for security challenges, they began to use some metaphoric devices associated with navigation to address the ever-changing epistemological shifts in culture, societal values, language, and how the world is perceived. "We chose the notion of 'drift' to keep with this metaphor of navigation for [the designer] for 're-compassing' yourself in the world."⁹⁷²

Graicer explains that in order to understand this notion of drift, the designer must cognitively map a wide range of social, cultural, as well as doctrinal, institutional, and political directives at the strategic to the operational levels and how it is all shifting and transforming while also pulling you along within a

⁹⁷⁰ Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought."

⁹⁷¹ Graicer, Graicer audio 15OCT2019 17min04sec Day 2 afternoon.MP3, 10:30.

⁹⁷² Graicer, 13:00.

current.⁹⁷³ Getting design students to contemplate how reality is not fixed and uniform but transforming and fluid would move SOD into its next form where the majority of students hailed from the American military and not the Israeli forces. Here, the contemplation of a complex reality where security challenges occur would be expanded into strategic levels beyond the original first form of SOD created for an operationally oriented yet strategically uninterested Israeli security program.

Between 2005 and 2009, Naveh was deeply involved in the SAMS program, mentoring and advising students, educating cohorts in SOD, and supervising select students (as well as interested faculty) on their yearlong research monographs if they were studying design.⁹⁷⁴ During this period, SAMS students produced a flurry of design-themed monographs, papers, and research. Students explored deep philosophical concepts, including reading difficult readings such as Deleuze & Guattari's 'A Thousand Plateaus' during their year of study on design, strategy, and operational planning.⁹⁷⁵ Naveh composed his SOD concept to draw heavily upon postmodern concepts of nomadic ways of thinking that included many sophisticated ideas within Deleuze & Guattari as well as other noted postmodern works.⁹⁷⁶ The U.S. Army would entertain Naveh's postmodern design theory with some apprehension that the current Israeli form might require further refinement to become suitable for incorporation into American military doctrine and practice. Van der Veer, citing the 2009 version of 'The Art of Design student text,' summarizes this first blush with American military academia at Fort Leavenworth in his thesis work:

In January 2005 SOD made its debut in the U.S. Army and Shimon Naveh and personnel from OTRI assisted the School of Advanced Military Studies (SAMS) and the U.S. Army Training and Doctrine Command (TRADOC). TRADOC subsequently developed its own application of SOD. TRADOC's approach because it had the potential for a way of thinking that could address some conceptual contradictions that, at the time, were becoming apparent with regard to the war in Iraq. That same year SOD was incorporated in the annual U.S. Army Title X Unified Quest Capstone War-games of 2005 for experimentation in which besides the U.S. Army also the [American, British, Canadian, Australian and New Zealand] armies participated...The Unified Quest Capstone War-games of 2006 with

⁹⁷³ The concept of 'drift' has also appeared in strategic management theory. See: Mintzberg, "The Design School: Reconsidering the Basic Premises of Strategic Management," 186.

⁹⁷⁴ Sorrells et al., "Systemic Operational Design: An Introduction"; Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative"; Groen, "Systemic Operational Design: Improving Operational Planning for the Netherlands Armed Forces"; Dixon, "Systems Thinking for Integrated Operations: Introducing a Systemic Approach to Operational Art for Disaster Relief"; Bernard, "Systemic Operational Design: Bringing Efficacy to the Operational Level of War"; Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?"; Delacruz, "Systemic Operational Design: Enhancing the Joint Operation Planning Process."

⁹⁷⁵ Deleuze and Guattari, *A Thousand Plateaus*.

⁹⁷⁶ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2016, 6.

SOD as subject, continued with the support of Shimon Naveh...Eventually the findings of the Quest Capstone War-games resulted in the TRADOC Pamphlet 525-5-500. In July 2007, based on further feedback from the Unified Quest experience, SAMS received the mission to further develop design thinking for the Army, building upon [TRADOC's] continuing effort to assess the application of design.⁹⁷⁷

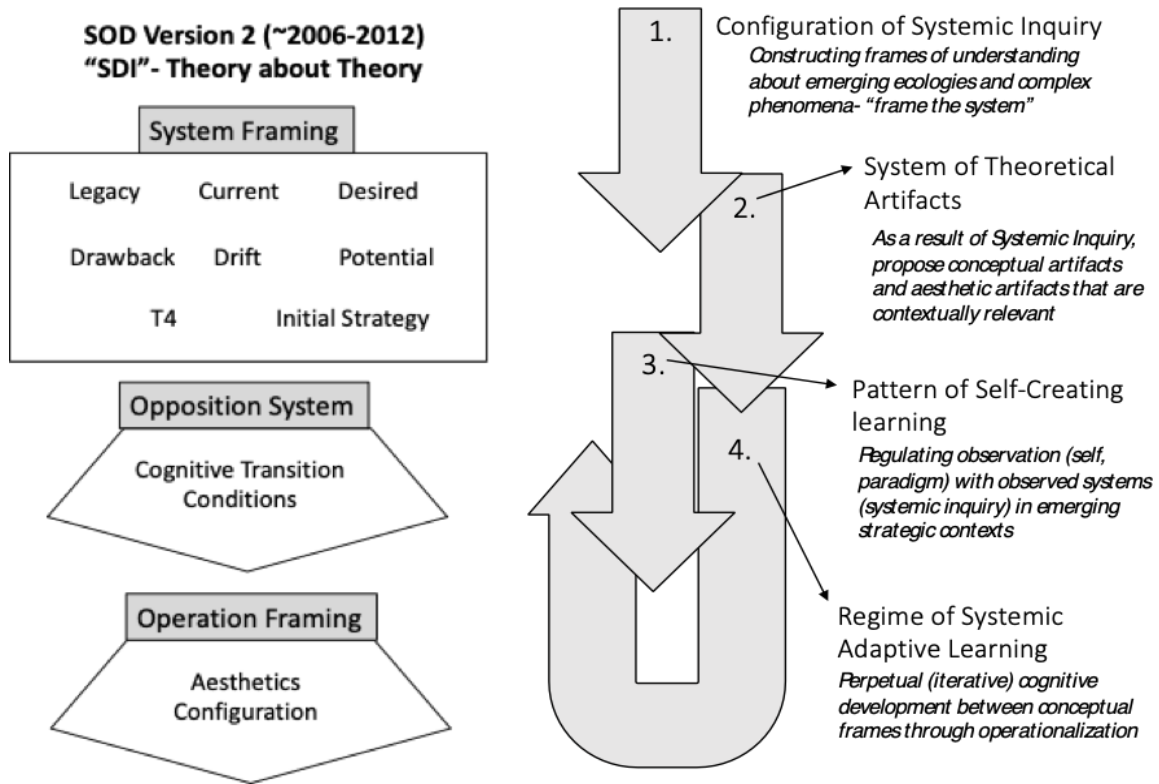
The American initial experimentation with SOD during these two Unified Quest war-games would stimulate further research as well as begin to build momentum not just for formal military design education at higher institutions of military learning such as SAMS, but from TRADOC for a doctrinal adaptation of military design to be crafted. As Naveh's work was both foreign and filled with esoteric language and challenging, self-disruptive concepts,⁹⁷⁸ the American academia at Fort Leavenworth would move to assimilate select elements of SOD, emphasize key existing cultural, doctrinal, and epistemological stances of the American war machine, and simultaneously attempt to stimulate transformative military thought into action on the perplexing contemporary battlefields of Iraq and Afghanistan in 2006-2010. The first doctrinal assimilation of design for American applications would occur rapidly, for pressing real-world needs.

Author's Epistemological Depiction of 2006-2012 "SDI" Second Version SOD:

⁹⁷⁷ van der Veer, "The Rise of Design: Why an Innovative Concept Is Emulated in Armies around the Globe," 34-35.

⁹⁷⁸ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020, 14.

2006-2012 SOD's Design Epistemology



Naveh and Graicer would spend the majority of 2006-2012 exiled from the IDF for design education although both would continue living in the country and shifting to the intellectual export of systemic operational design abroad. Naveh, ever the creative experimenter, would change the organizing graphic of SOD meta-methodology from the earlier geometric metaphoric device to this "SDI" depiction on the left side of the above figure.

The earlier geometric depiction would continue to be the most well-known graphic of design 'meta-methodology' across various militaries including to most academics familiar with military design theory. Aside from Graicer presenting and publishing on the second and third phases of SOD in the last five years⁹⁷⁹ and the low-circulated Israeli design doctrine with associated different graphics in 2015, the only primary examples of SOD would remain Naveh's first experimentation as depicted in the first figure in this chapter. In this second phase of expressing the meta-methodology of his design as depicted above, Naveh has abandoned the geometric metaphors mostly, instead shifting to a heavier emphasis on his design language and groupings of these terms under 'system framing', 'opposition system' and 'operation framing.'

Despite the graphical difference between the first and second phases of SOD, Naveh still holds to a very similar epistemology of how to do SOD. His difference

⁹⁷⁹ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 34.

between phases appears to relate to the target audience of design education within the military centralized hierarchy, access to that audience through his foreign travels, and his experimentation with andragogic styles of discourse due to his appreciation of different military culture. His SOD approach with Australians would differ, in his own words, from his other SOD engagements with field grade students at Fort Leavenworth, Kansas or Special Forces students in Tampa, Florida.⁹⁸⁰

Learning from Design Defeat: The Israeli Heretic Returns Once More

"No one is ever completely unhappy at the failure of a friend"

-Groucho Marx

After being banished from the Israeli Defense Force intellectual community in 2006,⁹⁸¹ Naveh returned once more by 2013 to Tel Aviv. After years of reflection as well as further experimentation with design education and practice in the American and to a lesser degree, Australian and other international militaries, Naveh was asked back into the nerve center of senior officer education for the Israelis. He reflects back on his exile and subsequent restoration into the intellectual center for Israeli General Officer development with a mix of humor and outrage. "In 2014, one of my arguments [to the Israeli War College] was, you guys...take a look at yourselves, look in the mirror. You are shmucks! You threw me out as the devil eight or nine years ago, and after all that time, you crawl back to me. What does this tell you about yourselves? You are nothing. So maybe you should build up this institutional capacity [for design education]."⁹⁸²

In the northern part of Tel Aviv in Herzliya, Naveh now teaches his latest version of systemic operational design with his long-time teaching partner, Ofra Graicer to small classes of Israeli General Officers and other senior security leaders across Israel. They do not themselves select the officers for their design education; rather in Graicer's words: "they are selected by the Chief of General Staff in the military, and his counterparts in the other [Israeli] services. At least in the [Israeli] military, it is considered (informally) an act of faith from the CGS in the plausibility of further advancing in the ranks; and I mentioned [at the Canadian Forces College's

⁹⁸⁰ Naveh, "The Australian SOD Expedition: A Report on Operational Learning"; Downing, "White Paper: Introduction to SOF Operational Design"; Jeb Downing, "Systemic Operational Design" (Microsoft PowerPoint, JSOU proposal for Operational Design Course Development for USSOCOM personnel, Joint Special Operations University, Tampa, January 6, 2015); Ryan, "A Personal Reflection on Introducing Design to the U.S. Army"; Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)."

⁹⁸¹ Graicer termed this "self-exile" in that it is unclear if the IDF formally dismissed Naveh and his ideas, or if Naveh chose exile in response to his ideas being blamed unfairly for military failures.

⁹⁸² Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

design education exercise] last June, more than half of the General Staff are [now] graduates of the course.”⁹⁸³

The two of them teach in a low-key setting, dividing the students up into two design teams with several outside mentors contributing on practical non-design matters. Naveh and Graicer attempt to keep a low profile, and in a series of interviews with the author reflect on the last three decades of military design theory and practice. Despite describing this ‘under-the-radar’ new approach, Naveh also admits when the program provided him six Colonels to assist him with design education when he first returned in 2013, he fired them all.⁹⁸⁴

First, Naveh by 2019 views the educational journey of military designers as something exclusive to the General Officer level, in that specifically for the Israeli forces, they are culturally unique and unlike contemporary and larger forces such as the American military. They lack large staffs, and therefore the design must be, according to Naveh, done exclusively by the Israeli General.⁹⁸⁵ Their andragogic mode of design education now is also unique and unlike previous efforts that Naveh led and shaped. Earlier in Israel Naveh would teach lengthy design courses to Generals, while in the 2005-2010 period in America and Australia he shifted his target audience from Generals to mid-grade officers while maintaining a highly academic and intensive course structuring.

The previous figure depicting his ‘SDI phase’ of his design praxis in the 2006-2012 period potentially indicates some of his experimentation both in graphically framing his meta-methodology as well as communicating to students and leadership on why self-disruption and multi-perspectival reflexivity is essential. This would change once more after 2013 despite his core SOD epistemological positions remaining largely as they were in the late 1990s. Today, Naveh and Graicer see their students only one weekend per month in Herzliya, and after each session their students return across Israel to continue leading their organizations in real-world security contexts. In this periodic and iterative mode of design education, students return each month for a few days to discuss design and their own organizational challenges with their peers, and after contemplating novel experiments and alternative perspectives return back to their assignments to spend the rest of that month changing their design and experimenting in the real world.

One of the main reasons Naveh shifted to this is due to his belief that his earlier design efforts failed due not to any theoretical issues or the application of design in war, but due to institutional resistance by senior leadership. On the original ‘test case’ of his design in the 2006 Hezbollah War, he blamed senior leadership for failing to even understand or attempt to learn design when interviewed in 2007.⁹⁸⁶ Since then, he has moved to protect his latest version of systemic operational design by “building a wall of mentors” to protect his

⁹⁸³ Ofra Graicer to Ben Zweibelson, “Re: Go with This Version Instead (15 FEB Reply),” February 15, 2020. Personal correspondence over e-mail.

⁹⁸⁴ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

⁹⁸⁵ Naveh and Graicer, Naveh audio 14OCT2019 9min19sec Day 1 afternoon.MP3.

⁹⁸⁶ Naveh, Interview with BG (Ret.) Shimon Naveh.

creation.⁹⁸⁷ Naveh now inverts the centralized military hierarchy through SOD, but shields it by returning to the traditional power structures for room to disrupt further.

Today, Naveh grooms key senior officials across the Israeli forces to become students in his program so that, once they learn and appreciate the design concepts, they subsequently act as a protective shield from others unfamiliar of design that might move to strike the movement. Although Naveh and Graicer have no direct impact upon the selection of students in the Tel Aviv program, they are able to encourage promising generals to request attendance. As Naveh and Graicer teach design today exclusively to the most senior leaders in the Israeli forces, they are able to implement this style of self-protection of a minority community of design practice. Naveh also seeks out active and retired Israeli generals that have employed design in their command and uses them in a social network within the IDF as a form of intellectual insulation to help prevent what he sees as a period of misinformation and intolerance of new ideas in the 1995-2005 phase of SOD in Israel.⁹⁸⁸

As Naveh recalls in a 2019 interview, “we all recall how we fell down in 2005...we [now] have this huge wall, a defensive wall...for example, think about who are the guys that are really influencing the present [organization you want design for]. Get access to them, mobilize them, recruit them, make them your friend...You have to be creative, manipulate the system, and [at first] start small.”⁹⁸⁹ Naveh, when reflecting on his period teaching design to mid-grade officers in 2005-2010 in the United States, would in 2019 pivot away from that target audience and once more reaffirm the primary audience he wanted to teach design to were the General Officers of the security forces.

The author pressed Naveh in an interview on this change of heart. “Look, originally it was all linked to generalship, to the praxis [of design]. I was a bit bitter in 2008 or 2009...and I was really furious. I was angry. I still think that there are a significant amount of stupid generals are still going around, here in the IDF, but one of the things and I have been admitting this since I returned [to teach in Israel] is I rediscovered the community. One thing I have learned is that first of all, that they are not that stupid. Actually, if you make the right efforts to set the conditions that will enable them to expose the best out of themselves, they and yourself will realize that they are not that stupid. And the second thing is that socially, they operate so well. So smoothly, as a team. This could not be done in the U.S. You put ten Generals in a room, and one is responsible and runs the [inquiry].”⁹⁹⁰

Graicer, in the same interview session, expands on the topic of design education for mid-grade officers versus senior leadership. “Going back to your question on Majors and Colonels versus Generals...I think, what we do now [in Israeli SOD education at Herzliya] is so different from what we did in OTRI [during the first SOD phase of 1995-2005]. First, OTRI was four and a half months of a

⁹⁸⁷ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

⁹⁸⁸ Personal correspondence with Graicer on February 23, 2020.

⁹⁸⁹ Naveh and Graicer.

⁹⁹⁰ Naveh and Graicer.

design course. More than half of it was frontal presentation, academic teachings, texts...it was brutal.”⁹⁹¹ After the passive phase of original SOD education, Naveh and Graicer, along with ten other instructors including eight former brigadier generals and two civilian academic experts would then move onto the hands-on, practical phase with several design inquiries.⁹⁹² This original style of SOD education would change significantly by 2013 based on their experience and setbacks as well as professional growth. Gracier described the original SOD design scenarios as dense, based on imagined topics of security interest but supported by a robust reading pile of difficult concepts and challenging multi-disciplinary theories. “There were scenario briefings and intelligence briefings...Again, we were in love with it so we kept adding more things into it.”⁹⁹³ The theory and philosophy of the original SOD program was overwhelming, and directly taught to the students by Naveh and his design masters.

A second major difference between the original OTRI design and today's SOD experience in Herzliya is the mixed security student audience. Early SOD was exclusively for the Israeli Defense Forces, whereas today Naveh and Graicer host student teams with senior leaders from across the Israeli security and intergovernmental agencies and departments. They attempt to get international design students; however, a significant challenge is the structure of their current course. If a student is not able to travel back and forth to Israel for an entire year in order to do the weekend iterations per month, but also be able to return to their current assignment as a General Officer or senior official in order to implement said design education monthly and report back, they will likely not get much value from this course. Their educational structure supports a single-military and single-national network while making it difficult for outsiders to have the availability and travel resources to embark on this irregular style of professional development.

Being able to gather a design team of senior security professionals that are peers but also not a homogeneous group is the second important distinction between the original SOD experiment with OTRI and today's latest SOD version in Herzliya. Naveh and Graicer feel that the earlier version channeled into groupthink because the peers came from the same military, and even at times the same unit. Peers today in their Herzliya program are senior but not from the same organization and will challenge the design team when they tunnel in on topics that are vastly more complex than even a military focus area.

Naveh views the General as the ultimate military professional at the top of their game, with sufficient knowledge and experience to be capable of doing the design he advocates. “Generals are confident. If you give them a mission, they will do it. They will not be too anxious because, well, they are already Generals...although, nobody likes to fail. And I mean nobody. Everybody wants to excel...but Generals usually are cooler.”⁹⁹⁴ Graicer takes a nuanced approach to educating Generals

⁹⁹¹ Naveh and Graicer.

⁹⁹² Personal correspondence with Graicer on February 23, 2020.

⁹⁹³ Naveh and Graicer.

⁹⁹⁴ Naveh and Graicer.

where even if they are difficult to educate because they assume their rank assures some completion of their military knowledge, that “generals always think they know best...and they do know best. Or so we need them to think.”⁹⁹⁵ Here, Graicer implies that despite the Generals being confident (or even over-confident) of their knowledge and wisdom for war, that confidence should be reinforced by the design educators so that the General remains able to make those critical decisions at the top of the centralized military hierarchy where they alone are empowered and totally responsible. Epistemologically, this singular focus on the top of the military hierarchy for the majority of all design education is unique to the Israeli program.

Today, the Israeli design education is done with small teams of ten General officer students with a rotating responsibility for one of the students to take lead of the design team for the weekend educational session. Their design inquiry topic is always a real security topic, typically drawn from their own organizational challenges within Israel unfolding at the moment. Each design team leader is nominated by Naveh and Graicer about four or five weeks before the class session. At that point, the student leader is tasked to prepare their own design program for their group. This is an interesting andragogic variation from Naveh’s earlier incarnations of SOD in that he is placing the design educational journey directly in the hands of the student, and thus reproducing a familiar postmodern pedagogic idea from *The Ignorant Schoolmaster*. In that book, Ranciere explains the French radical concept of students discovering their own educational paths without the teacher controlling or directing the journey.⁹⁹⁶

Although there are several isolated schools and minority design groups still experimenting with this postmodern idea on alternative education,⁹⁹⁷ Naveh’s current design practice in Israel is one of the few military examples of applying this model. “We don’t do any teaching...no presentations...we spend ten or twelve hours initially with that leader for an initial briefing, and then he goes and does some thinking, some reading. And then he comes back, and he works out an initial program...we criticize it, and he goes back...finally he comes up with a program and he works out [his design approach]. We are not facilitators...what we do is we actually use the leaders.”⁹⁹⁸ Graicer in a separate interview reinforces this rejection of the label ‘design facilitator’, instead preferring the term ‘cognitive operator.’⁹⁹⁹ This nuanced andragogic stance on design education is significant as the Israeli approach to design education orients on an emphasis on senior operational military leaders (general officers exclusively) as well as the onus of practical application

⁹⁹⁵ Why Generals Need to Forget before They Can Become Generals | Ofra Graicer | TEDxTelAvivUniversity (Tel Aviv, Israel: Tel Aviv University, 2015), 2:13, <https://www.youtube.com/watch?v=6pfZM9uSlmg>.

⁹⁹⁶ Jacques Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, trans. Kristin Ross (Stanford, California: Stanford University Press, 1991).

⁹⁹⁷ Ben Zweibelson, “The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts,” *Military Review* 95, no. 2 (April 2015): 94–105; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*; Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2016.

⁹⁹⁸ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

⁹⁹⁹ Graicer, Graicer audio 15OCT2019 17min04sec Day 2 afternoon.MP3, 2:01.

(trial and error) on the student, not the teacher. This again indicates some postmodern application of educational ideas from Ranciere's *Ignorant Schoolmaster* within how Naveh and Graicer approach design education for the IDF.¹⁰⁰⁰

These design dialogues between the General student leader and Naveh's educational team will take many hours and occur in the periods between when they visit together each month for the few days of actual design practice. Naveh does this to enhance the social dynamics of when the student teams are together operating on that particular design challenge and using that student leader's designed mode of inquiry. Although Naveh and Graicer influence that mode of design inquiry, they do not control it or provide the student leader with a prefabricated design methodology. Once again, Naveh stresses an indirect andragogic mode of facilitation that he declares is not facilitation.¹⁰⁰¹ Arguably, Naveh's current model of design education remains an alternative form of facilitation in that Naveh and Graicer clearly remain in control and shape the design journeys, although they do this using an entirely different epistemological stance on design andragogy drawing from postmodern concepts such as Ranciere. Today, Naveh and Graicer avoid the criticism of earlier SOD design by not forcing students to read huge piles of exotic theory and philosophy or suffer through standardized lectures and intelligence briefings. The learning is self-guided, entirely dependent on the student design teams and their own curiosity and critical thinking.

Naveh and Graicer now mentor two design teams of ten to twelve Generals (per team) in separate classrooms, preselected by the Israeli Chief of General Staff as an acknowledgement of these senior leaders' future potential and also implicitly an acknowledgement of Naveh and Graicer's impact. Naveh works with one team while Graicer works with the other, and these teams remain separate throughout the design sessions at Herzliya. There are only two design exercise rooms, and the small footprint creates an exclusive and 'small-batch' education atmosphere. Within these design student teams, Naveh prescribes breaking them down into three sub-teams of three to four Generals so that they all are engaged and working. He sees larger design teams as impractical because "three will do the work, one will lead, and the rest are zombies and disengaged."¹⁰⁰² This is a slight variation in making smaller sub-teams versus the somewhat larger design teams composed in earlier SOD incarnations at Leavenworth and under a previous contracting role for USSOCOM.¹⁰⁰³

¹⁰⁰⁰ Jacques Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, trans. Kristin Ross (Stanford, California: Stanford University Press, 1991); Ben Zweibelson, "The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts," *Military Review* 95, no. 2 (April 2015): 94-105.

¹⁰⁰¹ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3, 1:27:10.

¹⁰⁰² Naveh and Graicer, 1:31:00.

¹⁰⁰³ Jeb Downing, "SOD Basic Course Learning Objectives for SOCOM Joint Special Operations University" (Unpublished manuscript in author's private collection, January 7, 2015); Jeb Downing, "JSOU Educational Support for Commander Directed Operational Design Instruction for USSOCOM Leadership and Staff (as of 22 Jan 15)" (Unpublished manuscript in author's private collection, January 30, 2015).

Design intervention by Naveh, Graicer or their non-design mentors associated with the program occurs only in two specific occasions. When the design team gets stuck cognitively, in that they are unable to break through certain intellectual barriers, Graicer explains that “we pull them back.” Naveh further clarifies that “we do not tell them what to do. We help them realize what happened to them cognitively, in terms of how they got stuck. This is one mode of intervention, and you have to be very patient. Remember, you are observing, but it is not your creation. It is their deliberation. [You] can jump ahead, see where they are going. When they get stuck, we step in and help them rescue themselves.”¹⁰⁰⁴ The second situation where Naveh will intervene with his latest approach in educating military design teams is when a design team is performing acceptably but they lack self-reflection in the act of doing the design. This is where Naveh states metaphorically “we begin flogging them...projecting questions [that] will shatter them. This will lead them to rethink, reframe, and sometimes they are doing brilliantly without being aware of what it is that they have actually done. So, we stop them and [tell them] this is a miracle, what you have done...let me explain to you why this is.”¹⁰⁰⁵ Conceptual reframing in SOD draws from organizational theory such as Tsoukas’ work on conceptual reframing where metaphoric and non-metaphoric examples aid in new knowledge production in organizations.¹⁰⁰⁶

The final design deliverable is presented by the team in Naveh’s latest SOD structure again using significant preparation with the students prior to the actual event. Naveh does not emphasize the deliverable itself here, but instead he wants the design teams to explain their cognitive process that produced that deliverable. Once more, this emphasizes a ‘thinking about thinking’ methodology that enforces what Schön termed ‘reflective practice’ in design.¹⁰⁰⁷ As opposed to U.S. Army and Marine design methodology that specifically emphasize a design solution that subsequently is inserted into the legacy planning methodology (explained in the next chapter), Naveh demands designers to discuss at a meta-cognitive level why they designed as they did. Designers are forced to explain their epistemological and ontological choices in their design rather than describe the methodological outputs alone. This latest phase of SOD including a new graphic depiction of his meta-methodology is presented below along with the author’s epistemological appreciation of SOD.

Author’s Epistemological Framing of ‘Z-Pattern’ Disruptive Thinking 2013-2019

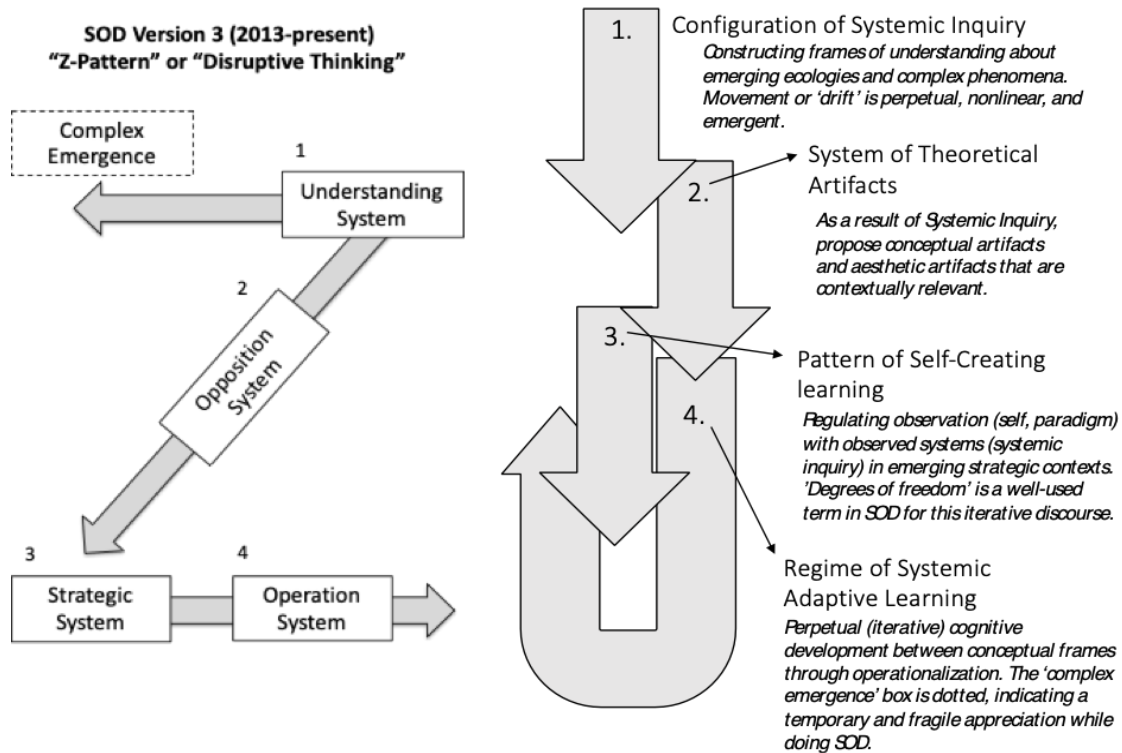
¹⁰⁰⁴ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

¹⁰⁰⁵ Naveh and Graicer.

¹⁰⁰⁶ Tsoukas, “A Dialogical Approach to the Creation of New Knowledge in Organizations,” 947–48.

¹⁰⁰⁷ Donald Schön, “Knowing-in-Action: The New Scholarship Requires a New Epistemology,” *Change*, no. November/December 1995 (1995): 27–34.

2013-2019 SOD's Design Epistemology



Naveh's latest and current (as of this research date) depiction of his meta-methodology has again shifted away from the geometric orientation of the first SOD, and also away from the heavier terminology and conceptual density of the second phase SDI period depicted earlier. Like the SDI graphic, this 'Z-pattern' is mostly unfamiliar outside of the small population of Israeli General Officers and internal design community within the IDF that have experienced Naveh and Gracier's design andragogy from 2013 until present.¹⁰⁰⁸ As they only educate in small batches of senior Israeli leaders and attempt to keep a low profile, those designers familiar with the 'z-pattern' are exceptionally minute when compared to the much larger practioners populations explored in the next chapter.

On this 'z-pattern' meta-methodological depiction, Naveh appears to elegantly balance the emphasis on movement, iteration, discourse, and disruption in SOD without over-burdening the graphic with dense terminology or potentially perplexing geometric relationships. Moving back and forth, iteratively in the 'z-pattern' is quickly grasped by students as well as ideally readers of this chapter when considering the other SOD depictions. Note that in the upper left of the 'z-

¹⁰⁰⁸ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)," 34; Ofra Graicer, "Self Disruption- Beyond the Stable State of SOD," in Cluster 1 (Hybrid Warfare: New Ontologies and Epistemologies in Armed Forces, Canadian Forces College, Toronto, Canada: University of Ottawa and the Canadian Forces College, 2016).

pattern', the 'complex emergence' box is dotted, indicating a temporary and fragile appreciation while doing SOD.

This is unique and distinct from earlier graphics. In the next chapter, few of the design methodological depictions of subsequent foreign military design adaptations draw from the 'z-pattern' as it is the least known and most recent form of design praxis by Naveh. Additionally, the institutional rejection of SOD in the first phase has created some bias against even the mention of the term 'SOD' in many military academic and operational planning circles, making the 'z-pattern' even more difficult to be entertained by outsiders to his latest concept. Lastly, there appears to be direct graphical linkages between many of the design methodologies done in America, Australia, and Canada that rely on the geometric structure depicted in SOD first phase, yet not the third phase. Readers can compare the various military epistemological renderings of these designs in the next two chapters to those depicted in this one for SOD.

Another important distinction between earlier SOD education and what Naveh and Graicer provide in northern Tel Aviv today is the frequency of andragogic change during the execution of a design course. During their early OTRI days and then in American as well as contractor periods for USSOCOM and other military clients, Naveh and Graicer were expected to hold to their original design program throughout the course. Any change needed to be done in a traditional academic manner that involved a curriculum review, deliberate testing and pilot course requirements, and formal supervised implementation so that the design education was held to the standards associated with that university or academic program.

Today, Graicer states, "And then we change the program, it is not the same program. We change the program every year." Naveh follows on with, "sometimes we change it during the course of the year...because opportunities occur." Graicer frames this approach with the term 'degrees of freedom' in design; As one style of design that is dynamic and flexible. "You explain to them the degrees of freedom first theoretically, and then something happens which [becomes] an example for you to say, okay, you see what you have done right now? Do you see what you have said?"¹⁰⁰⁹ This mode of flexible design adaptation during the execution of the course represents for Naveh and Graicer a major way the new SOD education in an andragogic sense differs from all earlier versions. Potentially, the freedom offered by the Israeli General Officer school and the low visibility sought by Naveh and Graicer today help foster such an environment that in other professional military environments might not be tolerated.

Graicer highlights yet another difference between Israeli design education in the early OTRI days and today has to do with a more open-mindedness of Israeli General Officers as compared to the previous generation. "Another big change from the OTRI days [1995-2005 SOD period] is the world. The world has changed. The Generals that we have today notice that it is not working. That this big war that the military is supposed to prepare for is not going to happen. I am not saying they do

¹⁰⁰⁹ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

not operate under it still; but deep down they know that the system is flawed. So, they come [to the design course] more ready to challenge it.”¹⁰¹⁰ Whether these current Generals are more cynical, or potentially more willing to challenge traditional belief systems is unclear. However, Naveh and Graicer see a generational change in Israeli General officer attitudes towards deconstructing the current system frame, challenging its core logic, and presenting alternatives.

Variations on Disruption: The Fools, Fiends, and Friends of Naveh

Over the decades, Naveh has gained a large following of military professionals with a range of varied intents and positions, as well as a similar legion of SOD contrarians and those that despise his work. Some admire his ideas and see his form of military design as an important and yet incomplete contribution to the profession of war. Others of course dismiss systemic operational design as some postmodern bunk that is if anything a distraction from serious study and application of organized violence. Many have sought to capitalize on the value of design thinking, with a range of applications where their utility seems to depend on how well they understand Naveh’s ideas as well as Naveh himself.

Naveh generally discounts most any attempt to perform his mode of military design outside of the unique Israeli context and away from his own ability to mentor and coach as a poor imitation or worse. Even within the Israeli Defense Force where now a larger population of serving senior military generals have received design education from Naveh, only a small amount of them admittedly attempt it. Graicer estimates that: “Of active general officers and their counterparts who participated in the course, I would offer, ten percent will publicly acknowledge their use of SOD, forty percent use it and admit it privately, twenty percent are influenced by it subconsciously, and the rest are either indifferent, or did not get it.”¹⁰¹¹ Naveh previously cited similar numbers when teaching design to Australians and Americans in the 2005-2012 period outside of Israel.¹⁰¹²

Naveh remains a difficult military artist to work with, as he continues to teach and experiment in his provocative as well as often egotistical style in Tel Aviv today. Of the numerous design theorists, educators and practitioners over the years that have come and gone from Naveh’s inner circle, only Graicer has maintained a strong working relationship as well as a collaboration with Naveh concerning their own academic growth of the SOD style and form. However, as of 2014 Naveh seldom travels outside of Israel, rarely communicates outside of his phone or in person, and until recently has shown no interest in writing or publishing new ideas outside of his small and highly exclusive design program.¹⁰¹³

As the IDF created a new design education contract for Naveh and Graicer at Tel Aviv since 2013, it could be that Naveh is far too engaged in his current work to

¹⁰¹⁰ Naveh and Graicer.

¹⁰¹¹ Ofra Graicer to Ben Zweibelson, “Re: Go with This Version Instead (17 FEB Reply),” February 17, 2020.

¹⁰¹² Naveh, “The Australian SOD Expedition: A Report on Operational Learning.”

¹⁰¹³ Graicer to Zweibelson, “Re: Go with This Version Instead (15 FEB Reply),” February 15, 2020.

have the time or energy to travel or publish publicly. In recent interviews he even seems self-deprecating about how he will not be teaching design or be part of the IDF leadership development in the next five years. Naveh's strong personality, confrontational style of discourse, as well as his pride have made him many enemies while making it challenging for the few that are willing and able to take up his design movement to freely engage with him. Numerous design offspring and efforts to streamline his multidisciplinary and intellectually dense material have frequently over-simplified or entirely misinterpreted military design, including most attempts to render design into military doctrine. Few are able to understand it thoroughly, with even fewer able to teach it to others. Of those, Graicer is of particular importance concerning where SOD is today, and where it may be tomorrow.

Graicer has over the years contributed to the transformation of systemic operational design through different phases, despite she and Naveh at times in disagreement as well as disunity in how they apply design or for what purpose. Although some differences are technique related or andragogic concerning the style of design education delivery, there are several important distinctions to highlight. She contributed the more recent concept of 'degrees of freedom' that SOD has incorporated into its most recent form which Graicer credits as occurring approximately in 2016, which illustrates how frequently Naveh and Graicer continue to modify their design methodology.¹⁰¹⁴

Graicer describes the concept with: "in the structuring phase of the inquiry, how you begin, how you motivate yourself, how you position yourself...to use this concept of 'degrees of freedom' to say, "okay- this is what is binding me...whether it is doctrine", and use it as a point of departure...talk to me about what represents your mind, talk about it, be aware that it is there, and the opposite [as well] ...and the answer to where the degree of freedom is will usually come from there."¹⁰¹⁵ The self-imposed "imprisonment" of one's mind forms the center of this concept.

One's perception as a designer of their own 'degrees of freedom' therefore incorporates reflexive practice in line with the work of Schön,¹⁰¹⁶ as well as acknowledging one's preferred paradigm for realizing reality.¹⁰¹⁷ The 'degree of freedom' consideration occurs early at the onset of a design inquiry, with Graicer suggesting that SOD facilitators should not permit a design team to move into another design phase if their degrees of freedom concept has not matured to where they have "opened new cognitive space...if they have not opened this in the beginning, it is just going to get more narrow [in thought]...why wait three days if

¹⁰¹⁴ Ofra Graicer, Graicer audio 15OCT2019 11min02sec Day 2 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 15, 2019, 7:26.

¹⁰¹⁵ Graicer, 6:48.

¹⁰¹⁶ John Gero and Udo Kannengiesser, "An Ontology of Donald Schön's Reflection in Designing" (Key Centre of Design Computing and Cognition, University of Sydney, undated).

¹⁰¹⁷ Gibson Burrell and Gareth Morgan, *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life* (Portsmouth, New Hampshire: Heinemann, 1979); Dennis Gioia and Evelyn Pitre, "Multiparadigm Perspectives on Theory Building," *Academy of Management Review* 15, no. 4 (1990): 584–602.

you didn't give yourself the conditions to begin something new?"¹⁰¹⁸ Naveh's earlier versions of SOD clearly had different manifestations of this core design concept, however Graicer's original contribution provides the Israeli military students something more readily understood than Naveh's earlier concepts. It represents one of the major contributions to current SOD theory that was not created by Naveh himself yet accepted by him as fundamental to their methodology.

Graicer, as a female teaching design almost exclusively to a male-dominated audience within the IDF, has encountered different institutional challenges than Naveh and over the past nearly two decades of practice has evolved her own unique style of design education that clearly differs from that of Shimon Naveh.¹⁰¹⁹ This is despite them working side-by-side in adjacent classrooms as well as progressively experimenting and reconfiguring SOD over the years. Although Naveh published and wrote on SOD earlier in the development of their program, Graicer has in the last five years been the public and academic face of IDF design with a series of design articles, online lectures, conference appearances and the international engagement of the growing design community.¹⁰²⁰

In personal correspondence with the author and others, Graicer acknowledges that her gradual design orientation may also be drifting into a new direction where Naveh is potentially not involved or as great an influence in the next decade. Graicer, in personal correspondence with the author states that she is in full agreement with the methodology, theory and philosophy concerning this latest form of SOD. However, she differs with Naveh on the application of it as well as perhaps some personal stylistic differences as well as personality in how they educate.¹⁰²¹ Graicer's continued experimentation with SOD as well as her own unique insights and adaptations may branch the current Israeli SOD practice into two different yet arguably authentic and unique design communities of practice within Israel as well as abroad.

Despite Graicer holding perhaps the closest formal ties to SOD and Naveh's tacit approval as an appropriate extension of his own design vision, there are select others across the globe that appear in part to be extending and developing SOD and Naveh's ideas in practice as well as into new theoretical constructs. Some of these appear to gain Naveh's appreciation and interest, while others elicit contempt and dismissal by the apparent father of this military design movement. Some military students of SOD are now attempting to practice as well as educate within the SOD style, to include at the Canadian Forces College in Toronto,¹⁰²² the Joint Special

¹⁰¹⁸ Graicer, Graicer audio 15OCT2019 11min02sec Day 2 afternoon.MP3, 9:50.

¹⁰¹⁹ Graicer, Graicer audio 15OCT2019 17min04sec Day 2 afternoon.MP3, 2:10.

¹⁰²⁰ Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)"; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design"; Graicer, "Between Teaching and Learning: What Lessons Could the Israeli Doctrine Learn from the 2006 Lebanon War?"; Why Generals Need to Forget before They Can Become Generals | Ofra Graicer | TEDxTelAvivUniversity.

¹⁰²¹ Personal correspondence with Graicer on February 23, 2020.

¹⁰²² Mathieu Primeau, "Design Is Guerrilla Warfare," design lecture, YouTube, February 5, 2020, https://www.youtube.com/channel/UCL7hOd0ihWzmJlga_Y4wCJg; Matthew Lauder, "Systemic

Operations University in Tampa, as well as interest from the Australian military and from European partners.¹⁰²³ Others appear intent on promoting select aspects of SOD in attempts to 'simplify design' that tend to evoke resentment and rejection from Naveh and Graicer. Thus, there are new design artists emerging and what might be seen as counterfeiters as well.

Conclusion: Monsters Destroy to Create That Which is Needed Next...

Institutions as well as collections of humans in groups, organizations, or teams tend to fear change, unless it is more of the same. There is an emphasis on gaining efficiency with the standardized tools one has already mastered, and an institutional preference to protect these 'tools' whether cognitive or actual artifacts encoded with cultural symbolization if only to retain what worked yesterday to sharpen it for tomorrow's expected use.¹⁰²⁴ Militaries want to prepare for the next war by becoming better at winning the last war. The modern war frame seeks linear causality in complex systems that have no such mechanism.¹⁰²⁵ Modern military doctrine and most strategic to tactical methodologies capitalize on engineer-based¹⁰²⁶ and reductionist methodologies that espouse a Newtonian physics reality.¹⁰²⁷ This frame seeks to reinforce past lessons to validate experience beyond the unique contexts from which it became relevant...to create and maintain universal laws and tenets for war.¹⁰²⁸ There is a teleological quality in the bureaucratic creep of institutional protection of rituals, belief systems, and favorite

Operational Design: Freeing Operational Planning From the Shackles of Linearity," Canadian Military Journal, Operational Planning, 9, no. 4 (2009): 41-49; John Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," Canadian Military Journal 12, no. 3 (2012); Beaulieu-Brossard, "Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts."

¹⁰²³ Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Aaron Jackson, "Civilian and Military Design Thinking: A Comparative Historical and Paradigmatic Analysis, and Its Implications for Military Designers" (IMDC 2019 Conference, Lancaster, UK: unpublished, 2019), 1-31; Aaron Jackson, "A Brief History of Military Design Thinking," Medium.Com, February 5, 2019, <https://medium.com/@aaronpjackson/a-brief-history-of-military-design-thinking-b27ba9571b89>.

¹⁰²⁴ Russell Ackoff, *Redesigning the Future* (New York: John Wiley & Sons, Inc, 1974), 30-32.

¹⁰²⁵ Russell Ackoff, "On the Use of Models in Corporate Planning," *Strategic Management Journal* 2, no. 4 (December 1981): 357-58; Donald Schön, "Generative Metaphor: A Perspective on Problem-Setting in Social Policy," in *Metaphor and Thought*, ed. Andrew Ortony, 2nd ed. (Cambridge, Massachusetts: Cambridge University Press, 1993), 143.

¹⁰²⁶ Snowden, *Dr. David Snowden IMDC Lecture: "The Application of the Cynefin Framework in Military Design,"* 1:02.

¹⁰²⁷ Russell Ackoff, "Science in the Systems Age: Beyond IE, OR, and MS," *Operations Research* 21, no. 3 (June 1973): 661-63; Donald Schön, "The Crisis of Professional Knowledge and the Pursuit of an Epistemology of Practice," in *Teaching and the Case Method, Instruction Guide*, by Louis Barnes, C. Roland Christensen, and Abby Hansen (Boston, Massachusetts: President and Fellows of Harvard College, 1987), 4-5; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 66-71.

¹⁰²⁸ Leigh Shaffer, "Beyond Berger and Luckmann's Concept of 'Recipe Knowledge': Simple versus Standardized Recipes," *Sociological Viewpoints*, Spring 2010, 60. Shaffer addresses a wide range of rational, modern organizations that apply standardization practices, of which militaries are clearly managed as such.

tools. This belief is that over time, as one gains greater depth of experience and more information as well as precision with the established tools, there will be an incremental and progressive gain as each day brings further mastery and validation that yesterday's ideas will work even better tomorrow once the organization collects, describes, and improves upon the current framework.¹⁰²⁹ Modern warfare has a purpose therein, and the science of war generates valuable knowledge for the institution bent on progress, while anything lacking scientific discipline and verification through repeated confirmation is a lesser desired or even undesired form of knowledge. Such ideas cannot support any purposeful war logic, from a modern military frame at least.

While this frequently works well at technical and tactical levels,¹⁰³⁰ within simple and complicated systems, it fails our militaries in complex and adaptive system frames.¹⁰³¹ "Design is the way of creating an alternative world. Tacticians are not supposed to create an alternative world. They are operating in the existing world with the existing instruments and the existing tools."¹⁰³² The promise of new technology unlike anything seen before on the battlefield brings with it the institutional baggage of the military's insatiable desire for greater micro-management, where "a military brass...will have access to data feeds from anywhere in the battlespace."¹⁰³³

This may promote institutional defenders of modernity and warfare to see information technology as "the panacea which will permanently lift the friction and fog of war which has plagued all past militaries"¹⁰³⁴ so that divergent thinking and acts of destructive innovation are substituted by the streamlined execution of predetermined, automated responses through universal models enhanced through human-machine teams. The postmodern design monster is shunned as a detractor for how 'meta-data' and technological rationalism should finally simplify warfare into a routine protocol controlled and managed by technologically advanced systems of man and machine. War science must trump war artistry; validation implies future control and predictability while uniqueness in war promotes ontological insecurity *in knowing for certain* how the next war might express its logic.

Design produces military reflective practitioners that can gaze into the mirror and see that it is not a monster on the laboratory table being sewn together, but those around it that fear uncertainty most. Senior military leaders and the next

¹⁰²⁹ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 25–29; Ackoff, *Redesigning the Future*, 30–32; Tsoukas and Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity," 992.

¹⁰³⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 13–15.

¹⁰³¹ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

¹⁰³² Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 26:21.

¹⁰³³ Antoine Bousquet, "Chaoplex Warfare or the Future of Military Organization," *International Affairs* (Royal Institute of International Affairs 1944-) 84, no. 5 (September 2008): 928.

¹⁰³⁴ Bousquet, 929.

generation of military practitioners must become profoundly comfortable with being uncomfortable...this is the new normal. Change and disruption bring about a fierce and often mob-like reaction from the village because a military institution remains a social construction of reality.¹⁰³⁵ These are the trappings of culture, and once the formation begins it takes on a self-preserving process in order to prevent unwanted destruction and disruption. New “monsters” replace older models. The ability to drop tools is in design potentially more significant for change than the ability to use those tools efficiently, particularly if that efficiency is tied to a behavior or action that is only relevant retrospectively and for yesterday’s complexity that is no longer a threat. Military design, when expressed in this postmodern orientation of a multi-perspectival reflexivity, teaches one so that “one learns to “unuse” weapons as much as one learns to use them, as if the power and cultivation of the affect were the true goal of the assemblage, the weapon being only a provisory means. Learning to undo things, and undo oneself, is proper to the war machine.”¹⁰³⁶

Naveh’s concepts on a meta-methodology for multi-perspectival reflexivity in a post-industrial world for the application of organized violence span multiple decades of experimentation with multiple disciplines, multiple paradigms, and an emphasis on self-disruption to foster organizational change beyond the limits of the legacy tolerance. In the next chapter, the impact of these concepts upon other militaries is explored. New design theory, practice, education and doctrine is developed. However, many of the core lessons that Naveh stressed would not necessarily be adapted by the IDF in each of the phases of design praxis shown here, nor would many of them translate well into foreign militaries. He may be the first significant ‘military postmodern comedian’ in this shift from the twentieth century highly mechanized and industrial phase of modern war, and in this regard as the pathfinder for numerous offspring Naveh will continue to be regarded as provocative, disruptive, and controversial. He is the first postmodern disruptor of war theory, the military comedian willing to deconstruct cherished belief systems in order to create vital cognitive space to reform them anew. Some understand his ideas, while many others ‘don’t get the joke.’

¹⁰³⁵ Peter Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, First Anchor Books Edition, 1967 (New York: Anchor Books, 1966).

¹⁰³⁶ Deleuze and Guattari, *A Thousand Plateaus*, 400.

Chapter 5: Design Experimentation and Failure from Tel Aviv to America and Beyond

Far too often strategy is an exercise in means-based planning; it is inherently uncreative, noncritical, and limits new and adaptive thinking.

- Jeffrey Meiser¹⁰³⁷

As the U.S. military reflects on recent operations in Iraq and Afghanistan, the realization the current operations planning process needs some adjusting is evident...[it] has proven to be slow to orient to the true nature of these conflicts, slow to gain a better understanding of the operational environment, and slow to adapt to change.

- Wilburn McLamb¹⁰³⁸

Design and planning are qualitatively different yet interrelated activities essential for solving complex problems. While planning activities receive consistent emphasis in both doctrine and practice, discussion of design remains largely abstract and is rarely practices. Presented a problem, staffs often rush directly into planning without clearly understanding the complex environment of the situation.

- Field Manual 3-24/MCWP 3-33.5¹⁰³⁹

The last twenty-five years have witnessed significant experimentation and growth in design practice that also coincides with challenging 'postconventional' warfare contexts, boiling counterinsurgencies, and a complex new competitive security environment that defies previous description.¹⁰⁴⁰ Over the last few decades, non-state actors, new considerations for use/purpose of the application of organized violence, and 'actions short of war' appear to be redefining nation-state

¹⁰³⁷ Meiser, "Ends + Ways + Means = (Bad) Strategy," 81.

¹⁰³⁸ Wilburn McLamb, "The U.S. Army's Design Doctrine: A Solution to the Ills of the Operations Planning Processes?" (paper for partial satisfaction of master's degree, Naval War College, Naval War College, Newport, Rhode Island, May 2009), iii.

¹⁰³⁹ Department of the Army and Department of the Navy, HQ United States Marine Corps, *Field Manual 3-24/MCWP 3-33.5, Counterinsurgency* (Washington, D.C.: Department of the Army, Department of the Navy, 2006), <https://www.hsdl.org/?view&did=468442>.

¹⁰⁴⁰ McFate, *The New Rules of War*, 36; McFate to Zweibelson, "Re: Book Question," February 26, 2020.

foreign policy frames.¹⁰⁴¹ The Israeli initial experimentation in a meta-methodological approach to war using a multi-perspectival reflexivity through multiple disciplines remains a milestone in transformative military theory and practice, although SOD itself was questioned then as well as now for utility.

The perpetual tension between 'demonstrating new idea that works in war' and 'building upon existing principles in war' is dynamic; innovation as it unfolds has no predecessor or 'proof' if it indeed is the thing or idea that the organization needs but does not exist without the act of design. Since the original 'systemic operational design' was introduced, an eclectic military design movement has emerged around the globe, with multiple variations, hybrids, and new experimental forms of self-disruptive, multiparadigmatic or otherwise alternative modes of logic for war.¹⁰⁴² Most find their origin within Israeli design, some civilian design inspiration, or some hybridization between with ample legacy-based linear planning woven in as well.

Thus despite this fertile intellectual ground for critical reflection and creative experimentation, many militaries that have experimented in military design appear to have done so largely in keeping with strong institutional values and cultural norms.¹⁰⁴³ Design, just like traditional military doctrine, becomes somewhat of a self-expression of that military organization's belief system as articulated through design epistemological and ontological framing; the postmodern impacts of military design as a novel process interact as well with the traditional, single-paradigm aspects of linear, mechanistic military decision-making methods.¹⁰⁴⁴ As this chapter will explain in detail, the American Army prefers to conduct design in one manner for these reasons just as it appears that other American services such as the Special Operations community largely reject the limits of that single approach and substitute their own.¹⁰⁴⁵

¹⁰⁴¹ Bousquet, "Chaoplectic Warfare or the Future of Military Organization"; Bloomfield, Burrell, and Vurdubakis, "Licence to Kill? On the Organization of Destruction in the 21st Century"; Miller et al., "Harnessing David and Goliath: Orthodoxy, Asymmetry, and Competition"; Monk, "Strategic Design for the Complex Realm."

¹⁰⁴² Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2016; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"

¹⁰⁴³ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*, 76–78.

¹⁰⁴⁴ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020.

¹⁰⁴⁵ Jeb Downing, "JSOU Proposal for Operational Design Instruction to USSOCOM Leadership and Staff (as of 26 Jan 15)" (Unpublished manuscript in author's private collection, January 23, 2015); Gilbert and Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson"; Ben Zweibelson, "Special Operations and Design Thinking: Through the Looking Glass of Organizational Knowledge Production," *Special Operations Journal* 2, no. 1 (Spring 2016): 22–32.

The American Marines also dismiss many of the postmodern, radical elements of Israeli design, and subsequently modify U.S. Army design while applying *even more linear planning constructs to it* as this chapter will demonstrate in-depth. In the Marine case, their small size and tactical orientation leads to possible forcing functions for design methodological tailoring away from SOD and other operational design variants. Why these military organizations also reject many radical concepts of Israeli SOD while nurturing select aspects of design within more rigid methodological frameworks is the focus of this chapter. Postmodernism often thrives upon irony and satire, where the military comedian of war is free to reject epistemological assumptions and deconstruct the dominant modernist mode of military decision-making logics.¹⁰⁴⁶

Within the same few decades of disruption and transformation, the Canadian Army implemented yet another design approach,¹⁰⁴⁷ while the Australian Army may be moving in a dissimilar path that might not meet all of the conditions for being a form of military design methodology, but nonetheless features many elements of design thinking.¹⁰⁴⁸ These adaptations of design would suggest at a meta-level that across the globe, the same period of increased military frustration concerning conflicts in Iraq, Afghanistan, Syria and elsewhere is fermenting institutional curiosity for alternatives.¹⁰⁴⁹ At the same time, the resistance of assimilating the esoteric and controversial Israeli SOD into multiple militaries of different cultural, social and ideological variance will also be explored in detail. Both Canada and Australia are the focus of the next chapter, with some additional consideration of proto-design efforts in the United Kingdom.

That Naveh's original design theory would immediately be absorbed by other militaries (even when he was unable to integrate it completely within the IDF) appears unrealistic for similar reasons. This friction to design, particularly in more radical forms and with challenging intellectual components is increased when considering the compressed timeframes attempted by militaries entrenched in frustrating counterinsurgencies. In these pressure-cooker security contexts where enemies refused to 'play by the traditional rules of war', new ideas that are radical, disruptive and threaten dynamic reform of traditional systems may get some initial interest, but it will need to take on enormous institutional resistance in order to

¹⁰⁴⁶ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 2.

¹⁰⁴⁷ Paul Mitchell, "Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 84–102; Ben Zweibelson, Kevin Whale, and Paul Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces," *Canadian Military Journal* 19, no. 4 (Autumn 2019): 25–33; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices."

¹⁰⁴⁸ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Aaron Jackson, "A Brief History of Military Design Thinking," *Medium.Com*, February 5, 2019, <https://medium.com/@aaronpjackson/a-brief-history-of-military-design-thinking-b27ba9571b89>.

¹⁰⁴⁹ McFate, *The New Rules of War*, 25–36.

actually be implemented across a military organization.¹⁰⁵⁰ This chapter addresses the 'how' as well as the 'why' of this process for two American military organizations that alone are quite larger than the IDF, facing arguably more dynamic and geographically dispersed strategic challenges, and feature more significant design scaling and educational challenges therein. From 2003 to 2006, American and allied forces encountered conflict in Iraq and Afghanistan that started with overwhelming, even perhaps 'catastrophic' success in the invasion phase but shifting quickly into a frustrating, costly and unexpectedly difficult counterinsurgency period in both war zones. American, British, and Australian forces as well as many other relevant militaries operated in these conditions, however the American and Australian armies were the primary forces to contemplate their existing body of doctrine and implement controversial, significant changes and thus are the focus of this section.

While the American Army sent strategic thinkers and intellectuals to Israel in 2004-2005 to learn about Naveh's new systemic operational design and would later invite him back to Fort Leavenworth to begin educational exchanges with the SAMS students and faculty,¹⁰⁵¹ the Army's 'Training and Doctrine Command' (TRADOC) was already on the hunt for something new to implement into doctrine and immediate practice in Iraq and Afghanistan to help turn the tide.¹⁰⁵² Potentially due to the similar ground missions in the boiling counterinsurgencies, the American Army partnered with the Marines as well as international military intellectuals to reconsider how they would conduct counterinsurgency operations. This collaboration resulted in a striking revision of *Field Manual 3-24: Counterinsurgency* in 2006. What is significant to this research is the inclusion of a chapter on Army design for the first time in American military doctrine, as well as the deeper discussion on why and how Naveh's postmodern military concepts both influenced as well as repulsed the American juggernaut in the first decade of the twenty-first century.¹⁰⁵³

In 2006 prior to the final publication of the new *FM 3-24/MCWP 3-33.5* with a military design chapter, several significant debates would occur within the American Army, the Marine Corps, as well as internationally to include early design theorists and intellectuals. Naveh and his team of design devotees would advocate a radical, highly sophisticated and challenging combination of general systems theory, postmodern philosophy, and a reflective, disruptive mode of discourse to foster institutional change. As a postmodern military scholar, Naveh represented the

¹⁰⁵⁰ McFate, 30–36.

¹⁰⁵¹ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016; Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought."

¹⁰⁵² Naveh provided this 43-page draft doctrinal product on SOD to TRADOC in 2005 however the U.S. Army did not directly utilize it. Instead they would develop a simplified version of military design. See: Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

¹⁰⁵³ Once again, 'design' used in this research addresses the iterative, disruptive learning methodology that is multidisciplinary. Previous Joint and Army doctrine featured the term 'operational design' that was employed in an engineering-based linear process for designing military campaigns at the strategic and operational levels.

contrarian: the anti-institutionalist rejecting established epistemological assumptions and thriving in an atmosphere of irony and satire.¹⁰⁵⁴ He sought to apply postmodern theory of war toward organizations engaged in the postmodernity of war. These stances would be antagonistic on two different levels for the modern military war frame well established across the American Army and U.S. Marine Corps.

Naveh's SOD deconstructed not just the methodologies found in doctrine but tore down the epistemological foundations supporting the continued relevance of doctrine, traditional military strategy, and in particular operational art and operational planning. At the same time, there was vast international, institutional resistance to Naveh's design creation, not only from within his own Israeli military but everywhere he attempted to spread his new way of thinking about war and organized violence. Cox, a SAMS professor reflecting on the period that Naveh influenced their program in 2005-2010, states "the SAMS department moved away from postmodernism and Naveh's SOD in 2010 prior to the publication [of the first Army formal design chapter in *Field Manual 5-0*]...but we were all disappointed in the final doctrinal output which seemed linear and somewhat like a checklist."¹⁰⁵⁵

Simultaneously, advocates of a 'systems thinking' hybridization where complexity, general systems theory, and associated recent scientific theories could be introduced into existing military operational planning without dismantling or disrupting core institutional belief systems the way Naveh's SOD seemed to perform. Finally, the defenders of doctrine and the dominant functionalist paradigm¹⁰⁵⁶ employed successfully by these same militaries throughout the twentieth century would fight the insertion of design concepts into professional military education, existing doctrine, practices, as well as theoretical discourse.

Two significant Army documents exist that help highlight the tensions and eventual intellectual battles between these various camps, and explain the outcomes that would lead to what would be eventually retitled "Army Design Methodology" by 2012. The first is the June 16th, 2006 final draft version of *FM 3-24* that contains the original draft chapter introducing design to the U.S. Army. The second is the final published version of that same manual, *FM 3-24/MCWP 3-33.5*, published on December 15, 2006. The distinctions between the draft design chapter and the final version present multiple illuminating elements of these various factions battling over how the American ground forces in 2006 would transform in order to apply design thinking toward a seemingly never-ending quagmire in the Middle East.

Naveh's systemic operational design influences are quite apparent in the draft version of *FM 3-24's* design chapter. While some of the stylistic changes and substituted terminology are subtle between the two, several major differences and heavy editing of the draft design chapter indicate how and why the Israeli design theory would be removed from the final version. Further, the systems theory would

¹⁰⁵⁴ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 1-5.

¹⁰⁵⁵ Dan Cox to Ben Zweibelson, "Fwd: Research Question on SAMS, 2009-2010 Period for Design," February 24, 2020, personal correspondence between Cox and the author.

¹⁰⁵⁶ Putnam, "The Interpretive Perspective: An Alternative to Functionalism," 34-45.

be incorporated, but only within an assimilated manner where the dominant functionalist military war frame remained overriding across the military institution. Although it is impossible to determine how many of these changes are due to the inclusion of the Marines as a collaborative writing partner or perhaps due to vocal critics of design theory gaining a majority in the draft reviews, further research and access to unpublished draft documents and emails could further clarify. This research will address the core differences between the draft and final published Army design chapter and suggest some epistemological motives as well as institutional rituals that may indicate the reason for these doctrinal alterations.

The opening paragraph of the final published *FM 3-24* design chapter would stipulate: "For Army forces, this chapter applies aspects of command and control doctrine and planning doctrine to counterinsurgency campaign planning,"¹⁰⁵⁷ moving the first mention of 'design' to the end of that first paragraph. However, the draft version originally led with: "This chapter describes conditions for designing counterinsurgency campaigns and the associated planning and operations,"¹⁰⁵⁸ placing design methodologically *at the lead of subsequent planning*.

The draft version was in keeping with Naveh's radical disruption of operational planning, while the final version would subordinate design as a component of the overarching planning methodology. This epistemological shift would continue through all subsequent official design doctrinal publications onward and would form the intellectual foundation for subsequent 'Army Design Methodology' as codified by 2012. However, the draft 2009 version of *Design: Field Manual Interim 5-2*, a TRADOC internal document that would not be published officially would again attempt to place 'design' at the precipice ahead of planning.¹⁰⁵⁹ This indicates that throughout the American Army's experimental period with design from 2005-2010 there was significant debate on where, how and why to conduct the more abstract and disruptive design thinking and when to commence sequential, analytic oriented planning processes.

The original epistemological stance that 'design' would operate abstractly, above and externally to operational planning logic would exist in the draft *FM 3-24* chapter as evidence of Naveh's significant and early influences on American Army intellectuals in 2005-2006 but would be removed in the final published version by December 2006. While the draft had the statement: "In this sense, design guides and informs planning,"¹⁰⁶⁰ the final version would be reworded to "Design provides a means to gain understanding of a complex problem and insights towards achieving

¹⁰⁵⁷ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4-1.

¹⁰⁵⁸ Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, Final Draft version-not for implementation, TRADOC Field Manual Series (Washington, D.C.: Headquarters, Department of Army, 2006), 4-1, <https://fas.org/irp/doddir/army/fm3-24fd.pdf>.

¹⁰⁵⁹ Headquarters, Department of the Army, *Field Manual Interim (FMI) 5-2: Design (Draft)* (Washington, D.C.: Headquarters, Department of Army, 2009), 5.

¹⁰⁶⁰ Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, 4-2.

a workable solution.”¹⁰⁶¹ Thus, ‘design’ is assimilated into the single-paradigm logic (functionalism) where ‘ends-ways-means’ permits planning methodologies to use design as a first step in what becomes a linear, sequenced march towards pre-engineered desired end-states in war.¹⁰⁶² This reinforces ontological security for Clausewitzian logic nested within the Westphalian Order for modern warfare.

This epistemologically also appears to violate the idea of ‘emergence’ as understood by complexity theorists, and renders reality into an oversimplified and seemingly regulatable rationalized world.¹⁰⁶³ Emergence generates nonlinear processes and a dynamic complex reality where initial desired future frames (ends, goals) are often later realized as entirely wrong, counterproductive, or nested in a legacy system framing of which the emergent future has little to do with.¹⁰⁶⁴ As complexity theorist Snowden states in a 2020 lecture on military design, “Humans are more than engineers. The engineering metaphor which has dominated military decision-making for the last thirty years is very, very dangerous in other than a limited context.”¹⁰⁶⁵ The Army’s fixation on turning design into a sequential engineered process also potentially conflicts with *FM 3-24*’s own associated figure for that paragraph (Figure 4-1) shown below, as well as violating the core premises of Rittel’s ‘wicked problems’ in design theory.¹⁰⁶⁶

While the graphic places “problem-setting” under the design side, the final language of the design chapter in *FM 3-24* shifts away from this toward the epistemological position that complex problems can eventually be “solved.”¹⁰⁶⁷ Later in 2010, the next formal design doctrinal chapter would reinforce this shift, continuing a growing divide between the original Naveh design theory and what the U.S. Army and Marines would forge into design doctrine in the ensuing decade.¹⁰⁶⁸ By their own admission, SAMS academic faculty involved in the implementation of Naveh’s postmodern concepts into Army design doctrine would be frustrated and overall disappointed in the eventual final doctrinal product becoming so distant

¹⁰⁶¹ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4-2.

¹⁰⁶² Meiser, “Ends + Ways + Means = (Bad) Strategy,” 82; Tsoukas, *Complex Knowledge*, 276; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 25–29.

¹⁰⁶³ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 59–64; Headquarters, Department of the Army, *Field Manual Interim (FMI) 5-2: Design (Draft)*, 14.

¹⁰⁶⁴ Mark Bedau and Paul Humphreys, eds., “Philosophical Perspectives on Emergence,” in *Emergence: Contemporary Readings in Philosophy and Science* (Cambridge: Massachusetts Institute of Technology Press, 2008), 7–18; Carl Hempel and Paul Oppenheim, “On the Idea of Emergence,” in *Emergence: Contemporary Readings in Philosophy and Science*, ed. Mark Bedau and Paul Humphreys (Cambridge: Massachusetts Institute of Technology Press, 2008), 61–68; Stanley and Lehman, *Why Greatness Cannot Be Planned: The Myth of the Objective*.

¹⁰⁶⁵ Snowden, Dr. David Snowden IMDC Lecture: “The Application of the Cynefin Framework in Military Design,” 1:02.

¹⁰⁶⁶ Rittel and Webber, “Dilemmas in a General Theory of Planning,” 110–17.

¹⁰⁶⁷ Monk, “End State: The Fallacy of Modern Military Planning,” 28.

¹⁰⁶⁸ Grant Martin, “A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan],” *Small Wars Journal*, July 7, 2011, 2. Martin, as a SAMS graduate from the 2009-2010 period of design doctrinal development, critiques the lack of theory utilization in Army design doctrine.

from the original form.¹⁰⁶⁹ Not only were the postmodern theoretical constructs abandoned, but the notion of postmodernity for war would be eliminated so that the modern military war frame could assimilate 'design' as yet another analytical tool for the military planner.

Figure 4-1 from FM 3-24: Counterinsurgency, 2006 Edition:

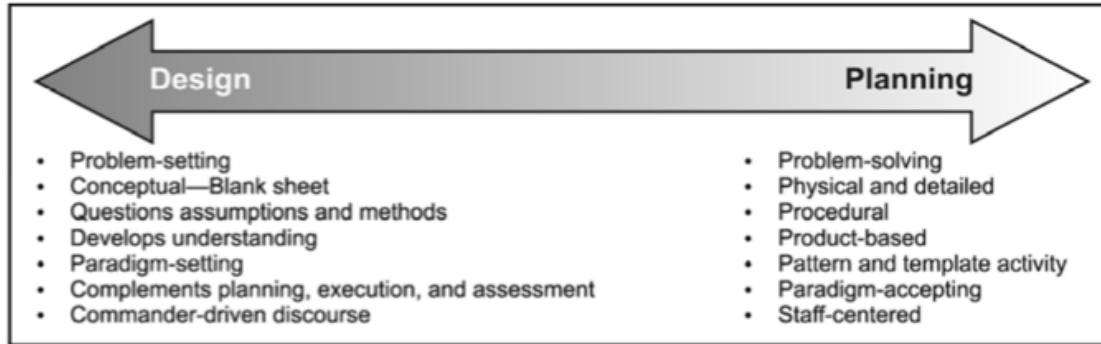


Figure 4-1. Design planning continuum

Another major difference between the draft and final versions of *FM 3-24* involve Naveh's design emphasis on self-disruption and the need for destruction to occur cognitively prior to the conditions being set for innovation and creativity.¹⁰⁷⁰ In the draft design chapter, *FM 3-24* introduces under "the nature of design" an iterative model where two governing logics battle through discourse and experimentation:

The design team engages in constructing and continuously modifying two complementary logics, or mental models. The first is the governing logic of the problem. The aim here is to rationalize the problem situation- to construct a logical explanation, in the form of an abstract model that unravels the problem logic. The essence of this counterlogic [sic] is the success mechanism or sequence of interactions envisioned to achieve a desired end state.¹⁰⁷¹

However, the final version of the same chapter would eliminate the entire counter-logic construct, rendering much of Naveh's self-disruption moot in how the Army would forge ahead with design thinking in doctrine. SOD's original emphasis

¹⁰⁶⁹ Cox to Zweibelson, "Fwd: Research Question on SAMS, 2009-2010 Period for Design," February 24, 2020; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016; Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought."

¹⁰⁷⁰ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 5-7.

¹⁰⁷¹ Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, 4-3.

on exploring “conceptual tensions between prevailing paradigm and the context in emergence” would be abandoned for no consideration of paradigms at all.¹⁰⁷² This implies the single dominant military paradigm (functionalism) is retained, thus removing Naveh’s epistemological inquiry at the center of SOD and requiring postmodern social paradigm framing to occur. Army designers would be trapped in the single frame, unable to design beyond those epistemological and ontological structures within a modern logic for warfare.

Although at SAMS from 2005 through at least 2010, select students and faculty would carry on many of the earlier Naveh-inspired design constructs such as this one, doctrinally they would be absent and therefore formally denied conceptually to the broader force. Any use of postmodern theory or debate on the postmodernity of war would occur only within student research monographs and other conceptual documents of which many would occur and feature mentorship by Naveh, Ryan, and Butler-Smith as design advisors.¹⁰⁷³ The final version of *FM 3-24*’s design chapter would replace this notion of dueling logics with a single-paradigm explicit emphasis on “rationalizing the problem- to construct a logical explanation of observed events and subsequently construct the guiding logic that unravels the problem.”¹⁰⁷⁴ This would espouse a singular ‘reductionist’ paradigm that emphasizes a stable reality where objectivity can form an ontological and epistemological framework for analytic optimization, the formation of natural sciences, and an engineering-metaphor based language for military thought and action.¹⁰⁷⁵

Note that this editorial change seeks to ‘rationalize’ or use the functionalist paradigm to apply analytic reasoning to a complex system,¹⁰⁷⁶ in order epistemologically to ‘construct a logical explanation’ that adheres to that paradigm’s

¹⁰⁷² Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 7.

¹⁰⁷³ Craig Dalton, “Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?” (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); Jelte Groen, “Systemic Operational Design: Improving Operational Planning for the Netherlands Armed Forces” (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); Ketti Davison, “Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative” (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); William Sorrells et al., “Systemic Operational Design: An Introduction” (US Army School of Advanced Military Studies Monograph, Fort Leavenworth, Kansas, May 26, 2005), ATZL-SWV, OMB No. 0704-0188; Barrett Bernard, “Systemic Operational Design: Bringing Efficacy to the Operational Level of War” (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, February 2007).

¹⁰⁷⁴ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4-3.

¹⁰⁷⁵ Burrell and Morgan, *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*; Gioia and Pitre, “Multiparadigm Perspectives on Theory Building”; Lewis and Kelemen, “Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox”; Weaver and Gioia, “Paradigms Lost: Incommensurability vs Structurationist Inquiry”; Zweibelson, “Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases.”

¹⁰⁷⁶ Putnam, “The Interpretive Perspective: An Alternative to Functionalism,” 34-45; Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

expectation of what obeys a set of logic-based rules. It disregards SOD's emphasis on considering "the unique epistemic conditions affecting the inquiry" and thus avoids taking a meta-perspective outside of the single dominant military frame espoused by the rest of military doctrine.¹⁰⁷⁷ Modernity for warfare relates problems to solutions, with analytic optimization the vehicle for accomplishing this in a military design. Postmodern design refutes the modern ontology of 'problem' and seeks a multi-paradigmatic approach encouraging the deconstruction of the very things modern planning and doctrine insists complete logical obedience toward.

The fact that the final design version also states it can 'unravel the problem' again shifts the design practice away from the earlier "problem-setting" appreciation that complex systems resist solution-mindsets¹⁰⁷⁸ toward the 'ends-ways-means rationalization that any functionalist approach can collect sufficient knowledge to deconstruct the most complex problems and subsequently "solve" them.¹⁰⁷⁹ This shifts the entire design logic away from Rittel's fundamental 'wicked problem' theory toward the mechanistic, positivist form of routinized problem-solution activities¹⁰⁸⁰ that are largely devoid of design according to Rittel.¹⁰⁸¹ Bedau and Humphreys, in studying 'emergence' in complexity theory frame emergent phenomena (a central feature of complexity) as "irreducible...unpredictable or unexplainable, to require novel concepts, and to be holistic."¹⁰⁸² Reductionist military logic links definable 'problems' to a well-tested set of military 'solutions' so that a causal relationship (tested, validated, repeated) is realized for routine tasks and regulatable behaviors. In war, particularly complex conditions within it, this mechanistic, causal logic merely illuminates the miss-match of natural science epistemology to the realities of complex, even chaoplexic warfare.¹⁰⁸³

Returning to an over-emphasis on ends-ways-means logic,¹⁰⁸⁴ the earlier draft chapter of design for *FM 3-24* had a paragraph titled "the operational narrative" that used Naveh concepts of narration to frame the design journey as a story. This story would "be expressed as a goal" and the term "end-state" did not appear in the entire original passage.¹⁰⁸⁵ In the original SOD methodology, Naveh

¹⁰⁷⁷ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 5; Ben Zweibelson, "Rose-Tinted Lenses: How American Functionalist Strategy Inhibits Our Appreciation of Complex Conflicts," *Defence Studies Journal* 16, no. 1 (February 18, 2016).

¹⁰⁷⁸ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

¹⁰⁷⁹ Ofra Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, Special Edition (Dayan Base, Tel Aviv, Israel: Israeli Defense Forces, 2015), 35-37; Meiser, "Ends + Ways + Means = (Bad) Strategy," 82-85; Monk, "End State: The Fallacy of Modern Military Planning," 28.

¹⁰⁸⁰ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

¹⁰⁸¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 101-17.

¹⁰⁸² Mark Bedau and Humphreys, "Philosophical Perspectives on Emergence," 9.

¹⁰⁸³ Bousquet, "Chaoplexic Warfare or the Future of Military Organization."

¹⁰⁸⁴ Meiser, "Ends + Ways + Means = (Bad) Strategy."

¹⁰⁸⁵ Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, 4-4.

would only mention 'end state' as part of the 'operational framing' portion where designers would learn "within the *tension between* the end state and the operational strike...obtaining knowledge by examining the strain of meeting National Command Authority (NCA) approved terminating conditions *and the realm of what can be achieved by the application of force*" [emphasis added].¹⁰⁸⁶

Naveh challenged the concept of 'end state' by juxtaposing the core tension between what strategic or national leaders intended politically and what the military designers could experiment and imagine in order to either reject said 'end state' concepts, replace with alternative designs, or radically disrupt the NCA worldview through discourse and a learning model of inquiry. This is significantly different from what Army and Marine design doctrine would produce where higher headquarters design directives became akin to initial planning guidance and superior unit assumptions set within a single paradigm frame for making sense of reality.

This is emphasized as a key element design thinking by Rittel, where "one may, at times, deviate from the direct path, or even increase the distance to the goal, only to reach the goal more effectively."¹⁰⁸⁷ Yet by the time the final version of *FM 3-24* was completed, all of the SOD references for a design 'narrative' were deleted and replaced with 'commander's intent' terminology instead. This epistemologically shifts the Army away from holistic, systemic design towards the centralized hierarchy for linear decision-making, essentially shifting from recognition of complex, dynamic conflict contexts toward a reductionist over-simplification that better suits physics-based metaphors and deductive, analytic reasoning.

Furthermore, a literal definition of 'end state' with joint doctrinal references is inserted into the original narrative passage with the deliberate statement: "design begins with the identification of the end state,"¹⁰⁸⁸ again differing from the SOD concept where 'end-state' as a concept is in tension with a learning system of opportunity for applied organized violence.¹⁰⁸⁹ Additionally, the design meta-positioning of the draft design chapter is edited so that "strategy drives design, which in turn drives tactical actions", again subordinating any design thinking to exist within the dominant functionalist paradigm that provides all planning logic in the modern framing of warfare.¹⁰⁹⁰

The original draft chapter uses a Naveh-centered idea of 'operational logic' again without 'end state' in the chapter's explanation of how the senior commander can effectively convey their design vision to subordinate unit leadership. This was

¹⁰⁸⁶ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 21.

¹⁰⁸⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 34.

¹⁰⁸⁸ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4-4.

¹⁰⁸⁹ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 20-21.

¹⁰⁹⁰ Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation"; Putnam, "The Interpretive Perspective: An Alternative to Functionalism," 34-45.

well in keeping with Naveh's original SOD theory, in that while one's national or strategic leadership may think in 'ends-ways-means' logic and attempt to reverse-engineer causality with foreign policy applications of the military instrument of power, those expectations are likely in tension with reality and should be challenged, investigated through critical and creative thinking, or radically disrupted.¹⁰⁹¹

Yet from the draft to the published Army doctrine, this is changed to once more insert 'end state' dependence, and the term 'operational logic' is jettisoned to be replaced with 'commander's intent', a planning term associated with existing operational doctrine, language and logic. While the earlier draft version has no mention of reductionist planning concepts and minimal reference to other existing doctrinal concepts that might marginalize or inhibit design activities, the final published version of *FM 3-24* inserts "situational awareness" to replace "initial appreciation,"¹⁰⁹² and further stipulates that this knowledge of the commander should be grounded upon other planning constructs such as "the factors of METT-TC" with appropriate doctrinal references.¹⁰⁹³

These heuristic aids in doctrine act as categorization constructs, enabling the reductionist epistemology of military functionalism to operate. With all of these changes from the earlier draft version, this final version of this design chapter in *FM 3-24* takes on a strong linear planning orientation, complete with planning terminology and the elimination of most all non-compliant and alternative paradigm associated concepts of both the earlier draft chapter and through extension a removal of the bulk of systemic operational design theory. A single-paradigm stable (ontologically secure) reality is retained so that all existing doctrinal concepts, language as well as the Army's dominant ontological and epistemological beliefs on warfare as well as the nature of war remain unchallenged and intact. The term "situational awareness" also replaces "understanding of the environment"¹⁰⁹⁴ although that term is used elsewhere in the final chapter and appears more prominently in the 2010 design chapter for *FM 5-0* as a formal first step in conducting 'Army Design Methodology.'

The deliberate elimination of most SOD-centric concepts and terminology continues to the very end of the draft design chapter. While the June 2006 *FM 3-24* draft version ends the chapter with "enabling a continuous cycle of design-learn-redesign to achieve the campaign's purpose"¹⁰⁹⁵ (emphasis added) the published

¹⁰⁹¹ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

¹⁰⁹² Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4–6; Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, 4–6.

¹⁰⁹³ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4–6.

¹⁰⁹⁴ Department of the Army and Department of the Navy, HQ United States Marine Corps, 4–7 to 4–7.

¹⁰⁹⁵ Headquarters, Department of Army, *Field Manual 3-24: Counterinsurgency (Final Draft- Not for Implementation)*, 4–9.

version ends instead with “enabling a continuous cycle of design-learn-redesign to achieve the end state.”¹⁰⁹⁶

These edits should not be overlooked at why and how the American Army, and by extension the Marines moved away from the radical, disruptive and multi-paradigmatic qualities of Naveh’s systemic operational design toward a mechanistic, problem-solution¹⁰⁹⁷ oriented design methodology¹⁰⁹⁸ that maintains existing planning logic and a functionalist paradigm for making sense of reality and war. The ‘design’ presented instead removes the design logic in favor of routinized modes of problem-solving for overly simplistic contexts.¹⁰⁹⁹ The military managers and traditional heroes of war are, through the institutional creep of bureaucratic defense of the dominant single-paradigm mode of decision-making, removing the stage so that the postmodern military comedian cannot perform design disruption. They are restricted from being truly disruptive in that the only modes of conceptualization, visualization and articulation are those that inevitably reinforce the dominant functionalist perspective for organized violence in a traditional state-centric mode of thought and action.

Army Design Methodology: Creative *Problem-Solving* for Complex War

The history and initial experimentation with design from 2005-2009 that would subsequently generate U.S. Army’s design methodology is essential for discussing the epistemological and ontological structure in this section of how and why the Army created their design methodology, and where it overlaps with other design concepts as well as demonstrates tension or paradox. While the first dedicated design chapters in prominent American Army field manuals and conceptual publications dotted the landscape from the mid-2000s through 2010, these brief chapters did not provide very much detail on the actual methodology that the Army wanted organizations to apply in design thinking. Although never published, a draft design document *Field Manual Interim 5-2: Design (Draft)* would in thirty-nine pages explore design theoretically in many of the earlier Naveh SOD directions.¹¹⁰⁰ However, in part due to internal design disagreements in the 2008-2010 period within TRADOC on how intellectually rigorous or simplified ‘design’ needed to be for the larger Army force, *FMI 5-2* would be scuttled in favor of a consolidated and doctrinally non-disruptive chapter.

Ryan, one of the primary authors of *FMI 5-2* recalls in correspondence with the author: “[leadership within TRADOC at the time] wanted to simplify the [design] doctrine...[they] wanted the doctrine to be maximally accessible and so pushed back

¹⁰⁹⁶ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*, 4–9.

¹⁰⁹⁷ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

¹⁰⁹⁸ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 35–37; Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 152–53.

¹⁰⁹⁹ Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 101–17.

¹¹⁰⁰ Headquarters, Department of the Army, *Field Manual Interim (FMI) 5-2: Design (Draft)*.

on any new terms, use of footnotes, etc.”¹¹⁰¹ Ryan and others involved in the Army’s design journey at this time suggest that within TRADOC, some leaders and decision-makers favored a simplification of design in a rationalization that “we are a blue collar army” and that plain language already used in traditional military planning is sufficient while the dense concepts found in Naveh’s original SOD was unnecessary and esoteric. Hirsch would remark that this anti-intellectual reaction to SOD within the IDF by 2006 and later across other militaries to postmodern methods and ideas were not only wrong and short-sighted, but the return of Naveh and SOD to the IDF by 2013 would demonstrate the misplaced fury of senior leaders at the time seeking scapegoats in the IDF for political frustrations at the end of the Second Lebanon War. Hirsch went on to say:

It was a grave mistake to hang all the faults of managing the war on operational concepts, systemic language, and knowledge-development processes in the IDF. Those who negated operational design after the [Second Lebanon War] have washed down the drain oceans of knowledge and excellent methodologies. It was a serious mistake to burn this military-intellectual achievement on the stake.¹¹⁰²

Yet Hirsch and other advocates of SOD and the dense, obtuse concepts in postmodern military design would have an uphill battle nonetheless. In the American military, Naveh’s rebirth as a SOD ambassador of postmodern concepts at SAMS would also be short-lived and begin to fade by 2009. Efforts to continue the new terminology, perpetual learning and disruptive concepts would not penetrate TRADOC’s defenses to maintain this aforementioned “blue collar army” mentality just as Hirsch’s efforts to do the same in the IDF from 1998-2006 also failed. The Army would maintain what Ranciere termed the ‘old master’ teaching model, where: “students lack the will or ability to learn on their own, and only with the master’s will can they make the intellectual journey to the next level.”¹¹⁰³ This ‘blue-collar’ mindset firmly entrenched design students as the mere receivers of information from instructors who would draw directly from design doctrine, step by step. The updated *Field Manual 5-0, Operations Process* published in 2010 would have the second formal attempt at specifically addressing this using a brief fifteen-page chapter titled ‘Design’, again relying on existing Army planning language and

¹¹⁰¹ Alex Ryan to Ben Zweibelson, “Re: Research Question on SAMS, 2009-2010 Period for Design (UNCLASSIFIED),” February 26, 2020.

¹¹⁰² Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 374.

¹¹⁰³ Zweibelson, “The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts,” 98; Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, 16–19.

operational concepts.¹¹⁰⁴ Subsequent updated publications would shift to the branded moniker of “Army Design Methodology” by 2012.¹¹⁰⁵ However, it was not until the Army published *Army Techniques Publication 5-0.1: Army Design Methodology (ATP 5-0.1)* in July 2015 would there be an elaborate and highly detailed manual on this new military design methodology published in full. Although the document has been a target of significant criticism, the demonstration of a deliberate design methodology in great detail within doctrine signals to the entire U.S. Army that “everyone now should consider doing design” formally.

The earlier section addressing the development of the first Army design chapter in *Field Manual 3-24* in 2006 addressed many of the design editorial decisions as well as the apparent institutional battles over what Army design would be, and what it expressly would not be. There are several design concepts that made the editorial cuts into that first design chapter in the December 2006 published *FM 3-24* that later in 2010 would be eliminated or altered significantly in the next official Army design doctrinal publication. This next design publication would be influenced by but not directly reference the informal design publications such as the *Commander's Appreciation and Campaign Design* (Department of the Army) doctrinal pamphlet as well as the internally published *Art of Design Student Text* design book at SAMS. Nor would the chapter reference contemporary influential design products such as Kem's *Design: Tools and Tricks of the Trade* that would also be created between 2006-2010,¹¹⁰⁶ potentially in attempted competition with the SAMS design materials for which intellectual direction TRADOC would take the Army.

In *FM 3-24* in the December 2006 edition, Figure 4-1 would graphically depict the differences between military design and military planning, with the phrase “problem-setting” and “paradigm-setting” under the design listing. These represent the original Naveh influences on the American Army and are heavily emphasized in Israeli systemic operational design versions. The consideration of one's own paradigm, or ‘logic of the self’ and the exploration of other paradigms (logic of opposition; rationale of opposition) require the *reflective practice qualities* of design thinking.¹¹⁰⁷ They feature multidisciplinary concepts from sociology, postmodern philosophy, as well as complexity theory.

This higher intellectual requirement was a major critique of Israeli SOD, and while these ideas were expressed in the first design chapter composed by the

¹¹⁰⁴ United States Army, *Field Manual 5-0, Operations Process* (Washington, DC: Headquarters, Department of the Army, 2010).

¹¹⁰⁵ Graves and Stanley, “Design and Operational Art: A Practical Approach to Teaching the Army Design Methodology.”

¹¹⁰⁶ Jack Kem, *Design: Tools of the Trade* (Fort Leavenworth, Kansas: U.S. Army Combined Arms Center, 2009), <http://indianstrategicknowledgeonline.com/web/Design.pdf>.

¹¹⁰⁷ Naveh, “Northern Storm: A Narrative of Reflective Command, Systemic Learning, and Operational Design 2002-2005”; Willemien Visser, “Schön: Design as a Reflective Practice,” *Collection, Art+Design & Psychology*, no. 2 (2010): 21–25; Paparone and Reed, “The Reflective Military Practitioner: How Military Professionals Think in Action”; Beaulieu-Brossard and Dufort, “Introduction to the Conference: The Rise of Reflective Military Practitioners.”

American Army in 2006, by 2010 they would be eliminated. *Field Manual 5-0's* design chapter has no mention of other paradigms, multiparadigmatic inquiry, reflective practice, and the more abstract notion of 'problem-setting' is replaced with the functionalist 'problem-solving' epistemology. As Martin reflects on Army design failures in Afghanistan in 2011: "design efforts without an understanding of "self" were doomed from the start from my perspective."¹¹⁰⁸ Many of Naveh's deeper design concepts did manifest in *The Art of Design Student Text* internal SAMS publication in detail in 2009, while the attempted stand-alone design doctrinal publication *FMI 5-2* also in 2009 featured key concepts such as 'reflective thinking', 'emergence', and 'paradigms.'¹¹⁰⁹ Yet these efforts would be dismissed by TRADOC as the institution opted for an overly simplified, non-reflexive mode for mass-production military design in 2010.

The authors of *FMI 5-2* were not invited to participate in the eventual *FM 5-0* design chapter document in 2009-2010 despite the SAMS faculty being co-located at Fort Leavenworth.¹¹¹⁰ This illustrates the significant academic, political and institutional tensions within the Army as well as TRADOC in that period and how 'design' would continue to disrupt the organization on why, how, and what 'design' would be within doctrine. Although the 2010 edition of *FM 5-0's* third chapter addresses some of the academic issues with doctrinal form and function, some specific aspects of the subsequent technique-oriented design doctrinal publication *ATP 5-0.1* are deserving mention in this section. The publication does reference select previous Army design doctrines and conceptual doctrinal documents as well as identifying the Marines as fellow design doctrine writers, yet the doctrine writers appear to have left out most of the earlier design influences that directly led to Army Design Methodology.¹¹¹¹

First and foremost, there is no mention of the Israeli systemic operational design, nor of Shimon Naveh's major contributions to international design as well as specifically to the U.S. Army's entire initial design venture from 2005-2009.¹¹¹² While this is in keeping with most all other American doctrinal publications not recognizing the authors of core ideas except by exception, there is no mention of any of the various theorists and contributors of design at all, except for minor acknowledgment of earlier American joint level and Army operational doctrines that

¹¹⁰⁸ Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 10.

¹¹⁰⁹ Headquarters, Department of the Army, *Field Manual Interim (FMI) 5-2: Design (Draft)*, 13-15.

¹¹¹⁰ Ryan to Zweibelson, "Re: Research Question on SAMS, 2009-2010 Period for Design (UNCLASSIFIED)," February 26, 2020. Ryan states that Lieutenant Colonel Steven Leonard was tasked to re-write *FMI 5-2* into a 13-page compressed design chapter for *FM 5-0*. Ryan states neither he nor any of the original *FMI 5-2* authors were consulted, and that Leonard's alleged instructions were to "crunch the FMI down to 13 pages."

¹¹¹¹ Unlike *FM 5-0* and later *ATP 5-0.1*, the draft *FMI 5-2* created in 2009 by a four-person design writing team largely within the SAMS program do reference select design source material including *FM 3-24* and *FM 3-07*. Typical for American doctrine, this draft document makes no mention of foreign contributions such as the tremendous primary source material created by the IDF.

¹¹¹² Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design"; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016; Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought."

had design in them. The omission of the primary theorist and leading international developer of military design concepts is significant. These potential institutionalisms of TRADOC in this case appear to become detrimental to their own desire for Army doctrine to be considered academically rigorous material produced in a scientifically sound manner.

While dismissing Naveh's contributions to design are challenging to ignore if doctrinal publications are supposed to emulate qualities of scientific research and a professional community at large, it is understandable that the American military has a lengthy history of only highlighting other American and especially service-specific sources within their own doctrine.¹¹¹³ Yet even on this point, it is interesting to see no mention in *ATP 5-0.1* of *Field Manual 3-24* that had the first ever formal American Army design chapter published, the Department of the Army's *Commander's Appreciation and Campaign Design* document published after the Unified Quest war-games in 2005-2006, or even Dr. Jack Kem's *Design: Tools of the Trade* monograph published by the Combined Arms Center (CAC) with a forward by the CAC Commander at the time, Lieutenant General Caldwell.¹¹¹⁴

Understandably, there is no mention either of the unpublished *FMI 5-2* attempted draft design doctrine which was the clear prototype document as unpublished drafts, prototypes and white paper concepts are rarely discussed in any subsequent formal doctrinal publications. This is another peculiarity of military doctrine that is atypical in other professions where academic rigor requires the recognition and citation of previous concepts and earlier work. Once the first formalized, explicit design doctrinal chapter for full-spectrum Army applications was published in 2010, the Army then undertook several rigorous sociological studies of design in practice due to widespread confusion and complaints of Army units attempting to do design thinking in war.¹¹¹⁵

The Army was mired in intense counterinsurgency operations in Iraq and Afghanistan, and throughout the 2003-2010 period would experience the tension of trying to generate novel cognitive methods of war while also struggling with an apparent enduring anti-intellectual climate distrustful of alternative or disruptive concepts that required significant effort to learn. By 2015, TRADOC published the in-depth design methodology doctrine *ATP 5-0.1* which expanded the original

¹¹¹³ There are references to foreign militaries, although the general pattern is for American examples of success to be highlighted. Examples of failure, if used, tend to be non-American examples.

¹¹¹⁴ Kem, *Design: Tools of the Trade*. Kem authored that manuscript in May 2009 for the U.S. Army Combined Arms Center at Fort Leavenworth, Kansas where SAMS was also located. While the SAMS school was subordinate under the Army Combined Arms Center, there were differing opinions on design education and Kem did not have interaction with the SAMS program when Naveh educated design there nor did he participate directly in the early design writing efforts of SAMS faculty and students on early drafts of design doctrine.

¹¹¹⁵ Anna Grome, Beth Crandall, and Louise Rasmussen, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration," *U.S. Army Research Institute for the Behavioral and Social Sciences*, no. Research Report 1954 (March 2012); Grant Martin, "Tell Me How to Do This Thing Called Design!," *Small Wars Journal*, April 8, 2011, <http://smallwarsjournal.com/blog/journal/docs-temp/729-martin.pdf>; Andrew Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?," *Small Wars Journal*, September 20, 2010.

fifteen-page chapter to more than six times that size, although it would be written by different authors and demonstrated significantly different ideas than the 2005-2010 SOD-inspired draft design doctrine and internal educational concepts.

Resistance from the American Institution: Controversy with Self-Disruption

This 2005-2010 period of intellectual experimentation and design debate at SAMS as well as the rapid development of new design doctrine aiming to change how the American land forces thought about complexity and war was not without tension. By 2009-2010, the broader American military institution began pushing back on the disruptiveness and cast a critical eye toward the unorthodox design education coming out of intellectual centers such as SAMS for the war effort. Some of the SAMS graduates returning to the force with their new sophisticated outlooks on war and organizational transformation either were not being understood, lacked the bridging skills to successfully usher in sophisticated and intellectually dense concepts into deliberate mechanistic planning, or perhaps were being rushed into the war without sufficient theoretical or andragogic development in the classroom.

Complaints began emerging from Division and Corps level headquarters as well as influential senior military leaders on whether these difficult and abstract design concepts were helping or hurting SAMS graduates as they integrated back into key operational planning billets for their utilization year immediately following graduation. By 2008-2009, SAMS leadership and faculty were receiving numerous complaints from operational staffs in warzones that the graduates were unable to “accomplish basic tasks such as writing an order...graduates [of SAMS] often thought way to conceptually...some graduates refused to stop admiring the problem.”¹¹¹⁶ There were accusations that SAMS was producing navel-gazing philosophers and not operational planners, and that the esoteric design ideas could not translate from the whiteboard to the battlefield.

One critic of SOD, Professor Milan Vego of the U.S. Naval War College, prophesized in 2009 that the U.S. military’s interest in design would lead to a similar dismal experience as the earlier ‘effects-based operations’ of the 1990s.¹¹¹⁷ Vego framed the Israeli institutional rejection of SOD as due to the officer corps finding “the entire SOD concept elitist...other officers could not understand why the old system of simple orders and terminology was replaced by one that few could understand.”¹¹¹⁸ Other critics such as McLamb in a war college thesis¹¹¹⁹ argued “design really makes no improvements on the current planning process...Design is

¹¹¹⁶ Daniel Cox, “RE: One Additional Question on SAMS, Design and 2006-2010 Period (UNCLASSIFIED),” March 5, 2020, personal correspondence.

¹¹¹⁷ Vego, “A Case Against Systemic Operational Design,” 69.

¹¹¹⁸ Vego, 73.

¹¹¹⁹ Although not a primary source, war college thesis topics do offer researchers insights into the more controversial topics confronting senior military officers at that time. An increasing number of war college students began addressing design concepts from 2005 onward, to include highly critical ones that attempt to refute postmodern concepts in order to retain existing modern concepts and language.

at its basic core an academically arrogant idea.”¹¹²⁰ In a TRADOC funded research report in 2012 on design integration problems, the authors acknowledge the cultural perception that “only the ‘elite’ few can do [design].”¹¹²¹

This would echo Naveh’s personal quips that his design concepts were not for “ordinary mortals,”¹¹²² yet simultaneously Naveh and others would continue to attempt to educate an increasingly expansive population of military officers in these new ideas. Andragogic debate aside, for every ten design students exposed to the ideas, design educators would associate educational success and validation if just one or two of them took up the ideas and moved forward.¹¹²³ The low threshold for design conceptual approval was unorthodox and placed any design educational program in this emergent period of experimentation into a precarious battle for continued justification for retention within a professional military program. The intellectual tension of ‘design is just for smart guys’ would soon be addressed by new leadership positioned to alter the path that design seemed to be taking by 2009-2010.

Interpersonal friction and bruised egos at SAMS by 2008 reached a boiling point, where Naveh was removed from the program and essentially banned from the building. According to Ryan, then a newly assigned SAMS faculty member, “there were several falling outs based on both personality and ideology. Jim Schneider, Tim Challans (SAMS faculty), and then Hubba Wass de Czege, Shimon Naveh, and Rick Swain (Booz Allen Hamilton contractors) severed ties with the design program they had created at SAMS due to disagreements with the Director.”¹¹²⁴ Future SAMS design students including the author were forced to meet with Naveh outside of the building, usually around Fort Leavenworth through coordination outside of the school.

Butler-Smith, a fellow SAMS faculty member and military postmodern proponent, would frame these tensions more delicately in an unpublished draft essay by mentioning “discontinuities in SAMS faculty and the incorporation of contractors which created two “versions” of design, the varied perspectives of SAMS directors...and the lifecycle of senior officers interested in design” would all create tensions in the larger story of how design shaped and was shaped by the U.S. Army.¹¹²⁵ Fellow SAMS faculty at the time would echo this observation that the

¹¹²⁰ McLamb, “The U.S. Army’s Design Doctrine: A Solution to the Ills of the Operations Planning Processes?,” 14.

¹¹²¹ Grome, Crandall, and Rasmussen, “Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration.”

¹¹²² Yotam Feldman, “Dr. Naveh, or, How I Learned to Stop Worrying and Walk through Walls,” online social media and news blog, *HAARETZ.Com* (blog), October 25, 2007, <https://www.haaretz.com/misc/article-print-page/1.4990742>.

¹¹²³ Butler-Smith, “Naveh, “The Australian SOD Expedition: A Report on Operational Learning”; Cox to Zweibelson, “Fwd: Research Question on SAMS, 2009-2010 Period for Design,” February 24, 2020; Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” 2016. *Operational Art to Systemic Thought: Unity of Military Thought*, 72.

¹¹²⁴ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

¹¹²⁵ Butler-Smith, “Operational Art to Systemic Thought: Unity of Military Thought,” 70.

Army was struggling with how and why to do design, and that SAMS had become a cognitive battleground between one group that desired radical design disruption of the legacy system, and another that desired evolutionary and complementary process improvement of the existing planning and strategic doctrine without the esoteric aspects of postmodernism, complexity theory and reflexive practice.¹¹²⁶

Wass de Czege, the founding director of SAMS and a regular guest faculty member also interested in design at that time would expand on this tension. Wass de Czege, in his own e-mail recollection on a Pentagon plans e-mail distribution list in 2016, stated "Steve [Banach]...was director of SAMS when he received the directive to embrace design. I applaud his efforts even while I was skeptical of the concept...in the summer of 2013 I was mentoring a group of students engaged in a design exercise at SAMS. When I was out of the room, the seminar leader would "correct" my coaching guidance. That day, Steve [Banach, SAMS Director] and I parted ways. As a result, I also parted ways with the Army's design community...I also parted ways with Naveh's group, but on collegial terms."¹¹²⁷

Office politics and personal conflicts are normal and perhaps even expected, with many potential 'founders' of a new mode of Army thought competing over who would get the credit in the history books. The fractious environment at SAMS between senior leaders, design theorists, and faculty appear to have increased pressure there on what the American Army's design ought to be, how it was to be taught and put into doctrine. Egos and personal differences indeed appeared to disrupt, or potentially enable much of the emergent design education at SAMS in the 2007-2013 period from a variety of key stakeholders. Naveh, Banach and later Wass de Czege's disengagement with the SAMS design experimentation would be one pattern indicating the controversial nature of institutional pressure to change.

By 2010, Naveh would only engage with select SAMS students studying design, and only meet covertly in coffee houses and restaurants when he was in the Fort Leavenworth area. The outgoing school director, Colonel Stefan Banach was replaced with a new director, Colonel (later Major General¹¹²⁸) Wayne Grigsby who quickly promoted a different philosophy on how design was to be educated at the

¹¹²⁶ Cox to Zweibelson, "Fwd: Research Question on SAMS, 2009-2010 Period for Design," February 24, 2020; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016; Ryan to Zweibelson, "Re: Research Question on SAMS, 2009-2010 Period for Design (UNCLASSIFIED)," February 26, 2020; Wass de Czege, "On Design," June 16, 2016; Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]."

¹¹²⁷ Wass de Czege, "On Design," June 16, 2016. Wass de Czege, as the founder and first director for SAMS would be intermittently involved in design education at SAMS from 2007-2011 and in his above recollection he mistakes the date of when this occurred. As Banach was that school's director through the summer of 2010, this event would have occurred not later than 2010 and more likely the summer of 2009.

¹¹²⁸ Grigsby would be subsequently relieved of command and demoted to a Brigadier General and into retirement due to ethical lapses in judgement. See: Craig Whitlock, "Army Busts Another General for Improper Relationship with Woman," *Washington Post*, June 22, 2017, sec. Investigations, https://www.washingtonpost.com/investigations/army-busts-another-general-for-improper-relationship-with-woman/2017/06/22/3cbccf42-5755-11e7-ba90-f5875b7d1876_story.html.

school.¹¹²⁹ The SAMS program would rapidly shift under the Banach-Grigsby transition with dramatic changes to course curriculum, lessons, source material, assigned readings, as well as the relationship to operational planning for Army officers.¹¹³⁰

Banach had been an instrumental force behind embracing the 2005-2006 Naveh experiments as well as the Army's adaptation of design in doctrine, and the implementation of design into many division-level and higher staffs in the Army at wartime. However, the pressure to produce design doctrine and implement sophisticated design theory in SAMS created a tension with what TRADOC wanted and Naveh's challenging original premise on design. As Banach championed his own subsequent variation of Naveh's SOD,¹¹³¹ this tension would intensify with intellectual battles across the Army intellectual and doctrine producing community, as well as across senior warfighter leadership. Within this tension, various actors also struggled to control portions of the design narrative and the doctrinal form it might take, what SAMS graduates ought to bring back to the larger Army.

They skirmished on how TRADOC was preparing the Army intellectuals needed to innovate in war, as these sorts of major reforms and experimentations would have far-reaching ramifications for an institution that thrived on convergence and uniformity of action. This all transpired as the conflicts in Iraq and Afghanistan continued to cause political and institutional design frustration during surges and subsequent shifts in strategy as well as the mode of design implementation in the 2009-2015 period.¹¹³² Within a four-year span, three different SAMS directors authored three distinct intellectual narratives in the Army's prestigious *Military Review* journal to present their own position on what design was, how it would be taught at SAMS, and why the Army needed it done in that particular way.¹¹³³ The clear conceptual, terminological, and methodological differences between these articles in such a short period illustrates the exceptional tension that military design theory and methodology was generating at Fort Leavenworth and across the entire U.S. Army.

Some design supporters have lauded Banach's efforts with establishing a design methodology tailored to the U.S. Army conventional needs, although there were two different groups of critics. Some disagreed with Banach's departure from

¹¹²⁹ Grigsby et al., "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process."

¹¹³⁰ Cox to Zweibelson, "Fwd: Research Question on SAMS, 2009-2010 Period for Design," February 24, 2020.

¹¹³¹ Stefan Banach and Alex Ryan, "The Art of Design: A Design Methodology," *Military Review* 89, no. 2 (April 2009): 105–15; Stefan Banach, "Educating by Design: Preparing Leaders for a Complex World," *Military Review*, April 2009, 96–114.

¹¹³² Martin, "Tell Me How to Do This Thing Called Design!"; Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?"

¹¹³³ Banach and Ryan, "The Art of Design: A Design Methodology"; Grigsby et al., "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process"; Graves and Stanley, "Design and Operational Art: A Practical Approach to Teaching the Army Design Methodology."

the original SOD concepts, while others instead took issue with design in entirety as something unnecessary for the Army, or potentially too abstract to be useful except in very unique applications. Wass de Czege, reflecting on how Banach had developed his own rather ideological perspective on the Army's design methodology cast into doctrine by 2010, wrote that Banach "was convinced, as well as complying with orders, and made the concept his own. He is as convinced of the rightness of design as Boydians¹¹³⁴ are certain of the OODA loop as THE answer to complexity etc. [sic]."¹¹³⁵ Wass de Czege's critique of design advocates promoting a single overarching methodology even concerning design would come across to many within the military institution as ideological fanatics and inflexible towards alternative perspectives or theory.

Ryan, as one of the key design faculty members at SAMS during the Banach period after Naveh's departure, remarks in a blog post that "my position at SAMS was funded through a contract with Booz Allen, which effectively rendered myself and my colleague John Rochelle as the bridge between SAMS and [Booz Allen's Center for the Application of Design]. While this position was not without tension, it also afforded me a unique view on this early forking of military design practice in the U.S. Army."¹¹³⁶ Banach initially commanded the new Army vision for design in doctrine and practice, while faculty such as Ryan and others implemented the theory based upon selections from Naveh as well as systems theory. Within these variations on Naveh's original design theme, some SAMS faculty tilted towards the systems theory aspects while ignoring the postmodern philosophy, while other faculty members embraced the postmodernism and saw any simplification of systemic operational design's esoteric theory as heretical or intellectually lazy. Cox, reflecting on the period from the perspective of SAMS faculty, recalls:

I think SOD gets a bad rap and I believe 'systems of systems analysis' got a bad rap and then quickly came back into Army thinking through Design...when a student was 'shot in the face' [metaphorically, or yelled at by a military leader in a direct and often public fashion] it was most often because a commander asked for a product three or more times and the SAMS student refused, arguing they needed more time to look at the problem. We had no practical exercises at SAMS at the time so I can see how some students fell into this trap.¹¹³⁷

Through the Spring of 2010 at SAMS, Banach took on the role of a design 'translator' in his efforts to bring a form of digestible and perhaps more palatable

¹¹³⁴ Wass de Czege is referencing the fanatical followers of USAF Colonel John Boyd, creator of the OODA Loop and numerous complexity theory applications for the military services from the late 1970s through 1990s.

¹¹³⁵ Wass de Czege, "On Design," June 16, 2016.

¹¹³⁶ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹¹³⁷ Cox, "RE: One Additional Question on SAMS, Design and 2006-2010 Period (UNCLASSIFIED)," March 5, 2020.

design to the Army in its time of need during the extended asymmetric demands of the seemingly never-ending unconventional security demands across Iraq, Afghanistan, Africa, and beyond. Yet Banach went beyond implementing a new variation on SOD for practice and theory. Despite opposition from Naveh on the dangers and incommensurability between design and doctrine, Banach, SAMS faculty and TRADOC would ultimately implement design into formal Army doctrine by 2010 and place a design chapter firmly into the capstone Army doctrinal publication.

Banach's emphasis on establishing the narrative on how the Army would do and know design includes key publications positioned to coincide with the draft review and expected publication of the new design chapter for the 2010 *Field Manual 5-0: Operations Process*.¹¹³⁸ With a fierce debate over the value of design in the Army only just starting, this positioning of design into a core Army publication while also maintaining theoretically dense design content in supplemental documents such as the *SAMS Art of Design: Student Text* would render further consequences.¹¹³⁹

The American Army would, in publishing design doctrine from the first iterations in 2006 in *FM 3-24* and later in increasingly direct design doctrinal form from 2010 onward, direct design for the use of a single branch (the Army) with implications that in joint environments other services might use their branded 'Army Design Methodology' as well. Naveh and Graicer, in a 2019 interview with the author, warn against preparing any design methodology for a single service. Providing design practice or theory for a single service is, in their experience, fraught with difficulties:

In the IDF, the military is so heavily combined with the civilians, unlike in [America]...when [an Israeli] is a division commander, you are not only commanding the regular troops and reserves, but you are also in command of the civilian community around you...they come to you, they ask for help, you are the boss. They depend on you, they rely on you, you are the sheriff of the community...in the U.S. or with state-communities, when you bring civilians with military in [design education] the military use different language, different modes of communication. But not in this country. [In Israel], everybody was a soldier, everybody knows everybody...it is a small community. This familiarity help people disagree.¹¹⁴⁰

¹¹³⁸ Banach, "Educating by Design: Preparing Leaders for a Complex World"; Banach and Ryan, "The Art of Design: A Design Methodology"; United States Army, *Field Manual 5-0, Operations Process*, 5.

¹¹³⁹ School of Advanced Military Studies, *Art of Design: Student Text, Version 2.0*, Version 2 (Fort Leavenworth, Kansas: U.S. Army School of Advanced Military Studies, 2010).

¹¹⁴⁰ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

Naveh and Graicer see a cultural and geo-political distinction between Israel and nations such as the United States and how military design education and theory might operate. Nonetheless, they see strong value in keeping military design non-service specific, able to operate across different security and governmental organizations with a minimum level of service-specific jargon and doctrine so that pure design discourse can occur easily.

Concerning the 'purity' of design versus permitting one service to bound design within a service-specific logic and language, Graicer replies in correspondence that: ""Since we believe no strategic problem in this era falls in the [area of responsibility] of a single/silo service...In Israel, on top of that, it would definitely involve at least two security organisations if not three. So, we strongly advocate design teams should reflect from the outset that combination, not assigned during the planning phase missions to each of the services/org."¹¹⁴¹ Thus, design ought not be restricted within a single services' control in the acknowledgement that most all design challenges will exceed that perspective; diversity of thought is more important than institutional self-preservation. Teams of design students as well as practitioners in real-world settings also need to be combined from many diverse organizations and not just from within a single unit or branch.

Replacing the 'Art of Design' with a Doctrine on Design Techniques:

After 2012, the American Army shifted to an updated model for doctrinal publications and would designate their "Army technique publications" or ATPs to act as the far more extensive doctrinal products in an effort to decrease the size of the original field manuals. Thus, today the Army has some brief design content in the broader 'Army Doctrinal Publications' or ADPs, but *ATP 5-0.1* acts as the intellectual clearing-house for where Army personnel can learn how to perform this design methodology, acquire new terminology, and integrate their design practice into other supporting Army doctrinal publications. Unlike the earlier DA pamphlets, white papers, interim field manuals and internal student design books for professional military schooling, the appearance of design within universal Army doctrine represented an institutional acknowledgement that the entire Army could consider a different way of thinking and acting for complex, dynamic security challenges.

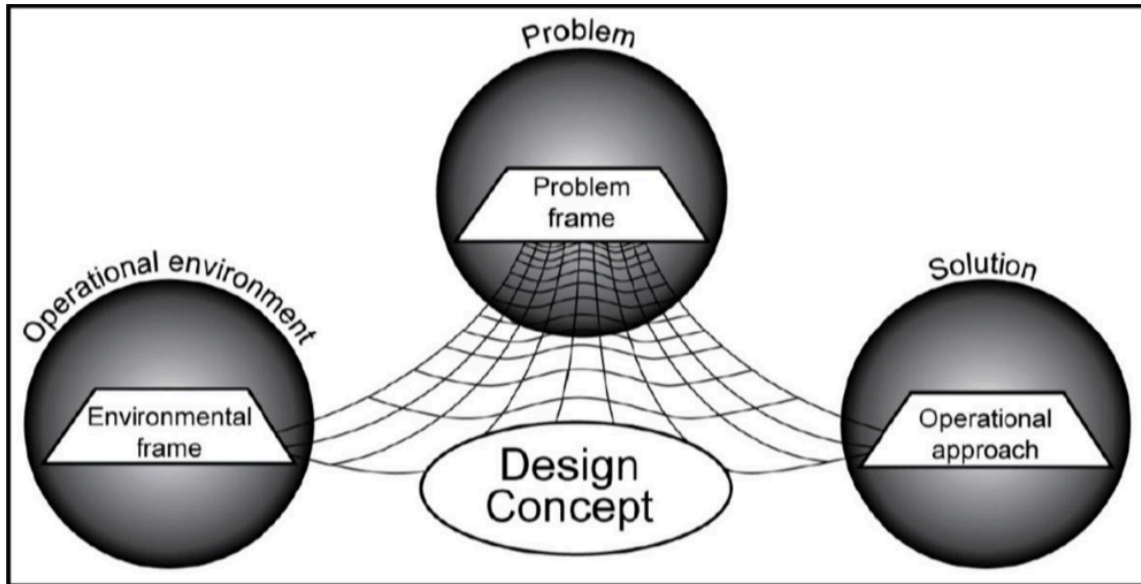
Since its inception in the 2006-2010 period, the American Army has drawn select design concepts from Naveh's original systemic operational design, while also attempting to distance itself from the dense concepts, emphasis on self-framing and eclectic philosophical components. Instead, the Army drew heavily on systems thinking, existing operational planning logic, and the general epistemological framework of earlier creative problem-solving methodologies that design theorists such as Rittel saw as insufficient.¹¹⁴² Whether doctrine writers realized their epistemological similarities with creative problem-solving methods of the 1950s or

¹¹⁴¹ Ofra Graicer to Ben Zweibelson, "Re: Updated Chapter 4 Zweibelson Dissertation ADM and Marine Design Versions," March 9, 2020. Personal correspondence over email.

¹¹⁴² Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 101–17.

not is unknown. Regardless, the framework most often associated with 'Army Design Methodology' is depicted in the below figure out of the 2015 doctrine and both methodologically as well as even graphically share significant overlap with the long-established civilian 'creative problem-solving' community.

Army Design Methodology's "Three Ball Chart" Graphic, FM 5-0:¹¹⁴³



Interestingly and perhaps unintentionally, the geometric composition of square shapes and design relationships promoted in Naveh's first version of SOD would continue into the eventual spherical and linear depiction used by the American Army. The abstract qualities of design appear in both early SOD and subsequent Army Design Methodology (ADM) to be articulated with military standardized language which draws almost exclusively from engineering, mathematical and physics-based metaphors.¹¹⁴⁴ Thus, spheres and squares and other geometric constructs might present a familiar cognitive scaffolding for the military institution to hang existing ideas and doctrine upon, if only to retain legacy practices and assimilate new ideas. Boyd's OODA loop is also depicted spherically, with geometric logic articulating abstract ideas as well. Whether this pattern of geometric graphic composition potentially neutralizes some of the alternative cognitive positions of design or provides a useful bridging quality for military planning mindsets represents another area of potential research.

¹¹⁴³ United States Army, *Field Manual 5-0, Operations Process*, 5.

¹¹⁴⁴ Paparone, "On Metaphors We Are Led By"; Paparone and Davis Jr., "Exploring Outside the Tropics of Clausewitz: Our Slavish Anchoring to an Archaic Metaphor"; Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations"; Snowden, Dr. David Snowden IMDC Lecture: "The Application of the Cynefin Framework in Military Design."

ADM states that it takes an interdisciplinary approach to planning and problem solving by incorporating ideas from “critical and creative thinking, leadership, decisionmaking [sic], and organizational learning.”¹¹⁴⁵ Although as this chapter explains, ADM in practice discounts or contradicts nearly all of these theories in favor of an underlying mechanistic ‘problem-solution’ mode for decision-making.¹¹⁴⁶ In the introduction to the doctrine, the Army immediately associates their design methodology with conceptual planning, thus enforcing and extending the functionalist paradigm from existing campaign design, strategy, tactical and operational planning methods into the intent for design thinking, rejecting the fundamental logic of Naveh’s SOD.¹¹⁴⁷ Modernity of war would extend a single, reductionist war logic forward and dispute postmodernity, postmodernism, and even the design of warfare *in any postmodern style*.

The five chapters in the ADM doctrinal manual provide a review of overarching planning methodologies of which the Army directs design as a supporting sub-component therein. This reinforces some of the original design concepts in the draft *Field Manual-Interim 5-2* design book where the Army unofficially considered design as a replacement for the mission analysis step in the linear military decision-making process in some unique and highly complex security contexts.¹¹⁴⁸ While Naveh’s original military design concepts operated above and outside of legacy military planning logic and usually sought to disrupt and dismantle them through novel design activities,¹¹⁴⁹ the American Army would *reverse this relationship* to restore the single-paradigm form of reductionist decision-making as the overarching logic for war (modernity). The Army within doctrine placed design as an optional planning step in complex situations for when “commanders and staffs [have] difficulty understanding complex situations...[that would] hinder their ability to distinguish between symptoms of problems and their root causes.”¹¹⁵⁰

In the first chapter of *ATP 5-0.1*, Army designers are reminded of existing doctrinal concepts such as ‘Mission Command’, the operational planning process, and how design can be used in complex, ill-defined situations provided that they do not violate any of these pre-existing doctrinal constructs. This supports uniformity and generating a relatively clear military doctrinal integration of a new idea such as ‘design’ into the already well-established and often ritualized Army planning concepts. However, returning to Naveh’s original emphasis on destruction and creation for designing in military contexts, this doctrinal framework largely

¹¹⁴⁵ US Army Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)* (Washington, DC: US Department of the Army, 2015), iii.

¹¹⁴⁶ Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 152–53.

¹¹⁴⁷ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 26:21; Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

¹¹⁴⁸ Wilburn McLamb, “The U.S. Army’s Design Doctrine: A Solution to the Ills of the Operations Planning Processes?” (paper for partial satisfaction of master’s degree, Naval War College, May 2009), 4.

¹¹⁴⁹ Martin, “A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan],” 4.

¹¹⁵⁰ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, v.

prevents critical self-reflection and introspection as well as experimentation outside of these prescribed logics.

Ryan, in his retrospective blog on being part of the Army's effort to introduce design thinking to the force, highlights one of the design camps as "the home team" where they wanted to follow design in Naveh's pure multiparadigmatic, self-disruptive mode.¹¹⁵¹ The opposite faction that Ryan labels "the away team" wanted to have design function within the existing institutional framework in a pragmatic manner; simplification of design should occur if only to get useful elements out to the masses. Yet as Ryan points out, "how do you introduce a new paradigm when you cannot have a discussion at the level of paradigms? The Home team was mostly ignored or derided by Army leaders. For every 100 students, they would convert one or two devoted acolytes...the Away Team was better received by students. But because not of these students were required to challenge their fundamental beliefs, they were never able to really reframe."¹¹⁵² Thus the away team would remain stuck in the modern war frame, unable to break out of it since the very postmodern tools to shatter a single-frame war view were deprived of them.

Tsoukas and Vladimirov acknowledge this core tension in organizational knowledge and the ability to understand the generation of it in reality: "Our understanding of organizational knowledge will not advance if we resign ourselves to merely recycling commonsensical notions of knowledge for, if we were to do so, we would risk being prisoners of our own unchallenged assumptions, incapable of advancing our learning."¹¹⁵³ Naveh's SOD would also prioritize self-reflection at the epistemological level, acknowledging that such an intellectual endeavor would be time-consuming and require extensive learning.¹¹⁵⁴ Thus, at the epistemological level, *ATP 5-0.1* rigorously defends the larger Army doctrinal framework and therefore permits a single dominant paradigm (functionalism) to pervade any attempts at design thinking for Army designers. War must remain modern, with a subsequent rejection of any real notion of postmodernity, and a vigorous refusal to acknowledge any postmodern theory or terminology therein.

ADM epistemologically places the centralized hierarchy as the core organizational structure for all necessary decision-making, to include design thinking, frequently at the expense of alternative organizing logics such as rhizomes that proliferate in biology as well as postmodern theory.¹¹⁵⁵ The metaphor of a 'spider-like' organization contrasting with the 'starfish' lacking centralization and able to be severed yet thrive is a slight variation on the hierarchy-rhizomatic tension

¹¹⁵¹ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹¹⁵² Ryan.

¹¹⁵³ Haridimos Tsoukas and Efi Vladimirov, "What Is Organizational Knowledge?," *Journal of Management Studies* 38, no. 7 (November 2001): 975.

¹¹⁵⁴ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*; Naveh, "The Australian SOD Expedition: A Report on Operational Learning."

¹¹⁵⁵ Robert Chia, "A 'Rhizomic' Model of Organizational Change and Transformation: Perspective from a Metaphysics of Change," *British Journal of Management* 10 (1999): 209–27; Patricia Pisters, ed., *Micropoetics of Media Culture: Reading the Rhizomes of Deleuze and Guattari* (Amsterdam: Amsterdam University Press, 2001).

and popularized in the same experimental period for military design.¹¹⁵⁶ ADM, however, places all emphasis on the centralized hierarchy for thought and action within complex war. "Conceptual planning corresponds to the art of command and is the focus of the commander with staff support."¹¹⁵⁷ There is some similarity to human-centered design methods that emphasize a design focus on the 'design sponsor' or 'client sponsor' who is considered the corporate or executive leader directing the design activity,¹¹⁵⁸ although this may merely be a terminological coincidence and unrelated to any implied commercial design influence upon how ADM was developed.

Instead, previous Army doctrine and organizational structures emphasize the commander-centric decision-making logic, of which ADM is subordinate to. In applications, this may cause tensions in breaking Army designers out of groupthink, convergent thought processes, and inhibit divergent or disruptive design experimentation due to hierarchical restrictions or initial senior leader biases that taint the design endeavor early on. Martin, a former SAMS student of Naveh, reflects on an Army design failure in Afghanistan in 2011 with: "because we were guided by our previous assumptions, we ended up just concluding that the way the commander already thought about Afghanistan and how to effect change in Afghanistan must be right."¹¹⁵⁹ The lack of design methodological emphasis on self-disruption and paradigm framing appears to render Army designers back into planners seeking to validate the preconfigured and often highly biased initial assumptions of their commanders prior to commencing the design inquiry itself. This loses the essential epistemic qualities of SOD as practiced by Naveh and promoted in the non-doctrinal SAMS design concepts of the period. That said, it also enforces convergent thinking and conservation of existing doctrine, methods and practices that previously demonstrated some value in security application.

ADM does reinforce some of Naveh's original military design philosophy on iteration, fluid design applications¹¹⁶⁰ and the mantra that 'there is no single prescribed way to do design,' yet the doctrine itself is contradictory on this important position. Initially, ADM stipulates, "there is no one-way or prescribed set of steps to employ ADM."¹¹⁶¹ This statement is buttressed against pages of prescriptive directions on precisely the sequence to perform design as well as required terminology, essential supporting doctrine and Army planning constructs such as the 'elements of operational art' that are considered necessary if not mandatory to be used. Many other design methodologies share this same paradox of

¹¹⁵⁶ Brafman and Beckstrom, *The Starfish and the Spider*.

¹¹⁵⁷ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–3.

¹¹⁵⁸ Johnson, *IBM Design Thinking Field Guide Version 3.1*; Gilbert, "The Art of War: Accelerating Innovation by Scaling the Design Mindset"; JSOU User, *Design at Scale: How Enterprise Design Thinking Alters How Large Organizations Operate*.

¹¹⁵⁹ Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 6.

¹¹⁶⁰ 'Fluid' here is associated with the SOD metaphor of 'drift', not to be confused with functionalist efficiency-based design methods such as 'flow systems' or Six Sigma. The proliferation of physics metaphors without reflective practice can allow institutional preferences on paradigm to prevent any epistemological reflection in design.

¹¹⁶¹ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–3.

claiming there are not really steps or ingredients to doing design a particular way, followed by a specific and rather directed recipe book for how that style of design ought to be accomplished. Thus, this is not just a critique on doctrinal form for militaries, but also across the broader interdisciplinary design community of practice as well.¹¹⁶²

ADM, in keeping with a strong correlation with commercial 'creative problem solving' methodologies dating to the early 1950s, is fixated on identifying problems in order to generate creative solutions and subsequently experimenting with 'solving' these problems that are acknowledged to exist as part of a dynamic, complex system. This is in complete contradiction with the core tenets of Rittel's extensive work on wicked problems and civilian design theory in the 1950s-60s.¹¹⁶³ ADM refers to Naveh's original systemic operational design theory with "organizational learning through reframing," a fundamental element of Israeli design thinking and showing that residues of Naveh's earlier ideas still bounced around inside of TRADOC on design praxis.¹¹⁶⁴

Yet the second part of that same doctrinal sentence deviates strongly from Naveh's work (extending back to Rittel and other designers focusing on complex reality),¹¹⁶⁵ implying that militaries performing design will encounter a teleological reinforcement of gaining increased control and understanding of a complex system in order to discover new solutions to a wicked problem. *ATP 5-0.1* completes the earlier reframing statement for the reader with, "...a maturing of understanding that leads to new perspectives on problems or their resolution."¹¹⁶⁶ Removing teleological treatment of the Army's ontology would prevent gradual accumulation of information from culminating in anything other than vast piles of descriptive data that are irrelevant to meaning or explanation. This would disrupt the functionalist paradigm yet remain entirely within SOD's original intent. As Baudrillard posits from a postmodern position, "we live in a world where there is more and more information, and less and less meaning."¹¹⁶⁷ This paradox illustrates postmodern critique of the functionalist epistemological belief that cumulative information analysis increasing over time renders complex security challenges more manageable through analytic optimization, risk management, and increased control.

This 'problem-solution' orientation¹¹⁶⁸ for ADM's epistemological approach to complex security contexts demonstratively advocates against the design logic of Naveh which is understandable if only due to the institutional apprehension of

¹¹⁶² Aaron Jackson, "Military Appreciation Process Lecture No 1: A History of the Military Appreciation Process as Well as a Discussion of Strengths and Criticisms (PowerPoint)" (Unpublished manuscript, April 2018); Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"

¹¹⁶³ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 101–17.

¹¹⁶⁴ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–3.

¹¹⁶⁵ Alexander, *Notes on the Synthesis of Form*, 73; Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–61.

¹¹⁶⁶ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–3.

¹¹⁶⁷ Baudrillard, *Simulacra and Simulation*, 79.

¹¹⁶⁸ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 230.

SOD's original radicalism. However, ADM's epistemology also operates in opposition of the fundamental design theoretical work of Rittel and others by advocating oversimplification of what are inherently complex, dynamic security contexts.¹¹⁶⁹ This illuminates the overarching ontological stance of most industrialized modern military forces that follow 'technical rationalism where the traditional analytic optimization and reductionism modes of modern military strategy pair directly with tactical planning; the complicated war tasks at the lowest level are expected to work just as effectively at the most abstract strategic levels of war.'¹¹⁷⁰ Provided that enough technology and sound military experience is at hand, the wise leader can over time gain and increase knowledge on the complex topic under inquiry, often through analytic optimization in order to ultimately accomplish a military goal by 'solving' the problem.¹¹⁷¹

ADM doctrinally appears to reinforce this belief, which implicitly validates modern military decision-making logic yet violates the very arguments of complexity theorists and contemporary design philosophy. The violation of most all postmodern thought is not without mentioning, despite the Department of Defense's general disgust with postmodern theory overall. Turning this 'framing of the problem' concept onto its head, Rittel rejects rationalized design efforts in that analytic planning organizations only terminate their rationalizing of a 'problem' when they run out of time, money or patience.¹¹⁷² Everything else is irrelevant yet accepted by the non-reflexive organization as relevant to the rationalization of 'solving' complex problems.¹¹⁷³ Like a switch, there is the expectation that 'design' occurs in a particular setting for a period, and the complex problem is studied and judiciously "solved" so that the military force might move right along with all of the established operational planning processes uninterrupted.

Continuing with the epistemological decision that 'design' in military contexts is a subordinate step to an all planning and decision-making endeavors, *ATP 5-0.1* refers to the formation of designers to practice design not as 'design teams' as used in most all other design communities, but as *planning teams*.¹¹⁷⁴ The planning team, directed to execute design praxis, is epistemologically oriented by the ATP doctrine to be problem-solution oriented, and additionally focus on the 'environment' within which the projected design problem is understood to be existing.¹¹⁷⁵ Here, the ontological choice of seeking objectivity through analytical logic and reductionist isolation of a complex reality into 'environment' devoid of

¹¹⁶⁹ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 35–37; Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*.

¹¹⁷⁰ Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 63; McFate, *The New Rules of War*, 233–37; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*.

¹¹⁷¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–61.

¹¹⁷² Protzen and Harris, 154.

¹¹⁷³ Tsoukas and Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity," 1001.

¹¹⁷⁴ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–4.

¹¹⁷⁵ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 35–37.

'self' reflects the military fixation on pursuing hard science methodologies within complex security contexts that reject such attempts. White's postmodern inquiry into the construction of narratives illustrates this perpetual fantasy that non-physical science topics might be rendered 'objective' this way.¹¹⁷⁶

Ontologically, the Army is once more espousing a functionalist paradigm where there is a lack of organizational reflection with what Schön terms as a core element of "reflective practice."¹¹⁷⁷ Paparone advocates a strong application of reflective practice in a majority of his design research and education, while Naveh uses a similar postmodern philosophical interpretation of this in his various versions of systemic operational design.¹¹⁷⁸ Naveh uses 'self' and the significant concepts of self-disruption as explained earlier in this chapter under the Israeli design sections; SOD uses postmodern theory to operate as the disruptive agent of these very pseudo-scientific efforts of modern militaries to create laboratory conditions for rationalizing how war is supposed to occur. An exclusive orientation toward the environment is outward facing, meaning the Army designers will tend to describe the system without self-reflection or contemplation on how they view reality, how they interact with it, and what tensions might exist between their own belief systems and alternative ones.¹¹⁷⁹ This again reinforces a technical rationalist position on how all wars ought to function regardless of context.

By reducing all wars down into finite, measurable "principles" or sequenced rules, the entirety of any and all conflicts can be reassembled into dynamic complexity yet still regulated and controlled like a complex engineering feat instead of a disruptive, irrational, and learning system of opposition and competition. ADM features not just an emphasis on problem-solution orientation within a single paradigm but continues to demonstrate an 'ends-ways-means' logical construct¹¹⁸⁰ on how all cognitive activities in war, whether designing or planning ought to perform. This demonstrates how ADM is positioned to reinforce all existing (modern) Army doctrine and language, whereas the early SOD doctrinal attempts as well as Naveh's dialectic form of design exploration were in several ways the antithesis of formal doctrine (postmodern).¹¹⁸¹ SOD was articulated through language understood first as metaphorical, drawing from Derrida¹¹⁸² and others whereas ADM was expected to only be expressed in analytically inspired terminology that had been codified in military doctrine.

¹¹⁷⁶ White, *The Content of the Form*, 66.

¹¹⁷⁷ Visser, "Schön: Design as a Reflective Practice"; Donald Schön, "Educating the Reflective Legal Practitioner," *Clinical Law Review* 2, no. 231 (1992): 231–50; Schön, *Displacement of Concepts*.

¹¹⁷⁸ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Paparone and Reed, "The Reflective Military Practitioner: How Military Professionals Think in Action."

¹¹⁷⁹ Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 8–12.

¹¹⁸⁰ Meiser, "Ends + Ways + Means = (Bad) Strategy," 81–85.

¹¹⁸¹ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*.

¹¹⁸² Derrida, *Of Grammatology*, 295.

Army designers using ADM are directed to frame their 'operational environment' by anticipating what the desired end-state should look like, and model "the natural tendency of the operational environment" by constructing models of desired future states of other actors as points of comparison with this desired end-state.¹¹⁸³ This nests within the dominant Army operational planning methodology, all existing Army as well as joint-level military doctrine, and demonstrates the single preferred functionalist paradigm unchallenged. ADM does not consider complex military contexts where such notions of 'end state' or strategic goals are illusory, nor does it encourage designers to view themselves and their every action as tangled within the 'environment' so that no causal linkages are possibly determined until well after events have unfolded.¹¹⁸⁴

Within this paradigm, the terminology remains exclusively physics-oriented, with a proliferation of Newtonian metaphors as well as engineering language and analytic constructs supporting objective expectations on reality.¹¹⁸⁵ Postmodernists criticize these metaphors as incompatible and insufficient (even counterproductive) with the dynamic, emergent qualities of complex reality, while complexity theorists discount classical physics metaphoric devices so that the paradoxical, more abstract alternatives such as quantum mechanics and relativity are used instead.¹¹⁸⁶ When metaphors are used in *ATP 5-0.1* that are not physics-based, they are rendered in biological concepts supporting teleological stances on how societies at war ought to behave both universally and in a manner open to analytical quantification. Terms such as "the planning team also models the future *natural tendency* of the operational *environment*"¹¹⁸⁷ illustrate this fusion of biological as well as physics-based language. *ATP 5-0.1* moves through a sequence of design frames of the operational environment, isolating the problem or problems, and then framing solutions with an optional iterative step for reframing. Again, this design methodology is nearly identical to creative problem-solving methodology developed independently for commercial enterprise in the 1950s and used extensively for the last half of the twentieth century outside of the American Army.

The Army's stance on design reframing in *ATP 5-0.1* again demonstrates a significant shift away from Naveh's original emphasis on disruptive self-reflection through discourse to destroy existing ideas and make space for novel experimentation. Instead, *ATP 5-0.1* correlates 'design reframe' efforts within the existing operations process for planners. All planning activities to include ADM requires an assessment to "help the commander determine progress towards attaining the desired end state, achieving objectives, and performing tasks."¹¹⁸⁸ This

¹¹⁸³ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–4.

¹¹⁸⁴ Meiser, "Ends + Ways + Means = (Bad) Strategy"; Monk, "Strategic Design for the Complex Realm"; Stanley and Lehman, *Why Greatness Cannot Be Planned: The Myth of the Objective*.

¹¹⁸⁵ Paparone, "On Metaphors We Are Led By"; Paparone and Davis Jr., "Exploring Outside the Tropics of Clausewitz: Our Slavish Anchoring to an Archaic Metaphor"; Hatch and Yanow, "Methodology by Metaphor: Ways of Seeing in Painting and Research."

¹¹⁸⁶ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 66–67.

¹¹⁸⁷ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–4.

¹¹⁸⁸ Headquarters, Department of the Army, 1–4.

epistemological stance of linking an assessment process to the conduct of design creates some significant issues with respect to SOD as well as the contemporary complexity theories that ADM initially attempts to incorporate into existing planning doctrine.

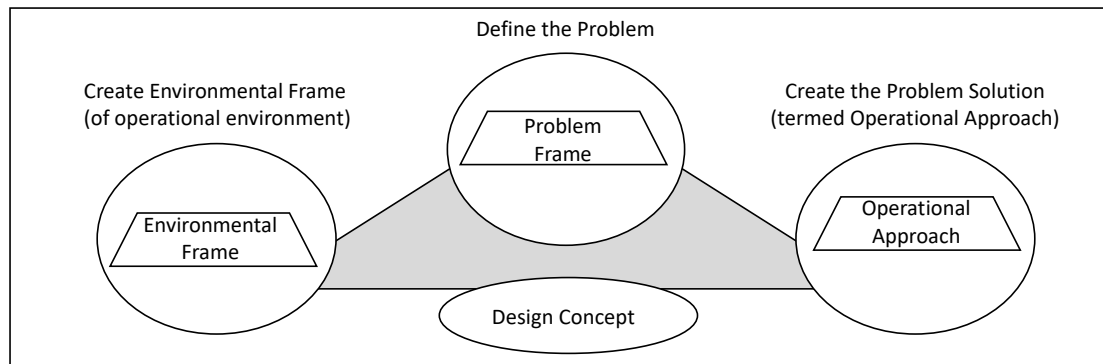
Potentially, designers might have the wrong assumptions, wrong assessment criteria, wrong end-states, as well as an inability to consider alternative paradigms that employ entirely dissimilar logics on the same tangible, observable activities within the complex system. Naveh's original reframe praxis in systemic operational design was destructive to render the ability to self-assess and create.¹¹⁸⁹ Assessment in the Army's mode of design appears as a convergent cognitive practice, not a divergent one. Instead of expanding an ever-widening range of possible future opportunities, the assessment mode perpetually reinforces quantification and readjustments oriented exclusively on the solitary, pre-established 'end' as established originally. If a new 'ends' is designed as depicted in the figure below, the organization subsequently repeats said planning and action cycles again towards the new single future desired state without consideration of how complex, dynamic systems actually behave. Designers are forced to generate recognizable assessment constructs and seek what appears to be a positivist mode of validating or measuring said design progress, or lack thereof. The assessment process requires adherence to existing doctrinal concepts, methods and terminology. Postmodernism rejects this positivist stance as a myth.¹¹⁹⁰ The radical disruption achieved by postmodern design thus becomes antagonistic to any institutional strategic logic and associated doctrine promoted by the force.

Author's Depiction of Army Design Methodology's Epistemological Frame:

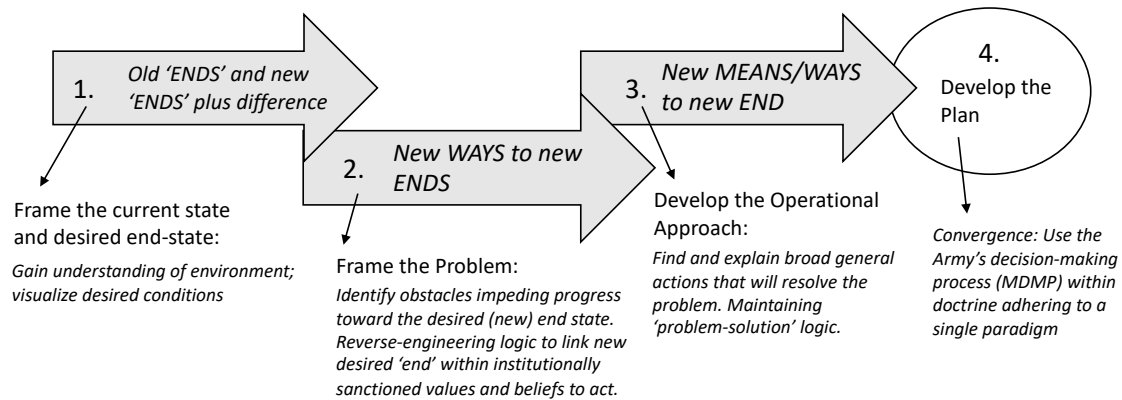
¹¹⁸⁹ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 12–24.

¹¹⁹⁰ Kilduff and Mehra, "Postmodernism and Organizational Research," 458–59; White, *The Content of the Form*, 63.

ADM's Methodological Depiction



ADM's Design Epistemology



ATP 5-0.1 echoes Naveh's original design expression that a multidisciplinary design praxis is required so that individuals have different, often paradoxical perspectives on a complex reality. However, the key concepts *ATP 5-0.1* lists as part of their proposed interdisciplinary approach reinforce other existing Army doctrinal concepts, terminology, and at a philosophical level numerous epistemologically sanctioned structures that themselves are never put into a reframe or design critique. One can critique the performance of a military unit doing the design or plan, but the logic underpinning the design/planning methodology itself is unassailable.¹¹⁹¹ *ATP 5-0.1* devotes all of chapter five in the design manual to operational art concepts such as 'center of gravity', 'decisive points', 'lines of effort', 'lines of operation', and other operational planning constructs enforced across most Army, joint, and other service doctrine. Again, these are entirely underpinned by Newtonian physics metaphors and operate within a functionalist paradigm. This is a continuation of the same pattern of forcing non-design concepts into designer utilization as seen in the earlier design chapter in the 2006 edition of *FM 3-24* and the 2010 edition of *FM 5-0's* chapter on design.

¹¹⁹¹ Zweibelson, "Preferring Copies with No Originals: Does the Army Training Strategy Train to Fail?"; Paparone, "How We Fight: A Critical Exploration of US Military Doctrine"; Paparone, "On Metaphors We Are Led By"; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

Few of these concepts have a commercial or civilian equivalent, with 'center of gravity' itself being a Newtonian metaphor adapted from the theoretical work of Clausewitz and others.¹¹⁹² Although debating whether 'centers of gravity' are valid concepts or not for military applications exceeds this research,¹¹⁹³ the pressing concern here with *ATP 5-0.1* is that designers are ordered *to use specific cognitive tools exclusively* in their endeavor to attempt to think differently, despite those very same cognitive tools already heavily used in traditional planning activities where little design is warranted (or desired). Additionally, designers are directed to approach wickedly complex military challenges without permission to question the very tools their institution assumes are useful in nearly any security context from the tactical and complicated to the strategic and complex. As mentioned earlier, Ryan describes this 'away team' mentality for designers of this orientation as unable to question the very design frame that enables and limits their very practice of design.¹¹⁹⁴

The Army projects epistemologically a universal application stance on operational art concepts as well as most other elements of its own doctrine. Designers must use them every time they design just as operational planners must also use them in the same fashion; planning and design for the Army become interchangeable with respect to the heuristic aids offered. 'Centers of gravity' according to the advocates of Clausewitz will always work, in every military context, provided the practitioner is wise and experienced to select the right one and also evolve Clausewitzian theory with any emergent developments demanding strategic change.¹¹⁹⁵ This again shackles the Army's current design process into a subservient role to operational planning within a single functionalist paradigm that the majority of the force largely reflexively unaware of. Rittel's design theory posits that these very attempts to enforce universal categories toward the complexities of social values (including of course the frequently chaotic or chaoplex contexts of war)¹¹⁹⁶

¹¹⁹² Although arguably today numerous commercial enterprises employ military planning concepts, the origins of their usage frequently come from military professionals exiting defense organizations and bringing with them these concepts to apply in business settings. These tools are considered 'military grade' and valuable largely on the expectation that a business might 'wage war' against their competition in order to gain advantage in a commerce context instead of the application of organized violence.

¹¹⁹³ Paparone and Davis Jr., "Exploring Outside the Tropics of Clausewitz: Our Slavish Anchoring to an Archaic Metaphor"; Dale Eikmeier, "Modernizing the Center of Gravity Concept—So It Works," in *Addressing the Fog of the COG: Perspectives on the Center of Gravity in US Military Doctrine*, ed. Celestino Perez (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2012); Kurt Vandersteen, "Center of Gravity: A Quest for Certainty or Tilting at Windmills," in *Addressing the Fog of the COG: Perspectives on the Center of Gravity in US Military Doctrine*, ed. Celestino Perez (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2012), 33–64; Zweibelson, "Gravity-Free Decision-Making: Avoiding Clausewitz's Strategic Pull."

¹¹⁹⁴ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹¹⁹⁵ Eikmeier, "Modernizing the Center of Gravity Concept—So It Works"; Christopher Schnaubelt, Eric Larson, and Matthew Boyer, *Vulnerability Assessment Method (VAM) Pocket Guide: A Tool for Center of Gravity Analysis* (Santa Monica, California: Rand Corporation, 2014).

¹¹⁹⁶ Bousquet, "Chaoplex Warfare or the Future of Military Organization."

are impossible,¹¹⁹⁷ yet the Army's design directs designers to attempt this with universalized planning concepts at hand across the tactical to the strategic ends of war. *ATP 5-0.1* seeks to place an emphasis on critical and creative thinking, yet in the doctrine TRADOC appears to sustain a singular view on both different cognitive endeavors. "Critical thinking is purposeful and reflective thought about what to believe or what to do in response to observations, experience, verbal or written expressions, or arguments."¹¹⁹⁸ ADM doctrine also defines 'creative thinking' in this same design chapter, again depositing a rigid cognitive framework and trapping the designers before they even set off on their journey.

Creative thinking, according to *ATP 5-0.1* is where the designer "examines problems from a fresh perspective to develop innovative solutions. Creative thinking creates new and useful ideas...to solve problems."¹¹⁹⁹ Again, the Army directs designers to remain adherent to the doctrinal 'left and right limits' of what steps to take in design, what concepts to use, and continue in a 'problem-solution' orientation where the leader remains central to the application of thought and action. *ATP 5-0.1* desires designers to conduct both critical and creative thinking in convergent instead of divergent ways by structuring the design logic in this fashion, thus placing ADM in paradox with some core tenets of systemic operational design and human-centered design. To accomplish critical and creative thinking in design, *ATP 5-0.1* directs a team-based approach for collaborating toward common goals, building consensus and other convergent practices that are relevant to planning methodologies but seemingly out-of-place in a design context.¹²⁰⁰

ATP 5-0.1 shares with Australian 'adaptive campaigning' first developed in 2006-2009 and some human-centered design methods formalized in the late twentieth century the inclusion of systems thinking concepts into the design practice.¹²⁰¹ This appears to originate for the Army in the early Naveh design engagements at Fort Leavenworth from 2005-2008 that also parallel the aforementioned Australian experimentation due to both countries continuing to experience combat frustration in Iraq and Afghanistan. Naveh explicitly uses systems thinking as a key pillar of systemic operational design, although several other contemporary strategic or operational planning endeavors also drew from systems thinking. The ill-fated "Effects Based Operations" process capitalized on systems thinking in some respects,¹²⁰² while systems thinking greatly influenced many human-centered design methods from the 1970s onward. *ATP 5-0.1* discusses systems within systems, echoing many of Naveh's original systemic operational

¹¹⁹⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 128.

¹¹⁹⁸ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1-6.

¹¹⁹⁹ Headquarters, Department of the Army, 1-6.

¹²⁰⁰ Headquarters, Department of the Army, 1-7.

¹²⁰¹ Australia Department of Defence, *Adaptive Campaigning: The Land Force Response to Complex Warfighting* (Canberra, Australia: Australian Army Headquarters, 2007); Michael Bassingthwaighe, "Adaptive Campaigning Applied: Australian Army Operations in Iraq and Afghanistan," *U.S. Army School of Advanced Military Studies Monograph*, May 19, 2011.

¹²⁰² Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?"

design philosophy developed at OTRI and demonstrated to SAMS students at Fort Leavenworth.

ATP 5-0.1 does not use systems thinking in the original non-military contexts but instead inserts systems thinking concepts into existing military doctrinal beliefs. One example of how Army designers could do systemic thinking is to use “military, economic political, and social” categories for the staff to assess changes in their operational environment.¹²⁰³ Systemic thought directs a holistic approach to considering complexity, which is in clear tension with reductionist efforts such as categorizing things into the Army’s PMESII model, or any of the numerous other established military reductionist constructs littered throughout doctrine.¹²⁰⁴ These categorization models are epistemologically positivist, and thus paradoxical to systemic thought; one cannot apply systemic theory and subsequently insist on the designer to utilize reductionist heuristic aids to render systemic design outputs. As explained in the second chapter, this again illustrates how Army doctrine in general is composed in the single-paradigm mode formalized with Newtonian physics and Industrial Era management concepts. It potentially was done in the Army design doctrinal development with doctrine writers themselves largely unaware of this and therefore firmly in Ryan’s ‘away team’ design mindset.¹²⁰⁵ Systems theory is rendered in the Army’s preferred paradigm and assimilated into existing logic and terminology.¹²⁰⁶

ATP 5-0.1 applies an implicit teleological frame on the conduct of conceptual planning and detailed planning over time in a given military context. In the figure below, it depicts a gradual shift from conceptual planning (Army design) toward greater detailed planning where the commander and his staff employ the military decision-making process. This curve implies that initially in complex military situations, the commander and his staff need to invest in conceptual planning more, in order to gain a better understanding of the system behaviors. Subsequently, as time passes and the organization tests hypotheses and conducts conceptual planning iterations, they will “reframe the operational environment and the problem” to move progressively toward the desired end-state.

Thus, the gradual accumulation of information coupled with a complicated system setting is how the military organization expects war to occur teleologically; the longer a military force is engaged in war, the greater its progress in gaining

¹²⁰³ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 1–8.

¹²⁰⁴ PMESII-PT, as used by the Army is an acronym for categorizing ‘political, military, economic, social, information, infrastructure, physical environment and time’ considerations.

¹²⁰⁵ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

¹²⁰⁶ Paparone, “How We Fight: A Critical Exploration of US Military Doctrine”; Paparone, “Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation”; Paparone, “On Metaphors We Are Led By”; Ben Zweibelson, “One Piece at a Time: Why Linear Planning and Institutionalisms Promote Military Campaign Failures,” *Defence Studies Journal* 15, no. 15 (December 14, 2015), <http://www.tandfonline.com/doi/full/10.1080/14702436.2015.1113667>.

control and reducing uncertainty.¹²⁰⁷ Again, this violates key fundamentals of complexity theory and becomes the basis for postmodern critique of the modern military form and function. Baudrillard targets this epistemological stance of modernity by promoting a postmodern alternative. When he states “we live in a world where there is more and more information, and less and less meaning,”¹²⁰⁸ he is challenging this analytically oriented assumption that more information, more analysis, and more time renders greater understanding and control of something complex, dynamic, and emergent. Complexity just does not work in this fashion. He also, in challenging military simulations from a postmodern position, critiques this bias with “the army...prefers to take the simulator for a real madman,”¹²⁰⁹ in that these analytical, objectivist logical frames the enemy first must follow all of the military’s assumptions and indeed entire war frame prior to simulating any enemy behavior. This illustrates the tension of denying alternative perspectives concerning reality and war so that the western modern war frame automatically covers all conflict, everywhere, always. See the below figure taken from *ATP 5-0.1*:

ATP 5-0.1 Figure 2-2:

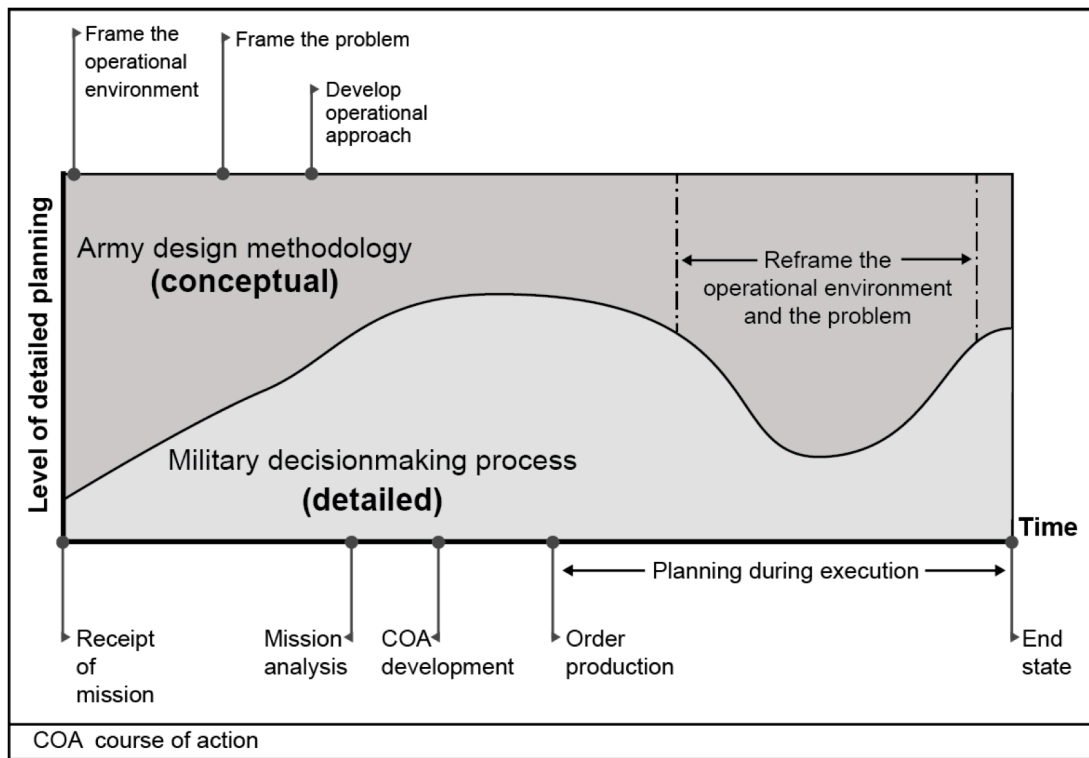


Figure 2-1. Integrated planning

¹²⁰⁷ David Lai, “Learning from the Stones: A GO Approach to Mastering China’s Strategic Concept, SHI” (Strategic Studies Institute and U.S. Army War College Press, May 2004), <http://www.carlisle.army.mil/ssi/>; Jullien, *A Treatise on Efficacy Between Western and Chinese Thinking*.

¹²⁰⁸ Baudrillard, *Simulacra and Simulation*, 79.

¹²⁰⁹ Baudrillard, 21.

There are a series of significant epistemological efforts depicted by the Army in this figure that help further frame why the American Army considers design as it does, and how it stipulates military planners and leaders are expected to use it in practice. First, the reverse-engineering of establishing a desired end-state during the conceptual phases of military planning (and strategy)¹²¹⁰ occurs here as it does in all linear, detailed planning methodologies.¹²¹¹ This is underpinned by the 'ends-ways-means' logic so that 'end-state' is the primary focus of that military force, with anything preventing the organization from reaching it automatically becoming classified as a 'problem' in need of a solution.¹²¹² The Army mirrors the overarching joint operational planning methodology which, according to strategic designer Monk is also "linear and mechanistic by nature and grounded in industrial age warfare. The process is predicated upon the pursuit of specific terminal end states, from which planners work backwards to identify a linear sequence of enabling objectives."¹²¹³

The element of 'time' is significant in the above figure because the implication that over time and the progressive accumulation of knowledge and experience, the organization will teleologically gain increased understanding, control, and prediction over a complex system. Yet systems theorists decry this assumption; no collection of knowledge permits greater prediction of a complex system due to how they behave, with dynamic complex systems interacting and learning so that even if the organization gained more knowledge, that knowledge may be entirely irrelevant in the changed system.¹²¹⁴

Complex reality will not give any indication of linear causality, nor will 'end states' work or strategic goals be apparent except when within immediate reach.¹²¹⁵ Furthermore, 'end-state' is considered an illusion in many regards due to the important aspect of 'emergence' in complex systems. Original goals are abandoned by organizations, novelty occurs, and the subsequent goal that manifests later could never have been anticipated earlier.¹²¹⁶ Lastly, the above figure again places the Army's design as a subordinate element of the overarching planning methodology, where only at the beginning and potentially during necessary reframing phases would design be of military value. Suppose the graphic were inverted, so that as time passed on, the organization would need to increase their conceptual planning through design? This is never considered within the Army design doctrine, nor even across the elaborate operational planning and strategic doctrine either.

¹²¹⁰ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 22–29.

¹²¹¹ Tsoukas, *Complex Knowledge*, 276; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 18–22; Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 3; Paparone, "How We Fight: A Critical Exploration of US Military Doctrine."

¹²¹² Meiser, "Ends + Ways + Means = (Bad) Strategy," 82–85.

¹²¹³ Monk, "End State: The Fallacy of Modern Military Planning," 4.

¹²¹⁴ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 53–56.

¹²¹⁵ Stanley and Lehman, *Why Greatness Cannot Be Planned: The Myth of the Objective*; Conklin, "Wicked Problems and Social Complexity"; Buchanan, "Wicked Problems in Design Thinking."

¹²¹⁶ Stanley and Lehman, *Why Greatness Cannot Be Planned: The Myth of the Objective*.

ATP 5-0.1 places the Army commander as central to the design effort, yet then enforces the same coordination and participation requirements and stipulations as that of detailed planning methodologies. Although *ATP 5-0.1* makes sweeping statements such as “Commanders are the most important participants in the operations process...commanders are integral to any ADM effort,”¹²¹⁷ the Army design doctrine then prioritizes that commander’s time as valuable enough to potentially limit their active involvement with design. Martin and others that have employed ADM in combat contexts report back that indeed, many senior commanders spare little or no time at all for design engagements, treating the process as an extension of traditional military planning with formal decision-briefings as the lone engagement period for designers and their sponsor.¹²¹⁸

While in reality this is likely true due to the institutional barriers to many commanders having the freedom and even the intellectual curiosity to pursue design efforts at the detriment of other pressing organizational demands, *ATP 5-0.1* continues in its second chapter to render design coordination requirements the same as planning ones. The Army commander may choose to actively lead a design team, or merely receive periodic updates and briefings, or send their surrogate instead to act on their behalf, or potentially incorporate the designers into their larger operational planning presentation instead. In practice, many Army commanders devote identical amounts of time to their role in detailed planning as they do in design. Army designers from the field have seen the typical commander participation as problematic, in that design is different from planning and requires far more dedicated commander interaction.¹²¹⁹

The environmental frame, in Army design methodology, is expressed in the current state of the system and the desired future state. *ATP 5-0.1* differentiates between these two by showing system tensions in the current state, and those tensions eliminated in the desired future. Epistemologically, this illustrates a functionalist paradigm outlook where the Army sees design as the ability to recognize tensions in a complex, adaptive system and “solve” them. This violates another core tenet of complexity theory as well as alternative approaches to strategy as promoted by Chia and Holt using postmodern theory. They offer that systemic tensions operate in a nonlinear fashion and are not normally susceptible to causal logic¹²²⁰ as it is implied within the ADM’s objective, causal depiction of designing the future single-state by identifying and addressing the current environment through reductionist understanding and analytic optimization.

One cannot “solve” complex tensions/problems by the explicit understanding of how systems theory functions, although this is epistemologically in clear tension

¹²¹⁷ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 2–3.

¹²¹⁸ Martin, “A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]”; Grome, Crandall, and Rasmussen, “Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration,” 21–23.

¹²¹⁹ Martin, “A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan],” 13–14.

¹²²⁰ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 33–38; Tsoukas and Hatch, “Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity,” 988–89.

with Newtonian-inspired military reductionist logic. Complex systems demand problem 'management' whereas complicated and simplistic systems do permit 'problem-solution' and solution-optimization' outcomes.¹²²¹ Even if a designer somehow was able to influence a system tension, that dynamic system would express emergent and different secondary tensions in whatever future state that manifests. As a somewhat frustrated senior military strategist, Monk laments: "There is no 'end state,' as the reverberations of previous actions will continue to generate effects throughout the environmental web."¹²²² Thus, the figure *ATP 5-0.1* uses to explain to designers how to conduct their environmental frame mixes systems concepts with the overarching functionalist orientation of reductionist control; positivism is combined with systemic language yet the methodological process demanded remains linear and reductive. Essentially, select terms from complexity are inserted into mechanistic decision-making, with the ideas behind the terminology displaced in order to maintain pre-existing non-complexity ideals of reality and warfare within.

For the Army, designers are expected to identify complex problems, think creatively, and subsequently expected to solve them by employing ADM as per doctrine. Although unlikely to have been directly referenced, Archer's 1968 theoretical design work provides similar design reframe conditions as ADM, where design application assessments can trigger a re-design "as consequences of their decisions emerge, or fresh information becomes available."¹²²³ Doing ADM properly means Army designers should reach pre-planned end-states and accomplish similar predetermined goals that are formulated at the start of the design, or the start of the reframe and reliant upon the same planning language and heuristic aids from operational planning doctrine. This is a convergent mode of logic for detailed planning in simple or complicated systems that permit such manipulation and control but are not appropriate for designers interacting within a complex system. Enemies are expected to follow the game rules of how the Army believes war is understood, so that they prefer the simulation of their own design over that of any actual 'madman' able to act differently in reality.¹²²⁴

A Lack of "Why-centric" Inquiry: Army Single-Paradigm Design

ATP 5-0.1 covers a great deal of design material, yet unlike Israeli systemic operational design theory, it lacks any self-reflection or 'self-disruption' that Naveh placed as fundamental in his military design philosophy.¹²²⁵ Ryan reflects on how

¹²²¹ Russell Ackoff, "Unsolved Problems in Problem Solving," *Operational Research Society* 13, no. 1 (March 1962): 1–11; Snowden, Dr. David Snowden IMDC Lecture: "The Application of the Cynefin Framework in Military Design"; David Snowden, "The Cynefin Framework," <https://www.youtube.com/watch?v=N7oz366X0-8>; Russell Ackoff, "Why Few Organizations Adopt Systems Thinking," *Systems Research and Behavioral Science* 23 (2006): 705–8.

¹²²² Monk, "End State: The Fallacy of Modern Military Planning," 28; Meiser, "Ends + Ways + Means = (Bad) Strategy."

¹²²³ Archer, "The Structure of Design Processes," 29.

¹²²⁴ Baudrillard, *Simulacra and Simulation*, 21.

¹²²⁵ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 7–14.

the Army's integration of Israeli design "altered design much more than design altered the institution...systemic operational design challenges [the Army's] entire worldview."¹²²⁶ Human-centered design methods prioritize this using the notion of 'empathy' as covered in the third chapter of this research. Schön addressed this notion in a more systemic and potentially multi-paradigmatic way with 'reflective practice', as also further developed for military design application by Paparone and others.¹²²⁷ This can be distinguished by whether a design methodology centers on 'what', 'how' or 'why' questions.

When there is a greater emphasis on 'what' and 'how' modes of inquiry, that indicates convergent planning methodologies that are well suited to describe and curate analytic optimization for the organization.¹²²⁸ Although an empathy-based mode of design inquiry can provide stakeholder tensions in core beliefs, paradoxical perspectives and multiple cultural or social differences within complex reality, a designer can just as willfully project their own paradigm to interpret the 'how' and 'why' for empathetic appreciation towards vastly different belief systems out of epistemological and ontological incommensurability with different stakeholder frames.

Thus, depending on how the designer's methodology and ability to explore epistemological tensions, overlap and interplay between paradigms in the design inquiry,¹²²⁹ one's design model might make sense of the world in order to rationalize their institutional way of war even at the expense of considering novel design sensemaking that can only be reached outside of their dominant institutional paradigm (and design preferred method of inquiry).¹²³⁰ This is why the military decision-making process uses a high frequency of 'what-centric' information requirements, coupled to 'how-centric' detailed execution plans and checklists for risk-reduction and unit coordination. It also explains how ADM as a design logic of inquiry retains the same epistemological structure of the military decision-making methodology for doctrinal compliance whereas SOD maintains 'degrees of freedom' that encourage designer epistemological reflection and the potential creation of entirely incommensurate new frames for war that ideally disrupt the dominant military planning methodology.

¹²²⁶ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016.

¹²²⁷ Schön, "Knowing-in-Action: The New Scholarship Requires a New Epistemology"; Naveh, "Northern Storm: A Narrative of Reflective Command, Systemic Learning, and Operational Design 2002-2005"; Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*.

¹²²⁸ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–62.

¹²²⁹ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies"; Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry"; Gioia and Pitre, "Multiparadigm Perspectives on Theory Building"; Lewis and Kelemen, "Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox"; Zweibelson, "Professional Reading Lists: Thinking Beyond the Books and into Military Paradigmatic Biases."

¹²³⁰ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*.

'Why-centric' inquiry can become extensively oriented upon in design methodologies due to a shift away from deductive and inductive logics toward abductive thinking. 'Why' questions lead not to more answers but to more questions. The criticism levied against SAMS graduates attempting to use a SOD-style of design and never getting away from "admiring the problem" in warzones from 2005-2010¹²³¹ indicates how sensitive a military institution can be on emphasizing design methodologies that are learning-oriented and multiparadigmatic over ones that are solution-oriented and single-paradigm dependent.

The design consequence of iteratively framing and deconstructing one's own institutional sensemaking logic of war to experiment with new designs and potentially radical forms of war do not appear as valid solutions, nor does a commander expecting the design to be expressed in the traditional military language and concepts easily see or incorporate said radical design into their planning logic. While Naveh positioned SOD at the general officer level to marginalize this tension simply by putting the senior leader into the role of becoming the design radical, ADM instead attempted to do this at the field grade officer level in a subordinate staff role to inform the commander who was central to the ADM process but not necessarily actively involved in doing it.

This tension between how SOD and ADM are conducted, who does the design and how the design is implemented with relationship to the institutional preferences on making sense of reality can cause a design logic that disrupts too much of the linear, solutions-oriented planning process as overly philosophical and abstract, and potentially misconstrued as 'not solving the problem assigned to the designers.'¹²³² Yet in design whether employing a human-centered design methodology or a military one attempting to apply organized violence in a complex security context, the iterative and reflective design inquiries gain deeper appreciation of complexity through asking 'why.' This uncovers diverse epistemological and ontological stances for making sense of complex reality,¹²³³ the limits of one's own paradigm,¹²³⁴ the interplay and tensions with other alternative

¹²³¹ Cox, "RE: One Additional Question on SAMS, Design and 2006-2010 Period (UNCLASSIFIED)," March 5, 2020. Cox, recollecting from second-hand knowledge as he was just joining SAMS at the end of this period, that: "SAMS was receiving numerous complaints from the field that graduates could not accomplish basic tasks such as writing an order. Graduates often thought way too conceptually and failed to relate design thinking back to more practical actions and surfaces, like a map. The main problem, again as it was related to me, was that some graduates refused to stop admiring the problem. When a student was fired in the face, it was most often because a commander asked for a product three or more times and the SAMS student refused arguing they needed more time to look at the problem. We had no practical exercises at SAMS at the time so I can see how some students fell into this trap."

¹²³² Cox; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016; Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought."

¹²³³ Gioia and Pitre, "Multiparadigm Perspectives on Theory Building"; Lewis and Kelemen, "Multiparadigm Inquiry: Exploring Organizational Pluralism and Paradox"; Hatch and Yanow, "Methodology by Metaphor: Ways of Seeing in Painting and Research."

¹²³⁴ Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry."

paradigms,¹²³⁵ as well as normative modes of thinking on the future where single desired 'end-states' are nonexistent. Yet in *ATP 5-0.1* the suggested questions for designers to establish their environmental frame are exclusively 'what'-centric and to a limited fashion 'how' centric. They remain conforming to the design methodology without moving the designer towards any epistemological consideration or reflexive practice of design.¹²³⁶ The six example suggestions from *ATP 5-0.1* are listed below to illustrate this critical point:

- "What are the other sources of power in Newland beyond General E?"
- "What are the limits to the drug money provided by the cartels?"
- "Is the society this homogenous?"
- "What are the different groups and divisions in the population?"
- "What are some of the other key international relationships or interests within Newland?"
- "Are there limits to military aid provided by Country X and Country Y?"¹²³⁷

The series of example questions for Army designers to generate their operational frame demonstrate the continued single-paradigm (functionalism) planner-emphasis and a desire to accelerate from the abstract conceptual period of thinking into a solutions-oriented execution phase complete with analytic optimization. Military challenges are only 'solve-able' if framed within the dominant military paradigm so that all existing operational planning language, beliefs and core cognitive processes can be revalidated through the design in order to action with preferred military functions; the conceptualized form for that military remains unchallenged.

This is entirely suitable in simplistic or perhaps complicated military contexts,¹²³⁸ yet in the post-industrial reality that postmodern militaries now operate within,¹²³⁹ the world is increasingly complex and unlikely to yield to this sort of conceptual planning.¹²⁴⁰ In support of this key point, Secretary of Defense Robert Gates in 2009 stated, "the international environment today is more complex and unpredictable than it has perhaps ever been."¹²⁴¹ Monk, citing Admiral Mullin's

¹²³⁵ Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies."

¹²³⁶ Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation"; Paparone and Reed, "The Reflective Military Practitioner: How Military Professionals Think in Action"; Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners."

¹²³⁷ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 3–4.

¹²³⁸ Snowden, "A Leader's Framework for Decision Making"; Conklin, "Wicked Problems and Social Complexity."

¹²³⁹ Williams, "The Global Crisis of Governance," 23–25.

¹²⁴⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–62; Alexander, *Notes on the Synthesis of Form*, 99.

¹²⁴¹ Robert Gates, "The National Defense Strategy: Striking the Right Balance," *Joint Forces Quarterly* 1st Quarter 2009, no. 52 (January 2009): 2–3.

statements on the same topic, echoes this with: “the modern and future geopolitical environment is a complex, dynamic, and unpredictable web of interactions...which cannot be approached in a linear, mechanistic manner.”¹²⁴² The what-centric line of suggested design questioning establishes a causal discourse that reinforces the Army’s preferred epistemological stance of technical rationalism where the associated ‘ends-ways-means’ logic places designers into a ‘problem-solution’ mindset.¹²⁴³ This deviates from the systemic thinking of original SOD theory, based in part on civilian design theory of Rittel and contemporaries addressing complexity.¹²⁴⁴

ATP 5-0.1 continues with earlier doctrinal emphasis of designing toward ‘end-states’ as seen in the *FM 3-26* design chapter from December 2006 and the *FM 5-0* design chapter in 2010. “The commander and planning team envision the desired end state based on higher guidance, the current state of an operational environment, and alternative future states of an operational environment.”¹²⁴⁵ Here, epistemologically, the Army again links design decisions and opportunities as bounded within the centralized hierarchical form. If the higher headquarters issues particular design guidance, all subordinate entities will design *based upon those parameters and not in contrast with them*. This again seemingly violates the core tenets of Naveh’s original SOD theory¹²⁴⁶ and demonstrates a preference for the maintenance of a single dominant military paradigm. It also demonstrates an avoidance of self-reflection, “self-disruption” in Naveh’s terms, and the interest in seeking out alternative paradigms as offered in earlier Army design experiments, draft doctrinal chapters, and the bulk of systemic operational design practice and research.

Following ADM in sequence, the design process culminates in an operational approach that is intended to take from the envisioned alternative future states of that operational environment under inquiry, and “envision the desired end state” through designing so the organization accomplishes that transformation.¹²⁴⁷ Although *ATP 5-0.1* mentions multiple alternative futures, these remain limited to a single-paradigm interpretation of that design team, further directed towards doctrinal convergence with the required application of Army planning terminology, the causal ‘ends-ways-means’ logic,¹²⁴⁸ and the necessary utilization of existing non-design doctrinal constructs such as elements of operational art. This technical rationality “views strategy as a search for the ways (courses of action) that best satisfy stated ends (objectives) within the assigned means (instruments of national power) ...Strategy is then developed using a waterfall process that cascades from

¹²⁴² Monk, “End State: The Fallacy of Modern Military Planning,” 5.

¹²⁴³ Meiser, “Ends + Ways + Means = (Bad) Strategy,” 82–85.

¹²⁴⁴ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 35–37; Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 154–55.

¹²⁴⁵ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 3–5.

¹²⁴⁶ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 7–11.

¹²⁴⁷ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 3–5 to 3–8.

¹²⁴⁸ Meiser, “Ends + Ways + Means = (Bad) Strategy,” 81–84.

the top down.”¹²⁴⁹ The single ‘end state’ selected from the Army design’s operational approach will not differ epistemologically from any of the other ones the design team develop that are not selected. This is a limitation of employing a design methodology that lacks self-reflection, paradigm awareness, or the ability to consider alternative perspectives on reality and appreciate tensions, interplay and overlap between them.

ATP 5-0.1 illustrates its use of the functionalist paradigm for explaining Army design theory in one significant passage where the doctrine attempts to clarify “description, explanation and meaning.”¹²⁵⁰ Although this passage provides sufficient definitions for each term as well as brief summaries of deductive, inductive, and abductive reasoning, *ATP 5-0.1* prioritizes analysis as the mode for accomplishing the validation of meaning. Whereas Israeli systemic operational design would promote synthesis,¹²⁵¹ and earlier draft Army design chapters took from Naveh to frame ‘problem setting’ and the elimination of strict ‘ends-ways-means’ logic to open designers cognitively to systemic thinking, holism, and abductive reasoning, *ATP 5-0.1* promotes analytic optimization as the cognitive driving force for all of these concepts. Naveh sought to introduce an entirely new way to think and act in war, while the American Army preferred design to remain an extension of established linear planning logic.

Epistemologically, the functionalist paradigm views complex reality as an analytic challenge. Or, as Ryan more colorfully puts it, “Army officers often characterize this more simply by saying “we are a blue collar Army” with “an engineering mindset...give us a clear objective and adequate resources and we’ll achieve the mission.””¹²⁵² War can be flash-frozen, isolated and reduced down into fundamental elements where the proper analysis might be rendered. Then, the military thinker might re-assemble the entire complex challenge whole again, unfreeze it and have greater rationalized understanding, control, and risk-reduction than before this proposed process. Army design reinforces this rationalism, while multidisciplinary design methods that encourage multiparadigmatic thinking such as Naveh’s SOD disrupt this single-paradigm design effort. Most significantly for *ATP 5-0.1*, this adherence to a single paradigm renders ADM as doctrinally compliant for falling within the larger Army, Joint and international military planning logic that expresses the single functionalist paradigm for war.

Ultimately, ADM represents a victory of the dominant military paradigm (functionalism) to maintain strong institutional resistance toward disruptive ideas or alternative challenges to include different paradigms and paradoxical logics (alternative paradigms, postmodernism, postmodernity). If design is a postmodern mode of logic for the postmodern military form, then the modern military

¹²⁴⁹ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

¹²⁵⁰ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*, 3–9.

¹²⁵¹ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 33–36.

¹²⁵² Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

institution will offer substantial opposition to it.¹²⁵³ The bureaucratic system for developing, reviewing and maintaining doctrine remains a modernist manifestation of the functionalist approach to war. *ATP 5-0.1* continues the tradition first set in the design chapter of *FM 3-24* in directing Army designers to use existing non-design concepts such as elements of operational art. When planners are directed to use 'centers of gravity', 'decisive points', or the problem-solution orientation underpinned by an 'ends-ways-means' logic, these planners are appropriately linking convergent thought to precise actions meant to support analytic optimization, risk reduction, uniformity and all of the associated benefits of detailed planning.¹²⁵⁴ However, when Army designers are also directed through prescriptive doctrine to use the same cognitive tools in order to think creatively and critically on what are acknowledged as the more complex and ill-structured military challenges, how can they earnestly challenge these planning constructs? How do they in practice differ from planners? The implication is further made by the interchanged "design team" and "planner team" language throughout Army design doctrinal products.

Army designers are essentially through the contemporary ADM, forced into set practices of military detailed planners. Any design outputs that are not institutionally sanctioned are immediately marginalized or eliminated by being doctrinally in compliant, while the lack of self-reflection and single-paradigm obedience prevents the design team and the larger organization from gaining much from any design activity. It is due to these significant tensions and institutional barriers that of all the design methodologies, the American Army might feature the highest expression of institutional confusion and frustration.¹²⁵⁵ However, the Army's experimentation with design coincided with the Marines during nearly the same period. The marine approach to design would shift further away from Naveh's original theory and take the single-paradigm mechanistic planner emphasis of the Army and express unique marine cultural cues through their own 'Marine Design Methodology.'

U.S. Marines Position 'Design' within Precise Marine Operational Planning:

In March 2017, the United States Marine Corps published the first version of their own military design methodology, drawing heavily from the previously established ADM as well as from Joint operational design and within the epistemological framework of the marine's institutional orientation concerning doctrine, despite this document not being formal doctrine.¹²⁵⁶ Rather, the *MSTP 5-*

¹²⁵³ Sookermany, "On Developing (Post)Modern Soldiers," 39.

¹²⁵⁴ Meiser, "Ends + Ways + Means = (Bad) Strategy," 81-85.

¹²⁵⁵ Grome, Crandall, and Rasmussen, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration"; Martin, "Tell Me How to Do This Thing Called Design!"; Nocks, "The Mumbo-Jumbo of Design: Is This the Army's EBO?"; McLamb, "The U.S. Army's Design Doctrine: A Solution to the Ills of the Operations Planning Processes?"

¹²⁵⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology* (Quantico, Virginia: United States Marine Corps, 2017), 1; Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*; United States Army, *Field Manual 5-0, Operations Process*, 5.

0.1 document titled *Marine Corps Design Methodology* is a doctrinal pamphlet, thus more associated with a conceptual proposal that could be rendered into formal doctrine in the future. The Army also structures their doctrine this way and the 2008 TRADOC Pamphlet 525-5-500, titled *Commander's Appreciation and Campaign Design* did a similar service for the Army by presenting some concepts on design theory as well as recommendations on how to bridge design into established Army operational planning. As covered in earlier sections, the Army formalized design in *FM 3-24* in 2006, although it was merely a chapter and associated with counterinsurgency.

These doctrinal pamphlets act as institutional suggestions to the force to stimulate further discourse. The Army would later formalize design theory across all Army activities instead of just counterinsurgency contexts in the 2010 *FM 5-0*, and subsequently the more robust techniques publication *ATP 5-0.1* in 2015. The Marines doctrinally are behind in design integration in this respect with this doctrinal pamphlet the only published marine design theory in 2015 aside from the co-published *FM 3-24/MCWP 3-33.5* in 2006 that constitutes the first formal Marine design theory in their doctrine. This earlier doctrine is focused on counterinsurgency contexts and therefore does not necessarily apply to military activities outside of low-intensity counterinsurgency endeavors.

Despite the apparent lag in Marine design doctrinal publication, this may illustrate institutional resistance to design theory and practice by the marine organization as well as a preference to allow Marines to practice design outside of doctrinal restrictions. Colonel Travis Homiak, who as the lead planning officer for the Marines Special Operations Command (MARSOC) as well as an academic interested in design¹²⁵⁷ conducted extensive military design efforts over the past few years. He provides his own assessment of design, doctrine and marine culture below:

What I do know is that the Marine Corps mantra concerning design as something that happens before planning dates back to around 2010 with the first re-publication of MCWP 5-0 which has morphed into the 2016 MCWP 5-10 (The Marine Corps Planning Process). The publications very much contained the idea that design is something that all of us do innately when we come up with a plan. The MCWP describes design as "the conception and articulate of a framework for solving a problem," (MCWP 5-10, 1-3). The purpose being "to achieve a greater understanding of the environment and the nature of the problem in order to identify an appropriate conceptual solution" (MCWP 5-10, 1-3)...From my experience and applying design to the problems of MARSOC, as I think you already know, we pretty much

¹²⁵⁷ Homiak, "Is There Checkmate in the Game of 'Go'? The Sufficiency of U.S. Military Thinking on War in the Age of Postmodern Conflict; Dissertation Research Proposal."

went our own way in how and where we applied design to our specific challenges.¹²⁵⁸

Homiak also emphasizes the informal nature of the *MSTP 5-0.1* as a pamphlet and therefore not codified marine doctrine. In his own words, "I believe that publication is legitimate [actual doctrinal material published and current in the Marines], but I don't think that there is necessarily any institutional horsepower behind it...[These] pamphlets do not carry the institutional force of a *Marine Corps Doctrinal* or *Marine Corps Warfighting Publication (MCDP or MCWP)*."¹²⁵⁹ Despite the only techniques-based marine document being a doctrinal pamphlet and not codified doctrine per se, this research will address the *MSTP 5-0.1* as the contemporary intellectual position of the Marines in order to address the methodology, epistemological stances, and relationship to the previously addressed Israeli and American Army design methods. For this section, the term 'doctrine' will be sufficiently broad enough to include the marine design pamphlet, just as Israeli and American Army institutions have a blend of formal published design doctrine, theoretical variations in their classrooms and in practice, as well as supplemental institutional pamphlets and outside academic content to stimulate the organizational debate on how, where and why to conduct military design.

Like the Army, Marines hold to the epistemological stance of technical rationalism where a positivist, reductionist mode of logic can render complex challenges 'solved' through engineering and natural science terminology.¹²⁶⁰ The classical approaches as ontologically nested in modern military frames for how war is conducted demonstrate this adherence to an analytic, scientifically rationalized way that war is expressed. Thus, maneuver warfare relies on physics-based metaphors such as mass, movement, speed, force, and so forth.¹²⁶¹ The Marines' planning process is nearly identical to the Army's and rooted firmly on joint operational planning methods aside from minor methodological variations.¹²⁶²

The 2017 Marine design doctrine, however, immediately differs from Army doctrine in that it unapologetically references where it came up with the design content. The marine doctrine in the introduction cites the Army's existing design doctrine and Joint operational planning as well as the dominant Marine Corps planning process as the core sources for their design method. The Army makes no references at all to the Israeli design origins of its theory, nor to other disciplines and theories it assembled its Army design concepts from in doctrinal production.

¹²⁵⁸ Travis Homiak to Ben Zweibelson, "Re: USMC Doctrine Question!," January 12, 2020.

¹²⁵⁹ Homiak to Zweibelson.

¹²⁶⁰ Monk, "End State: The Fallacy of Modern Military Planning," 28; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 21–29; Meiser, "Ends + Ways + Means = (Bad) Strategy."

¹²⁶¹ Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 43–45.

¹²⁶² For example, the Marines espouse 'tactical level centers-of-gravity' in their planning methodology, while the Army and Joint planning only feature them at the operational and strategic levels of war.

The Marines essentially replicate nearly every aspect of the Army's sequential problem-solving design construct, however in their assimilation of ADM the marine doctrine writers did make choice modifications. Similar to ADM, the Marines choose to make their design approach exclusive to a single service, with implications that outside agencies or other services working within a marine combined force should be able to use the marine design doctrine as well. As mentioned in the earlier design section on the American Army's design single-service orientation, Naveh and Graicer view this as a significant vulnerability in design andragogy and design praxis.¹²⁶³

The Marines conceptually associate their military design methodology as a sequential element cast within the larger Marine Corps' planning process, directing that 'design activities' be sequenced as *the first step* for a marine organization to execute within a predetermined linear and sequential planning methodology.¹²⁶⁴ The Army originally in the 2005-2009 period did not nest design as directly into formalized planning processes, drawing from Naveh's belief that design and planning are independent of one another yet complementary for different purposes. However, as the Army moved design away from an abstract experimental construct toward a formalized design methodology, intellectual leaders within the Army advocated for design to become the first step of the established formal planning methodology.¹²⁶⁵ Israeli design doctrine published in 2015, although likely uncirculated and not considered by the Marines, also shifted design to a precursory step to operational planning, so this is potentially a pattern that the marine design methodology is in compliance with in the 2017 context.¹²⁶⁶ Unlike the 2015 published American Army and Israeli design doctrines, the Marines direct that design ends upon the start of planning, while the other design doctrines permit design to continue iteratively as planning begins.

As the Marines first published their design doctrine close to a decade after the Army first published one, the Marines appear to have assimilated the later Army concepts while avoiding much of the earlier SOD-influenced design of 2005-2009. In another interesting variation, the marine design doctrine presents the need for tactical level design thinking, which again is in keeping with marine culture that focuses on small unit, decentralized and remote operations usually in conjunction with naval collaboration. This tactical emphasis of design differs from most contemporary military design methodologies in that the American Army design doctrine as well as every generation of Israeli 'systemic operational design' orients exclusively on the operational as well as strategic levels of security challenges and concerns. While neither the Israelis nor the American Army explicitly restrict design

¹²⁶³ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

¹²⁶⁴ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 1.

¹²⁶⁵ Graves and Stanley, "Design and Operational Art: A Practical Approach to Teaching the Army Design Methodology"; Grigsby et al., "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process."

¹²⁶⁶ Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels" (Israeli Defense Force Training and Doctrine Division, November 2015), 4.

from tactical applications, a common position offered is that tactical organizations lack the specialized and large staff support able to conduct a dedicated design effort, and tactical units ought to focus more on immediate objectives that are implied as less complex. However, the tactical orientation is a core component of Marine Corps' *epistemological approach to warfare as well as structuring their doctrine*. The Marines are the only U.S. defense entity to formally use 'centers of gravity' at the tactical level as well, further reinforcing this focus on tactical considerations with the small size and frequently austere, remote nature of marine missions and war applications.

Graphically, the biggest difference between the Marine and Army versions of their design methodology is the marine exclusion of the U.S. Army's "three ball chart" construct that is most associated with ADM since 2010 and depicted in the earlier Army section. However, in select areas of the marine doctrine, various graphics appear to feature subcomponents of the Army three-ball chart such as 'environmental frame' (essentially a copy-paste of part of the Army original graphic) and heavily use Army design language throughout the entire marine document.¹²⁶⁷ Instead of using the existing Army graphical depiction of the design methodology, the Marines utilize the figure below:

Figure ExS-1 from MSTP Design Pamphlet 5-0.1:

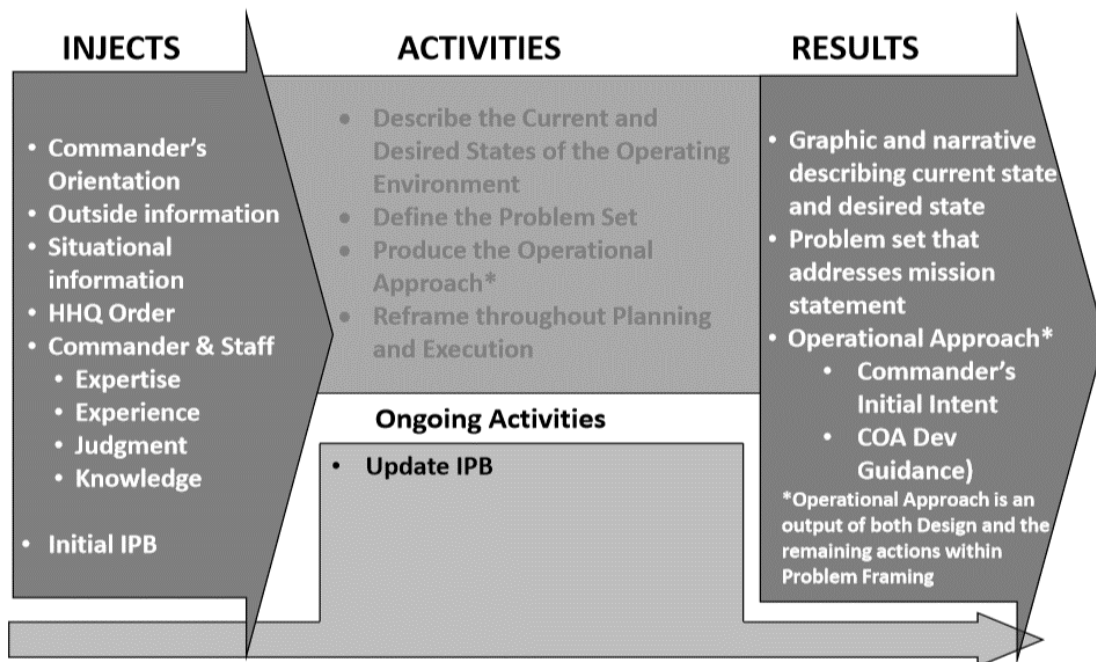


Figure ExS-1: Marine Corps Design Methodology Process Flow

In the above figure, Marines integrate existing legacy planning methodology in far greater detail than the Army version. Unlike the Army's 'three-ball-chart' that

¹²⁶⁷ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 21.

is largely conceptual and distinct from subsequent mechanistic planning methods, the Marines weave their planning constructs into the design process itself. The bottom element of “intelligence preparation of the battlefield” or IPB is depicted as occurring simultaneously with marine design. Epistemologically, Marines are placing design at a tactical level where IPB in practice is more frequently associated, thus denoting the term ‘battlefield’ instead of a broader operational or strategic term. Marines also are nesting the design activities as complementary and nearly entirely integrated into ongoing linear, mechanistic legacy planning practices¹²⁶⁸ in the same organization. Essentially, a team of Marine designers might conduct their form of design side-by-side with Marine planners, present in the same briefings, engage with the Marine commander along with planners, and otherwise be indistinguishable from ongoing doctrinally sanctioned legacy system detailed planning activities.

There is another subtle distinction between Marine and Army design in that the Marines appear to apply systems theory logic with greater appreciation of the inability to reverse-engineer precise ‘end states’ in complex systems. The marine doctrine presents an epistemological recognition that complexity theory appears to somewhat reject specific, linear and singular end-states in analytic-based planning processes, at least in their summary of designing towards future ‘states.’ Their design doctrine softens the original Army design language by discussing *desired states* that are defined as “a product of Design that represents a feasible set of conditions at a future time, within a zone of tolerance, that are more favorable than the current state.”¹²⁶⁹ Although the remainder of their design methodology returns to the more mechanistic, linear mode of technical rationalism, this subtle difference demonstrates the marine design approach is willing to consider multiple futures and potentially spend additional design inquiry on iterations toward different future states, demonstrating what Chia and Holt recognize as “emergent spontaneous order” in complex socially constructed reality.¹²⁷⁰

While the Marines differ from Army design doctrine in the ‘end-state’ stance, American Marines move in a more convergent, prescriptive style of design application than the Army and stipulate marine designers must describe their design using a narrative and graphic.¹²⁷¹ Their doctrine subsequently establishes sequences, language, and examples on how to accomplish this. This explicit stipulation frames a similar design epistemology shared between the Army and Marines that design doctrine should be prescriptively followed, and that if a design team either fails to accomplish a design deliverable or a commander determines conditions have changes and require more design activities, the design team then will repeat the process and continue following the doctrinal rules within the design manual as specifically stated. This means that unlike Israeli design (to include the Israeli 2015 doctrine) where the designers are expected to reflectively practice and

¹²⁶⁸ Ackoff, *Redesigning the Future*, 28–34.

¹²⁶⁹ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 2.

¹²⁷⁰ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 27.

¹²⁷¹ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 2–4.

construct their own design methodologies, Army and Marine designers must follow the same sequences and refer to the doctrine in the event that the design goes awry.

The emphasis on Marine design deliverables incorporating both a graphic and a narrative are required in order to “provide a clear, concise and familiar way of portraying this information to a decision maker... [while also] enhancing the understanding of the environment.”¹²⁷² Ryan’s observations on the Army’s design methodology hold to the marine version, in that “technical rationalism combines a naïve realist epistemology with instrumental reasoning...[but] the dominant institutional culture does not have the time or patience for philosophical distinctions. Doctrine limits the professional language of the Army [as well as the Marines in this context] ...Naming is framing. It is difficult to escape the institutional paradigm when you can’t change the language.”¹²⁷³ As the Marine designers must use existing and institutionally sanctioned military terminology anchored in a single-paradigm perspective on the application of organized violence, their design outputs will tend to converge towards the established legacy system and be unable to provide divergent, innovative design opportunities.

Figure ExS-2 from MSTP Design Pamphlet 5-0.1:

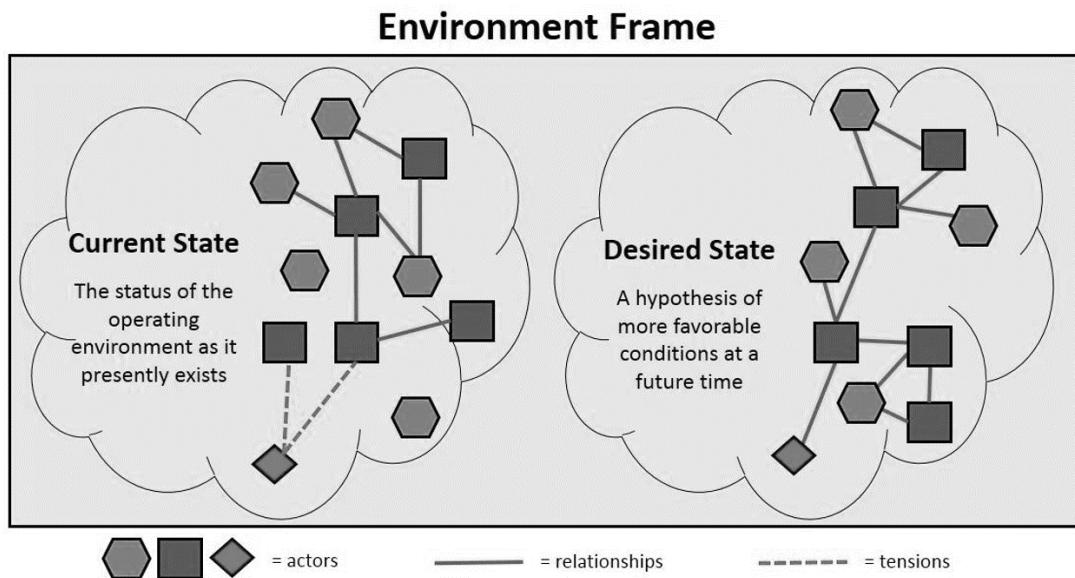


Figure ExS-2: Current State to Desired State

In their design graphics accompanying their methodology, marine design doctrine depicts an environmental frame as consisting of a ‘current state’ defined as “the status of the operating environment as it presently exists” which implies both a fixed and observer-independent or rationalized reality for which a single dominant paradigm to express.¹²⁷⁴ The desired state or future is defined as “a hypothesis of

¹²⁷² U.S. Marine Corps, MAGTF Staff Training Program Division, 2–3.

¹²⁷³ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

¹²⁷⁴ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 2–4.

more favorable conditions at a future time” which again indicates not a range of possible or normative futures featured in postmodern thinking,¹²⁷⁵ but a single projected hypothetical future.¹²⁷⁶ Figure ExS-2 in their doctrine illustrates this linear causality of marine design logic through which the overarching Marine planning construct can reverse-engineer their ‘ends-ways-means.’ This appears to directly contradict Rittel’s explanation of complex dynamic systems and how designers should not attempt to use pure analytic epistemologies toward what a systemic orientation would appreciate more usefully.¹²⁷⁷ Chia and Holt also warn against this engineering rationalism imposing a false illusion of artificially constructed order upon a spontaneously dynamic social order in reality.¹²⁷⁸

The next graphic in the marine design doctrine, Figure ExS-3 is meant to illustrate an example system diagram, where multiple military regions are depicted as overlapping geographic frames through which causal nodes and links are mapped out¹²⁷⁹ based on traditional military categories for organizational form and function. These usually are fires, maneuver, command relationships, intelligence and logistics, which is typically how militaries both organize their collective behaviors on the battlefield as well as categorize staff functions, manage professional development within isolated and task-specific groupings, and create convergent patterns to reduce risk and increase predictability and control.

Formal planning organizations are predisposed to be analytical and become “highly dependent on the preservation and rearrangement of established categories...overlaid on the current units of structure (divisions, departments, etc.).”¹²⁸⁰ The subsequent causal loop example on the next page in the marine design doctrine (Figure ExS-4) again repeats this simplification of complexity, depicting a linear relationship between assumed actors and objects without any critically reflective practice that considers at a meta-level why the designer might map reality as such. Marine design doctrine recommends the reader employ existing marine planning constructs such as mission variables (mission, enemy, terrain, weather, troops, time) and other existing military heuristic aids that again enforce a non-reflective practice¹²⁸¹ of recycling existing military planning tropes devoid of any critical consideration on the epistemological or ontological choices made therein.

Figure ExS-3 from MSTP Design Pamphlet 5-0.1:

¹²⁷⁵ Sookermany, “On Developing (Post)Modern Soldiers,” 43.

¹²⁷⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 2–4.

¹²⁷⁷ Protzen and Harris, *The Universe of Design: Horst Rittel’s Theories of Design and Planning*, 121–42; Alexander, *Notes on the Synthesis of Form*, 21–27.

¹²⁷⁸ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 27.

¹²⁷⁹ Meiser, “Ends + Ways + Means = (Bad) Strategy,” 86.

¹²⁸⁰ Henry Mintzberg, “The Fall and Rise of Strategic Planning,” *Harvard Business Review*, February 1994, 109.

¹²⁸¹ Tsoukas and Hatch, “Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity,” 1001.

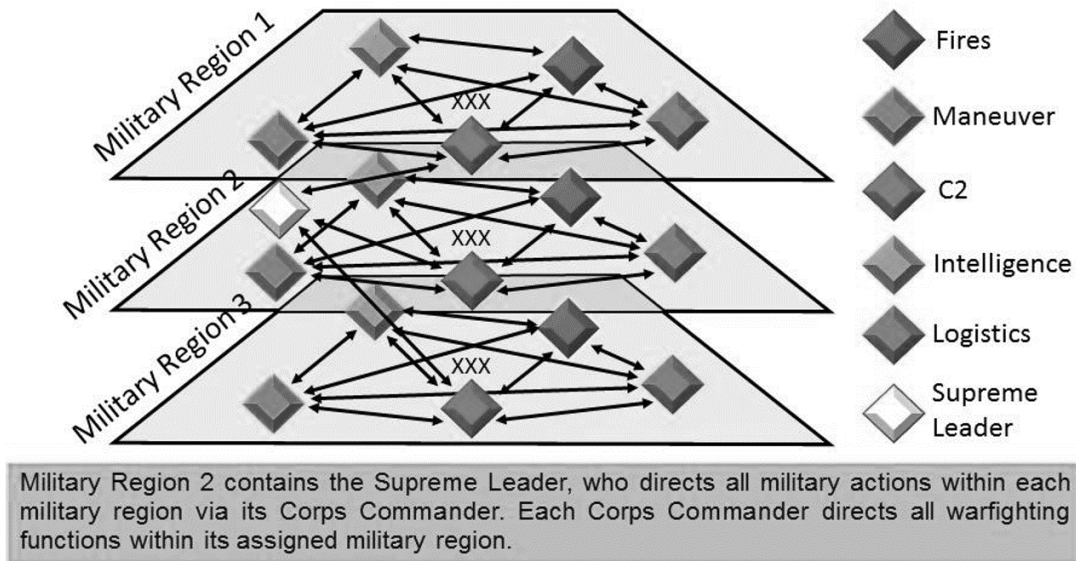


Figure ExS-3: Example System Diagram

A core tenet of complexity theory is that systemic thinking provides one a holistic appreciation of systems within larger systems, and no amount of reduction or isolation of the elements will provide anything of explanatory value on how the larger system works. Thus, systematic thinking using analysis and reductionism is completely rejected, yet marine design doctrine stipulates “systems thinking is a process of understanding how parts of a system work and influence each other as part of a greater whole...It is an approach to *problem solving* that views problems as part of the greater system (emphasis added).”¹²⁸² This violates fundamental design theory of Rittel where one cannot attempt to ‘understand the problem’ before you go on to solve it...complex problems have no stopping rule and reject these efforts to preconfigure action prior to enacting with the perceived problem in dynamic, ever-changing and un-testable ways.¹²⁸³ This continuous co-opting of an intended design process of reflexive learning by the overarching Marine Corps Planning Process and an analytic epistemology utilizing reductionist tools for solving problems in isolation is similar to what ADM also does in doctrine.

The Marine design doctrine continues with a process overview in their published doctrine where the ‘solution mindset’ of linear, reductionist planning is again expressed in that marine design “should help commanders understand the nature and logic of a problem set within the current situation...it also helps ensure that we are solving the correct problem.”¹²⁸⁴ This Marine design outlook demonstrates a linear causal epistemology on systems logic¹²⁸⁵ where the sterilized environmental framing done by designers does not include notion of the ‘self’,

¹²⁸² U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, A-4.

¹²⁸³ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 154–57.

¹²⁸⁴ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 9.

¹²⁸⁵ Meiser, “Ends + Ways + Means = (Bad) Strategy,” 86.

requires a single functionalist paradigm, and directs designers to describe “what the operating environment *should look like at the conclusion of an operation* (emphasis added)” using prescriptive ‘ends-ways-means’ linkages prior to the design being put into action.¹²⁸⁶

Figure ExS-4 from MSTP Design Pamphlet 5-0.1:

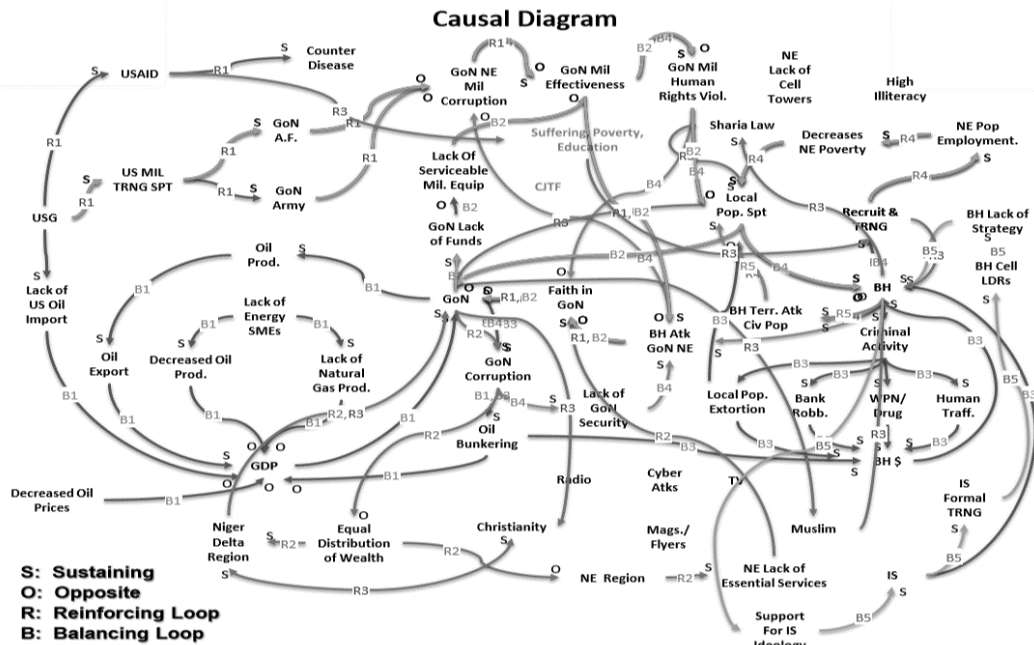


Figure ExS-4: Causal Loop Example

The Marine design doctrine applying ‘planning’ with ‘design’ as interchangeable concepts such as referring to design teams as ‘planner teams’ and structuring their design methodology in planning linear sequencing, relying on operational planning tools, and being explicitly subordinate to the overarching marine planning process. Paradoxically, marine design doctrine after going in great detail on a purely systematic, mechanistic ‘step-by-step’ approach to design, then switches to describing their design approach as a ‘systems thinking’ mindset.¹²⁸⁷

Systemic thinking, as addressed in previous chapters, essentially refutes most of what the Marines propose in their doctrine as a holistic, meta-perspective on complex systems.¹²⁸⁸ Israeli design doctrine from 2015 offers a useful summary of systemic thinking for military contexts that also illustrates the marine doctrinal confusion. The Israelis define the systemic approach as one that “emphasizes the importance of the analysis of systems as whole, and not as a collection of components. The whole is larger than the sum of its parts...in order to understand

¹²⁸⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 20.

¹²⁸⁷ U.S. Marine Corps, MAGTF Staff Training Program Division, 11.

¹²⁸⁸ Tsoukas and Hatch, "Complex Thinking, Complex Practice: The Case for a Narrative Approach to Organizational Complexity"; Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations"; Conklin, "Wicked Problems and Social Complexity."

the whole, the tensions and relations between the systems' components have to be studied; the system is dynamic therefore the change is the foundation of the systems' approach...Therefore, any link is unique and new...the observer (us) is always a component of the system and not separate from it."¹²⁸⁹ The Marines contradict this in their design methodology by promoting an analytic, reductionist, and sequential mindset for Marines to follow within their design doctrine, as well as contradicting foundational complexity theory tenets concerning systems behavior, logic, and causality.¹²⁹⁰

This clear misrepresentation of systemic thought in the Marine doctrine indicates either an unfamiliarity of Marine doctrine writers with complexity theory or an incommensurability between the dominant Marine operational planning paradigm and that of abductive, disruptive design thinking. It could indicate the military institutional desire to absorb outside popular terms into doctrine in order to present an appearance of continued relevance. The inclusion of institutional buzz words such as 'synergy', 'complex adaptive systems', 'emergence', 'nonlinearity', 'systemic', 'tensions' and other associated complexity terms into mainstream and current military doctrine without adequate explanation or inclusion of the deeper concepts again suggests a paradigm incommensurability of military doctrine and a lack of critical reflection on why and how new language is used. The term 'buzz word' itself is pejorative to highlight this institutional demand for new concepts and terminology without any deep appreciation of what those concepts mean, or how their inclusion might radically disrupt existing cultural norms and dominant belief systems concerning form and function in war.

Problems with 'Problems' in Marine Appreciation of Complexity and War:

The Marine design doctrine emphasizes a problem-definition mindset within a prescriptive design sequence, where marine designers are required to follow a sequential checklist of planning tasks. "Once the current and desired states are described, planners need to define the problem set. The problem set is a list of reasons that prevent the shift of the current state to the desired state...Historical doctrine within the Marines referred to the development of a 'problem statement' within the first step of the Marine Corps Planning Process (MCPPE)."¹²⁹¹ Here, marine design doctrine implies that a problem is an objective concept independent of the observer, which is in tension with complexity theory and much of the work on 'problems' as explained by Weick, Ackoff, Rittel, Webber and others as detailed in other areas of this research. This illustrates a major paradox in how most militaries including the Marines adapt select elements and terms from complexity theory while avoiding or contradicting the larger theoretical and core epistemological

¹²⁸⁹ Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels," 4.

¹²⁹⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 151–57.

¹²⁹¹ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 4.

constructs offered in complexity theory that reject the military oversimplification of operational planning. Bousquet addresses this tension between the contemporary 'chaoplectic' world of high social and technological networking and the military paradigmatic orientation of using mechanistic planning logic to think and act within this dynamic world.¹²⁹²

Ackoff explains various approaches to the notion of 'problem' in complexity theory, offering that organizations cycle through various combinations of problem absolution (ignoring the problem), problem solution (isolate the best solution and achieve it), problem resolution (finding a 'good-enough' space that provides for key stakeholders), and problem dissolution (abductively experimenting to change a system so that what was earlier framed as a problem is now irrelevant, yet new and different challenges also come into existence).¹²⁹³ The marine design doctrine initially uses a problem-solution logic,¹²⁹⁴ although potentially due to the aforementioned institutional desire to use popular terminology without the associated concepts, the marine design doctrine switches abruptly to discussing a problem set requiring "a resolution."¹²⁹⁵ This could be merely a doctrine writer's inadvertent use of a supposed synonym for style; however, it nonetheless again reinforces an institutional rejection or lack of awareness of contemporary complexity theory despite the design doctrine being written in an effort to address said complexity in war.

Marine design doctrine, while earlier expressing some consideration of complexity theory in that a desired 'end state' may be an oversimplification of complex, emergent reality¹²⁹⁶ paradoxically then move to depict a single desired 'end state' in their explanation of a design 'problem set.' This shift contradicts most core concepts of complexity theory and presents an inconsistent logic throughout the marine design doctrine. Furthermore, it is telling at an epistemological level that the Marines as well as the Army express these terms in exclusively Newtonian physics-based metaphors. Figure ExS-5 uses the common physics-based metaphor of "region stable" in their desired end-state graphic for what Marine designers should seek as the single normative future design outcome.¹²⁹⁷ Designers in the figure below are epistemologically oriented to finding the right 'problem set' in the current state, and by removing it with military action, the desired future system appears healthy, stable, more functional hypothetically. This rationalism is reductionist, and appears to violate complexity theory concerning dynamic, adaptive systems and the prominence of emergence within these contexts.¹²⁹⁸

¹²⁹² Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, 28–32; Bousquet and Curtis, "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations"; Bousquet, "Chaoplectic Warfare or the Future of Military Organization."

¹²⁹³ Russell Ackoff, "On the Use of Models in Corporate Planning," *Strategic Management Journal* 2, no. 4 (December 1981): 353–59; Glenn Detrick, "Russell L. Ackoff, Interview," *Academy of Management Learning & Education* 1, no. 1 (2002): 56–63.

¹²⁹⁴ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 152–53.

¹²⁹⁵ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 12.

¹²⁹⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, 2.

¹²⁹⁷ U.S. Marine Corps, MAGTF Staff Training Program Division, 5.

¹²⁹⁸ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 58–72.

Performing actions upon one 'node' as depicted might lead to extremely different transformations that are entirely unlike the very stable depiction below where the entire system remains static except for the section the Marine designers act upon.¹²⁹⁹

Figure ExS-5 from MSTP Design Pamphlet 5-0.1:

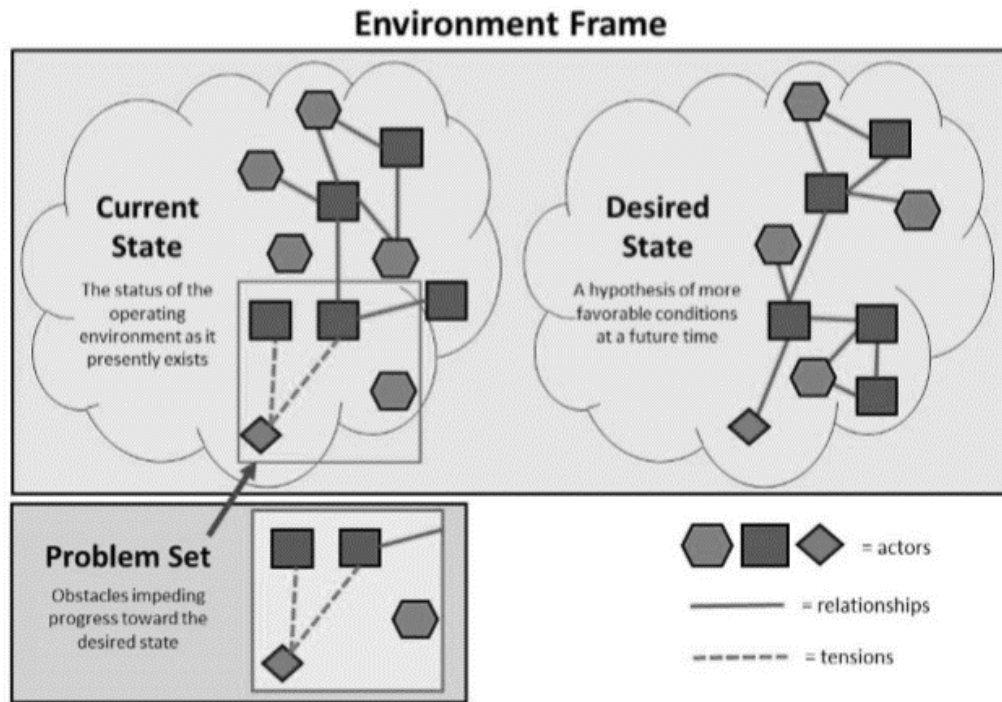


Figure ExS-5: Problem Set

The Marine design doctrine continuously expresses a complex reality within a highly mechanistic and linear frame, where the design doctrine directs Marines to categorize 'problems' within one of two solution orientations. They direct that these problems "can be categorized and described in a multitude of ways" and that "other elements of the [Marine Corps task force organization] may wish to use PMESII-PT to categorize the problem set."¹³⁰⁰ This mirrors the Army design doctrine that also prescribes categorical, non-design heuristic aids found within their dominant mechanistic planning methodology. The military heuristic aid 'PMESII-PT' is a simplified categorization tool widely used in the U.S. department of defense and allies to apply a positivist, reductionist epistemology towards a complex military system and break it into assumed political, military, economic, informational and other tropes. If this is not already reductionist enough for a military, the marine design doctrine further recommends the staff group to potentially "prefer a simple brainstorming activity to itemize a list of problems that the staff instinctively knows

¹²⁹⁹ Army Design Methodology uses a near identical graphic in their design doctrine for this same concept and the 'environmental frame' portion for Army design thinking.

¹³⁰⁰ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 6.

are most relevant.”¹³⁰¹ This design doctrine once again emphasizes a mechanistic, positivist epistemology of simplifying and categorizing a complex reality, with no critical reflection or examination of why an organization might “instinctively know” anything or why they consider some things relevant and others irrelevant. The self-disruption of Naveh’s original SOD is absent entirely,¹³⁰² as it is in the associated ADM.

Continuing with a highly prescriptive and regimented design methodology, the marine design doctrine stipulates the next step for designers is “to apply the problem set to the overall Problem Framing effort and produce the operational approach.”¹³⁰³ Marine design doctrine expresses an even more rigid, sequential design methodology than *ATP 5-0.1* that the Marines drew from, highlighting institutional overlaps where the Marines share the Army ontological stance of order and stability within reality (functionalism). This is expressed for warfighting considerations and emphasizes this adherence to continuously orienting all cognitive and physical acts toward a maintenance of said precise order. While *ATP 5-0.1* does retain select aspects of the iterative and non-linear aspects of design that Israeli design and all commercial or civilian versions of design methodology maintain as a core quality, the marine design doctrine appears to entirely eliminate this iterative practice. It instead emphasizing a rigid step-by-step doctrinal checklist for design which parallels much earlier civilian design theory from the 1960s.¹³⁰⁴

Army and Marine design doctrine mirror existing traditional planning doctrine where a subordinate headquarters, if doing design or planning activities, must pause if they encounter any key assumptions or questions that appear to prevent their progress towards a predetermined desired end-state. In operational planning doctrine, an assumption made by one staff will be submitted to that higher headquarters so that the higher element within a centralized military hierarchy can issue clarification or provide guidance. Any already stated assumptions by that higher headquarters in the operational planning methodology will immediately be assumed as facts by all subordinate organizations so that within this reductionist planning construct the subordinate staffs might continue their planning or design activities. Naveh’s original design was intended to be far more disruptive and encourage designers to “challenge the mission as received from higher [headquarters]...systemic operational design challenges this entire worldview.”¹³⁰⁵

In the Marine design doctrine, designers instead are expected to only conduct design activities as long as their designed problem set, once identified, is compared to the mission statement developed by their staff and both their composed mission statement and their framed problem set appear to be compatible. If there is any

¹³⁰¹ U.S. Marine Corps, MAGTF Staff Training Program Division, 6.

¹³⁰² Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*, 7–11; Graicer, “Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD).”

¹³⁰³ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 6.

¹³⁰⁴ Archer, “The Structure of Design Processes”; Alexander, *Notes on the Synthesis of Form*.

¹³⁰⁵ Ryan, “A Personal Reflection on Introducing Design to the U.S. Army,” November 4, 2016.

paradox or failure for the proposed solution to fix the design problem, the designers are directed by doctrine to “consult higher headquarters for clarification of its assigned tasks” and essentially delay their design process until the superior organization provides an answer.¹³⁰⁶ This indicates once again a fixation on a rigid centralized hierarchy and an emphasis on convergence, problem-solution mindsets,¹³⁰⁷ and the expectation that the higher headquarters should be able to enter any subordinate design activity and render solutions or clarification that the subordinate organization is incapable or not empowered to do so.

The various cognitive design tools offered by the marine doctrine for design draw directly from Army design methodology in that they both recommend designers use existing operational planning tools. Both the Marines and Army suggest ‘center of gravity’ analysis, critical vulnerability considerations therein, and traditional operational planning terms and constructs. While Israeli military design outright rejects most all planning terms and constructs so that the military designer is free to reflectively practice and generate novel frames for emergent opportunities, U.S. based military design attempts to place design into a subordinate role and reinforce operational planning in doctrine.

Marine design doctrine again mirrors Army design doctrine in their depiction of ‘reframe’ efforts by designers, although the marine doctrine is more explicit in a sequential, step-by-step methodology than even the Army prescribes in their design doctrine. The Marines (as well as the Army) stipulate that reframing occurs “when Design needs to be revisited...it includes revisiting early hypotheses, conclusions, and the approach that underpins the current plan. Reasons for reframing can include: changes in the original problem set, significant changes in the enemy composition, [and] significant changes in the expected enemy approach.”¹³⁰⁸ The marine reframe directive expresses a strong enemy-centric design orientation, again projecting a positivist, reductive epistemology within a single paradigm frame of functionalism. The reframe in both marine and Army doctrine uses inductive and deductive logic only, creating an institutionally non-reflective reaction to where emergent reality moves in a path unexpected or unimagined by the designing organization.¹³⁰⁹ This subsequently forces that military to repeat their linear planning process, again in a single closed loop of logic comparing their projected desired end-state against whether they succeed or fail in another predetermined design and planning period of performance.

Emergence, as a concept in complexity theory as well as alternate paradigms on appreciating reality is the absence of stability and the expression of novel change. Mintzberg frames emergent design in strategy with: “the designers grope along

¹³⁰⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 6–7.

¹³⁰⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 152–53.

¹³⁰⁸ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 7.

¹³⁰⁹ Martin, “A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan],” 2–7. Martin details the unit’s paradigm blindness in challenging key assumptions in multiple Army design efforts in Afghanistan relying on Army design methodology.

building their solution brick by brick without knowing what it will look like until it is completed,"¹³¹⁰ although he recognizes that most organizations find such a process expensive, time-consuming and prefer pre-established strategies. In the functionalist paradigm, an objective reality is interpreted and a stable future necessary in order for universal principles on reality and the basis of analytic reasoning to function.

In a military context, the Jominian logic of "universal principles of war" can only work if these principles in some combination as a pattern exist in any and all military actions, regardless of time and space. Every single incident of organized violence has some different blend of war principles that, given sufficient wisdom, knowledge and analysis, a military professional might determine and demonstrate a continued understanding that regulates a stable reality in order to control and accomplish military objectives. In complex reality, efforts to apply universal concepts and categories is merely reinforcement of the institution's desire to not design at all; rather, one should perform existing and organizationally sanctioned routines.¹³¹¹

Marine design doctrine repeatedly expresses the functionalist paradigm orientation throughout their doctrine. For example, Marines stipulate that design "is reexamined routinely during planning and throughout mission execution *when* significant changes to the operating environment occur [emphasis added]."¹³¹² The use of 'when' in this design doctrine assumes that complexity may or may not cause a design reframe, while the doctrine goes on to specify "the need for reframing must be analyzed iteratively throughout planning and its omission should be a conscience decision...once [design] reframing begins, the MCPP must be conducted again to account for the changes in the plan."¹³¹³ Again, this doctrine expresses an epistemology of analytic optimization through reduction and positivism, which generally is in direct opposition to core tenets of complexity theory.

Author's Epistemological Frame of Marine Corps Design Methodology:

¹³¹⁰ Mintzberg, Raisinghani, and Theoret, "The Structure of 'Unstructured' Decision Processes," 143.

¹³¹¹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 101–28.

¹³¹² U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 8.

¹³¹³ U.S. Marine Corps, MAGTF Staff Training Program Division, 8.

Marine Corps' Design Methodology Process Flow:

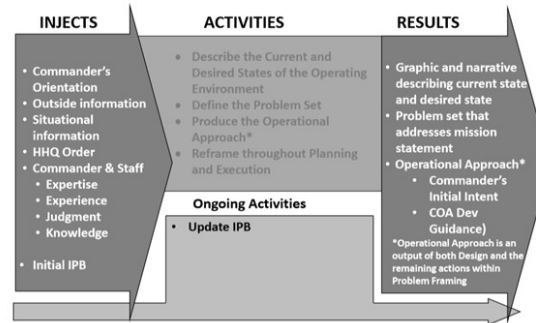
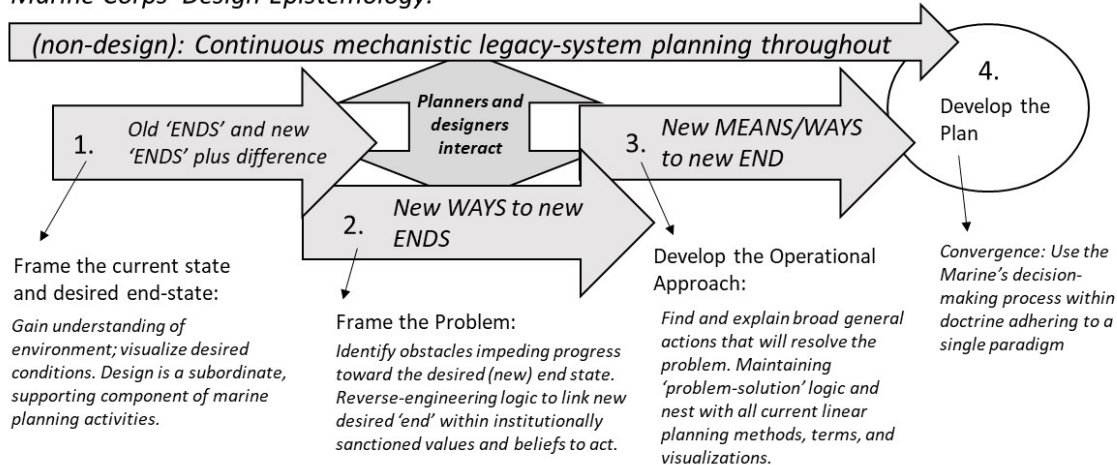


Figure ExS-1: Marine Corps Design Methodology Process Flow

Marine Corps' Design Epistemology:



Marine design doctrine parallels the Army's functionalist paradigm concerning complexity and emergence, expecting analytic optimization to critically predict and achieve control over enemy stakeholders provided that the organization follow doctrine and continuously correct any errors to maintain a stable course towards reverse-engineered end-states.¹³¹⁴ Marine doctrine directs an operational planning team's method of learning as one where they develop a plan that "fills in those gaps" that prevent a full understanding of the system to include the future states, and that this can be done "through a careful study of the effects of a course of action on the enemy system."¹³¹⁵ Here, the Marines appear to restore the epistemological preferences of earlier 'Effects Based Operations' planning logic that was popular in the 1990s and eliminated as a concept from the department of defense by General Mattis, then the Joint Forces Command (USJFCOM) Commander in 2008.¹³¹⁶

¹³¹⁴ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 21; Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 3. Martin's critique is of the Army specifically, but the Marines can be included as they shared the same design doctrine at the time of publication.

¹³¹⁵ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 13.

¹³¹⁶ James Mattis, "USJFCOM Commander's Guidance for Effects-Based Operations," *Joint Forces Quarterly* 4th Quarter, 2008, no. 51 (2008): 108.

EBO in the 1990s was popular within the joint community, particularly across the aviation, naval and marine institutions. Naveh's design categorically rejects COA-logic as tactical and incompatible with designing for synthesis. "The whole idea of COAs is wrong, totally wrong. Design cannot be based on this method-these analytic tools. Design is a synthetic tool, not an analytic tool. This is a huge mistake."¹³¹⁷ This continued narrative offered in marine design doctrine is one of a functionalist paradigm¹³¹⁸ where analytic optimization and the gathering of relevant information over time will, in conjunction with the historic memory of the organization and the wisdom of the commander, render predetermined end-states and goals valid. This is again in clear violation of the fundamentals of design theory.¹³¹⁹

The first mention of 'paradigms' in the Marine Corps Design Methodology doctrine occurs on the thirteenth page in the doctrine, where it states: "the commander and his design team must constantly question the limits of existing knowledge and critically evaluate prevailing public presumptions and paradigms."¹³²⁰ This usage of 'paradigm' supports social paradigm theory as well as Kuhn's original scientific paradigm construct, but the doctrine does not clarify which of these the Marines ought to consider. The further descriptions on what a paradigm is in their doctrine does suggest a single-paradigm worldview that supports a Kuhnian and not a social paradigm construct in that "uncritical acceptance of these presumptions and paradigms can unwittingly prevent commanders from understanding the world."¹³²¹

This Marine position on paradigms within their design doctrine also appears to violate social paradigm theory, or more likely it was written without any self-awareness of the single-paradigm dominance expressed in the design methodology. The doctrinal implication here for commanders is that there is one correct reality, of which alternative paradigm perspectives aside from the dominant or proper one will detract and inhibit 'true understanding' of a complex system. This also appears to reference a natural science Kuhnian paradigm model, where superior paradigms replace and destroy outdated or irrelevant ones.¹³²² Here, Marine doctrine suggests that a wise commander, with a Marine design team following doctrinal instructions, can identify false paradigms and incorrect presumptions about reality in order to predict and later control a complex system sufficiently to accomplish their initial goals and desired end-states. The actual intent on paradigm theory of the Marine doctrine writers is unknown due to the application of these sophisticated,

¹³¹⁷ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 28:40.

¹³¹⁸ Burrell and Morgan, *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*; Putnam, "The Interpretive Perspective: An Alternative to Functionalism"; Zweibelson, "Rose-Tinted Lenses: How American Functionalist Strategy Inhibits Our Appreciation of Complex Conflicts."

¹³¹⁹ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 101-57.

¹³²⁰ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 13.

¹³²¹ U.S. Marine Corps, MAGTF Staff Training Program Division, 13.

¹³²² Kuhn, *The Structure of Scientific Revolutions*.

multidisciplinary and academic concepts without any references, footnotes, or details on what fields or specific theories the doctrine used in its construction.

The role of the leader in Marine Design Methodology is very similar to the U.S. Army's design praxis. Both rely on the centralized hierarchy that places the leader as the most significant mind in the design as well as planning processes. Interestingly, Israeli military design supports this indirectly, in that Naveh also believes that only the General Officer possesses the experience, wisdom, power and resources to properly perform design activities. However, Naveh strongly differs with American Army and Marine design constructs concerning *how this senior leader conducts design*. The Israeli approach to design is the direct opposite to all legacy planning methods and a General conducting design ought to abductively generate an entirely novel model for sensemaking, decision-making and military action. This disrupts, and even potentially replaces traditional military planning entirely aside from mere tactical or technical planning needs. Naveh specifies the general officer's role as: "Decision making is not selecting one way, one course, one opinion- it is about synthesizing; getting to a higher level of understanding which means that you [the general] is supposed to do the thinking yourself."¹³²³

For Marines, the commander "drives operations through understanding, visualizing, describing, leading and assessing operations...Commanders are integral to any Design effort...Commanders not engaged in the [design] process find it difficult to understand the logic behind the understanding developed during Design."¹³²⁴ The commander's central position in marine design doctrine is so powerful in a centralized, conditional sense that only the commander "creates a learning environment through collaboration and discourse *by allowing* participants to think through critical thinking and encouraging participants to share their ideas, opinions and recommendations."¹³²⁵ The staff is entirely dependent on the power and control of the commander, where unfortunately this implies that the commander must become the most creative, wisest, and intelligent person in every design context, as the team would be unable to do proper design without that commander shaping and enabling the team to operate in any useful manner. Placing a military commander as the intellectual cornerstone for all design guidance, vision, and decision-making reflects the Army and Marine emphasis on a rigid centralized hierarchical form for military thought and action, most apparent in the modern military form. Naveh's design rejects this and substitutes the postmodern military form and function in war.

Thus, Marine design doctrine thoroughly illustrates a single functionalist paradigm where Newtonian physics-based metaphors are used to express nearly every military cognitive effort, nested within socially constructed and culturally attuned assumptions on reality. The implication that sufficient description will lead to some sort of deeper explanation is suggested throughout the Marine design

¹³²³ Naveh and Graicer, Naveh audio 15OCT2019 34min22sec Day 2 morning.MP3, 15:42.

¹³²⁴ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 14–15.

¹³²⁵ U.S. Marine Corps, MAGTF Staff Training Program Division, A-3.

doctrine, while it also repetitively violates most core aspects of complexity theory by stipulating that complex problems can be 'solved' with sufficient design action prior to planning. In one particular paragraph below, much of Marine design epistemological positioning is shown as a functionalist attempt to oversimplify complexity in order to retain legacy systems of systematic, mechanistic decision-making through a single paradigm lens of technical rationalism:

Part of framing an operating environment results in an appreciation for how an operating environment may trend into the future.... tendencies and propensity reflect an inclination to think or behave in a certain manner. Tendencies are not deterministic, but models describing the thoughts or behaviors of relevant actors. Tendencies identify likely patterns of relationships between actors without external influences. The natural tendencies in an operating environment have the most momentum, and therefore difficult to change. Planners should find a way to leverage system propensity. Tendencies can be positive and encouraged or viewed as obstacles that become the focus for change.¹³²⁶

The passage above uses key terms such as 'description' and not 'explanation.' Prediction is implied in this terminological distinction where trends into the future might be forecasted even in complex, adaptive systems. Note this emphasis of engineering language and physics metaphors in how the planners should design, where 'natural tendencies' have 'momentum' and can be 'positive' and designers can 'leverage' the system. Rittel warns of this danger in complexity, observing "rational behavior exists only in a small island of time and space and is not possible beyond the immediate ranges of prediction."¹³²⁷ Throughout the Marine design passage above, the deeply subjective values of the institution conducting the design are implicit yet rendered as universal and 'natural' within a single-paradigm outlook. This is where the term 'likely patterns of relationships' indicates what one considers more likely is based on a belief system that is projected upon all other stakeholders in that system, whether they are witting or unwitting in their participation. This is also where belief systems determine how planners might value something as 'positive' or 'negative' within their logic for making sense of reality while remaining within that paradigm's cognitive structure.

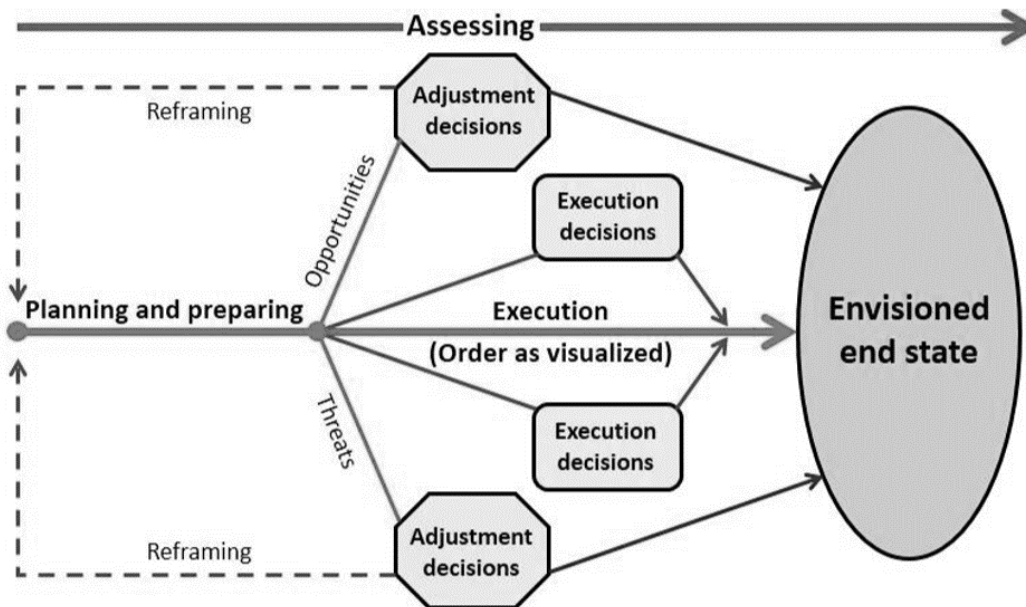
In some passages, marine design doctrine appears crafted by a committee of doctrine writers that promote vastly different positions on complexity as well as detailed linear planning, with some sections of the Marine design doctrine directly contradicting earlier paragraphs to include narratives and graphics on the same page directing entirely contradictory design instructions. Figure 5-2 specifies a

¹³²⁶ U.S. Marine Corps, MAGTF Staff Training Program Division, 25.

¹³²⁷ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 132.

single envisioned end-state where decision-making occurs while executing and assessing and potentially reframing, while in multiple sections throughout the design doctrine the Marines specify that complex problems can be solved through understanding and the commander orchestrating his staff to describe the future desired end-state and barriers to leveraging the system toward that end. Yet then the doctrine warns that “in some instances, the variance is so extreme that no branch of sequel is available, or the current plan lacks the flexibility to respond to the variance. In this situation, the commander and staff may reframe the operating environment and the problem resulting in a new plan.”¹³²⁸

Figure 5-2 from MSTP Design Pamphlet 5-0.1:



During execution, commanders and their staffs assess the underlying framework of the plan itself. This involves reexamining the original operational approach and determining if it is still relevant to the situation.

Figure 5-2: Decision-making during Execution and Reframing

Ultimately, the Marines adapted a near identical methodology as the Army in design, while modifying the process into even more of a linear, reductionist, and mechanistic planning activity that occurs largely at the tactical level of war. The tactical emphasis is not exclusive but can be projected into the operational and strategic levels without changing any of the concepts, language, or methods. Despite dropping the Army’s core graphic of a ‘three ball chart’ that frames the linear design process, Marines instead use dense planning language and existing operational design concepts such as ‘centers of gravity’ and a reverse-engineered ‘ends-ways-means’ deductive/inductive logic to reverse-engineer their desired activities in time

¹³²⁸ U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*, 49.

and space.¹³²⁹ This renders design as merely the first step in tactical or operational-level planning, where the design is more a temporary brain-storming session led exclusively by the marine commander of the organization where the staff is dependent upon the creativity and imagination of the commander as well as the higher headquarters if they run into any cognitive barriers. It also restores an entirely functionalist single-paradigm mode of war thinking that postmodernist decry as insufficient and irrelevant in contemporary, dynamic social contexts.¹³³⁰ Like the Army, the Marines approach to design incorporates the more superficial aspects of complexity theory and far less of the postmodern theory prevalent in SOD in order to retain the existing legacy system (modernity of war) of functionalist language and the single-paradigm approach to framing war from the tactical and complicated up to the strategic and the complex.

Applications of Postmodern Theory through Military Design Experimentation:

Despite the significant shift of U.S. Army and Marine institutional efforts in doctrine and design methodology away from Naveh's postmodern inspired epistemological endeavors, there are isolated examples of postmodern military design in North American militaries. While the Canadian examples are presented in the next chapter, several postmodern renderings using design for the application of organized violence are provided below. These range from utilization of select Naveh SOD concepts within American special forces training contexts, in combat environments at the operational and strategic or national level for military policy, postmodern design educational experimentation at major American military institutions, as well as infrequent but growing academic examples presented in various mainstream military professional journals.

U.S. Army Lieutenant Colonel Grant Martin, while serving as the commander of Company D, 1st Battalion, 1st Special Warfare Training Group (Airborne), also known as 'Robin Sage' would oversee the final capstone exercise for students attempting to become U.S. Army Special Forces operators (Green Berets). Martin, a SAMS graduate and exposed to Naveh's design concepts at Fort Leavenworth, would experiment with design in Afghanistan as well as in the woods of North Carolina with Special Forces trainees in a series of experiments. In his published military journal article "The Deniers of the Truth: Why an Agnostic Approach to Warfare is Key", Martin would reflect on the controversy of postmodern ideas infused into military design and the institutional reaction of these experiments:

During my time at the School of Advanced Military Studies (SAMS), then director Colonel Stefan Banach [SAMS Commandant] was known to advocate a more unconventional approach to design with themes from postmodernism, systemic operational design, and complexity theory. Later SAMS directors reportedly pulled away from the more

¹³²⁹ Meiser, "Ends + Ways + Means = (Bad) Strategy," 81-85; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 21.

¹³³⁰ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 35-63.

conceptual approach to design, ultimately coinciding with the adoption of the term Army design methodology, effectively codifying one method for all situations and tying the approach firmly to the preferred institutional paradigm of technical rationality.¹³³¹

Martin would begin his article addressing the apparent social paradigm incommensurability where users of one military belief system find any challenge or alternative to their frame as sacrilege, blasphemy, or 'deniers of the truth' in that the dominant military frame simply had to be the one and only 'true' interpretation of reality. He echoes sociological paradigm research on 'incommensurability' where "direct translation from one paradigmatic frame to another is not possible."¹³³² Martin blends religious metaphors into his assessment, asking readers "Why should we approach warfare the same way most of us approach religion? Is it any coincidence that most military officers believe in the technically rational paradigm, even if largely unaware of what it is, much less critically questioning it?"¹³³³ Martin would construct an experiment where select Special Forces student teams would employ the traditional course decision-making logic, the Army's seven-step Military Decision-Making Process (MDMP) while other teams would be directed to apply alternative logics instead. Other teams were provided the Army's select adaptation of some Naveh ideas termed 'Army Design Methodology' while other teams were offered what Martin termed an 'unstructured design approach.' Martin explains that the last group with:

Those teams that I, while roleplaying as their commander, offered guidance to approach their planning in a less structured manner... During planning, this group normally received information from discussions with me on theoretical design that stressed reflexive thinking, situation-unique preparation, and a multi-paradigmatic approach. The teams were instructed to build no more than 10 PowerPoint slides, but preferably none. Most of their briefings were done using only a map and whatever notes they had. They were instructed to rehearse those tasks they knew they would perform, preferably outside of their team room 1-3 hours every day. They were told they could use MDMP, but they were encouraged only to do so for those very specific tasks they knew they would have to accomplish in a relatively short timeframe (infiltration, meeting the guerrilla chief, first twenty-four hours in the guerrilla base, initial assessments, internal communications/dissemination plan, etc.), and to develop their own approach as to how to prepare for the more conceptual parts of the mission. They were encouraged to brief only conclusions

¹³³¹ Martin, "Deniers of 'The Truth': Why an Agnostic Approach to Warfare Is Key," 50.

¹³³² Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry," 569.

¹³³³ Martin, "Deniers of 'The Truth': Why an Agnostic Approach to Warfare Is Key," 43.

during their briefings and allow the more detailed areas to be teased out by the higher commander's interests. Lastly, they were encouraged to disregard everything in their higher's order initially and to always identify unsupported assertions.¹³³⁴

Martin acknowledges his experiment lacked academic rigor and was more of a thought experiment to stimulate institutional debate on the merits of various design and planning methods as well as a way to encourage diversity of thought concerning how and why Special Operations forces are developed and trained. In terms of outcomes, Martin observed that the unstructured design teams, drawing from more eclectic concepts and utilizing Naveh's emphasis on epistemological awareness and iterative experimentation spent very little time on the elaborate and highly detailed briefing products as compared to the MDMP-oriented teams. "The officers and NCOs consistently questioned the higher headquarters' order and its implicit assertions, especially with respect to their sector and how their sector most likely differed from their higher headquarters' more general characterizations."¹³³⁵ This differed from the other teams that received directives from their higher elements but rarely questioned them or engaged in active discourse of ideas with their superiors. The fluid, improvisational style of these teams not held to MDMP or the formulaic ADM process again demonstrate earlier design praxis not just of Naveh's SOD experimentation, but also overlapping in earlier human-centered design approaches well prior to the 1990s IDEO sequential renderings (hexagonal method) such as Rittel, Krippendorff and Papanek discussed in the third chapter.

Perhaps most impressive for Martin and unlike the thousands of previous students he had observed conduct the same sort of mission brief-backs in the training course, "the NCOs were engaged with the higher commander during back briefs and most were able to articulate the logic behind what the team was planning to do."¹³³⁶ The unstructured teams presented their mission in a fraction of the PowerPoint slides than the other groups, and their conclusions concerning what was occurring in the security context as well as the underlying tensions differed greatly with the higher headquarters' initial assessments which again was unusual and created significant discourse during the back briefs. Martin's fourth observation is perhaps the most significant and is provided here in full:

Fourth, for the most part, the unstructured teams had the least trouble of all teams in adapting to the reality on the ground. They anticipated many of the problems they would face, and when other problems cropped up, they were more prepared for them. Perhaps most impressive for these teams was their ability, on average, to get to more complex training objectives quicker than the other groups.

¹³³⁴ Martin, 47.

¹³³⁵ Martin, 48.

¹³³⁶ Martin, 48.

Because of their focus on rehearsing in detail for their infiltration, the first twenty-four hours in the guerrilla base, and their initial assessment constructs, these teams typically skipped some of the dilemmas many other teams faced. Finally, and perhaps most important, after completing the exercise a very high percentage of officers on the unstructured teams believed their planning time had been valuable and had helped them learn faster and adapt more effectively. The NCOs were also more likely than those in the other groups to report that they saw value in their planning.¹³³⁷

Paparone, as a professor at the U.S. military's National Defense University (NDU) provides another significant example of how postmodern design can influence military curriculum as well as generate the same kinds of institutional debate over design to include resistance and rejection of new concepts. In the 1990s, NDU as well as the US Army War College adapted a scientific frame for understanding 'strategic leadership' through psychometrics and contracted by companies drawing from 'Stratified Systems Theory' that became the basis of senior leader PME curriculum for decades. Paparone, as faculty for NDU in their Eisenhower School would lead a research study on the value and utility of this educational approach to strategic leadership, which would permit him to also insert an alternative curriculum that would shift away from the psychometric-based assessments and analytic/quantitative styled logic towards postmodern and multi-paradigmatic structures on strategy and leadership. His recollection of that experience is summarized below:

I developed courseware that was primarily based in the multi-paradigm approach and also heavily based in the 'Social Construction of Reality Theory.' The course required the students to complete four challenging texts.¹³³⁸ The goal for the course was to call for leadership as sensemaking – being involved in changing the meaning structures that have become institutionalized. This version of a totally revised course failed. Many students and faculty members did not complete the readings. In fact, many of the books were returned having never been opened. The faculty was part of the passive aggressive resistance to this course of instruction and rejected the underpinning philosophy proposed.¹³³⁹

¹³³⁷ Martin, 48.

¹³³⁸ Paparone states the four texts were: The Competing Values Framework (which focused on the idea of 'paradox'), Morgan's *Images of Organization* (which focused on the idea of 'metaphor'), Stone's *Policy Paradox* (which reinforced the concept of paradox in the political science context), and then a case study on how the Taylorism management method was introduced in WWI and has become entrenched in the DoD through present day.

¹³³⁹ Christopher Paparone to Ben Zweibelson, "FW: Postmodern Design Theory Applied in American Armed Forces," August 23, 2020.

Paparone was challenging the military institution (modernity of war) by calling into question the academic evidence concerning psychometrics and behavioral rating systems reliant on functionalist paradigm logic.¹³⁴⁰ At the same time, he was attempting to substitute a postmodern approach to strategic leadership drawing from beyond the dominant functionalist frame for understanding war. Just as Naveh experienced in Israel and the United States and later Mitchell in Canada at PME programs, Paparone found the institutional defense of the functionalist paradigm both vast and unyielding toward postmodern constructs *or even postmodern style* in reframing war. Paparone's new content would emphasize multiple paradigms for considering complexity in war, as well as a senior leader's realization of their self-frame so that they could employ reflexive practice,¹³⁴¹ yet another overlapping concept closely associated with epistemological inquiry and Naveh's SOD.

While Paparone's critique of stratified systems theory supports the military shift from modern analytic logic towards a postmodern multi-paradigmatic approach, his findings exceed the scope of this section. Ultimately, his argument that "the decades' search for context-free assessments of leadership and methods of development in training and education programs have failed to show measurable worth in execution"¹³⁴² was accepted by the NDU Commandant at the end of the existing strategic leadership contract year in the academic year 2020. The old program was abandoned, yet Paparone's first experiment using postmodern ideas was also failed to take root. The unread books returned by students reinforces a pattern observed at SAMS when stacks of postmodern books such as Deleuze and Guattari's *A Thousand Plateaus* would sit unread, covered in dust in the school's library at Leavenworth after being rejected by faculty and students alike.¹³⁴³ Paparone in 2019 realized the results of his first experiment and, in designing another iteration would change his postmodern delivery:

So I was sent to the drawing board to redesign the course, keeping the philosophy, but making the readings less and augmenting those readings with lectures. So the course did not require students (or

¹³⁴⁰ Christopher Paparone, "Tab D: Information Paper #4: Alternatives (EADP) 10-10-19" (unpublished document internal to NDU, October 10, 2019).

¹³⁴¹ Schön, "Knowing-in-Action: The New Scholarship Requires a New Epistemology"; Chris Doran, "Jumping Frames: Reflexivity and Recursion in the Sociology of Science," *Social Studies of Science* 19, no. 3 (August 1989): 515–31; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

¹³⁴² Paparone, "Tab D: Information Paper #4: Alternatives (EADP) 10-10-19."

¹³⁴³ Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought." Butler-Smith would, as the design monograph advisor to the author in 2010-2011, discuss why many of the postmodern books considered essential for understanding Naveh's ideas were purchased by SAMS but then abandoned in piles in the library. The readings were "too difficult" and "did not make sense" to most. The author, while researching these concepts for his SAMS monograph would indeed find hundreds of unread and new copies in the library virtually undisturbed.

faculty) to read whole books, but maybe one article or book chapter per lesson (we were allocated 12 three-hour lessons for the new course). So now we covered the competing values framework, sensemaking, and policy entrepreneurship, all buttressed with the multi-paradigm theory and Social Construction Theory (SCT). We also used a descriptive theory of leadership that was also based in the SCT – a book by Ronald Heifetz, “Leadership Without Easy Answers.” Ron was our first lecturer – he was gracious enough to come down from Harvard to open the course. This version was better accepted by the students and faculty, but there were still many doubters. I am not sure, but I think at least they will continue with the theoretical basis as the course is continued with some modifications. By the way, [if you read] the introductory essay for this course... you can see we were no longer vaunting “strategic leadership” but were making the ontological turn to the creation of new meaning. I would argue this is a form of deconstruction and reconstruction (reframing) of reality – a postmodern ideal. I’ve been told that essay stands as the introduction to the NDU course.¹³⁴⁴

Paparone would retire from NDU and leave the further development of the new leadership program with Navy Captain Renee Squier, his co-author for the article “Reframing Leadership at the Eisenhower School”, the aforementioned introductory essay to this course. The essay discusses the Eisenhower School’s prototype model for reframing leadership “as a social phenomenon quite different from the view of military headship associated with the position an individual holds within a hierarchy...instead of hierarchy, our Eisenhower School model is based on the three roles that national security professionals play: command, management and leadership.”¹³⁴⁵ The program blends multiple views on leadership, authority, and introduces concepts from other paradigms not normally represented in PME education.

Paparone in particular emphasizes Donald Schön’s ‘reflexive practice’ and Karl Weick’s ‘sensemaking’ for military leaders, which operate differently with traditional, Taylorism-inspired management models embraced by modern militaries since World War I.¹³⁴⁶ While these theorists are not postmodern philosophers, Paparone has incorporated their various ideas in a postmodern style within Naveh’s framing of military design praxis. Paparone thus is educating PME in the postmodernity while drawing from multiple paradigms so that modern/establishment ideas are disrupted, deconstructed, and challenged by

¹³⁴⁴ Paparone, “Tab D: Information Paper #4: Alternatives (EADP) 10-10-19.”

¹³⁴⁵ Paparone and Squier, “Reframing Leadership at the Eisenhower School,” 1.

¹³⁴⁶ Weick, *Sensemaking in Organizations*; Schön and Rein, *Frame Reflection*; Stephen Waring, *Taylorism Transformed: Scientific Management Theory since 1945* (Chapel Hill, North Carolina: The University of North Carolina Press, 1991); Gray, *Postmodern War: The New Politics of Conflict*, 118.

alternatives often drawing from epistemologically dissimilar positions in war. The 'Reframing Leadership' introductory essay reinforces this with:

Our [Eisenhower School] model employs a human-centric design philosophy. Design is best described as "creating the *not-yet-existing*"¹³⁴⁷ Design thinking is an approach centered on people and social systems that is effective for sensemaking in the face of confusing situations and events, i.e. "designing meaning." Leading design is a form of collective sensemaking using: empathy (interpreting situations and events from multiple perspectives); *holism* (seeing beyond the immediate "problem" looking for systemic interconnections to other "problems"); collaborative inquiry (ideation comes from combining ideas from across organizations, cultures, knowledge disciplines, and paradigms); and ethical reasoning (judging the relative goodness of what ought or should be done).¹³⁴⁸

Paparone and Squier close with the NDU program's intended outcome for graduates as defined by "mobilizing others, across organizations, in entrepreneurial pursuits of ***designing new meaning***...Leadership is about soliciting and collectively tackling tough ***questions*** where there are no easy answers."¹³⁴⁹ Although this program at the time of research remains experimental and still undergoing implementation, Paparone's example demonstrates the challenges associated with disrupting existing modern military frames concerning war, strategy, senior leadership, as well as 'how one ought to educate' in order to introduce postmodern concepts and alternatives. While Paparone's example involves andragogic design in postmodernity and using select postmodern theories in the American military enterprise set within the homeland, this next example demonstrates postmodern design praxis in a combat setting.

Zweibelson, while deployed to Afghanistan in 2011-2012 served in the 'NATO Training Mission-Afghanistan' (NTM-A) organization responsible for the recruitment, training, development, equipping and sustainment of all Afghan security forces in country. As a recent SAMS graduate he was assigned to Lieutenant General Caldwell's 'Commander's Action Group' (CAG) where operational and strategic level planners, specialists and advisors would often have the opportunity to implement design methodology for extremely challenging or unfamiliar organizational challenges. Zweibelson would implement postmodern applications of military design drawing from Naveh's theory and tutelage, including applying semiotic squares as a heuristic aid to break NTM-A out of single-paradigm frames and consider alternative 'non-western' belief systems that did not recognize or adhere to the dominant western military logics on the security challenges in

¹³⁴⁷ Nelson and Stolterman, *The Design Way*, 127.

¹³⁴⁸ Paparone and Squier, "Reframing Leadership at the Eisenhower School," 3-4.

¹³⁴⁹ Paparone and Squier, 10.

Afghanistan.¹³⁵⁰ He references alternative theories to Clausewitzian logic such as Anatol Rapoport, introduces social paradigm theory to readers, discusses epistemological variance in language and belief systems, and frames military narrative construction drawing from the postmodern theory of Peter Novick, Hayden White and Paul Ricoeur on narrative meaning and social construction. Zweibelson implemented these concepts into NTM-A operational and strategic planning efforts oriented on improving the American-Afghan command and control relationships and partnering between various security organizations conducting combat operations as well as sustainment and training.

Zweibelson would publish on other NTM-A design applications featuring postmodern concepts as well. In what would become a national level recommendation for major Afghan security force reform forecasted out five years and based on a 2011 diplomatic inquiry from Washington policy makers, Zweibelson would lead a military design team through SOD-inspired design activities blending multiple postmodern concepts. Using Naveh-inspired design terms such as 'de-tacticization', 'problematization', and emphasizing improvisation away from established planning doctrine and set procedures,¹³⁵¹ the NTM-A design team would apply Deleuze and Guattari's ideas on 'interiority' and 'exteriority' of knowledge,¹³⁵² where the designers considered perpetual state-form coexistence and competition that correlated to the NTM-A and larger ISAF organization operating in Afghanistan. Deleuze and Guattari's 'War Machine' concept would also be introduced to the designers. Zweibelson would introduce these postmodern concepts using various drawings and graphics to illustrate one interpretation of Deleuze and Guattari's 'assemblages' that relate to the NTM-A challenge at hand. Zweibelson describes the team's experience with these difficult concepts:

We began explaining the reflective journey towards meta-cognition (thinking about thinking) and critical/creative consideration using Figure 1 [provided below] in a very abstract, general perspective before applying Afghan considerations. At first, members of the team found this perplexing. However, given the small size of the group and a process of gradually drawing the group's perspective towards a meta-cognitive one, the team began to accept the concept and move away from 'tactical rabbit holes.' We avoided detailed minutia and categorization of facts and figures. Instead, we strove to think bigger, envision broadly a much larger system holistically. This is a design theory strength, yet often a military planning weakness. Our white-

¹³⁵⁰ Ben Zweibelson, "Military Design in Practice: A Case from NATO Training Mission-Afghanistan in 2012," *Small Wars Journal*, June 4, 2012, <https://smallwarsjournal.com/jrnl/art/military-design-in-practice-a-case-from-nato-training-mission-afghanistan-in-2012>.

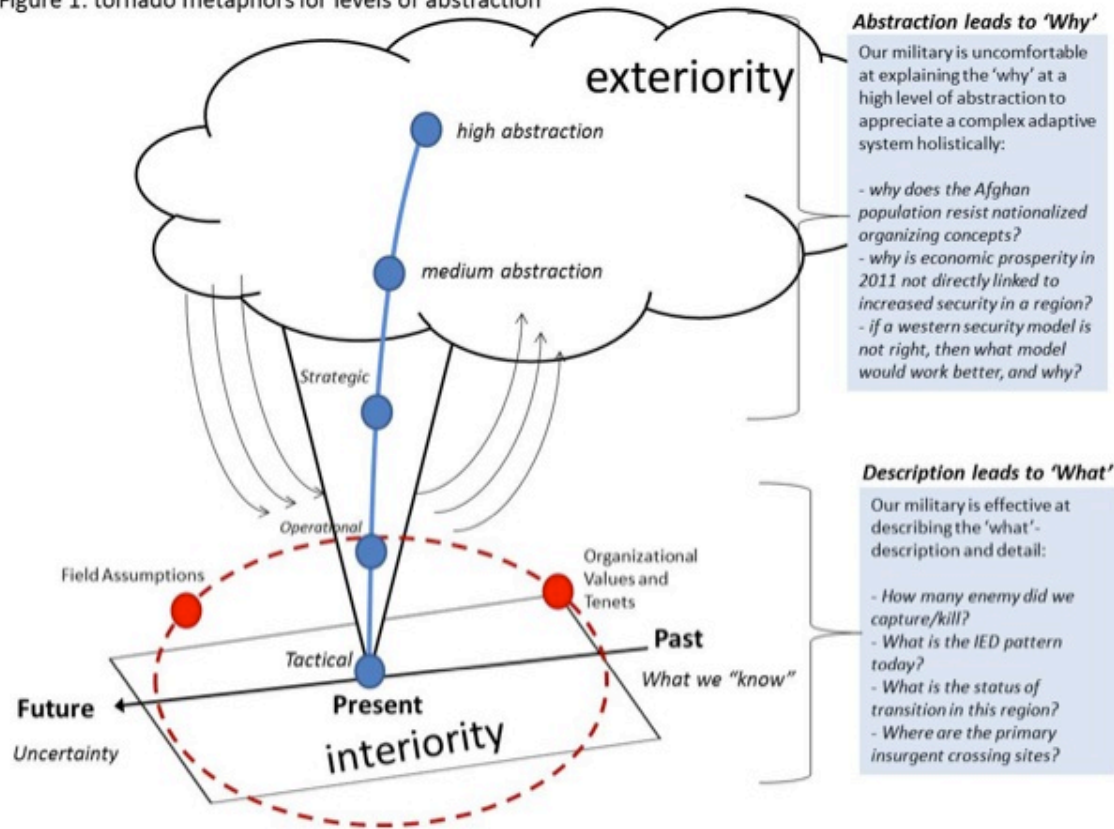
¹³⁵¹ Ben Zweibelson, "Does Design Help or Hurt Military Planning: How NTM-A Designed a Plausible Afghan Security Force in an Uncertain Future, Part I," *Small Wars Journal*, July 9, 2012, <https://smallwarsjournal.com/jrnl/art/does-design-help-or-hurt-military-planning-how-ntm-a-designed-a-plausible-afghan-security-f>.

¹³⁵² Deleuze and Guattari, *A Thousand Plateaus*, 360.

board sessions were iterative, and with each subsequent graphic exercise, members of our team began to hone in on the right harmony of abstraction and bounding for this unique and uncertain Afghan problem...Each time a planner attempted to identify a core tension, the team would determine if the tension was indeed a core tension with enough abstraction, or merely a tactical and potentially anecdotal observation that related more to institutionalism and group-think. An easy way to frame this process is to determine if the planner is asking a 'what' or 'why' question.¹³⁵³

'Assemblage' Illustration from Zweibelson's NTM-A Design Application:

Figure 1: tornado metaphors for levels of abstraction



In the Afghan design effort, Zweibelson would apply other postmodern concepts as well as systems theory, complexity theory, and introduce scenario planning methodology for the operational planners who had only previously used traditional linear military wargaming and 'course-of-action' convergent logic to reverse engineer from a single desired future 'end state.' Zweibelson would introduce postmodern theory from Jacques Ranciere's *The Ignorant Schoolmaster* to

¹³⁵³ Zweibelson, "Does Design Help or Hurt Military Planning: How NTM-A Designed a Plausible Afghan Security Force in an Uncertain Future, Part I."

the design team and overarching effort, and several years later apply that same postmodern concept to U.S. Army counterinsurgency theory and doctrine in another published journal article.¹³⁵⁴ In an act of postmodern comedy through military design, Zweibelson would heavily modify the traditional military war-game methodology by restructuring it on how swarm organizations such as bee colonies perform complex task selections in entirely dissimilar ways to the military centralized hierarchical form. Zweibelson would insert this concept by obscuring the actual swarm logic from the majority of the operational planners in the design team due to concerns that the planners would reject the concept prior to experimenting with it. He explains below, and would later publish another article introducing swarm and postmodern methods for the Canadian Armed Forces¹³⁵⁵ several years later:

One fascinating thing about swarms is that the organizational intelligence, comprised of many simplistic individual entities, collectively generates a group intelligence that regularly adapts to complex problems without any reliance on hierarchical or central decision-making...In swarms, instinct and collective intelligence of the colony drives decision-making based on local conditions- clearly a very different organizing logic when contrasted with military centralized plans and operations. In this unique planning group, we felt the circumstances were better suited for collective decision-making or some peer equal voting method...Swarm theory is an often misunderstood and misinterpreted concept our military frequently becomes enamored over. We usually misapply it and subsequently reject it. In this case, we were careful to fuse the right balance of swarm theory without dismantling those useful components of military wargame methodology and doctrine... Essentially, like the bees, we were swarming each potential 'new hive' location and applying a fusion of professional experience, extensive discussion, design theory, and military doctrine...ultimately this was not a wild band of planes spouting poetry and reading tea leaves without senior leadership in charge, but a group of military professionals that understood the limitations of the traditional military decision-making doctrine, and modified them to meet the improvisational and adaptive nature of design theory to generate discourse that led the team down the best paths of discovery.¹³⁵⁶

¹³⁵⁴ Zweibelson, "The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts."

¹³⁵⁵ Zweibelson, "Let Me Tell You About the Birds and the Bees: Swarm Theory and Military Decision-Making."

¹³⁵⁶ Ben Zweibelson, "Does Design Help or Hurt Military Planning: How NTM-A Designed a Plausible Afghan Security Force in an Uncertain Future, Part II," *Small Wars Journal*, July 16, 2012, <https://smallwarsjournal.com/jrnl/art/does-design-help-or-hurt-military-planning-how-ntm-a-designed-a-plausible-afghan-security-0>.

While swarm theory is not postmodern and entirely a biological study of how supra-organisms such as ant colonies, bees and other life make decisions in reality differently than centralized hierarchical ones, the way that Zweibelson inserted swarm logic into the traditional military decision-making methodology was done in a postmodern attempt to challenge, deconstruct, and transform the existing modern military frame. This was done using Naveh's emphasis on epistemological framing of military logics, the introduction of postmodern theory through design activities, and the intentional blending of different social paradigms, postmodern narrative concepts,¹³⁵⁷ and systems theory as well as biological metaphors such as swarm to deconstruct the otherwise unquestioned linear, Newtonian physics-inspired military decision-making process. White's postmodern framing of discourse and narrativization demonstrates the difference in this design effort and that of traditional military planning discussions: "A discourse moves "to and fro" between received encodings of experience and the clutter of phenomena which refuses incorporation into conventionalized notions of 'reality', 'truth', or 'possibility' ...it is always as much *about* the nature of interpretation itself as it is about the subject matter which is the manifest occasion of its own elaboration."¹³⁵⁸

Martin would also apply military design in Afghanistan, coincidentally being assigned for his SAMS operational planner utilization in the same NTM-A organization that Zweibelson would follow a year later. Both Zweibelson and Martin would learn postmodern military design concepts at Fort Leavenworth, deploy to Afghanistan and while in strategic and operational planning billets for their twelve month tours, would experiment in a variety of ways with military design within the NTM-A organization and subsequently publish in military journals.

Martin would demonstrate some comedic flourishes in delivering his assessment of design experimentation and failings by titling one of his articles "A Tale of Two Design Efforts (And Why they Both Failed in Afghanistan)." In Martin's recollection, he first attempts to define what 'military design' is through doctrinal definitions but finds them confusing and paradoxical. Ultimately, he remarks: "to me, Design isn't about planning differently, it is about doing everything differently. Unfortunately, however, this is not the way the Army has introduced Design so far. In the two following examples of headquarters" efforts to execute Design in Afghanistan, the Army doctrine was loosely, if not fully, followed."¹³⁵⁹ Martin goes on to recount two design efforts during his year-long deployment in Afghanistan. Martin's first example he wryly calls 'A New Hope' and begins with:

We met every day over at the operational headquarters. The days were filled with breakout group discussions as well as larger group meetings wherein everyone would present a synopsis of their days'

¹³⁵⁷ White, *The Content of the Form*, 52-53.

¹³⁵⁸ White, *Tropics of Discourse: Essays in Cultural Criticism*, 4.

¹³⁵⁹ Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 4.

work. At the very beginning we did what I thought was the right thing and began to question all of our underlying assumptions about Afghanistan. There was plenty of resistance to that, however, and I took it to be a combination of the perception of how far our leadership was willing to deviate from the current operational direction and some professional hubris: the same people who had been working under these assumptions found it difficult to have their worldviews questioned.¹³⁶⁰

In a series of institutional failings, Martin would witness ISAF continue to misunderstand design practice and theory by reinforcing existing planning behaviors and logic. The Commander, central to any design effort would never engage with the design team except to receive some back-brief set within a planning methodology that violated the entire purpose for military design logic. Aside from the lack of commander involvement, Martin also observed the organization's inability to address epistemological framework that Naveh centered SOD upon was even more disappointing. "What was more frustrating was the seeming refusal to question underlying assumptions... If we were going to concentrate on something, in other words, it had to be a group that we could quickly show results with as well as something that wouldn't have us attempting to change "the system" too much."¹³⁶¹ Martin's characterization of this first design failure was one of institutional rejection of thinking about one's frame, questioning the deeper belief system driving perpetual military actions, and social pressures of conformity, convergence, and defense of the existing doctrine and terminology of a mechanistic, linear and risk-averse military enterprise.

Martin's second example of design within the ISAF organization he again employed subtle comedic overtures and presented the story of "The PIG", design effort #2. This informal design team shared various design articles in more of a dinner party atmosphere, and focused on some Afghan National Police challenges while also avoiding the term 'design' as the word had seemed to take on unwanted negative connotations in the organization since the first design effort. Martin's design team would spend weeks on the Afghan police challenge, while noting that due to organizational and command linkages, they were unable to effectively engage with their design ideas beyond the immediate organization and therefore many of their design proposals would be generated outside of key stakeholders necessary for such a large-scale, holistic approach to transforming the Afghan security forces:

We then spent a few weeks tackling "the problem" of the ANP. We centered in very quickly on the issue that once a policeman found himself out in the countryside and having to deal with reality- "the system" he found himself in was not very conducive to doing what he

¹³⁶⁰ Martin, 4-5.

¹³⁶¹ Martin, 5.

had learned in training nor that which would endear him to the people. Our reasoning was that he had no tools or incentives to work within either the government's judicial system (if there even was one) or the system that was de facto in place... The group reluctantly shelved the ANP effort a second time. We had really thought the ANP was a complex issue and one that needed serious effort in the right places to help make progress. Most of us, if not all of us, felt the ANP was going in the wrong direction- or at least our development of them at the time. We felt that quantity was being prioritized over quality, that we weren't preparing them for transition (we were doing it all ourselves or using systems that only made sense for us), and that we weren't helping them to be effective in the reality that they would face once they found themselves working out in a police station.¹³⁶²

Martin's frustration with military design as applied in the ISAF experiences was a combination of a dysfunctional organization unwilling to empower design teams to conduct design as Naveh and others advocated, an unwillingness for leadership to engage in discourse with the designers or articulate their priorities and explore paradoxes and tensions within the organization, and a military force unable to self-reflect at the epistemological level what and how they did to frame military contexts, and why this might require reframing. Martin does employ some design practice that references postmodern theory, but also suggests in his articles that while postmodern theory may or may not be directly useful to an organization unfamiliar with it, the military organization is clearly struggling in a military era of postmodernity.

In a reference to Naveh's SOD and the first critical step to frame the logic of the 'self', Martin concludes: "Design efforts without an understanding of "self" were doomed from the start from my perspective."¹³⁶³ This echoes Ryan's retrospective on Army designers that were unable to realize their own frames at an epistemological level: "because none of these students were required to challenge their fundamental beliefs, they were never able to really reframe. Their design projects simply perpetuated the dominant instrumental approach to problem solving."¹³⁶⁴ Military design devoid of paradigm introspection results in single-paradigm reinforcement of institutional preferences. Modernity of war remains unchallenged, and the established war logic continues to cycle decision-making methods iteratively while expecting different outcomes.

Chapter Conclusions: Disruptive Military Heretics and Institutional Resistance

As stated in the opening of this chapter, the military design movement in the span of roughly three decades has grown into a full-fledged international community of practice. This increasing minority population started over two

¹³⁶² Martin, 9–10.

¹³⁶³ Martin, 10.

¹³⁶⁴ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

decades earlier from a single theoretical application within a minority group of a military service in Israel. As this research places the various military design communities of practice under an overarching context of the postmodern military form and function, the logic of military design in theory is the disruptive antagonist of the modern military paradigm. Postmodern military design functions as the alternative to the modern military war frame.

This collaborative disruption occurs despite numerous seemingly incompatible modes of military design as well as significant differences in disciplinary groundings, cultural and institutional preferences that shape the design methodological form, and various contextual influences from how and why a design is needed in war.¹³⁶⁵ This break from industrialized modernity towards a post-industrialized society includes military forces, the postmodernity of war in which those militaries will think and act, and the military form that must move from a modern to postmodern structure. Sookermany, in citing postmodernists Baudrillard and Lyotard observes that they both “point towards a configurative plurality grounded in the local and/or contextual as the ‘distinct organizing principles’ for a postmodern worldview.

Accordingly, the postmodern break with the modern belief in a universalistic epistemology is replaced with a personal and contextualized involvement in defining the ‘truth.’”¹³⁶⁶ Military design provides this postmodern plurality in thought for postmodern militaries, although it does this in tension of the modern linear and single-paradigm rationalized mode of decision-making in war. Postmodern design therefore is unlikely to ever be well represented in any potential military design codification to doctrine. Many military and civilian academics will continue to dismiss postmodernism as irrelevant, outdated, or incompatible with dominant legacy military theory and practice. This tension will continue until sufficient numbers of military postmodern designers gain sufficient volume within traditional military institutions.

Military design currently exists in multiple formats as this chapter provided. There are Israeli forms of military design with difference between the Israeli theorists teaching the design and the broader Israeli Defense Force internal doctrine branch that is publishing their own variation on how Israel ought to design. The original Israeli design theory spread quickly across American and other international militaries, gaining intellectual footholds in militaries that were desperately seeking change and innovation due to ongoing wars that appeared to render existing theory and doctrine largely insufficient. The original Israeli military design theory itself changed over the years, expressing different periods of thought and practice for Naveh and his core design theorists in what Graicer groups into

¹³⁶⁵ Beaulieu-Brossard and Dufort, “Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies”; Beaulieu-Brossard, “Encountering Nomads in Israel Defense Forces and Beyond,” 2020; Jackson, “Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?”; Zweibelson, “The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay.”

¹³⁶⁶ Sookermany, “On Developing (Post)Modern Soldiers,” 62.

three different main phases. While these phases unfolded for the Israelis, military design would expand and develop across a diverse spectrum of epistemological, ontological, as well as sociological variations.

Contemporary military design communities of practice now operate in multiple nations, in different branches of military service, within particular sub-organizations, groups, and international communities of like-minded theorists, practitioners and educators. There are active military design educational programs in Canada¹³⁶⁷, NATO¹³⁶⁸, Europe¹³⁶⁹, North America, as well as significant interest in the Australian Defense Forces¹³⁷⁰ and beyond. Although some express in purist form a disruptive, postmodern mode of sense-making in war, others draw inspiration from aspects of this postmodern intent while remaining tightly wedded to dominant modern military belief systems, so that 'design' is assimilated into institutionally sanctioned military planning. One thing that a majority of these groups can agree on is that their role in transforming military thought and action is disruptive. Some attempt to mitigate this disruption through accommodating the existing legacy planning methodologies and doctrinal lexicon of the modernist era for war. Others seem to take a certain form of pleasure in being the heretics, the jokers, the disrupters willing to take controversial and experimental stances if only to shock the existing institutional barriers to permit increased divergence of thought concerning the form and function of the organization and the application of organized violence. The next chapter explores the design movements in Canada, Australia and the United Kingdom.

The commercial and civilian influences on military design are significant, while the impacts of postmodern theory and some hybridization of multiple disciplines and unorthodox pairing of different theories is yet to be determined on whether it works in military contexts in this postmodern era for war, or if these conceptually disruptive ideas are too esoteric to be of value. Institutionally, military doctrine and the conduct of professional military advanced schooling appear to be the barriers as well as the gate keepers to what military design theory is permitted to be used, and what is discarded or resisted from mainstream discussion.

This chapter explained the development of postmodern military design and how in postmodern contexts it differs from these convergent, analytic and planner-

¹³⁶⁷ Mitchell, "Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College"; Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces"; Matthew Lauder, "Systemic Operational Design: Freeing Operational Planning From the Shackles of Linearity," *Canadian Military Journal*, Operational Planning, 9, no. 4 (2009): 41-49.

¹³⁶⁸ Porkolab and Zweibelson, "Designing a NATO That Thinks Differently for 21st Century Complex Challenges."

¹³⁶⁹ Ben Zweibelson et al., "The Emergent Art of Military Design: Swedish Armed Forces and the Contemporary Security Environment," *The Royal Swedish Academy of War Sciences: Proceedings and Journal*, no. 3 (2017); Jeffrey van der Veer, "MilitaryEpistemology.Com," educational, *Design Thinking in the Royal Netherlands Army* (blog), July 16, 2018, <http://militaryepistemology.com/design-thinking-in-the-royal-netherlands-army/>.

¹³⁷⁰ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"

oriented modes of directing action in war. Despite the radical form and function of Israeli SOD, the subsequent American military adaptations of SOD would shed much of the radical and multidisciplinary form, potentially losing much of Naveh's original intent in the transition. The legacy system of modern military war thinking remains well entrenched, with the industrialized western military doctrines, schooling, organizational form as well as the core epistemological and ontological choices largely assigned to a single dominant paradigm.

This functionalist paradigm is nested in the modern era of war, and is now in tension with the emerging postmodern one. Military design is becoming the only cognitive working space for militaries to consider alternative paradigms, multiple disciplines, paradox, reflective practice and the necessary self-disruption to stimulate transformation in the postmodernity of war. In the case of Naveh and Israeli design theory, his work disrupted the core paradigmatic structures of the modern military form and function by positing a postmodern one.

Postmodern design addresses multiple possible futures within a systemic frame¹³⁷¹ involving the self as well as adversarial logic,¹³⁷² while the modern military war frame instead employs a single dominant paradigm of analytic rationalization; a single desired future state could be reverse-engineered with precise mechanistic planning logic.¹³⁷³ Tsoukas and Chia address the meta-tension on how organizations attempt to make sense of reality through these incommensurate views. "Organization is an attempt to order the intrinsic flux of human action, to channel it towards certain ends, to give it a particular shape, through generalizing and institutionalizing particular meanings and rules."¹³⁷⁴ The military design community has emerged as the postmodern equivalent of the disruptors, the heretics, or more provocatively 'the comedians of war in the postmodern world.' Their activities are not intended to be channeled into the legacy system's mode for thought and action, but instead disrupt it and promote alternatives.¹³⁷⁵

However, some military design methods are epistemologically structured to actually reinforce these detailed planning methodologies despite their creation owing to postmodern theoretical expressions for organized violence in war. While the Israeli design remains the most radical as well as likely the most difficult to learn and apply, American and other military design methodologies as promoted in doctrine and military school programs appear to take some design concepts and render them less volatile by anchoring them in the legacy military paradigm for operational planning in a mechanistic, reductionist modern form. In the field, Army designers such as Martin expressed frustration that the design processes used were

¹³⁷¹ Sookermany, "On Developing (Post)Modern Soldiers," 43.

¹³⁷² Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

¹³⁷³ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 1–21.

¹³⁷⁴ Haridimos Tsoukas and Robert Chia, "On Organizational Becoming: Rethinking Organizational Change," *Organization Science* 13, no. 5 (2002): 570.

¹³⁷⁵ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 57–63.

limited from the start because they lacked a willingness to challenge the epistemological structures of the military institutional frame. ADM does not provide this, while Naveh's SOD clearly does, yet the difficulty in learning postmodern concepts associated with SOD is itself paradoxical as they often cause military professionals concern over intellectual obtuseness, institutional resistance to critical challenges to published doctrine, and an emphasis on a pseudo-scientific framework of terminology best equipped for engineering, mathematical, and Newtonian physics characteristics of warfare. Martin concludes on his design team's failings in Afghanistan:

Somehow the Design group had to be able to question underlying assumptions and that questioning had to be able to permeate out to the rest of the command. Underlying assumptions like questioning the motivations of those you are working with, why they are doing what they are doing, and why they aren't doing what you want them to. Assumptions like why we are there and what we are driving at. Assumptions like what "success" will look like, what our people will support, and what our politicians will accept. And assumptions about what drives people or groups of people to do what they do. We can't accept doctrine or popular psychology as dogma. We can't be attracted to the conventional wisdom of the day. We have to constantly question "why" we think something is the way it is.¹³⁷⁶

In this chapter, ADM and the marine variation are prime examples of single-paradigm design that employs methodological yet not epistemological inquiry towards complex security challenges. Still grouped under the moniker 'design', these different design methodologies are branded 'Army' or 'Marine' for institutional identification and feature significant institutional, cultural and methodological variance within the broader doctrinal structures of the U.S. Department of Defense as well as military cultural identity expressed in war behaviors and war functions.¹³⁷⁷ They feature epistemological tensions and overlap within each other in military contexts, while also extending to additional tension and overlap with design methods for commerce.

It is yet to be determined if the postmodern approach for military design as demonstrated in Naveh's core work will over the long term be the more influential of design in military practice, or if the less controversial and more simplified modes for thinking creatively in war will become mainstream in the twenty-first century. Yet Naveh's ideas on postmodernism and the application of organized violence set within postmodernity did not end with the Americas. In the same time period yet

¹³⁷⁶ Martin, "A Tale of Two Design Efforts [And Why They Both Failed In Afghanistan]," 14.

¹³⁷⁷ Builder, *The Masks of War: American Military Styles in Strategy and Analysis*; Zweibelson, "Special Operations and Design Thinking: Through the Looking Glass of Organizational Knowledge Production."

under different contexts and occurring in less direct ways, militaries in Australia, Canada and the United Kingdom would experiment with design thinking. For those design activities that share some commonality with Naveh's core ideas but do not feature robust developments such as a clear design methodology, doctrinal directive by the Service, or some mode of educational development within the force, the term 'proto-design' is employed. The next chapter provides the stories of Australian, Canadian, and British military 'proto-design' endeavors.

Chapter 6: Proto-Design Experimentation Further Afield in Canada, Australia, Great Britain and Beyond¹³⁷⁸

[The Australian military education system] does relatively little to enhance skills in both creative and critical thinking. The reason for this is a combination of ignorance, structure and culture...a significant problem is that a majority of people using the [Joint Military Appreciation Process] lack a deeper knowledge and understanding of how 'thinking' occurs in the first place.

- Trent Scott¹³⁷⁹

[Canadian military decision-making] "remains a mechanistic, analytic approach to problem-solving that seeks to control or impose order on complicated situations characterized by large-scale state on state mechanized warfare.

- Craig Dalton¹³⁸⁰

The changing values in postmodern society- trends like individualism, egalitarianism, risk adversity, media and entertainment culture or transparency in government- had a direct impact on the [British] military's distinct set of values...British doctrine reflects the duality of the military's response to these trends.

- Markus Mäder¹³⁸¹

Beyond the Israeli and American military design methodologies presented in previous chapters, several other defense institutions have also experimented with some portion of military, commercial or hybrid design theory. These militaries have also attempted to integrate it into existing military planning and strategy or have experimented in presenting such design concepts in professional education and/or military doctrine. Few of the militaries outlined in this chapter present a formalized

¹³⁷⁸ The author is indebted to the following subject matter experts for their assistance in reviewing earlier versions of this chapter: Dr. Paul Mitchell (Canadian Forces College), Dr. Alan Okros (Canadian Defence Academy), Colonel Brett Andersen (Australian Defence Force School of Special Operations), Dr. Philippe Beaulieu-Brossard (Canadian Forces College, University of Copenhagen), Lieutenant Colonel Mathieu Primeau (Canadian Forces College), Brigadier General Oliver Kingsbury (Head Warfare Development, UK Ministry of Defence's Land Warfare Centre), Dr. Aaron Jackson (Senior Researcher- Joint Planning and Design, Australian Department of Defence), and Colonel Edward Hayward (British Army Ministry of Defense Military Fellow).

¹³⁷⁹ Trent Scott, "The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force," Study Paper, Land Warfare Studies Centre Study Papers (Canberra, Australia: Land Warfare Studies Centre, February 2011), 62.

¹³⁸⁰ Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?," 46.

¹³⁸¹ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 304.

mode of military design that expresses a clear and distinguishable theory, a validated educational process for the organization on how to conduct design activities, as well as formal or proposed doctrinal design concepts at the standards observable in the Israeli Defense Force, American Army or the U.S. Marine Corps. These international military examples could be instead termed 'proto-design' efforts, as suggested by Jackson in his own assessment of the Australian Armed Forces.¹³⁸² However, all formal design communities of practice thus far began in some proto-design or experimental minority form, meaning that any or all of the examples presented in this chapter could in the next decade develop into complete military design constructs complete with formal methods, theory nested in practice, and structured education and perhaps doctrine for their organizational self-development.

The Canadian and the Australian Armed Forces are offered first and in greater detail as they both represent the more advanced of these 'proto-design' endeavors, and also feature distinctive overlap and history with Naveh's original Israeli design educational outreach as well as the influences of commercial design practice presented in the third chapter. These two countries form yet another distinct pattern in that nearly all militaries using some form of 'military design' are Anglo-Saxon in cultural and political origin, forming yet again another extension of the Industrialized West and grounds for earlier arguments on postmodern society, postmodern war, as well as postmodern interpretation of both the context of war and the militaries therein. Several other military design movements and 'proto-design' activities including some subtle design efforts within the British military will also be presented. These examples are placed at the end of this chapter as they feature weaker relationships with the Naveh zone of influence, commercial design methods, or the Post 9-11 security challenges and frustrations as clearly as these primary examples do.

Canada's Military Journey through a Modern War Frame for Organized Violence:

The Australian and Canadian militaries feature many similar patterns with American Armed Forces with respect to history, geographical context in relation to earlier periods of war, a colonial common parent, culture, ethnic as well as ideological and economic similarities. In order to introduce the proto-design movements in both nations, a case must be established first where both Armed Forces experienced a breakdown in their dominant modern military paradigm as well as the need for postmodern considerations for the application of organized violence in contexts that no longer complied with the 'war rules' of modern warfare. This breakdown in the state-centric application of organized violence as defined in the post-Westphalian modern form (modernity of war) would create opportunity for military design in Canada and Australia just as it would in Israel and America, yet

¹³⁸² Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 11.

upon different paths and due to cultural, social and geo-political variations to be covered in this chapter.

Starting with the Canadians, their preferred paradigm (functionalism) and application of modern war logic mirrors that of their American cousins closely and indicates a common war frame between the two forces. This would create potentially similar conditions to promote a Canadian shift to military design praxis, if the Canadian journey into postmodernity would stimulate similar military institutional reflection and debate as in America since the end of the Cold War to include frustration with an increasingly ineffective or irrelevant military decision-making methodology for thought and action in war. The Canadian understanding of what war is and how Canada ought to execute it is therefore nested within the strategic alignment of Canada which, since 1945 has tilted extensively towards the United States. This chapter will demonstrate this strategic alignment and corresponding 'knowledge of war' structure for Canada, as well as Australia and the United Kingdom as well.

Contemporary Canadian military planning methodologies share and often assimilate United States military doctrinal and theoretical origins.¹³⁸³ Dalton describes the Canadian Operational Planning Process (OPP) as based on the established NATO planning process, with all of them remaining mechanistic military decision-making processes that are linear in nature and focused on analysis.¹³⁸⁴ "[The] theory of planning, a linear, mechanistic, reductionist approach to problem solving, forms the basis of contemporary operational design...these are the roots of Canadian contemporary operational design."¹³⁸⁵ This served the Canadian society sufficiently through the late twentieth century up into the Post-Cold War period where, like most other Anglo-Saxon forces seeking reinvention and restructuring in the 1990s, the Canadian Army encountered serious issues. While Canada has a detailed military history largely within colonial service as well as a series of wars with America prior to the twentieth century, for the focus of this chapter an examination of the modern Canadian war frame will begin with the end of the Second World War. The pre-twentieth century Canadian military history has often been summarized by the maxim that Canada was 'the Peaceful Kingdom.'¹³⁸⁶ Twentieth century Canadian military endeavors would dispel that notion.

Canada features several distinct organizational transitions after World War II that would influence not only the dominant military frame for warfare, but also how

¹³⁸³ Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?," 7.

¹³⁸⁴ Dalton, 15; S.L. Smith, "Canadian Armed Forces Decision Making" (Canadian Forces College, 2016 2015), 1, <https://www.cfc.forces.gc.ca/259/290/301/305/smiths.pdf>.

¹³⁸⁵ Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?," 12.

¹³⁸⁶ Some Canadian military historians discount any military actions prior to 1917 as either British or French military history in Canada, and that as a nation Canada had no military identity until a Canadian actually led a military Corps in World War I. In this context, the author correlates any military activities involving Canadians or on Canadian soil as 'Canadian military history' in a broader context here.

and why their Armed Forces should function in accordance with Cold War Era Canadian policies and society. First, Canada broke from the entire Anglosphere in how it organized as well as financed their military instrument of power by combining the previously independent Army, Navy and Air Force into a single Joint Service in the 1960s. Previously, the three services seemed to fight “three separate service campaigns within the larger Allied strategy, and then eyed each other warily during the uncertainties of peacetime demobilization.”¹³⁸⁷ Canadian service identity and rivalry appears similar to Builder’s deep study of the American Army, Navy and Air Force at the end of the Cold War, with each prioritizing self-preservation even over national interests.¹³⁸⁸ Canadian policy makers apparently came to this conclusion decades earlier, potentially due to economic incentives and a new-found desire for managerial efficiencies.

Deemed part of the ‘Management Era’, Canadian policy makers in the 1960s obtained Royal Ascent to unify the separate military services under a single functional command system and rename it ‘the Canadian Armed Forces.’ This reorganization would have significant cultural, social and decision-making impacts across the entire force.¹³⁸⁹ The rise of the Cold War, and the transition of the former multi-polar political world into a bi-polar standoff between superpowers ushered in a new era of conflict preparation and confusion. This would also lead to conditions where the Canadian Armed Forces prioritized the analytic optimization of process improvement, risk reduction, and uniformity potentially to the detriment of military curiosity and experimentation. Critics of this consolidation of the three formerly independent services saw the newly unified military structure as “an organization in great confusion, a military profession unsure of its values, its history, or its future, and with the old problems still firmly in place.”¹³⁹⁰ Despite this unification of the three forces under a combined Canadian defence force organizing logic, the managerial streamlining did little to fix the deeper institutional issues that would arguably culminate in the 1990s.

Canada followed the western industrialized nation-state pattern of peacetime military downsizing after World War II (and yet again after the end of the Cold War), with the Canadian Army remaining small until the establishment of NATO and Canadian participation in the Korean War required larger forces.¹³⁹¹ Canada followed the similar path of Australia and New Zealand with greater participation in United Nations peacekeeping operations throughout the Cold War, including Kashmir, Cyprus, Africa, and the Middle East.¹³⁹² This shift in military

¹³⁸⁷ Hugues Canuel, “Canadian Civil-Military Relations in the Early ‘Command Era,’ 1945-1955,” *Canadian Military History* 24, no. 2 (Summer/Autumn 2015): 111.

¹³⁸⁸ Builder, *The Masks of War: American Military Styles in Strategy and Analysis*.

¹³⁸⁹ Canuel, “Canadian Civil-Military Relations in the Early ‘Command Era,’ 1945-1955,” 2.

¹³⁹⁰ Douglas Bland, *The Administration of Defence Policy in Canada, 1947-1985* (Kingston, Ontario: Ronald P. Frye & Company, 1987); Canuel, “Canadian Civil-Military Relations in the Early ‘Command Era,’ 1945-1955,” 2.

¹³⁹¹ Jackson, “Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007,” 7.

¹³⁹² Jackson, 7.

application represented a foreign policy shift away from the large-scale high-intensity combat conflict defined in both World Wars towards a Cold-War induced nuclear standoff between West and East, where peacekeeping operations and United Nations led coalitions became the new normal.

Despite the ambitious desires of the Canadian military leadership following the defeat of Axis powers in 1945, Canadian policy makers moved to dismantle the large standing forces and return once again to a “small professional body geared toward supporting national mobilization were some future conflict to reoccur.”¹³⁹³ Collapsing the three formerly independent services into a single defense force was essentially a large-scale design experiment in seeking greater efficiencies and budget savings “through the elimination of duplications among the branches of the armed forces...and an amendment to the National Defence Act to provide for one group of military laws” instead of the previous triplicate structure.¹³⁹⁴

Canada's military during the Cold War moved away from the largely white Anglo-Saxon male homogeneity towards a more culturally inclusive military force, largely through social and political efforts to reform the Armed Forces. The French-Canadian population became a prominent feature in Canada's military, reflecting the near quarter of the Canadian population that have French-Canadian origin.¹³⁹⁵ In a social tension dating at least back to the 1950s, Canadian officers required bi-lingual abilities and some officers felt a greater emphasis is placed upon language and cultural ratios in promotion boards over individual accomplishment.

The Canadian Armed Forces had swung back and forth with various institutional reforms on linguistics-based recruitment initiatives, the weight of performance evaluation associated with bilingual officers, and efforts to make “the English and French languages equal in status, rights and privileges as to their use in the Canadian Forces.”¹³⁹⁶ Canada's modern military progressed with the rest of the Anglosphere towards greater diversity and heterogeneity, although tension still remain prevalent between ethnic lines of Anglo-Canadians and French-Canadians.¹³⁹⁷ The repercussions of ethnic, cultural, lingual and political-based military actions in both World Wars would have significant long-term impacts in this Cold War period and introduce different tensions that would impact how

¹³⁹³ Canuel, “Canadian Civil-Military Relations in the Early ‘Command Era,’ 1945-1955,” 7-8.

¹³⁹⁴ Canuel, 12.

¹³⁹⁵ Jackson, “Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007,” 16.

¹³⁹⁶ Alistar Edgar, Rupinder Mangat, and Bessma Momani, eds., *Strengthening the Canadian Armed Forces through Diversity and Inclusion* (Toronto, Canada: University of Toronto Press, Scholarly Publishing Division, 2019), 69-70, <https://utorontopress.com/us/strengthening-the-canadian-armed-forces-through-diversity-and-inclusion-4>; Luc Gaudet, “Canadian Forces Leadership Effectiveness: Competing Values, Perspectives on Bilingualism” (unpublished Masters Thesis in Communications (University of Calgary), 2011), 23, <http://www.cmhg.gc.ca/cmb/page-716-eng.asp>.

¹³⁹⁷ Jackson, “Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007,” 17.

Canada's Armed Forces organized, thought and acted in the application of organized violence.¹³⁹⁸

In the post-WWII period of military downsizing, Canada sought to recruit enough service members to offset the loss of those departing the service, and to meet increasing demands for new skill sets as well as junior members. The Canadian military did retain a high number of combat veterans after 1945;¹³⁹⁹ however the good economy, low pay for military positions, "and underwhelming prospects for action contributed to severe personnel shortages in the three services with just under 34,000 regulars serving in 1948."¹⁴⁰⁰ This would ultimately lead to the deconstruction of individual military service identities as well as lower emphasis on merit-based performances, socially desired metrics over combat capabilities, and arguably a different military identity that differed from its World War II lineage. After the collapse of the Berlin Wall, Canadian force capability as well as institutional identity and national purpose would become paralyzed in a debate that arguably could be better framed in postmodern rather than modern consideration. Or, a postmodern treatment of what might at the time been a modern endeavor to understand military challenges *within postmodernity* is warranted to support the broad arguments of this research.

Geographically, Canada in the Cold War faced a threat of Soviet aggression while remaining clearly within the American security blanket by sharing a common and unprotected border. Mitchell remarks on this with: "Canada has traditionally lived within the metaphorical equivalent of a gated community, which explains much of this policy diffidence [on the ineffectiveness or irrelevance of Canadian defence policy]."¹⁴⁰¹ Nowhere within the Cold War could Canada realistically mount any self-defense without immediate support of larger allies. However, in the Post-Cold War Era, a multiplicity of state and non-state threats as well as international security demands no longer permit Canadian isolationism, absolutism or deferment toward a majority power in alliance.

Mitchell summarizes: "the geographical security provided by three oceans and a strong next-door neighbor no longer provide the same sense of surety they once did; our world [including the certainty of Canadian security] is becoming significantly less predictable than it had been."¹⁴⁰² Returning to Virilio, his linkage of the fall of the Berlin Wall with the decline of techno-scientific positivism does pair with this Canadian realization that the former balance of modernity is now gone, and with it the expectation that warfare might be just another technological

¹³⁹⁸ Jatinder Mann, "'To the Last Man and the Last Shilling' and 'Ready, Aye Ready': Australian and Canadian Conscription Debates during the First World War," *Australian Journal of Politics and History* 61, no. 2 (November 2, 2015): 199.

¹³⁹⁹ Canuel, "Canadian Civil-Military Relations in the Early 'Command Era,' 1945-1955," 12.

¹⁴⁰⁰ Canuel, 12.

¹⁴⁰¹ Paul Mitchell, "Educating Strategic Leaders: The Foundations of Strategic Level PME at Canadian Forces College (Final Editorial Draft)," in *The Education of an Air Force*, ed. Randall Wakelam, David Varey, and Emanuel Sica (Lexington, KY: University Press of Kentucky Press, 2020), 4.

¹⁴⁰² Mitchell, 5.

challenge of causal, linear logic.¹⁴⁰³ Canada would emerge from the fall of the Berlin Wall with new security challenges, uncertainty as well as an arguably unreliable military instrument of power that had spent decades dependent on larger allies in all major matters of war or war deterrence.

One of the defining events in modern Canadian military history remains the Somalia Scandal in the 1993, termed the 'Somalia Affair' that was also dubbed 'Canada's national shame.' The beating death of a Somali teenager by Canadian soldiers conducting humanitarian efforts became a sociological trigger point for critically examining a static military culture, and to this day remains a difficult topic within the Canadian Armed Forces nearly three decades later. The key findings of the Canadian Inquiry Commission indicated that a lack of critical and divergent thinking had created the conditions for the ethical and moral dilapidation within the Canadian Armed Forces by the 1990s,¹⁴⁰⁴ which would coincidentally be similar to the 'failure of imagination by intelligence agencies' findings by the 9-11 Commission for the United States a decade later.¹⁴⁰⁵

While the modern military institutional frame itself was not the direct cause of moral and ethical failings of the Canadian Army, the desired cognitive capabilities and over-emphasis on analytical models in the application of organized violence would indirectly contribute to a lack of imagination, innovation, and divergent thinking for the institution overall. The Somalia Affair was but one major event within a series of institutional failings and setbacks that would force institutional self-reflection, usher in reforms, and promote the importance of 'understanding how and why the institution thinks and acts.' Unlike the Australian Army which in the 1990s remained mired in 'the long peace' following withdrawal from Vietnam, the Canadian Army was overstretched, under-educated, and entangled in institutional soul-searching.¹⁴⁰⁶ Contrasting the Americans that would need to lose entire wars in Vietnam and in other flash points such as Somalia as well, the Canadians would confront the postmodern war era through a self-inflicted wound. This occurred during what was politically a humanitarian aid effort that had inadvertently ripped away the veneer on what had become a weakened shell of the Canadian Army's earlier form.

In the military generation following the Somalia Affair, Canadian military practitioners debated what institutional changes ought to be applied across the force so that ethical behavior, compliant in Canadian Armed Forces values, could become the cornerstone of sound leadership and ethical decision-making in complex security environments for the new post-Cold War security environment and the increasingly dynamic rise of novel non-state actors and threats. St-Denis

¹⁴⁰³ Virilio, *The Information Bomb*, 79.

¹⁴⁰⁴ Francis Clermont, "Design: An Ethical and Moral Project Conscious Intention for the Cybernetician," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 56.

¹⁴⁰⁵ National Commission on Terror Attacks Upon the United States, "Final Report of the National Commission on Terrorist Attacks Upon the United States," *United States Government*, July 22, 2004, 339.

¹⁴⁰⁶ Aaron Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," *Australian Defence Force Journal*, no. 177 (2008): 87-89.

observes how the dominant institutional form tended to generate a predictable group function in behavior, language, relationships and thought:

Chief among those limits is the necessary restriction of the soldier's freedom to make choices as an individual. Soldiers are required to sublimate in many ways their own individualism for the sake of the group" ...military success depends on absolute authority being wielded by the leader, and this same absolute authority works strenuously against the idea of encouraging followers to challenge beliefs and values, and to work things out on their own. It also works against the notion of empowering individuals to seek innovative solutions."¹⁴⁰⁷

Clermont, citing St-Denis above as well, posits that the Canadian military today continues to be "dominated by behaviorism where human beings are viewed through a mechanistic and functionalist paradigm."¹⁴⁰⁸ In these military organizations, soldiers are conditioned to approach challenges within a reductionist perspective, "and critical thinking is perceived as antithetical to organizations. It is perceived as a challenge and threat to command and leadership. Change and emergence are unwanted."¹⁴⁰⁹ This tension between analytic, mechanistic military planning and the divergent, disruptive and experimental mode of design as Primeau earlier observed would continue to challenge the Canadian Armed Forces as it entered the era of warfare within postmodernity.

The large-scale mechanized and Westphalian nation-vs-nation warfare mindset of the Cold War Era defined the traditional military decision-making methodology for the Canadian Forces throughout the Twentieth Century and arguably is the primary obstacle for military design alternative concepts today, as this chapter will explain. The functionalist paradigm remains the paradigm of choice for the Canadian forces, where the Canadian Armed Forces (CAF) Operational Planning Process (OPP) methodology is "a mechanistic, analytic approach to problem-solving that seeks to control or impose order on complicated situations characterized by large-scale state on state mechanized warfare."¹⁴¹⁰ Even though Canadian military doctrine on how to apply the CAF-OPP methodology explicitly warns against misinterpreting the process as linear and quite formulaic, military academic studies of the planning process struggle to illustrate it in anything but a linear sequencing of distinct, discrete activities couched in entirely analytic and

¹⁴⁰⁷ Thomas St-Denis, "Transformational Leadership: Not for the Warrior," *Canadian Military Journal* 5, no. 4 (Winter -2005 2004): 85.

¹⁴⁰⁸ Clermont, "Design: An Ethical and Moral Project Conscious Intention for the Cybernetician," 58.

¹⁴⁰⁹ Clermont, 58.

¹⁴¹⁰ Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?," 46.

rather mechanical language.¹⁴¹¹ This mindset of seeking convergent, overly analytical thinking towards warfare would no longer serve the Canadian Forces when they faced irregular and increasingly complex security challenges that were not 'solvable' using the previously successful methods derived from the twentieth century's 'Great Wars.'¹⁴¹²

Clermont critiques the Canadian Armed Forces of needing "to change the institution's *doxa*, one in which a profound culture of anti-intellectualism is still present, and with it the negative effects it has on professional development."¹⁴¹³ He nests this anti-intellectualism back to at least the Somalia Scandal period of the 1990s, where the Canadian Inquiry Commission determined that the Canadian Armed Forces had lacked significant development of intellectual and cognitive skills across their military.¹⁴¹⁴ The prominence of uniformity, regulatory behaviors, and convergent thinking would promote certain military outcomes in performance while delegating divergent thinking, experimentation, intellectual curiosity and critical reflection to the backseat for the military institution. This would become a systemic pattern and not something easily overcome for the Canadians.

In the military generation following the Somalia Affair, Canadian military practitioners debated what institutional changes ought to be applied across the force so that ethical behavior, compliant in Canadian Armed Forces values, could arguably become the cornerstone of sound leadership and ethical decision-making in complex security environments. This challenge was complex and involved organizational form and function, as well as critical and creative thinking for military action. Canadian professional debate attempted to address some of the institutional barriers concerning postmodern ideas, once again splitting into a smaller camp advocating Naveh's style of postmodern philosophical application¹⁴¹⁵ and a larger population interested in war within a 'postmodernity' contextual setting. In the same broad period of military institutional change that the American, British and Australian Forces would experience within some shared conflict challenges as well as individual country or service-related challenges, the call for change in how Canada thought and applied organized violence was heard.

Yet in the decades to follow the 1990s transition and disruption, the Canadian Armed Forces appears unable or perhaps unwilling to pivot off a decidedly state-centric and analytic decision-making frame for organized violence. Clermont proposes that the Canadian military (among others) remain organizations

¹⁴¹¹ L. Bruyn, T. Lamoureux, and B. Vokac, "Function Flow Analysis of the Land Force Operations Planning Process," *Defense Research and Development Canada Toronto*, no. DRDC No. CR 2004-065 (2005): 12.

¹⁴¹² Bruyn, Lamoureux, and Vokac, 1; Smith, "Canadian Armed Forces Decision Making," 5; Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 88.

¹⁴¹³ Clermont, "Design: An Ethical and Moral Project Conscious Intention for the Cybernetician," 59.

¹⁴¹⁴ Clermont, 56.

¹⁴¹⁵ John Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," *Canadian Military Journal* 12, no. 3 (2012); Lauder, "Systemic Operational Design: Freeing Operational Planning From the Shackles of Linearity."

“dominated by behaviorism where human beings are viewed through a mechanistic and functionalist paradigm.”¹⁴¹⁶ Soldiers are conditioned to approach challenges within a reductionist perspective, “and critical thinking is perceived as antithetical to organizations. It is perceived as a challenge and threat to command and leadership. Change and emergence are unwanted.”¹⁴¹⁷ For Canada, this would create tensions that over time in the same period of other military design experimentation in Israel, Australia and America influence design experimentation in Canada as well. This would also provide deeper institutional explanation of why and how some of the Canadian military barriers to experimentation in military design and disruption of cherished modernist methodologies would be expressed in initial design education, practice and theory building.

Australia’s Military Journey through a Modern War Frame for Organized Violence:

Due to geographic location and the gradual expansion of the British Empire, Australia would unavoidably be slower in emerging as its own military identity after the Americans and Canadians. However, just as the Americans and Canadians both differed in their development before and after the Great Wars of the twentieth century, Australia would too express quite a unique history that would foster different tensions and paradoxes within applying the modern military war frame. Australia’s European lineage, remote geographic location, proximity to emerging non-western competitors and adversaries, as well as the cultural and social qualities that define the Australian warfighter interact within a dynamic and complex network of influences and beliefs so that their military design development takes a distinct journey of trial and error.

Naveh would remark on the cultural littoral between “Anglo-Saxon and South-East Asian traditions...the Australian institutional legacy system has always been nurturing an approach of heterodoxy...by their very nature, Australian officers are more susceptible to critical discourse than their peers in other state military institutions.”¹⁴¹⁸ The dependency of Australia upon Great Britain meant that not only would British methods, style of warfare, and leadership become deeply intertwined with Australian armed forces, but the demands of the British Empire would call upon Australian men to travel far from home in the service of the ‘mother country.’

World War I and Britain’s application of remaining colonial military enablers indirectly created conditions for Australian and New Zealand military mythology and lore that would reinforce Naveh’s position of this uniquely Australian war culture distinct from peer Anglo-Saxons. As Jackson describes the long-term impact of the Australian and New Zealand Army Corp (ANZAC) landing at Gallipoli in 1915, “the landings have taken on a legendary status in both countries...underlying...for the first time, Australians and New Zealanders performed a noticeable role on the

¹⁴¹⁶ Clermont, “Design: An Ethical and Moral Project Conscious Intention for the Cybernetician,” 58.

¹⁴¹⁷ Clermont, 58.

¹⁴¹⁸ Naveh, “The Australian SOD Expedition: A Report on Operational Learning,” 4.

world stage and individual soldiers-or “diggers,” as they became known-inspired feelings of honour and pride in their fledgling countries.”¹⁴¹⁹ Again, Builder’s theory on the mythology of American services forming from a “golden era” period ¹⁴²⁰ is applicable here to Australia and New Zealand, in that Gallipoli becomes the cultural mythology upon which their modern militaries maintain self-relevance and reinforce esprit-de-corps. It also continues to impact their preference for certain decision-making methods as well as tensions in what constitutes accepted experimentation and curiosity on war.

The ‘Anzac legend’ has shaped and influenced generations of Australians since the First World War, potentially in politically motivated and culturally exclusive ways. Crotty and Stockings explain in their research into the mythology of Australian military history, “from April 1915 onwards the Anzac legend grew into an inescapable social force tied to the core of national identity....the social values held dear by the collective consciousness of the late nineteenth- and early twentieth- century Australia...were informally but systematically codified into a national legend about “diggers.”¹⁴²¹ Conformity to these beliefs coupled with fierce independency would make for rather specific military operating preferences as explored below. While individual soldier independence was high, the Australian armed forces overall remained highly dependent upon Great Britain for necessary equipment and advanced weapon systems as well as even British operational and strategic leadership in war through World War II.

While Australia shared similar ritualistic and mythological aspects of military culture along with other Anglo-Saxon military developments, Australia and New Zealand had more tangible similarities based upon geography, population, history, and identity. Similar to American geographic isolation throughout early colonial (and post-colonial) periods, Australia and New Zealand never faced an external military threat to their territory except for a possible Japanese threat to Australia in 1941-1942.¹⁴²² Both countries had small populations primarily of Anglo-Saxons set within a neighboring Asia that had entirely dissimilar ethnic and political origins. Australia and New Zealand, due to inadequate white male military numbers in comparison to their large territories and coastlines, had insufficient resources to defend themselves since their fragile beginnings as colonial outposts.¹⁴²³ Despite these clear problems of low troop numbers for vast defense requirements, Australia

¹⁴¹⁹ Jackson, “Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007,” 5.

¹⁴²⁰ Builder, *The Masks of War: American Military Styles in Strategy and Analysis*.

¹⁴²¹ Martin Crotty and Craig Stockings, “The Minefield of Australian Military History,” *Australian Journal of Politics and History*, 2014, 580–82.

¹⁴²² Jackson, “Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007,” 6; David McCraw, “Change and Continuity in Strategic Culture: The Cases of Australia and New Zealand,” *Australian Journal of International Affairs* 65, no. 2 (April 2011): 169–70.

¹⁴²³ McCraw, “Change and Continuity in Strategic Culture: The Cases of Australia and New Zealand,” 168–69.

and New Zealand carried additional cultural and sociological positions accepted within the Anglosphere despite being counter-productive for regional security.

The Australian Corps, employed by the British Empire in World War I, were successful in campaigns such as the 1917 Battle of Arras, where despite suffering higher casualty rates east of Bullecourt than what British forces suffered, the Australians were successful and achieved a rite of passage in professional arms ¹⁴²⁴. Like the Canadian Corps, the Australians fielded superior troops that were older, in better physical condition in comparison to British forces, and demonstrated better training and skill.¹⁴²⁵ The Australian recruits may have been of higher quality due to patriotism trumping social caste systems, although in WWI and later in WWII, the Australian Army held to tightened rules on race, role within service, commissions, and specifically worded Oaths of Allegiance to the King.¹⁴²⁶ The Anzac stereotypical soldier of Australian Lore is "always white and essentially masculine...physically imposing, rough around the edges,"¹⁴²⁷ a willful societal reflection upon what Australians romantically imagined themselves to be rather than what in the context of World War I the Australian forces likely were. Again, this would foster a military organization with a high value on convergent thinking through ethnic, cultural, geo-political as well as social uniformity in the application of organized violence through the Twentieth Century.

This also made the Australian Army a largely homogeneous fighting force in both major wars, comprised largely of white lower- and middle-class males of Anglo-Saxon heritage, operating within the overarching British model of military form and function dating from the premodern era and detailed in the second chapter. Although Australians did have a large Irish-Catholic population that formed a quarter of the Australian population during WWI,¹⁴²⁸ they were not concentrated in geographic or political unity as French-Canadians were in Canada. The Irish-Catholic decentralized opposition to military service in England and France would manifest in distinctly Australian ways, primarily with the financial argument that "the cost of sending men there from Australia is four times per man that of sending men from England and France."¹⁴²⁹ Later as the war stalemated, Morton observes that: "the brutal realities of trench warfare crushed romantic illusions of glory...fervent assertions of British identity faded into questions about the competence of the Empire's generals in the face of recurrent failures and mounting casualties."¹⁴³⁰ These early twentieth century war challenges would subsequently

¹⁴²⁴ Mike Bechthold, "Command, Leadership, and Doctrine on the Great War Battlefield: The Australian, British, and Canadian Experience at the Battle of Arras, May 1917," *War & Society* 32, no. 2 (August 2013): 118.

¹⁴²⁵ Bechthold, 117.

¹⁴²⁶ David Leach, "The Other Allies: Military Security, National Allegiance, and the Enlistment of 'Friendly Aliens' in the Australian Armed Forces, 1939-45," *War & Society* 32, no. 1 (March 2013): 32.

¹⁴²⁷ Crotty and Stockings, "The Minefield of Australian Military History," 583.

¹⁴²⁸ Mann, "'To the Last Man and the Last Shilling' and 'Ready, Aye Ready': Australian and Canadian Conscription Debates during the First World War," 185.

¹⁴²⁹ Mann, 188.

¹⁴³⁰ Desmond Morton, "Did the French Canadians Cause the Conscription Crisis of 1917?," *Canadian Military History* 24, no. 1 (Winter/Spring 2015): 10.

define the Australian character and spirit of how and why to apply organized violence, and create unique institutionalism that would later struggle with postmodern military design concepts.

Australia would support Britain despite increasing losses, in part due to this Anglo-Saxon shared sense of identity that still remains intact in many ways today, "a belief that Australia was an integral part of the wider British World."¹⁴³¹ Additionally and within the earlier context of World War I when both nations remained British colonial possessions, a potential loss for Britain threatened both Australia and Canada existentially. This was due to fears of a victorious Germany might gain parts or all of their territory as a prize for defeating Britain.¹⁴³² The homogenous white Anglo-Saxon (and Irish-Catholic to a lesser degree) Australian poor and middle class would volunteer throughout the Great War without the debates of political and cultural identity that Canada faced. Yet this homogeneity would both help define Australian war culture and create institutional tensions that would need to be confronted later in the shift to a postmodern war era.

Class position within Australia's white majority identity also proved significant during the Great War and thus became a powerful institutional driver for subsequent later Australian modern military identity, where the Australian Army had a majority of commissioned officers as well as battlefield promotions associated with the educated middle-class.¹⁴³³ The Australian middle class, having received superior education and opportunities for military promotion and development, largely dominated the working class within the Australian Imperial Force "*before, during, and after* the First World War."¹⁴³⁴ As British and to a lesser degree American military commission and promotion practices echoed this class divide during the gradual implementation of the modern military frame with respect to recruitment and promotion, Australia in World War I follows what is largely an Anglo-Saxon pattern of class division in war, even within an already ethnic-based and politically exclusive military formation of suitable white male citizens set in a remote geography for a new Westphalian nation state.¹⁴³⁵

At a strategic level, World War II presented to Australians and New Zealanders the first real and immediate existential threat to their nations in their histories after the surprise bombing of Pearl Harbor in 1941.¹⁴³⁶ Although Americans associate the sudden Japanese existential threat exclusively with Pearl Harbor, Australians saw the lesser-known Japanese attacks at Darwin, Broome, and the submarine attack on Sydney harbor as far more significant, again demonstrating subtle distinctions between various contemporary western industrialized military

¹⁴³¹ Mann, "'To the Last Man and the Last Shilling' and 'Ready, Aye Ready': Australian and Canadian Conscription Debates during the First World War," 188.

¹⁴³² Mann, 189–99.

¹⁴³³ Nathan Wise, "The Myth of Classlessness in the Australian Imperial Force," *Australian Historical Studies* 43, no. 1 (2012): 301.

¹⁴³⁴ Wise, 301.

¹⁴³⁵ Crotty and Stockings, "The Minefield of Australian Military History," 583.

¹⁴³⁶ Leach, "The Other Allies: Military Security, National Allegiance, and the Enlistment of 'Friendly Aliens' in the Australian Armed Forces, 1939–45," 39.

organizations despite common cultural and ethnic linkages to the British Empire.¹⁴³⁷ These grim lessons served as a sobering realization that Australia was vulnerable to powerful regional enemies able to use advanced technology and resources to strike at what was previously considered geographically isolated and protected territory.

Australians in World War II continued to reflect upon their own mythologically constructed framework of Australian activities in the Great War, forming a type of military chauvinism where “at some level, [Australians were] “natural” soldiers, superior to their adversaries...They are, after all, the heirs of Anzac.”¹⁴³⁸ The British continued to use Australian forces as ‘shock troops’ as they did in World War I, employing Australians across Africa, although modern Australian military historians continue to question whether any Australian attacks in these campaigns or those of the Anzac reflect actual accomplishments or were more politically and socially constructed to romanticize the great sacrifices and loss of Australian young men.¹⁴³⁹ Regardless, the Second World War would entrench these Australian beliefs on the form and function of how they should apply organized violence so that the later emergence of military design concepts would face particular obstacles.

Whether Australian forces in WWII were in keeping with culturally maintained military lore or were merely utilized by a faltering Imperial Power in order to survive the existential threat of the Axis Powers, they found in the aftermath of the Second World War a need for a new Anglo-Saxon benefactor to assist in Australian foreign policy interests. New Zealand also had significant examination into military lore associated with WWII, where New Zealanders played a key role in the defense and eventual loss of the island of Crete to the German paratrooper offensive.¹⁴⁴⁰ For New Zealander collective military culture, the Crete experience represented “a chronic disorganization and inexplicable lethargy of command that dogged the otherwise heroic efforts of the men.”¹⁴⁴¹ Again as offered in the third chapter, the military ‘hero’ symbolically resonates across most all military organizations and in the modern military era is often in direct tension with the modern military manager. It would take the postmodern comedian of war to apply design and promote reflexive practice, deconstruction, and disruption of these frames in order to influence systemic transformation in war.

Heroes are a powerful symbol in war, and unlikely to be disrupted too far from the military psyche. Australian military lore shares in a similar perspective that New Zealand and Australian men were fierce warriors, often bogged down by the cumbersome bureaucracy of warfare, and frequently the inadequacies of non-Australian or non-New Zealand leadership throughout the Twentieth Century and

¹⁴³⁷ McCraw, “Change and Continuity in Strategic Culture: The Cases of Australia and New Zealand,” 170.

¹⁴³⁸ Crotty and Stockings, “The Minefield of Australian Military History,” 583.

¹⁴³⁹ Crotty and Stockings, 585–88.

¹⁴⁴⁰ Rachael Bell, “Evidence and Interpretation in New Zealand’s Official History: The Battle for Crete, May 1941,” *War in History* 22, no. 3 (2014): 364–81.

¹⁴⁴¹ Bell, 366.

the application of their Armed Forces for a variety of hot and 'cold' wars. The bulk of these non-native strategic directives emanated from the British Empire, which after World War II was fading from former global dominance. This would foster a shift toward both Australian and New Zealand militaries to seek American military concepts, doctrinal influence, shared education and practice, as well as stronger bonds for mutual national defense strategies. Prime Minister Curtin's speech to America in 1942 is considered the pivotal point in this shift from British to American foreign policy alignment where Curtin stated Australia would now look "to America as our leader in the Pacific," a controversial statement at that time.¹⁴⁴² America's rise to post-war dominance in 1945 would directly shape many of the subsequent patterns in postmodern military design development, expansion, as well as institutional skepticism and resistance. Colonel Andersen of the Australian Special Forces remarks:

[Australia] always partner with a larger ally. We generally need some form of 'lift'. We generally operate at the tactical level and rarely at the operational (note that we have had individuals at the operational level – but not as an independent commander – less East Timor). This ultimately means we are dependent upon the operational and strategic inputs from our ally as opposed to formulating our own operational or strategic design in conflict. We are happiest at the tactical level because we never embrace the operational. Even in Oruzgan [Afghanistan province]...we were offered the province, but we never took on the mantle of regional command until the last six months before we pulled out in 2013 – we let the Dutch run the province while we provided the balance of combat power.¹⁴⁴³

The second chapter addressed the various social, cultural, political and other conceptual challenges of the late modern war context shifting towards the postmodern emergent context (modernity to postmodernity of warfare). This shift would manifest in Australian as well as New Zealand Armed Forces and create the conditions for military frustration with the modern war frame as well as the established form and function for what, how and why to apply organized violence on behalf of their respective societies. First, they had to grapple with previously sufficient troop requirements composed largely of white Anglo-Saxon citizens in what was a homogenous military. Natives as well as foreign-born volunteers or 'friendly aliens' were unnecessary until the demands of World War II required change. Even this change occurred only after Britain, as the reigning monarchy to the commonwealth, modified enlistment regulations in 1939 by changing foreign

¹⁴⁴² John Curtin, "John Curtin's Speech to America, 14 March 1942 (Audio File)," audio file, John Curtin Prime Ministerial Library, Records of the Australian Broadcasting Corporation, March 14, 1942, <http://john.curtin.edu.au/audio/00434.html>.

¹⁴⁴³ Brett Andersen to Ben Zweibelson, "FW: SDW (Personal Correspondence)," August 11, 2020.

officer commission numbers as well as ratios.¹⁴⁴⁴ The previously accepted and entirely premodern (Feudal European-centric) castes and ethnic divisions became political discussion points, while gender and ethical questions fueled military reform movements within the periods of social unrest of the 1960s and 1970s, as well as throughout unpopular wars such as Vietnam and continued nuclear proliferation during the Cold War. Military failure in Vietnam was not solely an American experience, nor was societal rejection of class divisions, underrepresentation of minorities, gender issues, and sexual orientation.

Just as American, Canadian and other Armed Forces experienced significant transformation throughout the Late Cold War period and into the turbulent 1990s where societies expected significant changes across the board on defense form and function, Australia and New Zealand militaries moved from homogenous Anglo-Saxon compositions of citizen soldiers towards a more inclusive heterogeneous force inclusive of non-Anglo-Saxon natives as well as other immigrant communities. New Zealand, in particular, moved from a largely Anglo-Saxon military culture towards the inclusion of the native Maori warrior representation, which has led to a re-branding of the New Zealand military through the adaptation of Maori customs and traditions.¹⁴⁴⁵ This suggests a potential postmodern examination of how the previously suppressed and exploited native population could over time be reconstructed into the dominant and possibly ritualized form for how New Zealand Armed Forces identify and reflect upon values and their belief system.

The sudden end of the Cold War with the fall of the Berlin Wall positions the Australian and New Zealand militaries at the starting point of this postmodern war era and sets the conditions for how and why the military design movement would gain footholds. Located geographically distant from Britain, Canada and America, these two nations saw the fall of Moscow and the Iron Curtain as an opportunity for the rise of China and a new Pacific threat to foreign policy, trade, and previously western dominated stability. The demise of the Soviet military threat and a possible new period of peace and lack of traditional nation state warfare inspired major civil-military revisions as well as dramatic budget considerations. Along the way, Australian military culture would generate an Armed Forces that would respect military doctrine but at the same time maintain skepticism about its span of functionality.¹⁴⁴⁶

Advanced weapon platforms and vast standing militaries could be explained in the Cold War, while in the 1990s their appeal seemed obsolete and expensive. Social and cultural reforms would become reasonable, and the participation of Australian and New Zealander forces in peacekeeping activities around the region and world would take on new contexts. Lastly, with the collapse of the bi-polar world, the new uni-polar age of uncertainty gave Anglo-Saxon nations a choice

¹⁴⁴⁴ Leach, "The Other Allies: Military Security, National Allegiance, and the Enlistment of 'Friendly Aliens' in the Australian Armed Forces, 1939-45," 30.

¹⁴⁴⁵ Jackson, "Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007," 16.

¹⁴⁴⁶ Naveh, "The Australian SOD Expedition: A Report on Operational Learning," 4.

whether to continue to work within American superpower interests or deviate, as the Soviet threat no longer made collaboration an existential insurance policy. In this decade of significant uncertainty and global transformation, Australia and New Zealand would turn inwards towards regional concerns, and begin to break with American interests within this new and unfolding asymmetric age of increased social reform and influence over what a military instrument of power should provide, as well as the form in which it acted.

The end of the Cold War ended an important chapter in the Anglosphere concerning the struggle between Capitalism and Communism, however it ushered in a new and confusing period of uncertainty. "The end of the Cold War had made Australia's strategic situation more uncertain and possibly more dangerous."¹⁴⁴⁷ Australia and New Zealand moved from the Cold War period of an anti-communist Western alliance focused upon deterrence and attrition-based warfare to a 1990s transition period of peacekeeping.¹⁴⁴⁸ Jackson describes the new banner of a United Nations peacekeeping force where Australians, New Zealanders, as well as Canadians shifted their focus away from the crumbling 'Red Threat' of Moscow towards "coalition building in order to attain a level of international influence that they [could not] attain individually."¹⁴⁴⁹ Although originally occurring a few years before the unexpected Cold War termination, Australia and Canada would craft a transformative defense concept that would subsequently usher in dramatic change.

The end of the Cold War would prove monumental for the American, Canadian, British and Australian Armed Forces, although each service would travel down distinct new paths in the 1990s in this new 'uni-polar world' of uncertainty and institutional pressure to reform. Australia realized that "few nations in the world, and certainly no regional states, had the capability to seriously attack Australia, and that the US alliance provided the ultimate insurance against any such attack."¹⁴⁵⁰ With the fall of the Soviet Empire, Australia now could safeguard itself against regional threats that were not existential, and that Australia could also contribute to UN peacekeeping missions that demonstrated Anglo-Saxon values of liberty and compassion to human civilization.

This of course represents an entirely Westphalian mindset and retains the modern military paradigm for war in the dominant position for military policy and function. Yet unlike the Canadian and American Armed Forces that would throughout the 1990s be challenged with significant humanitarian and low-intensity security operations, the Australian Army would spend this same period underutilized and therefore launch into the Post 9-11 'War on Terror' period

¹⁴⁴⁷ McCraw, "Change and Continuity in Strategic Culture: The Cases of Australia and New Zealand," 172.

¹⁴⁴⁸ Jackson, "Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada, and New Zealand, 1987-2007," 7.

¹⁴⁴⁹ Jackson, 9.

¹⁴⁵⁰ McCraw, "Change and Continuity in Strategic Culture: The Cases of Australia and New Zealand," 171.

inexperienced and devoid of recent lessons learned.¹⁴⁵¹ They did have had a number of smaller deployments to Somalia, Rwanda, Cambodia, Bougainville and the Solomon Islands as well as East Timor in 1999 as somewhat of a rehearsal for later actions in Iraq in 2003.¹⁴⁵²

The effects of 9-11 upon Australia, Canada, and the western alliance of NATO as well as Anglo-Saxon shared national affinity cannot be understated in how the postmodern war era unfolds. Despite Iraq initially presenting traditional Westphalian policy and military actions in both the First Gulf War and later the opening of the 2003 Iraqi Invasion, neither the Iraqi Insurgency period that followed nor the fighting methodology and organizational structuring of the Taliban, Al Qaeda, and later the Islamic State and other adversaries would play to the modern military playbook for war.

True to Australian form, their forces would deploy just as they did in World War I, sending small tactical forces overseas to work for a larger, more powerful ally as part of a multi-national, integrated force where the operational and strategic decisions were not made by the Australians concerning the application of organized violence. Tactically, like their Anglo-Saxon allies the Australians would excel in Afghanistan and Iraq, yet operationally and strategically at the direction of more powerful allies the partnership would experience systemic failure to achieve any major objectives. Both Canada and Australia over the same period that the American military frustrations in this nebulous, chaotic "War on Terror" would increasingly become open to alternative ideas on how and why to think and act in war. It would challenge Western militaries to conceptualize in novel form their military operations and how to think and act in the application of organized violence.¹⁴⁵³ The counter-culture experimentations of Naveh and his minority band of Israeli military designers would gradually spread not only to the American military as explained in the fourth and fifth chapters, but around the world into the Canadian and Australian militaries as well.

From Tel Aviv to Toronto in a Decade: Canadian Design Development

The Canadian Armed Forces have had a similar design developmental journey as the Australians in the last nearly two decades, although their path differs in several important ways. Like the Australians, the Canadians do not have their own formal design methodology, nor do they have a design doctrine. They do present what they term an 'agnostic' mode of design education, and unlike the Australians they have implemented robust military design education at all levels of their professional military education system. This includes some elementary design exposure to their cadets and junior officers, a well-structured design educational

¹⁴⁵¹ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 87.

¹⁴⁵² In this period the Australian Armed Forces also supported a safe and security incident-free Olympics as well, illustrating yet another post-Cold War alternative usage of militaries by their governments.

¹⁴⁵³ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 85.

program for their mid-grade officers and also executive design education for their senior officers at the war college level. Additionally, some of their military units have engaged in design education and practice, primarily from sourcing outside design programs or sending personnel to foreign military design training.¹⁴⁵⁴ Canadian military leaders have also published on some of their design experimentation such as Brigadier General Kevin Whale of the Royal Canadian Air Force. Co-authoring with Mitchell and the author, Whale explains his aviation wing restructuring approach for 2013-2017 using design:

Throughout the process, a systems thinking approach was deliberately leveraged as an antidote to traditional linear thinking, an approach that proved instrumental to conceiving of the new organizational model. Instead of applying analytic optimization methodology entrenched in Canadian military doctrine, Whale encouraged his design team to frame their complex situational challenge within a systemic outlook. In retrospect, Brigadier General Whale recognized elements of accidental design in their approach only when he was exposed to design theory for the first time while attending the CFC National Security Program in 2015-2016, well after 1 Wing's restructure was well into execution. The school drew from a variety of design methodological perspectives, including some widely published American Army ones. In particular, Banach & Ryan's *The Art of Design*, a part of CFC's introduction to design theory, illustrated the inherent interplay between systems thinking and design that Whale and his team had employed, a happy accident he now credits to previous exposure to elements of Senge's description of 'mental models.' Looking back, Whale's team leveraged some form of Banach & Ryan's "problem situation...framing...reframing...and reflective thinking" ...[Whale] would have much preferred to have been exposed to design thinking earlier in his professional development which could have assisted his team's evolution of thought that led to the reframed Wing force structure model.¹⁴⁵⁵

Whale provides one clear example of how the Canadian Forces College has attempted to provide military design education across the Canadian Forces using what will be explained as an 'agnostic design approach' for design theory, practice and education. This epistemologically differs with nearly all previously discussed

¹⁴⁵⁴ The author, as the program director for design education at the U.S. Special Operations Command's Joint Special Operations University has provided basic and advanced design education to multiple Canadian Special Forces and conventional units in Canada independent of any Canadian PME programs to include the Canadian Forces College.

¹⁴⁵⁵ Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces," 11-12.

design praxis¹⁴⁵⁶ with the exception of Naveh's systemic operational design philosophy in some respects. Whale's account of accidentally stumbling into design is a common theme, with that same metaphor used by Mitchell in how the Canadian Forces College would 'stumble into design' itself. Whale's recollection of mixing theories, methods, and various articles and accounts of civilian and military design in an unstructured process also highlights both the increasing demand for design theory in Canada as well as the multidisciplinary direction that Toronto would ultimately embrace.

From 2005-2009, Canadian interest in military design initially occurred in a small yet concentrated degree inside select Canadian military professional education programs to be detailed below, and also from Canadian officers traveling abroad to study and operate with foreign militaries such as the Americans using some form of design. With respect to the latter, select Canadian military professionals would attend international schools, frequently in the United States at locations such as the U.S. Army School of Advanced Military Studies (SAMS), as well as other intermediate and senior level professional education. At places like SAMS, either a version of systemic operational design or the U.S. Army's 'Army Design Methodology' or some earlier variant would be introduced to these students who would subsequently return to Canada.¹⁴⁵⁷

Academically, Canadians also could learn of this new 'design theory' in contemporary literature, especially by pioneering Canadian designers writing to share their ideas and findings within Canadian journals. A growing library of professional articles, monographs, online blogs, lectures and experiments with military design quickly became international in scope, with some Canadian military personnel publishing on whether Canada itself should follow in generating their own design methodology. Yet the path of Canadian design adaptation from 2007 through present date would feature institutional barriers, the experimentation and temporary rejection of design ideas, and educational flux on why, how and when military design might be introduced as well as whether it had any value.

As outlined in the fourth and fifth chapters, the most prominent period of design expansion at SAMS occurred from 2005 through 2010, where numerous international military students wrote their monographs studying design topics and returned to their own militaries. Although small in numbers, by 2007 sufficient Canadian military professionals, academics and educators had been exposed to design and began considering whether it had value in Canada. As these Canadian officers returned to their organizations or consumed military design topics in

¹⁴⁵⁶ The CFC's agnostic or meta-methodological style was inspired by the author's design program established at the Joint Special Operations University (JSOU) for U.S. Special Operations forces (2016-present). The author has not included much explanation on the JSOU design meta-methodology in this research due to potential conflicts of interest. However, Beaulieu-Brossard, Jackson, Paparone and other design academics have studied Zweibelson's design meta-methodology and their research is published and available.

¹⁴⁵⁷ Chapter Five explains the history of the U.S. Army's design movement which originally began at the SAMS school in Fort Leavenworth and would expand outward through TRADOC and a network of student graduates exposed to various types of design theory and practice.

available military journals, blogs and conferences, they began to trigger an institution-wide curiosity with design.¹⁴⁵⁸ Lauder's 2009 design article in the Canadian Military Journal and Anderson's subsequent article on design in 2012 in the same journal both addressed Naveh's systemic operational design and are some of the earliest examples of Canadian published discourse on the topic. As American design concepts began to be introduced into formal Army doctrine in the 2006-2010 period which coincided with significant Canadian troop deployments to some of the most dangerous and dynamic combat locations in the world,¹⁴⁵⁹ Canadian military professionals experienced more pressure to learn what military design was, if only to remain operationally relevant. Due to Canada's geo-political relationship with the United States, the strong influence of American doctrinal change generates similar discourse and reflection in close allies such as Canada.

For Canadian design development into formal educational applications, what began entirely as one military instructor's personal experimentation with Israeli SOD for select groups of students at what was earlier called the 'Command and Staff Course' would later mature into a comprehensive, faculty driven and institutionally supported effort to inculcate military design thinking across the Canadian Armed Forces. Mitchell reflects on this with: "Anderson's efforts on the JCSP [Joint Command and Staff Program JCSP] which was called the Command and Staff Course at that point were simple experiments in SOD. It was a single officer's initiative here, rather than a College sanctioned approach. As soon as Anderson was posted elsewhere, the experiment ended."¹⁴⁶⁰ This personal endeavor by Anderson and his field grade initiative in the Canadian Forces College's JCSP is addressed first, as it utilized extensive elements of Israeli SOD methodology imported from the U.S. Army School of Advanced Military Studies' first experimentation with SOD in 2005-2008.¹⁴⁶¹ Anderson's actions mirror that of other individual design advocates throughout this research including Naveh, indicating that perhaps military institutional transformation as expressed in design moves in an insurgent-like process, slowly growing into a cohesive and institutionally directed effort to change how a military thinks and acts in war.

In the 2007 academic year for JCSP, faculty members launched a three-year unique educational experience exploring whether SOD was a valid alternative to the traditional operational planning process.¹⁴⁶² Anderson, then a Lieutenant Colonel in the Canadian Air Force, wrote the only available documentation on this design experiment with a 2012 Canadian Military Journal article. Anderson described each

¹⁴⁵⁸ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience"; Lauder, "Systemic Operational Design: Freeing Operational Planning From the Shackles of Linearity."

¹⁴⁵⁹ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 88.

¹⁴⁶⁰ Paul Mitchell to Ben Zweibelson, "Your Chapter (Personal Correspondence)," August 6, 2020.

¹⁴⁶¹ Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces."

¹⁴⁶² Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," 38.

of the three academic years from 2007-2009 where design was applied through education and exercise application for students. Although the total student population for JCSP is significant, they are separated into about twenty-five students from various services to form a Joint Operational Planning Group (JOPG) to conduct the CFC exercises.¹⁴⁶³ Only one of these JOPGs became a design group, where those students received some systemic operational design education along with some readings associated with Naveh's core concepts of that period.

According to Anderson, the 2007 academic year was problematic, which reinforces a common pattern across nearly all applications of design into a military organization for the first year. The students were unable to complete all of the systemic operational design prescribed process, and they additionally decided to perform the seven SOD discourses sequentially instead of how Naveh originally intended them to be conducted.¹⁴⁶⁴ Original systemic operational design is iterative and designers are expected to move rapidly across all seven discourses in an emergent and nonlinear fashion. However, these first-year design students found this too challenging, and it is uncertain if the CFC design faculty were experienced enough in teaching systemic operational design to facilitate such dexterity. The postmodern theory and dense texts for required reading were also frequently critiqued or rejected by the students, leading to subsequent course revisions and concerns that military design might be too abstract or disruptive to be of serious value for the larger force. However, graduates of that academic year would later on advocate design based on Naveh's SOD concepts, to include future Canadian Flag Officers such as Simon Bernard who would contribute to articles on design as well as lead design praxis in Canadian organizations including their Combined Joint Operations Command (CJOC) by 2019.¹⁴⁶⁵

In 2008, the JCSP faculty reflected on the previous year's frustrations. The original 2007 systemic operational design reading material proved insufficient for explaining SOD as well as how to guide the SOD process. The students lacked necessary theoretical understanding of core systemic operational design concepts such as complexity theory, systems thinking, or postmodern philosophy. There was insufficient time allocated to complete the exercise doing systemic operational design in the manner the Canadian Forces College had originally set out to execute.¹⁴⁶⁶ The 2007 students did express a relatively positive outlook on systemic operational design utility, thus the college continued in 2008 while also adjusting several aspects of the education.

¹⁴⁶³ Anderson, 39.

¹⁴⁶⁴ Anderson, 40; Graicer, *Two Steps Ahead: From Deep Operations to Special Operations- Wingate the General*, 33-38.

¹⁴⁶⁵ Philippe Beaulieu-Brossard to Ben Zweibelson, "Lcol John Anderson," August 4, 2020, personal email correspondence; Ben Zweibelson, Aaron Jackson, and Simon Bernard, "Teachers, Leave Them Kids Alone: Debating Two Approaches for Design Education in Military Organizations," *Blue Knight Review Special Issue 2018, no. 2* (January 27, 2018), <http://www.cmrsj-rmcsj.forces.gc.ca/cb-bk/art-art/2018/art-art-2018-4-eng.asp>.

¹⁴⁶⁶ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," 40.

The 2008 JCSP student pool shrunk from twenty-five down to a manageable fourteen students, where they enrolled in a specific elective to learn systemic operational design in a more disciplined manner. This smaller, more educated group also departed significantly from the original Israeli crafted design methodology. The 2008 published U.S. TRADOC pamphlet *Commander's Appreciation and Campaign Design* provided a stronger influence, according to Anderson upon the Canadian students due to how it articulated the design process.¹⁴⁶⁷ This CACD pamphlet is characterized as a blend of traditional operational planning with the systems theory and complexity theory of design, and was an intermittent conceptual document between the American Army's *Field Manual 3-24* first design chapter in 2006 and the subsequent design chapter in 2010's *Field Manual 5-0, The Operations Process*.

Potentially, the lack of dense postmodern philosophy and mixed disciplinary approaches found in Naveh's systemic operational design made the CACD document a more attractive form of design for education at the college. The Canadian professional military institution drew heavily from U.S. design experimentation at Fort Leavenworth. With the 2008 JCSP students emphasizing the systems theory of the CACD document with some remnants of original SOD theory, Anderson details the fruits of their labor with various diagrams and graphics in his 2012 article.¹⁴⁶⁸ These graphics match many of the concepts and diagrams found in the CACD pamphlet as well as related systems-thinking approaches,¹⁴⁶⁹ while moving decidedly away from the more abstract depictions of Israeli original design theory.¹⁴⁷⁰ While the 2008 JCSP students had advanced the Canadian design experiment and achieved some success with their graphic depictions of complexity in nonlinear and decidedly untraditional campaign design, they struggled with the critical element of the accompanying design narrative as prescribed by SOD methodology.¹⁴⁷¹

The third year of the systemic operational design experiment with JCSP occurred in the 2009 academic year where again the faculty divided students further into two groups of seven.¹⁴⁷² According to Anderson, faculty all but abandoned teaching SOD and instead "it was decided to use a systemic approach to

¹⁴⁶⁷ Anderson, 41; Department of the Army, *Commander's Appreciation and Campaign Design*, version 1.0, vol. TRADOC Pamphlet 525-5-500 (Fort Monroe, Virginia: Training and Doctrine Command, 2008).

¹⁴⁶⁸ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," 41-44.

¹⁴⁶⁹ Russell Ackoff, "Towards a System of Systems Concepts," *Management Science* 17, no. 11 (July 1971): 661-71; Department of the Army, *Commander's Appreciation and Campaign Design*; Robert Dixon, "Systems Thinking for Integrated Operations: Introducing a Systemic Approach to Operational Art for Disaster Relief" (monograph, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas, March 2006); Jamshid Gharajedaghi and Russell Ackoff, "Mechanisms, Organisms, and Social Systems," in *New Thinking in Organizational Behaviour*, by Haridimos Tsoukas (Oxford, United Kingdom: Butterworth-Heinemann Ltd, 1994), 25-49.

¹⁴⁷⁰ Shimon Naveh, "Between the Striated and the Smooth: Urban Enclaves and Fractal Maneuver."

¹⁴⁷¹ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," 42.

¹⁴⁷² Anderson, 42.

operational design and planning that emphasized the contributing theories (complexity, chaos, and systems theory), rather than adhering to the SOD methodology, *per se*.¹⁴⁷³ This pattern seems to repeat¹⁴⁷⁴ what both SAMS faculty Ryan and Butler-Smith observed of many American military faculty rejecting the difficult postmodern concepts and opting for military design concepts that reinforced rather than confronted existing belief systems and frames.¹⁴⁷⁵ The postmodern ideas would, in the absence of social paradigm theory and individual frame awareness create institutional rejection of radical design concepts if only due to what social paradigm theorists denote as 'paradigm incommensurability'; where epistemological frameworks from an alternative paradigm are dismissed by the dominant paradigm in order to preserve the internal epistemological structures.¹⁴⁷⁶

Interestingly, Anderson implies that each group could develop their own design methodology and process, devoid of any adherence to systemic operational design or other military design methodology. "They were free to use whatever means they decided were appropriate for the operational problem and themselves as a group."¹⁴⁷⁷ Of the two design groups, one Canadian team took a technologically heavy approach with electronic graphics, a blog for the team, and a formal electronic record of their design journey. The other group of Canadian designers used traditional design means with extensive white board work, butcher paper, and other temporary and disposable mediums.

Based on the graphics provided of the 2009 JCSP group, they had accomplished making nonlinear campaign design concepts that remained compatible with established operational planning processes, however the language and organizing logic remained of the same functionalist paradigm, implying a potential lack of self-reflection by the design students. However, Anderson closed his article by recommending that the college pursue further study of design, while not necessarily becoming constrained by the underpinning theories upon which SOD was first developed.¹⁴⁷⁸ While the CFC did implement further design education by 2013, this exercise did not feature multiple design methodologies. Mitchell, charged with running the design program at the CFC would in 2015 attend a military design educational workshop hosted by the author at the Joint Special Operations University in Tampa, Florida. Here, Mitchell explains how within the

¹⁴⁷³ Anderson, 42.

¹⁴⁷⁴ However, this is speculation in that no graduates of the CFC program from that period were located for this research. Faculty knowledgeable of that period could neither confirm nor deny this either.

¹⁴⁷⁵ Butler-Smith, "Operational Art to Systemic Thought: Unity of Military Thought"; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁴⁷⁶ Weaver and Gioia, "Paradigms Lost: Incommensurability vs Structurationist Inquiry"; Schultz and Hatch, "Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies."

¹⁴⁷⁷ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience," 42.

¹⁴⁷⁸ Anderson, 43.

2015-2017 period the CFC would move to implement a different way of thinking about design methods and education:

The idea [of shifting to a mixed disciplinary approach to design education] actually emerges much later, about the time you held your first workshop at JSOU. We were making a silk purse out of a pig's ear [at the CFC] at first, because we didn't have our own approach, and were reliant on multiple contractors, all of whom showed up with different approaches. Only in the second or third year of 'Shifting Sands' by 2016 or 2017 did we recognize there might be pedagogical value in this approach.¹⁴⁷⁹

Thus, the earlier SOD-heavy design education drawing from postmodern theory and Naveh's concepts would start and end with Anderson's assignment at the college. From 2009 through 2011, there would be very little design education within the Canadian military education system, aside from select individuals potentially providing some design concepts at small scale. Mitchell would restart the design education in 2011 but until 2013 this consisted of design panel discussions with military designers Ryan and Elkus. Ryan would bring deep understanding of SOD along with experience teaching it with Naveh, while Elkus is best known for treating design as an enabler to existing modern military decision-making methodologies, thus in the Army Design Methodology-style mode and largely devoid of any postmodern or disruptive constructs.¹⁴⁸⁰ By 2013, Mitchell would invite Ryan to run a student design exercise instead of merely participating in panel discussions. While the mid-grade officer design journey from 2007-2015 went through many adjustments and reboots, the senior level education for the Canadian Armed Forces took a different path. The senior officer level of education had an uninterrupted and somewhat different developmental journey, largely occurring after the first wave of SOD experimentation with JCSP in 2007-2009.

In the Spring of 2008 at the Canadian Forces College, faculty combined the existing six-month National Security Studies Programme and the three month Advanced Military Studies Programme (AMSP) into a single yearlong National Security Programme called NSP for senior officers.¹⁴⁸¹ This NSP development came from the Canadian Forces seeking to streamline the two senior-most professional military education programs into a single ten-month program. To accomplish this, CFC faculty sought to update and transform the design course (consisting of thirteen classes) to work in tandem with the other seven courses so that the program was capable of receiving graduate level credit for a master's degree at the Royal Military

¹⁴⁷⁹ Mitchell to Zweibelson, "Your Chapter (Personal Correspondence)," August 6, 2020.

¹⁴⁸⁰ Elkus and Burke, "Operational Design: Promise and Problems."

¹⁴⁸¹ Mitchell, "Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College," 84.

College.¹⁴⁸² Professor Paul Mitchell, reflecting on the Canadian movement towards design in 2016, attributed the transition as part of a larger effort to reform the senior officer education for the Canadian Forces so that it made “attendance simpler and more effective...the AMSP had been focused on the operational level [of war], but the NSP is more focused on ‘national security’ as opposed to operational warfare.”¹⁴⁸³

Mitchell placed the Canadian transformation towards operationalized military theory and practice later than contemporary western security forces, occurring after the US, UK and NATO had done so.¹⁴⁸⁴ Part of this had to do with Canada’s smaller military size, and the limitations of time and educational resources as well as the traditional professional military education glide path for officers over their career. According to Mitchell:

Operational Art began to be introduced into CFC curriculum at the command and staff level in the early 1990s. However, until the mid-2000s, there was a significant bow-wave of senior officers who had completed the intermediate level PME prior to this shift. The AMSP was developed to assist those officers in understanding operational level warfare. By the mid-2000s, this bow-wave had disappeared as a professional cohort, thus eliminating the need to conduct this PME program.¹⁴⁸⁵

Mitchell and his colleagues at the Canadian Forces College saw this transition occurring by the mid-2000s and the CFC would institute the necessary educational reforms to develop the force.¹⁴⁸⁶ It was right at this transition of Canadian senior leadership education from the earlier pre-operational era methodology towards a more comprehensive one where military design was also introduced into the force in 2008. Canadian senior officers by then had mastered the new concepts of operational art and planning, and now were potentially ready for the introduction of postmodern military thinking in the form of design.

The Canadian military design movement began at the senior officer level just as the international design movement did writ large, through the gradual assimilation of small numbers of innovators, researchers, and fringe authors

¹⁴⁸² Mitchell, 84.

¹⁴⁸³ Mitchell to Zweibelson, “Your Chapter (Personal Correspondence),” August 6, 2020.

¹⁴⁸⁴ Mitchell, “Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College,” 87.

¹⁴⁸⁵ Mitchell to Zweibelson, “Your Chapter (Personal Correspondence),” August 6, 2020.

¹⁴⁸⁶ Paul Mitchell, “Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education” (tri-fold poster, Canadian Forces College, Toronto, Canada, 2015), 87, https://www.doria.fi/bitstream/handle/10024/117634/MITCHELL%20Paul_poster_Designing%20Design,%20Teaching%20Strategy%20and%20Operations%20for%20Small%20Militaries.pdf?sequence=2.

proposing new and disruptive ideas that at first were ignored or taken with a high degree of skepticism. Canada is no different, with initial design concepts published in 2009¹⁴⁸⁷ and again in 2012.¹⁴⁸⁸ Anderson's article on a three year design educational experiment in the field grade level schooling gained only a moment of temporary attention at the senior officer educational level, with Mitchell recollecting in 2016 that "I had initially brushed off [SOD as presented in Anderson's article] as simply another [revolution in military affairs] buzz word or intellectual fad like [Effects Based Operations]."¹⁴⁸⁹ Yet, by 2011 Mitchell would return to the ideas of military design and conduct his own experiment just as Anderson did several years earlier:

Students were looking for a solution to the epistemological questions we were raising in the DS592 course "Modern Comprehensive Operations." In academic years 2012-2013 I proposed the very first design exercise...conducted in the Spring of 2013. It would be inaccurate to say that the PME system was 'formally considering design.' This was Mitchell's science experiment and I was being handed enough rope to hang myself. The Canadian Armed Forces did not formally acknowledge the value of design in CFC programs until 2016.¹⁴⁹⁰

Student research papers produced at the Canadian Forces College supported this development as well, with multiple students making the recommendation that Canada's Armed Forces consider some incorporation of design methodology into doctrine, practice and education.¹⁴⁹¹ Design, for Canadian applications, required senior leaders to attempt to think beyond the familiarity of tactical military challenges that could be overcome with "algorithmic processes and tactical heuristics"¹⁴⁹² where strict reasoning and scientific rationalism failed to appreciate dynamic, adaptive and seemingly irrational actors in complex conflicts comprising the new postmodern era of organized violence. Thus, military students at this level needed to 'think about their thinking' and utilize a military appropriation of epistemological study and reflection; Mitchell named this first incarnation 'Critical

¹⁴⁸⁷ Lauder, "Systemic Operational Design: Freeing Operational Planning From the Shackles of Linearity."

¹⁴⁸⁸ Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience."

¹⁴⁸⁹ Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education," 89.

¹⁴⁹⁰ Mitchell to Zweibelson, "Your Chapter (Personal Correspondence)," August 6, 2020.

¹⁴⁹¹ R.J. Moore, "Operations Assessment in the Contemporary Operating Environment: How Design Methodology Can Contribute to More Effective Operations Assessment" (Master's Degree Thesis supporting paper, Toronto, Canada, Canadian Forces College, 2015), <https://www.cfc.forces.gc.ca/259/290/317/305/moore.pdf>.

¹⁴⁹² Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education," 88.

Operational Epistemology' during course development.¹⁴⁹³ His intentional use of epistemological reflection is significant in that this nests directly within Naveh's core SOD tenets for military design,¹⁴⁹⁴ yet Mitchell and his co-developer for this course at the time felt somewhat subversive in the ideas they were promoting as well as the possibility that if the CAF paid closer attention to what the CFC was teaching, "it probably would have killed the DS592 course immediately."¹⁴⁹⁵ Beaulieu-Brossard reflects that this incremental style by Mitchell would be his 'Field of Dreams' strategy to build design education on a small scale, and some would come, and he then could increase the scale and scope further, drawing more Canadian military interest.¹⁴⁹⁶

Initially, the 2009 version of the DS592 course, acting as a necessary precursor to a formal design program that would emerge later, centered on complex problem sets using Hurricane Katrina in the United States, the Northern Ireland challenge for British Armed Forces, and the Allied decision to invade North Africa in 1943. However, with many Canadian senior military students already well experienced with deployments to Afghanistan and elsewhere, this first course demonstrated multiple challenges that required course revision and faculty self-reflection. The course featured some ambiguity of difficult concepts that confused or frustrated many of the students that were expecting familiar structures and ideas wholly compatible with their previous experiences and education. This would define the major design educational problems of the first few years of Mitchell's design revival for the CAF from 2013 through 2017. Of note, a distinction should be made between the NSP and the DS592 course itself. Mitchell's design experimentation began in the DS592 whereas those students were a minority within the larger NSP population. Today, design is featured across multiple NSP courses and exercises, but initially it was boutique and akin to design experimentation in other nations as explained in this chapter.

Mitchell and fellow military faculty recognized that a tension existed in the Canadian senior military professional and their desire for relevant and applicable education towards extremely ill structured and complex twenty-first century military challenges. Students at the college expected sophisticated concepts on challenging emergent military topics, however they also demanded that these new ideas be delivered in the packaging of traditional and largely techno-rational formats associated with tactical applications. Drawing from Jackson's work on the development of military doctrine in the modern era,¹⁴⁹⁷ Mitchell coined his own term of 'missing manuals' to describe this lack of postmodern design and complexity

¹⁴⁹³ Mitchell, 88.

¹⁴⁹⁴ Naveh, *Systemic Operational Design: Designing Campaigns and Operations to Disrupt Rival Systems (Draft Unpublished)*.

¹⁴⁹⁵ Mitchell to Zweibelson, "Your Chapter (Personal Correspondence)," August 6, 2020.

¹⁴⁹⁶ Beaulieu-Brossard to Zweibelson, personal correspondence, August 24, 2020.

¹⁴⁹⁷ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*.

within any available military doctrine or manuals.¹⁴⁹⁸ The Canadians needed a more sophisticated way to get at teaching new ways of thinking about complexity for military applications.

By 2013, the Canadian design experiment took on a new and profound development. Drawing from the rather cryptic works of Naveh and the more accessible design translations of other design theorists and educators in various military journals, Canadian faculty took a traditionally geographically focused capstone operational exercise named 'Strategic Warrior' and turned the problem-solving into a problem-framing design approach.¹⁴⁹⁹ Canadian senior leadership approved of the faculty experimentation, and students moved from making highly directive and hierarchical plans towards developing "operational concepts that could be taken by a diverse set of agencies on which to base their own detailed plans, rather than crafting the plans themselves."¹⁵⁰⁰ International design experts were brought in to facilitate the education.

Canadian military design by 2014 featured a mixed-disciplinary approach where non-traditional design for military applications blended with design education associated with traditional applications such as those taught at Stanford University. Mitchell implemented design 'hack-a-thons' into student design tutorials, based on his exposure to the concepts at the Rotman School of Management's "Business Design Initiative" at the University of Toronto. With this sudden expansion of formal military education within the highest levels for the Canadian Armed Forces, student reactions were mixed. Facilitators employed design heuristic aids that featured strong elements of bricolage, divergent thinking, prototyping, and play. These approaches disrupted the traditional military epistemology of 'how senior military education ought to be experienced' for many, and the group disapproval of the design methods were conveyed to the incoming class. 2015 proved a volatile year at the college where not only would many new ideas be implemented on design, but faculty would *experience a design mutiny* by students rejecting the concepts in order to defend the legacy system of linear, mechanistic planning.

Mitchell describes the open rebellion of the 2015 NSP class towards the design module as essentially a rejection of the new epistemology of the military postmodern design movement. Students hotly debated the value of the module right at the onset of the first design lecture, and by the practical exercise some of the student syndicates flatly refused to do the design process at all, preferring to regress into a traditional military planning methodology for the assignment.¹⁵⁰¹ Mitchell and his faculty would experience yet another student rebellion a few years later as well, although over time a majority of students exposed to the design concepts in Toronto have trended toward far more positive reception.

¹⁴⁹⁸ Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education," 92.

¹⁴⁹⁹ Mitchell, 94.

¹⁵⁰⁰ Mitchell, 94.

¹⁵⁰¹ Mitchell, 97.

The Canadians were not the first to reject design in these examples, and with the American partial rejection of SOD's abstract and openly postmodern elements by 2010, it appears that the Canadian Forces College was following an institutional trend of initial design curiosity followed by rejection by the majority. There is also the matter of context versus content, where at times it is more important to consider who is teaching or facilitating the design concepts rather than argue the validity of the content itself. Although the CFC invited design experts such as former Naveh affiliate and SAMS faculty member Alex Ryan in 2014 to facilitate, Mitchell concluded in private correspondence that a general lack of design expertise on the CFC faculty bench might have contributed to the student rebellions.¹⁵⁰²

Nonetheless, the faculty recognized several of these tensions and continued to develop the design education modules while learning and reflecting upon student reactions. Mitchell later wrote: "Old parts of the course had begun to conflict with the design path it was travelling down, and part of the rebellion clearly reflected not just a knee jerk, anti-intellectual rejection of this new methodology, but also honest professional confusion about what the goals of the course were."¹⁵⁰³ The subsequent year featured a modified design course with far more favorable student reviews. It remains unclear if this is due to superior design education approaches at the college, more experienced faculty, or potentially a changing student perspective as the Canadian Armed Forces become more aware and accepting of design concepts.

There is one other potential reason for the Canadian design rebellion of a seminar of Colonels in 2015. Naveh, in a 2019 interview makes some bold and rather derogatory observations concerning that specific rank within any military. "Colonels are the worst people in every military. Colonels are people who actually are frustrated people who believe they should have become Generals, and they have not. They worry about their desk, or their office. Some of them read and write well, so they might get assigned [to a college or academic program], but none of them want to work hard."¹⁵⁰⁴ On the other hand, there is plenty of evidence to the contrary where rising military stars take greater cognitive risks and demonstrate passion to learn new techniques and incorporate new ideas. It is unfair to attempt to categorize any military group into merely a rank and status context, yet in several militaries there does appear to be a unique pattern of design rejection/confrontation at the specific Colonel year-group population.

Mitchell as well as other design educators have speculated that potentially, the rank of Colonel is more challenging in that the military professional has risen to a high enough level that their previous experience is too valuable to let go of or question deeply, as design tends to do. Furthermore, some of them are still so close to making the cut to General Officer that they become more conservative, unwilling

¹⁵⁰² Paul Mitchell and Ben Zweibelson, "RE: Question on One of Our Past Email Exchanges," January 14, 2020. Personal correspondence between the author and Mitchell.

¹⁵⁰³ Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education."

¹⁵⁰⁴ Naveh and Graicer, Naveh audio 14OCT2019 2hr28min Day 1 patio.MP3.

to take risks to include cognitive ones that military design demands of them in academic practice and especially in the field under real-world complex circumstances. Naveh extends this resistance to changing one's way of thinking to General Officers as well, characterizing some of the anti-design attitudes he has encountered with: "What I know has served me so well; look at me- I'm a general. Why should I change?!! Why should I look for something different, an alternative?"¹⁵⁰⁵

In October 2016, an academic specializing in postmodern philosophy in International Relations with no prior military experience, began engaging with the Canadian Armed Forces as well as select international experts in 2015. This engagement was a byproduct of an ambitious postdoctoral research literally following the footprint of Shimon Naveh and his impact from Israel to the US Army, to US Special Operations Command and onto the Canadian Armed Forces. Beaulieu-Brossard along with his colleague Philippe Dufort organized a workshop of sixteen military design professionals, defense scientists, and design educators including global military leaders.¹⁵⁰⁶ Brossard, with fellow academic Philippe Dufort, organized the first all-design issue of the *Journal of Military and Strategic Studies* in June 2017, which was a first for the military academic landscape and was a direct result of this early design workshop.¹⁵⁰⁷

Brossard initially was skeptical of whether the military had the intellectual depth of understanding for using sophisticated post-modern concepts for military applications, and quickly became intrigued with Israeli, American, and Australian endeavors with design. He recalls his feelings of concern and skepticism at the time with the author:

I was concerned how the military would use such thinkers at the time. I thought this would make things worse for the human condition. After conducting my extensive research including listening to more than 100 officers and working with [Zweibelson], I came to the conclusion...that design can surely bring about a better world if well taught and practiced by officers. I joined the cause instead of being a mere observer....which makes things difficult from an academic perspective regarding so-called objectivity.¹⁵⁰⁸

By 2017, Beaulieu-Brossard had become an assistant professor at the Canadian Forces College and largely responsible for their entire design informed education program for the Joint Command and Staff Programme, while Mitchell retained control of the Colonel's program. Beaulieu-Brossard organized multiple

¹⁵⁰⁵ Naveh and Graicer, Naveh audio 15OCT2019 18min02sec Day 2 morning.MP3, 15:15.

¹⁵⁰⁶ Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2016, 1.

¹⁵⁰⁷ Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies."

¹⁵⁰⁸ Beaulieu-Brossard, personal correspondence with the author, August 24, 2020.

design workshops and conferences across the Canadian military enterprise, including Saint-Jean Sur Richelieu (Montreal) with Simon Bernard, Ottawa and Toronto where he helped import international military design professionals, scientists, educators, and theorists to further stimulate Canadian design interest. These events nurtured and consolidated a robust design community of military professionals. It would lead to the formation of the 'Innovation Methodology for Defence Challenges' guild council founded in 2019 by Brossard, Jackson, Graicer, Zweibelson, Dufort, Martin and several other key design educators, academics and leaders.

Beaulieu-Brossard represents one of two significant Canadian postmodernists to formally address as well as study the Canadian as well as other international military design movements. Philippe Dufort, through his work at St. Paul's University in Ottawa as well as his outreach into multiple Canadian and South American militaries for postmodern design theory and practice would demonstrate yet another example of Naveh's subversive, controversial and disruptive concepts spreading across different Armed Forces. Dufort is largely inspired by post-colonial theory and ethnography, with the former building upon postmodernism, and his work is unique with few contemporaries. Additionally, Brossard's interviews with Naveh and other SOD practitioners are also some of the only English (and French) examples available outside of this research.

By 2020, Beaulieu-Brossard with Dufort would secure a major grant of \$750,000 CAD from the Canadian Department of National Defence's Mobilizing Insights in Defence and Security (MINDS). This grant supports and further develops the IMDC council and network for Canadian design and innovation capacities. Dufort and Beaulieu-Brossard also manage a non-profit 'Archipelago of Design' program that intends to shape and nurture the future of design thinking in Canada and across NATO members and partners for security applications. To date, the IMDC guild and their AOD has developed design projects between the Canadian Armed Forces and the French Ecole de Guerre in Paris, experimentation with video game design to enable design education, as well as research with the Colombian military on design practice.

Thus, from humble origins in 2007 through 2020, design in Canada's Armed Forces has gone through many phases. The Canadian experiments in design education feature several common themes that reinforce shared experiences across the Israeli, American and Australian militaries, while also demonstrating a few distinctly Canadian outputs. The CFC pursued a similar dual educational track focusing on mid-level and senior management officer education at their field grade and war-college equivalent schools for select student members. Canadian faculty observed a similar pattern where senior officers in the past generation generally had more resistance to the disruptive nature of design, while younger officers appeared to be more open to the concepts.

Mitchell reflects on this and offered cultural clues to one reason why military professionals appear more open to disruptive concepts dependent upon their position, time in service, and potential for career advancement. "While many

military officers at the rank of Colonel were skeptical of the value of design for military operations, Majors were much more open to it and leaned into the exercises with greater levels of acceptance and enthusiasm than had been encountered in the NSP. We surmise that there is greater room for taking professional risks at more junior levels and thus Majors are more willing to experiment with new approaches than senior managers about to be promoted to flag rank and, thus, 'on the edge of greatness.'"¹⁵⁰⁹ Although he footnotes an additional thought on this spiraling pattern, Mitchell predicts that these junior officers that currently embrace design may return in future years trapped in similar ways and potentially halt any further progression of design itself.

Instead of implementing a particular design methodology, the Canadian military opts to sample all of them. The CFC deliberately employs a mixed-methods design concept that draws from different military as well as civilian design schools, methods, doctrine and practice. Canada has yet to adapt a single design construct, and unlike the American and Israeli forces the Canadians have not placed design into any formal doctrine. Additionally, unlike most other military design schools, the CFC as of 2017 continues to apply postmodernism in their educational approaches¹⁵¹⁰ despite the controversy and anti-intellectualism across much of the industrialized western security forces towards these disruptive ideas.¹⁵¹¹ The CFC design lesson plans for 2018-2019 also feature additional required readings on social paradigm theory, reflexive practice, as well as the incorporation of multiparadigmatic design thinking and postmodern concepts directly into the National Security Programme's design blocks.¹⁵¹²

The college goes one step further to deliberately set a goal of shaping the Canadian Armed Forces to not produce design doctrine, which again is unique in the Anglosphere. Although no longer directly affiliated with the design program in 2017, Mitchell continues to maintain strong influence on faculty and remarked in 2016, "institutional challenge will be to project CFC's epistemological agnosticism for design methodology and resist the urge to create a defined design doctrine that

¹⁵⁰⁹ Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education."

¹⁵¹⁰ "Canadian Forces College 2013-2014 Joint Command and Staff Programme DS/CF 548 Lesson Plan: Advanced Joint Warfighting Studies" (unpublished- Canadian Forces College internal document, March 2014).

¹⁵¹¹ Beaulieu-Brossard, "Systemic Operational Design or How I Began to Worry about the Dual Use of Critical Concepts"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2016; Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners."

¹⁵¹² "Canadian Forces College 2018-19 National Security Programme DS/CF 592- Modern Comprehensive Operations and the Complexity of Contemporary Conflicts" (CFC internal document for education module, Toronto, Canada, 2018), 24; "Canadian Forces College 2018-19 National Security Programme CF575- Strategic Thinking and Formulating National Strategies" (CFC internal educational document for courseware, Toronto, Canada, 2018), 4-6.

concretizes the approach and thus lose the vitality our approach creates for situational appreciation.”¹⁵¹³

Mitchell, co-authoring with Whale and the author in a 2019 Canadian Military Journal article on the Canadian design movement contributed the following:

In a promising development for 21st Century Canadian Armed Forces education, the CFC now offers design at the Major rank level on their Joint Command and Staff Programme (JCSP) in the Advanced Joint Warfare Studies stream, and “design like” activities have been included for officers taking the Institutional Policy Studies stream since 2015. Therefore, younger cohorts of senior officers have now been exposed to the opportunities and advantages offered by these new operational epistemologies. Furthermore, by 2020 the JCSP will be revamped in such a way as to include design thinking as part of the larger “core” of activities offered to all students taking that program.¹⁵¹⁴

Mitchell’s account of the most recent educational developments at the Canadian Forces College concerning military design education provide another two epistemological indications concerning where Canada is moving with design theory. First, the Canadians are deliberately attempting to provide military design theory to younger officer populations by shifting exposure into broader and more junior classes. This appears to be in tension with Naveh’s personal belief that design must be provided to General Officers, although Naveh also has concurred that his position is limited to the Israeli security context and may not apply outside of the unique circumstances of the Israeli Defense Forces. Canada may be moving in the same direction that the American military, NATO and other European countries suggest with design education below the senior military leadership.

Secondly, In the 2009-2019 period of initial design experimentation and institutional setbacks, Mitchell and his design educators attempted to focus on small groups. The fact that the CFC is now embarking on program-wide design educational opportunities demonstrates an institutional willingness to engage in this still controversial, ill-defined, and disruptive mode of thinking about the application of organized violence. Beaulieu-Brossard and Dufort write on these experiences based on a CFC design workshop for students in 2019 that focused on a real-world NORAD strategic deterrence project.¹⁵¹⁵ Later, those same students would again iterate towards a fourth design construct that unlocked previously

¹⁵¹³ Mitchell, “Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education,” 101.

¹⁵¹⁴ Zweibelson, Whale, and Mitchell, “Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces,” 12.

¹⁵¹⁵ Philippe Beaulieu-Brossard and Philippe Dufort, “Enhancing Challenge Formulation in Defence Organisations: Towards Reflexive Methods” (Draft unpublished provided to author, July 2020).

unimagined and likely institutionally 'off-limits' security ideas that according to Beaulieu-Brossard, Dufort and the CFC faculty the established military decision-making model devoid of design would be unable to generate. There are several important observations to make on this more recent CFC 'agnostic design' educational exercise from 2019.

First, the CFC continued to apply their 'agnostic model of design' that is illustrated both methodologically and epistemologically by the author below. The CFC themselves do not illustrate their design 'proto-method' in that they use no graphic depictions outside of the various design methods they assemble each year for the students to learn from.¹⁵¹⁶ For this 2019 iteration, the college gathered a variety of Human-centered Design methods and sources as well as several Toronto-area HCD facilitators to work with their student teams. Beaulieu-Brossard introduced various schools of design theory in his own description:

In 2019, Dr. Beaulieu-Brossard assembled a sequence of three categories of schools of thoughts: a mainstream military, a mainstream civilian, and a post-structural one. CFC design teams began with "Scoping and Framing" inspired by the Australian Joint Military Appreciation Process (JMAP) and facilitated by Dr. Aaron Jackson. Then, they moved to "Creative Destruction" inspired from the Israeli Strategic Operational Design (SOD) and facilitated by Dr. Ofra Graicer. Finally, yet importantly, design teams undertook foresight activities building on [a Government of Canada design] methodology and facilitated by Ms. Dione Scott and her team...this sequence of school of thoughts also enabled inquiring the challenge from radically different perspectives, thus making surprises and the emergence of new knowledge more likely.¹⁵¹⁷

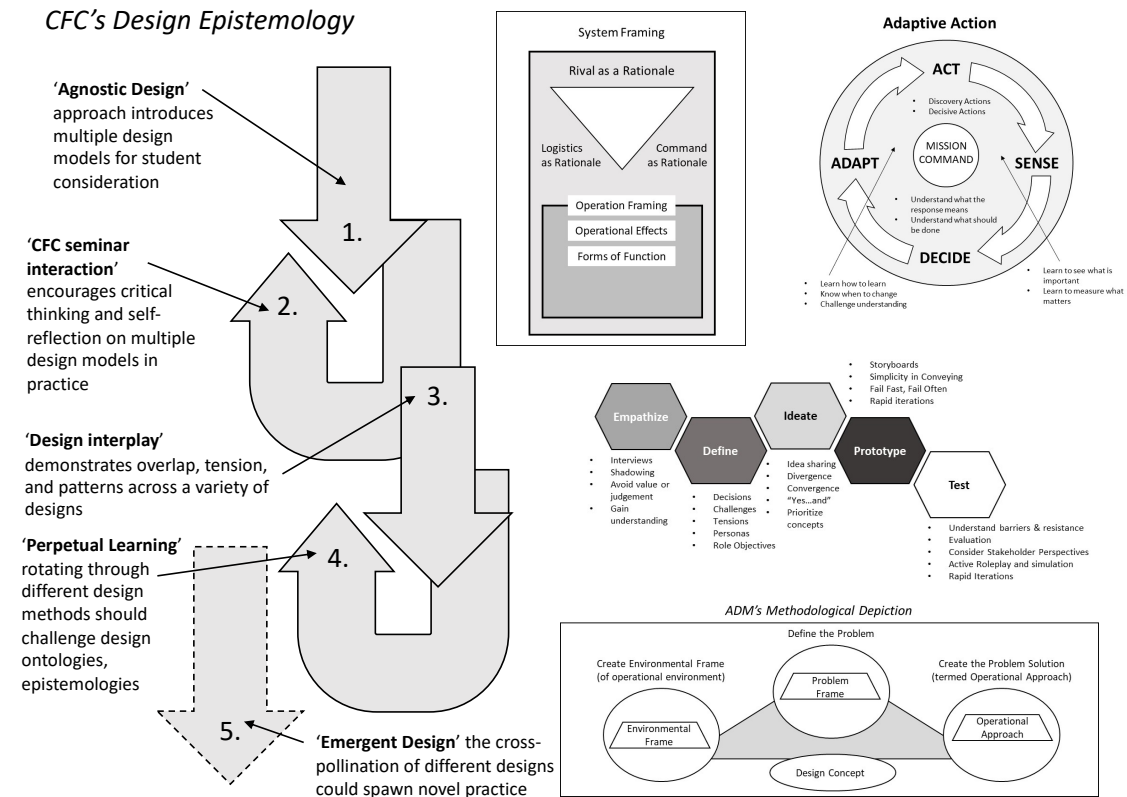
Canada, at least within the Toronto military college continues to draw from various HCD design sources as explained in the third chapter, including for the 2019 aforementioned design challenge and Beaulieu-Brossard and Dufort's accompanying article design concepts such as Serrat's 'Five Why's' technique first implemented by Toyota. They also pull concepts from Bason and other HCD theorists as well as from complexity theorists such as Ackoff. Whether a conscious decision or not, the CFC were drawing from Naveh's original sourcing of Ranciere and *The Ignorant Schoolmaster* in positioning the students as the central 'guides' to their own educational development. The praxis of design education would take on a nomadic, self-guiding form where instructors were not directing and controlling the design

¹⁵¹⁶ By 2020, Dr. Mitchell would begin using the author's graphic on the following page in his own design presentations to explain how the CFC approached 'agnostic design' while crediting this research.

¹⁵¹⁷ Beaulieu-Brossard and Dufort, "Enhancing Challenge Formulation in Defence Organisations: Towards Reflexive Methods," 14–15.

learning as Ranciere found in the dominant, traditional 'old master' methodology.¹⁵¹⁸ The 'agnostic mode' of design praxis is depicted epistemologically below by the author and frames the 2015-2020 period of Canadian 'proto-design' activities largely centered on the CFC.

Author's Depiction of Canadian Design Epistemological Frame for Education:



The above illustration is one depiction of how the CFC produces their 'agnostic design education' and is not intended to depict a declarative 'Canadian form of design methodology' as even the faculty most associated with the current approach consider it a rather non-establishment and potentially less structured form of design for a military. The Canadian Armed Forces have no design in doctrine (yet), nor do they adhere to any particular design methodological structure as the American Army, Marines, and Israeli Defense Forces do at the exclusion of other alternatives. Epistemologically, the CFC approach depicted above favors a multidisciplinary appreciation of 'design' but does not overtly challenge any distinction between designing for commerce and designing for war as the third chapter explained. This is one potential vulnerability for how the Canadian Armed Forces are educated concerning design theory.

Epistemologically, the Canadian design interplay does offer at the program-level iterations of divergence (by design seminars) and convergence where the

¹⁵¹⁸ Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, 5–20.

groups of students will participate in presenting their design deliverables to a 'strategic sponsor' and a group of design evaluators. Throughout a recent 2019 NORAD themed design challenge, the student teams were able to diverge and experience multiple design methods, yet as the teams converged in to finalize their design deliverables, they collectively broke with the original design 'suggested solutions' of the commander at the onset of their exercise. This is highlighted by Beaulieu-Brossard and Dufort below and demonstrates how at the epistemological level, the Canadian Armed Forces appear better positioned to violate a rather rigid tenet of the modern military decision-making methodologies of which the CAF follow in their own doctrine and in operational planning applications. Only in their design activities could the student teams challenge, deconstruct, and even contradict or refute the commander's initial design guidance through their design journey and subsequently provide that design narrative to the leader in the final presentation without facing rebuke.

Beyond the Canadian Forces College's design education philosophy, generating robust challenge-solution pairs became even more possible with the NORAD team welcoming it...even if the approach generated by the students eventually diverged from the approach...advocated by the NORAD commander. In other words, the openness of the NORAD team allowed CFC students to ignore the solutions already advocated by the commander.¹⁵¹⁹

With some design educational highlights in this proto-design approach, there also are some problematic areas. Although in recent years the CFC have introduced greater reading and research requirements as prerequisites to foster this multidisciplinary framing, the exclusive engagement with a single design method and facilitator for their exercise period still acts as a vulnerability in that students spending two weeks doing SOD with their small-group instructor only get a peripheral view of alternative design methods. As the CFC moves year-to-year with budgetary restrictions and availability of various design facilitators is a yearly challenge, the variety and quality of meta-design content is randomized each academic year and potentially non-repeating.¹⁵²⁰ This challenge appears to be due to the availability of skilled design facilitators who are often contractors, as well as CFC contracting issues that are outside of the actual academic content.

The educational experience of each of these facilitators is also irregular, with some able to provide detailed design educational experiences complete with student guides, lesson plans, established exercises that are organized along a series of days

¹⁵¹⁹ Beaulieu-Brossard and Dufort, "Enhancing Challenge Formulation in Defence Organisations: Towards Reflexive Methods," 15.

¹⁵²⁰ The author has provided design facilitation to both the Canadian Field Grade officer program as well as the NSP Colonels design program from year to year since 2015 and has observed a wide range of design facilitation talent. Some return the following year while others do not.

to culminate in specific design learning objectives. Other facilitators arrive with little to no content and arrange a series of somewhat unrelated design activities and techniques or follow a design method that is arguably far less connected to any established military decision-making process as the process duplicates their commercial client engagements.¹⁵²¹ However, under-performing design facilitators are not invited back to the CFC, and those that perform exceptionally tend to become the template for what the CFC faculty desire from all facilitators the subsequent year.

One more significant point should be addressed on the ratio of design education at the Canadian Forces College to traditional, mechanistic military planning methods and doctrine. Like nearly all PME programs, the CFC has a large mid-grade officer throughput where the JCSP annually educates the bulk of Canadian mid-career field grade officers either in residence, distance or in some combination therein. The NSP program reflects a much smaller population of senior officers at the Colonel rank which itself is representative of the shrinking top of the military centralized hierarchal pyramid of rank, status and population. Primeau, a Canadian Officer and instructor in the JCSP for design as well as other courses, reflects that the educational deliverables of the JCSP remain wedded to Canadian Armed Forces structures that expect JCSP graduates to possess joint planning skills, "and this can only be achieved through extensive joint linear planning experience/training (JOPP)." Primeau claims that the general JCSP curriculum in 2020 for majors "had 134 hours for JOPP [traditional linear planning methodology] for 23 hours of design."¹⁵²² He goes on to suggest the following on why this is and what it may be doing to the current Canadian forces:

I suggest(ed) that this understanding is either dated direction that warrants review, or an assumption that made it into programming for ease and convenience. In any case, this trains our majors "soon to be Lieutenant Colonels and Commanding Officers" to successfully fight previous traditional (modern) wars, not to address the complex challenges they actually do face or are more likely to face in the five to ten years after graduation in our small, centralized, culturally-aware, institutionally-focused military, poised for action in complex operating environments at home and abroad.¹⁵²³

In addition to the institutionally mandated emphasis on modern planning methods, the CFC design faculty are internally limited on design experience,

¹⁵²¹ This may have changed since 2018-2019. Beaulieu-Brossard states that each design facilitator must now submit an agenda and preparatory material a week in advance to the CFC faculty. Beaulieu-Brossard, personal correspondence with the author, August 24, 2020.

¹⁵²² Mathieu Primeau to Ben Zweibelson, "Updated Draft Chapter with Fixes to Canada Portions (Personal Correspondence)," August 14, 2020.

¹⁵²³ Primeau to Zweibelson.

although since 2017 they have intentionally hired specific design experts in full-time faculty roles to address this concern such as Beaulieu-Brossard and Rebecca Jensen.¹⁵²⁴ These experts provide a mix of design backgrounds from human-centered commercial design methods as well as distinctly postmodern ones repurposed into military design contexts through the inspiration of Naveh. Recent design initiatives in the CFC as of this writing indicate that a philosophical emphasis on 'challenging the challenge' to better appreciate and reframe complex security challenges may become more mainstream in the CAF provided that the CFC continues to emphasize postmodern design, reflexive practice, and multidisciplinary design methodology for a growing population of mid-grade and senior-level Canadian leaders and staff officers.

As a way forward for the CFC, their newly founded 'Department of Innovation Studies' established in 2019 and the Ontario College of Art and Design's Professor Michell Mastroeni will combine efforts in seeking a new design methodological approach. According to Beaulieu-Brossard, this new project is intended to rely on ethnography and consider tacit, reflexive practices in how the Canadian Armed forces construct and employ knowledge. This combined research team intend to develop an entirely new design model for potential implementation at the CFC and ideally across the Canadian Armed Forces. Whether Beaulieu-Brossard and Mastroeni and their network of design facilitators are able to accomplish this will be seen in the next several years.

The Desire for Thinking Differently in War for the Australian Armed Forces:

In the Australian Armed Forces, the experimentation with design has been fraught with sporadic and often fragmented periods of usage coupled with a broader institutional skepticism as well as potentially some anti-intellectual expressions from within Australian military culture. This is not indicative of the Australian security forces in general, rather that the institutional resistance toward somewhat dense theoretical foundations of Israeli SOD, the tensions between complexity theory and the linear, mechanistic planning methodologies of traditional modern militaries, and a somewhat reluctant military curiosity beyond technological or tactical advancements within security contexts appears to have delayed any substantial Australian design initiatives until just recently.

The Australian military features many overlaps with American, Canadian and British Armed Forces with respect to similar forcing functions in significant security challenges such as the 'War on Terror' and the disenchantment with initial counterinsurgency doctrine at the onset of the Post 9-11 Era, frustration with unorthodox and emergent adversaries that did not manifest in the familiar Westphalian nation-state form, and increasingly complex security contexts that became quagmires for forces deployed there and well prepared with formal military

¹⁵²⁴ Beaulieu-Brossard has been with the CFC since 2017, while Jensen was hired in 2020. The CFC has retained Donna Dupont as the design exercise director for the Field Grade officers in 2020 but is not full-time faculty at this time. Beaulieu-Brossard, personal correspondence with Zweibelson, August 24, 2020.

doctrine, education, and the best practices of earlier military periods. As Naveh and his band of SOD heretics departed the Israeli Defense Forces in 2005-2006 to explore American military interests in this exotic new design theory, Australians would encounter Naveh and SOD through exposure at the U.S. Army School of Advanced Military Studies through international student attendance as well as through various academic and professional engagements between the Anglosphere and partnered militaries.

Somewhat later in the international military design movement when Leavenworth had cast Naveh and his radical SOD ideas out of the American Army to replace it with the rather formulaic 'Army Design Methodology' in 2010, Naveh (paired with Grisogono and a design contracted team) visited Australia and conducted at least one deliberate design educational exercise with Australian Special Operations Forces.¹⁵²⁵ Despite Naveh's narrative of his unpublished report of the success of this education and his own personal observations on Australian military culture and capability for doing design as he envisions it, there is no evidence that this isolated SOD exercise continued Australian interest or extended beyond this single session with a small, elite unit within the larger Australian Armed Forces. While Naveh engaged directly with the Australian military in 2010, the earlier period of 2005-2009 features less direct connections of Naveh's design ideas to the continent 'down under.'

In other examples of isolated and fragmented proto-design developments, the Australians attempted to incorporate elements of complexity theory into existing Australian operational planning doctrine and practice, with differing degrees of failure, assimilation, and disinterest by the force. More recently, individual units across the Australian Services are experimenting with certain civilian design applications predominantly from human-centered design contemporary and commercial organizations. These efforts appear centered on technological and tactical applications for new military products, user experiences and other commercial designs applied toward warfare without direct 'designing for war.'

Rather, the design remains commercial and 'designing for commerce' as framed in the third chapter with the design facilitators and the military client in agreement that the design outputs would be used in the application of organized violence. Overall, as of 2020 while there is a recent surge in military design education and practice within the past few years as this section will summarize, the current state of design affairs of the Australian Armed Forces is decidedly a 'proto-design' situation devoid of any dominant design methodology, lacking any design theory in existing military doctrine, and almost no formal military design education at any level in the Australian professional development program.¹⁵²⁶

¹⁵²⁵ Naveh, "The Australian SOD Expedition: A Report on Operational Learning."

¹⁵²⁶ As recently as 2020, certain Australian military units have sought formal military education through organizations such as U.S. Special Operations' Command and the Joint Special Operations University. The author has first-hand knowledge of this education yet these efforts are local and statistically miniscule compared to the entirety of the Australian force.

Despite this somewhat despondent context, things are on the rise for Australian military design discourse, incorporation of design into professional military education, practice of design in larger unit settings, as well as professional discourse within the Australian military profession through the advent of dedicated design journal series, monographs, books and other Australian-specific academic offerings. However, this summary of the Australian design movement through 2020 must begin at the earliest detections of design theory in their organization which dates back to the early to mid-2000s. Here, a flurry of military academics, operational planners, doctrine writers, educators and some visionary military leaders began to experiment with complexity theory, tinker with the traditional military decision-making methodology, and for a smaller population still, engage with Naveh and his design circle.

Beginning with one of the more prominent yet still indirect ways that Naveh's SOD ideas would feed into the Australian military well before he attempted visiting the country, Australians would come to America and encounter Naveh's SOD first-hand. Alex Ryan, an Australian academic with extensive background in blending complexity theory into Australian doctrine and planning practices, would meet Naveh in Fort Leavenworth and begin working with him as well as studying and exporting SOD through student engagement and academic outreach. Ryan first worked as a scientist in a defence research lab in Edinburgh, South Australia in 2006.¹⁵²⁷ Working with another academic interested in complexity theory applications in security contexts, Ryan and Anne-Marie Grisogono aided the Australian Army's incorporation of systems thinking into Army doctrine that was termed 'Adaptive Campaigning'.¹⁵²⁸ This methodological development was not military design, but it overlapped with shared theoretical concepts primarily within complexity theory and systems theory.

Adaptive Campaigning represented the Australian development of the first path where militaries moved beyond the proposed conceptual limitations of 'Effects Based Operations' and uni-minded systems made popular in the 1990s and into full embrace of complexity theory and non-linear, emergent systems. Adaptive Campaigning also drew from U.S. Air Force Colonel John Boyd and his own academic work on applying systems theory and complexity theory toward military decision-making methodologies of the established modern frame for warfare.¹⁵²⁹ Despite Boyd focusing on improving existing dominant military decision-making methodologies by adding his concepts into the larger sequences, Boyd nonetheless is a prominent military theorist at the beginning of complexity theory's intersection with military culture and the Australian adaptation of his OODA Loop in their 'Adaptive Campaigning' provides the international impact of his ideas. Boyd's cyclic

¹⁵²⁷ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵²⁸ Anne-Marie Grisogono, "The State of the Art and the State of the Practice: Implications of Complex Adaptive Systems Theory for C2," *Land Operations Division, Defence Science and Technology Organisation, South Australia*, June 2006, 1-19; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵²⁹ Boyd, "Destruction and Creation"; Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*.

concept of self-reflection, decision-making and awareness of the rival's thought process was neatly captured in his 'OODA Loop' that quickly became incorporated in a simplified form for U.S Air Force as well as U.S. Marine Corps doctrine and operational planning applications. The Australian 'adaptive campaigning' cycle would later echo much of Boyd's OODA loop, with both drawing from systems theory as well as complexity theory and organizational change management.¹⁵³⁰

In his own published reflections on providing military design education to the American Army, Ryan recalled that in 2006 during an Australian workshop on systems thinking, he met with Brigadier General (retired) Huba Wass de Czege, founder of the SAMS program at Fort Leavenworth, Kansas and a keynote speaker at the workshop.¹⁵³¹ Wass de Czege informed Ryan of the fledgling design movement with Naveh occurring at SAMS, and secured an invitation through the Commandant of that program for Ryan to visit the school and see Naveh's design in action. Upon walking into a small group led by Naveh, Ryan became fascinated by the unusual nature of the exercise. "There was no evidence of division of labour according to the Staff System. There was no sequential process being followed. There were no PowerPoint Slides being produced. Most surprising of all, there were no doctrinal manuals in sight", Ryan wrote later in a personal blog online describing the experience.¹⁵³²

Ryan returned to Australia and undertook a journey of self-discovery on SOD, Naveh and design applied for military considerations. As Naveh rarely wrote much on SOD in the 2000-2007 period, Ryan mostly reviewed publicly available student monographs on SOD published by TRADOC¹⁵³³ as well as the SAMS student reading list for SOD.¹⁵³⁴ After Ryan was invited back to lecture further on complexity theory, SAMS offered him a faculty position in 2008. Ryan would be the first foreign civilian to work on the SAMS faculty, and this placed him in direct contact with Naveh and his small team of private contractors teaching Israeli design to the elite Army student planners.

While Ryan clearly had greater impact with where the U.S. Army took design thinking for doctrine and practice based on his direct involvement with initial design education for SAMS, his leadership in crafting the 'Art of Design: Student Text' manual for design,¹⁵³⁵ as well as his numerous professional journal articles

¹⁵³⁰ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 91.

¹⁵³¹ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵³² Ryan.

¹⁵³³ Dalton, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?"; Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative"; Dixon, "Systems Thinking for Integrated Operations: Introducing a Systemic Approach to Operational Art for Disaster Relief"; Groen, "Systemic Operational Design: Improving Operational Planning for the Netherlands Armed Forces"; Sorrells et al., "Systemic Operational Design: An Introduction."

¹⁵³⁴ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵³⁵ School of Advanced Military Studies, *Art of Design: Student Text, Version 2.0*.

and engagements,¹⁵³⁶ this section addresses his less obvious influence upon a slower developing Australian design movement. In the three years Ryan taught at SAMS (2008-2010), the program graduated 600 field grade officers educated in a mix of SOD influenced and later U.S. Army reinterpreted design methodologies.¹⁵³⁷ SAMS faculty are paired with students for monograph research, with student topics largely determining what faculty are best suited to mentor them through a year of extensive research and writing. Ryan, as a design expert, frequently supervised SAMS students focusing on design in their monograph topic of interest.

As SAMS also included international students, Ryan mentored Australian SAMS students that focused on design topics. These few design monographs written by Australian students¹⁵³⁸ or those written by non-Australians that nonetheless made subsequent impact in Australian professional military education are two indirect ways Ryan influenced the Australian shift towards design. Ryan's own published work on systems thinking and design remain likely his most influential contributions to the Australian design movement, with his articles appearing frequently in most early Australian design debates.¹⁵³⁹ Yet the early 'design debate' years of 2005-2010 once again appear fragmented and without any extensive or systemic change across the Australian military outside of small pockets of designers or individuals advocating for one or another form for design.

Design also began to creep into Australian military theory and doctrine through 'operational design' or the nexus of complexity theory, systems theory and the traditional mechanistic mode of military decision-making set upon engineering and mathematical principles.¹⁵⁴⁰ Scott criticizes the Australian Defense Forces with being outstanding tactical innovators and adaptors while largely failing at the broader operational and strategic developments. While writing in 2011, Scott decries the Australian embrace of 'design' with: "the ADF's doctrinal approach to 'design', like its doctrinal approach to problem solving, is mechanistic, reductionist and inadequate for an increasingly complex battlespace and array of missions."¹⁵⁴¹

¹⁵³⁶ Alex Ryan, "The Foundation for an Adaptive Approach," *Australian Army Journal for the Profession of Arms* 6, no. 3 (2009): 69; Alex Ryan, "Design in Civvies: The Promise of Creating Degrees of Freedom in Government," *Journal of Military and Strategic Studies* 17, no. 4 (June 2017): 39-50; Banach and Ryan, "The Art of Design: A Design Methodology"; Alex Ryan, "A Theory of Systemic Design," www.systemic-design.net, 2013, <https://systemic-design.net/wp-content/uploads/2013/12/Ryan.pdf>.

¹⁵³⁷ Banach and Ryan, "The Art of Design: A Design Methodology"; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵³⁸ Bassingthwaite, "Adaptive Campaigning Applied: Australian Army Operations in Iraq and Afghanistan."

¹⁵³⁹ Jackson, *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare*; Scott, "The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force."

¹⁵⁴⁰ Foucault makes a similar argument on the arrival of western modernity and this fixation on natural science logic explaining all human experiences. See: Foucault, *The Order of Things*, 56-57.

¹⁵⁴¹ Scott, "The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force," 100.

Still in the 2011 period and referencing American 'operational design' and to a lesser degree, 'Army Design Methodology', Scott views the Australian operational planning doctrine as possessing a few trace elements of 'design' but "at nowhere near the level of sophistication compared with the latest iterations of design in US doctrine...[Australian operational design] certainly does not support dealing with complex operational problems in any meaningful way."¹⁵⁴² Quite presciently, Scott warns that there is a real danger to the Australians "that any design methodology will inevitably become an institutionalized dogma, dependent on checklists and templates, and will go the same way in application as previous fads such as [Effects Based Operations]. The potential for this to occur is great given the ADF's predilection towards training vice education."¹⁵⁴³ In the last decade since Scott's publication on Australian design, the ADF has not yet implemented any formal design methodology into doctrine, has not introduced it formally into any professional military education, nor has the design debate moved much past the initial arguments of whether design is of significant value or not for Australian security needs. Jackson provides a robust historical study of the entire Australian design movement in a recent introductory chapter for the first all-design edition of an *Australian Journal of Defence and Strategic Studies*' 'Joint Studies Paper Series' in 2019.

To briefly cover Jackson's highlights in order to cover areas of design research not addressed in his historical study of his country's design struggles, Jackson began with the development of 'complex warfighting' and 'adaptive campaigning' published in 2004 and 2006 as uniquely Australian contributions to the Anglosphere and based on combat experiences in East Timor, Afghanistan and Iraq.¹⁵⁴⁴ Ryan as well as Grisogono were primary authors and contributed systems theory and complexity theory toward how Australian Armed Forces could reconsider complex warfighting in the Twenty-first Century. Ryan would help produce this new content prior to traveling to America to meet Naveh and learn of his Systemic Operational Design, so in the Australian developmental timeline this portion of new military operational doctrine exclusively considered complex adaptive systems and did not have any postmodern theory or content beyond the functionalist paradigm.

The author of the 2004 future land operating concept was David Kilcullen, also the author of the American revision of Field Manual 3-24, Counterinsurgency in 2006 where 'design' would first be mentioned in American military doctrine.¹⁵⁴⁵ Kilcullen would also embrace complexity theory and systems theory but not make any of the postmodern concepts that Naveh utilized in SOD, indicating this period of Australian design would remain functionalist yet challenge the natural-science fixation of modern Australian decision-making. Jackson posits that while the

¹⁵⁴² Scott, 101.

¹⁵⁴³ Scott, 102.

¹⁵⁴⁴ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force," 11.

¹⁵⁴⁵ Department of the Army and Department of the Navy, HQ United States Marine Corps, *FM 3-24/MCWP 3-33.5*.

Americans quickly adapted Kilcullen's ideas on complex warfighting, there is no evidence his ideas would extend into subsequent American design development in the 2005-2010 period. Instead as the fourth and fifth chapters explain, Naveh's theories and experimentation would dominate those discussions initially.

Jackson goes on to detail the development of 'adaptive campaigning' that represented in 2006 a dramatic departure for Australian Defence Forces away from the established modern, linear military mode of operational planning. The final version of the adaptive campaigning doctrine would be published in 2009 and is most readily associated with the figure below. The adaptive campaigning cycle draws heavily from Boyd's OODA loop concept,¹⁵⁴⁶ as well as key aspects of complexity theory and problem framing. Jackson credits the theoretical sources of 'problem framing' here to the work of Rein and Schön.¹⁵⁴⁷ Adaptive Campaigning emphasis on the Boydian 'OODA' loop is also important for subsequent epistemological examination of the Australian methodological stance for design. While Boyd cannot be considered a postmodernist due to his strict adherence to complexity theory and systems theory as well as his own stated desire to enforce an analytic optimization to how militaries think, understand and act in war, Boyd did have *postmodern themes and style*. This includes his unpublished essay on 'destruction and creation' that moves at least in an abstract and tacit manner in similar cognitive areas that Naveh would later use in SOD.¹⁵⁴⁸

Boyd's cyclic concept of self-reflection, decision-making and awareness of the rival's thought process was neatly captured in his 'OODA Loop' that quickly became incorporated in a simplistic, summarized form for American joint, air force and marine doctrine and operational planning applications. The Australian 'adaptive campaigning' cycle would later draw inspiration from this OODA loop, with both drawing from systems theory as well as complexity theory and organizational change management. These graphical cycles have some conceptual overlap with the British Design Council's 'Double Diamond' design process explained in the next section of this chapter as well, indicating yet another interesting or perhaps coincidental overlap between Australian and another Anglo-Saxon military in visualizing design thinking.

2009 Version of the Australian Army's Adaptation Cycle & Boyd's OODA Loop¹⁵⁴⁹

¹⁵⁴⁶ Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*.

¹⁵⁴⁷ Schön and Rein, *Frame Reflection*; Donald Schön and Martin Rein, "Policy Controversies as Frame Conflicts," in *Frame Reflection: Toward the Resolution of Intractable Policy Controversies* (Basic Books, 1994), 23–36.

¹⁵⁴⁸ Boyd, "Destruction and Creation."

¹⁵⁴⁹ Adaptive Campaigning source: <http://resilienceandsecurity.blogspot.com/2012/05/could-this-be-resilience-cycle-or-just.html>. OODA loop source: <http://www.austinimpact.com/wp-content/uploads/2015/04/ooda-loop.jpg>

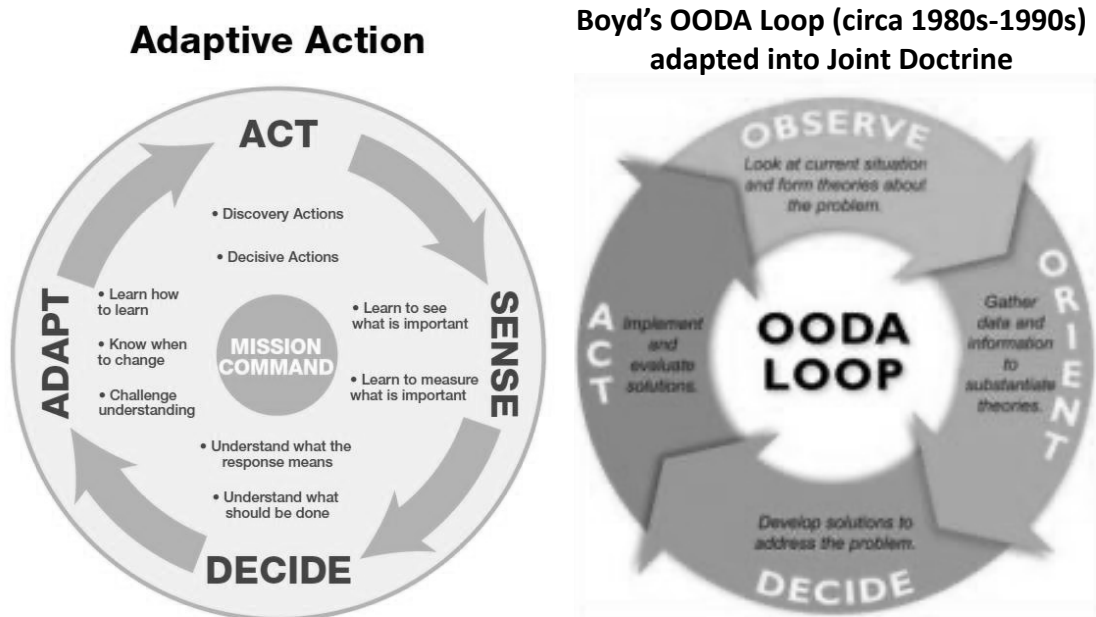


Figure 9. The Adaptation Cycle

Graphically, similarities are clear in the representation of Australian Adaptive Action and the earlier work of Boyd. Since the implementation of these concepts in 2006-2009, the Australian Defence Force has “predominantly engaged with design thinking by applying externally-developed methodologies in preference to developing its own” according to Jackson.¹⁵⁵⁰ While Naveh documented in unpublished form his one design exercise with Australian special forces personnel as part of a contracting team somewhere in the 2006-2009 period, the bulk of external design educational influence appears to have come from Australian military students attending foreign schools such as the U.S. Army School of Advanced Studies where several Australian Army officers would study and publish on design theory.¹⁵⁵¹ Whether these monographs were read and discussed in the Australian security community is undetermined, yet Jackson notes that after the rapid period of Australian operational design development between 2003-2009 there was a sudden cessation of intellectual experimentation, professional debate and further development.¹⁵⁵²

The majority of the Australian design experiences and associated publications that were available publicly (such as student SAMS monographs written for an Australian audience or from an Australian perspective) largely support the U.S. Army Design Methodology or emphasize the systems theory and

¹⁵⁵⁰ Jackson, “Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?,” 13.

¹⁵⁵¹ Bassingthwaighe, “Adaptive Campaigning Applied: Australian Army Operations in Iraq and Afghanistan”; Scott, “The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force”; C.R. Smith, “Design and Planning of Campaigns and Operations in the Twenty-First Century,” *Land Warfare Studies Centre, Canberra*, April 2011, 1–100.

¹⁵⁵² Jackson, “Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force,” 12.

complexity theory of earlier Australian Adaptive Campaigning doctrine instead of Israeli systemic operational design. Jackson did highlight how a contractor that drafted the first version of the Australian Defence Force Publication (ADDP) 5.0-*Joint Planning* in 2014 was a graduate of the U.S. Army School of Advanced Military Studies and was influenced by Naveh's design concepts. Subsequently, the draft version of ADDP 5.0 "contained many elements of SOD- including the much-criticised dense and obscure philosophical language. As a result, this draft was rejected by Joint Doctrine Centre (JDC) staff as too esoteric for implementation by the [Australian Defence Forces]."¹⁵⁵³ That draft would be rejected, demonstrating that pattern of Naveh's postmodern concepts not able to effectively penetrate into multiple military institutions except on the fringes.

Once again, the difficult prose and postmodern concepts in SOD would prove difficult to implement into the military institution, particularly because SOD was designed to disrupt and challenge the very paradigms that maintained the modern military frame for making sense of complex reality and the application of organized violence. Hayward studied this from a British Army perspective while a student at SAMS and remarked, "these terms do not come easily, as with any technical terminology...as with learning any new language, translation can only be attempted after the original language has been mastered...there are no shortcuts to this process."¹⁵⁵⁴ Naveh's own report on his lone Australian SOD excursion somewhere in the 2006-2009 period resulted in an unpublished and rather self-congratulatory report written by Naveh for what likely was internal post-exercise review by his company and not intended for outside release. That said, Naveh details the theory, performance, and educational tensions during the event which featured what the fourth chapter frames 'first generation SOD' methodology.

Naveh presented 'meta-theory' design education which he defined in his report as "theory about theory construction" which emphasizes the epistemological inquiry of the self's organizational paradigm and well as introducing postmodern frames and social paradigm theory in order to realize 'others' and rival logics on war that were in tension with the Australian commandos.¹⁵⁵⁵ Naveh continued with the postmodern practice of reinterpreting metaphors from biology such as rhizomes and autopoiesis to use for the application of organized violence in a postmodern military context. This notion of self-organization in learning and experimenting would be in clear tension with all existing Australian traditional operational planning, strategy and likely many of the institutional beliefs of the Commandos despite Naveh assuring the readers that these young special operators were quite cognitively flexible. Naveh would also draw heavily from pure postmodern theory such as Deleuze and Guattari's concepts of interiority and exteriority and Foucault's

¹⁵⁵³ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 13.

¹⁵⁵⁴ Edward Hayward, "Planning Beyond Tactics: Towards a Military Application of Philosophy of Design in the Formulation of Strategy" (U.S. Army School of Advanced Military Studies, May 22, 2008), 4.

¹⁵⁵⁵ Naveh, "The Australian SOD Expedition: A Report on Operational Learning," 5-6.

concept of problematization.¹⁵⁵⁶ As Ryan, Graicer, Beaulieu-Brossard and Hayward observe on the difficulty in learning these new ideas and discussing design in sophisticated, even paradoxical language and metaphors that contradict most all established military education, Naveh admits that the first day of the exercise was frustrating for the Australian students. "Since most team members were anxious to engage as fast as possible in the "real business" of design, this initial discussion fell short of exploring the cognitive potential and thinking challenges."¹⁵⁵⁷ This frustration would grow during the second day, where again the commandos became mentally exhausted.

Naveh observed that the Australians initially in the first two days attempted to implement a traditional military planning logic based in part on traditional intelligence briefings on the Middle East, where they sought to conduct design focused on the 'Axis of Evil' (a metaphoric device used by western foreign policy makers to describe Iran, Iraq and North Korea) and how they fostered Islamic resistance in their focus region, a global mapping of all other security threats to Australia, and an Australian 'point of view' friendly force system mapping.

This initial logic demonstrates what Naveh called the desire for state militaries to withdraw to a cognitively convenient zone that permits their favored emphasis of military action, organization in preferred 'state-on-state war' formations, and a reinforcement that all current organizational doctrine was sound and applicable to this challenge. Naveh would draw upon postmodern theory such as Deleuze and Guattari where the 'interiority' of the state apparatus employed striated space, metaphorically explained with the codified and structured rules for chess with a front line, rear line, sequenced battles and so-forth. The commandos were trapped in thinking chess-like, while Naveh wanted to break them out of this mindset to adapt a smooth-space orientation and experience exteriority, as Deleuze and Guattari explain using the Chinese strategic game of Go as an alternative to westernized chess logic.¹⁵⁵⁸

By the end of the second day, the commandos realized their dependence on prior institutionalized frames of war-thinking and completely reframed their entire logic for designing on this Middle Eastern challenge.¹⁵⁵⁹ By the third day, Naveh and his team state that the Australian students would in a dynamic, self-organizing fashion produce a new learning system that was superior to anything previously seen in over six years of instructing design. Despite his own high self-praise of his theory and his team's performance as a contracted consulting commercial endeavor, there is no evidence that any future design activities occurred in the Australian

¹⁵⁵⁶ Michel Foucault, "Discourse and Truth: The Problematization of Parrhesia" (lecture, University of California at Berkeley, November 1983), http://foucault.info//system/files/pdf/DiscourseAndTruth_MichelFoucault_1983_0.pdf; Deleuze and Guattari, *A Thousand Plateaus*.

¹⁵⁵⁷ Naveh, "The Australian SOD Expedition: A Report on Operational Learning," 12.

¹⁵⁵⁸ Deleuze and Guattari, *A Thousand Plateaus*, 352–53.

¹⁵⁵⁹ Naveh, "The Australian SOD Expedition: A Report on Operational Learning," 14–15.

special operations community or anywhere in Australia's military beyond that brief visit to a small unit.¹⁵⁶⁰

Thus, by 2010 the impact of Naveh's systemic operational design and any visible postmodern theory influencing Australian Defence Forces largely terminated. From 2010 forward, only the continued impact of systems theory and complexity theory as introduced in earlier Australian operational planning doctrine would carry forward despite those efforts also somewhat stalemated and unchanged from 2012 forward. This would shift once again in 2015 with some new doctrinal updates and white paper concepts, but no design theory would emerge in Australian military doctrine nor would it be formally taught in any Australian professional military education. There would be only a handful of design articles or documents produced and discussed by Australian military professionals, with the majority of content produced outside the country and imported in for informal and fragmented military discussion. In rare exceptions, Australian designers or systems theory advocates would internally generate further interest in Australian operational design doctrinal reform and institutional debate.

Colonel Brett Andersen, interviewed for this chapter, was also on the 'Training Needs Analysis for Adaptive Campaigning- Future Land Operating Concept' initiative in 2010-2011 that would impact the second wave of 'Adaptive Campaigning' initiatives in Australian doctrinal revisions for their operational design efforts in military planning. In 2020, he reflects on the last twenty years of Australian operational design methodologies set within doctrine as well as Australian military applications in Afghanistan, Iraq, and elsewhere:

I've had a look at the latest [Australian] doctrine for joint planning (2018 and 2019) and not much has changed in my opinion...[it] has not changed in 20 years. From my perspective, not many people actually understand the process or how it actually functions. In this regard, I agree with Trent [Scott] in that it is reductive in nature- and it actually says it in ADDP 5.0 that 'planning is also analytical and reductionist, in the sense that it is bounded by the laws of physics and provides a means for addressing complex problems in manageable ways (the science).' In fact, I would offer that we are usually bounded by two other key factors- guidance from the government and guidance from senior military leaders.¹⁵⁶¹

Andersen reinforces the tension present both in Australian design and planning methods here as well as those illustrated in the previous chapter for

¹⁵⁶⁰ The author, with help of several Australian Commando officers associated with draft reviews of this chapter, would exhaust all efforts to locate any current Australian SOF participants of this exercise, and could not identify any contemporary SOD impacts following this one exercise through multiple interviews and queries.

¹⁵⁶¹ Brett Andersen to Ben Zweibelson, "RE: FW: SDW (Personal Correspondence)," August 12, 2020.

American military efforts; the emphasis of an analytic, reductionist and 'pseudo-scientific' approach that leaves out the actual political, cultural and social forces within the military and its nation-state supervisors in the application of organized violence. As the Australian joint and operational planning doctrine from 2009 through 2015 would draw design concepts largely from the American interpretation of 'design', there would be less emphasis on multiple paradigms, reflective practice, self-disruption, and hybridization across multiple disciplines.

The Australian 'Joint Military Appreciation Process,' as produced in 2015 and written primarily by Jackson with several other Australian military officers,¹⁵⁶² would incorporate similar operational planning concepts as the American army and marine design doctrine would in the same 2010-2017 period. Despite Australia not actually producing a design methodology, the doctrinal updates to how they framed operational and joint planning in complex, dynamic security contexts continued to blend influences from design thinking, systems theory, complexity theory, as well as more subtle attempts to disrupt the traditional modern military frame.

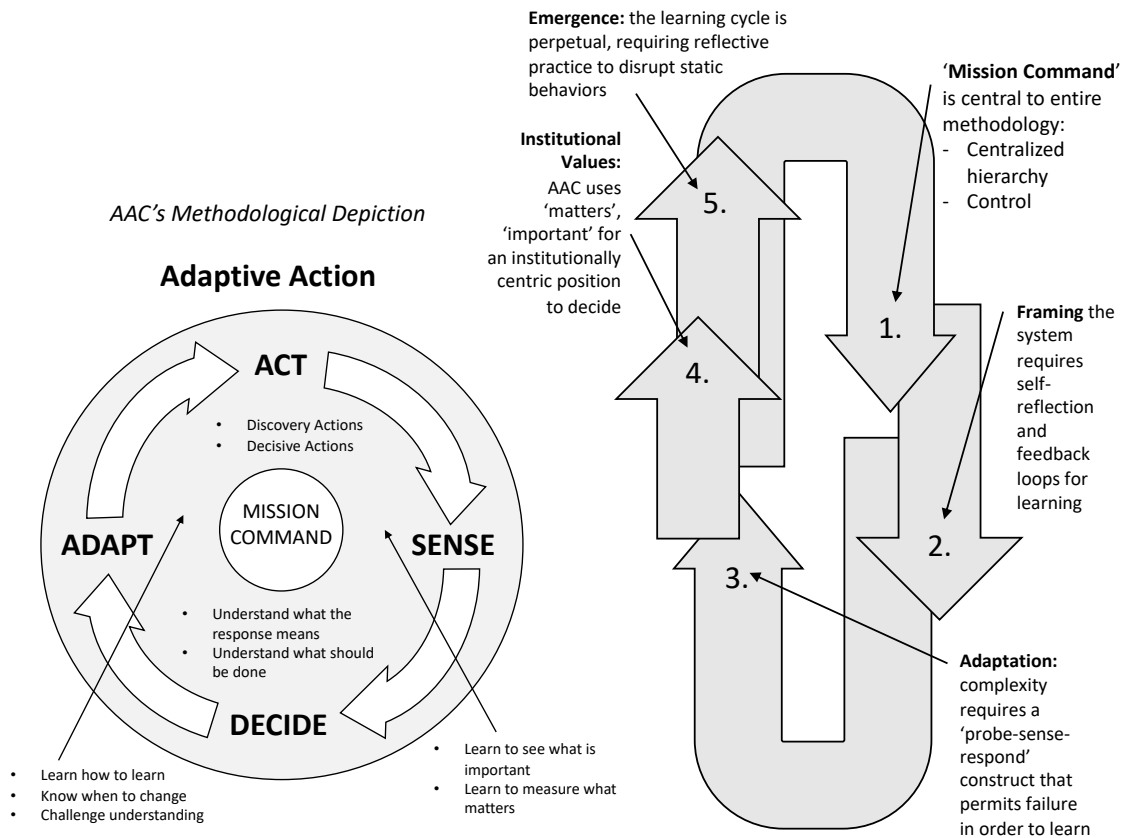
Australian joint planning methodology thus would emphasize critical thinking, iterative planning sessions for complex challenges, and the need to reframe as necessary. The inclusion of these new design concepts and terminology thus illustrates an intellectual transition gradually occurring for the Australian Defence Forces, despite it spanning the same period of more rapid design development in American, Canadian, Israeli and other militaries. Despite the new design terminology, Australian operational planning doctrine maintained the same traditional mechanistic military paradigm of the modern era for war, complete with the required identification of a desired end state, objectives, and decisive points. Australian planning doctrine stipulates the use of center of gravity analysis, the establishment of lines of operation as well as most all other elements of mechanistic, reductionist military planning.¹⁵⁶³ The below graphic depicts one way of considering the epistemological framework of how Australian 'proto-design' functions as a methodology.

An Epistemological Frame of Australian 'Proto-Design' Methodology

¹⁵⁶² Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force," 13.

¹⁵⁶³ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies"; Jackson, "Innovative within the Paradigm: The Evolution of the Australian Defence Force's Joint Operational Art"; Aaron Jackson, "Center of Gravity Analysis 'Down Under': The Australian Defence Force's New Approach," *Joint Forces Quarterly* 83 (October 2016).

AAC's 'Proto-Design' Epistemology



The above figure demonstrates the author's epistemological framing of what could be fairly termed 'Australian proto-design' based on their current Adaptive Campaigning methodology as well as supporting theory and doctrine generated by the Australian Defence Force from 2009 forward. The 'proto-design' nature of design thinking in Australia as of 2020 is reinforced one more by Jackson's research: "In the last few years the application of design thinking methodologies outside of activities directly related to operations planning has increased in frequency across [Australian] Defence."¹⁵⁶⁴

Jackson provides in his introduction to a 2020 special collection of military design articles published by the Australian Journal of Defence and Security Studies a detailed summary of multiple design workshops, exercises and design methodologies that occurred in Australian between 2016-2019. Yet "while these presentations indicate a growing awareness of and interest in design thinking within the ADF...none of these presentations were able to go beyond an introductory-level explanation of design thinking and a few of its constituent methods...[To] date, the ADF has not developed a design thinking education course that goes beyond cursory awareness-raising. Nor has it conducted a detailed,

¹⁵⁶⁴ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 15.

comparative evaluation of different design thinking methodologies.”¹⁵⁶⁵ Jackson concludes with the acknowledgement that there is no ADF organizational approach to developing its own military design theory, methodology, as well as internal faculty expertise and capacity to inculcate across the Australian Defence Forces. Instead, the only current options remain the direct import of other military design methods whether through international education, doctrine, or direct contracted assistance.

In Jackson’s conclusion to his introduction chapter in the 2019 *Joint Studies Papers Series*, he effectively frames an emergent Australian security demand for design thinking. This reinforces the overarching position of this research that militaries in the postmodern context for war require the self-disruptive, multi-paradigmatic and transformative design constructs of reflective practioners that think and act in the application of organized violence. The range of military design theory and diversity of disciplines in recent articles published by the Australians also indicates a potential further shift away from the single-paradigm emphasis of legacy military decision-making logics of the modern era. “It is worth noting that these contributions span a range of disciplines and paradigms...none of these contributions is exclusively single-disciplinary...It is fitting, therefore, to conclude this introductory paper with a reminder that one of the strengths of design thinking is that it is ill-defined and multidisciplinary. What is important is to ensure that whatever design methodology one employs, that methodology is conceptually robust and rigorously implemented.”¹⁵⁶⁶

Glimmers of Design Theory: British Armed Forces and Anti-Doctrine

The British general outlook towards military doctrine remains distinct from the aforementioned Israeli and American militaries covered in chapters four and five, and the Canadian and Australian militaries in this chapter despite being the institutional direct paternal model for most of them. Prior to the late 1980s, British military culture remained an extension of its traditional maritime expeditionary land force for defense of Britain’s far flung colonial possessions prior to World War II.¹⁵⁶⁷ The British Army, shaped by a long tradition of maritime activity, possesses a culture of being comfortable in ambiguous environments where they must work in small groups. Their Imperial Empire was established and maintained with limited firepower and resources, requiring their military to become deeply attuned to local culture and civilians in order to build relationships, identify tensions, and maximize the impact of precise applications of organized violence.¹⁵⁶⁸ Further, these units were spread across the globe and expected to operate for lengthy periods with little or no timely guidance from higher headquarters. These military organizations

¹⁵⁶⁵ Jackson, 15–16.

¹⁵⁶⁶ Jackson, 18.

¹⁵⁶⁷ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 82.

¹⁵⁶⁸ Austin Long, *The Soul of Armies: Counterinsurgency Doctrine and Military Culture in the US and UK* (Ithaca, New York: Cornell University Press, 2016), 224.

became conditioned to approach each military challenge as contextually dependent upon the location, culture, and interconnection with larger Empire concerns.

Thus, standardized doctrine and universal organizational processes were contradictory to the requirements and roles of the Imperial British Army. In some ways, the British military retained more of the premodern war frame and resisted the modern war frame for a longer period than the rest of the Anglosphere, particularly with respect to knowledge production and management through doctrine and standardized behaviors. At the most, units might standardize technical as well as tactical components while ceding nearly all other decision-making processes to more of a close-knit familial mode centering on accumulated wisdom and preferences of leadership within.¹⁵⁶⁹ Doctrine served little purpose when everything was localized and disposable or reshaped only within the family. In his doctoral dissertation, Mäder posits: "Britain's pre-1989 Armed Forces did not appreciate this central idea behind doctrine. Traditionally, British officers did not care about intellectual debate and felt deep reluctance towards any formal writings...they were considered to be something for the classroom but irrelevant in the field."¹⁵⁷⁰ Aside from tactical and technical manuals, the British had no operational doctrine prior to the collapse of the Soviet threat and the 1980's rise of American operational doctrine driven largely by the United States military reflections of Vietnam.

British Army culture had and continues to express through today a preference for contextualism over universalism. This is demonstrated where "virtues such as improvisation, intuition, common sense and flexibility, which in their eyes were negated by the formalised prescription of doctrine."¹⁵⁷¹ While British military reformers such as Field Marshall Sir Nigel Bagnall did shift the British Army away from the traditional fragmented and closed communities of practice towards a preparation for high-intensity conflict in complex scenarios such as the First Gulf War,¹⁵⁷² the British Army remains distinct in the Anglosphere for a muted doctrinal approach.

The last decade does indicate some change in this institutional resistance for extensive codification of military practices, however the powerful earlier history of the British Imperial period of military organization and practice remains strong today. Kingsbury suggests that potentially the widely distributed and locally adaptive British military of the Imperial Age might have set institutional behaviors to not only function in an earlier dynamic 'style of innovative military design' flexibility for action, but that it could have been "so culturally entrenched that we instinctively [resisted] Bagnall's approach, without identifying the cultural issues...so we ended up with the worst of both worlds- an organisation

¹⁵⁶⁹ Long, 94.

¹⁵⁷⁰ Markus Mäder, "The Evolution of British Military Strategic Doctrine in the Post Cold War Era" (Doctoral Dissertation, London, UK, Centre for Defence Studies, Kings College London, 2003), 22.

¹⁵⁷¹ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 84.

¹⁵⁷² Mäder, 84–87.

uncomfortable with executing without a dogmatic linear process, but still inherently resistant to using that process?"¹⁵⁷³

The British military through the late 1980s had no established military doctrine above largely tactical and technical constructs, instilling a strong element of Service independence as well as a prioritization of individual ingenuity and skill.¹⁵⁷⁴ Mäder described the British military journey as one traditionally "largely dominated and divided by single-service thinking...the three individual Services did not only wear distinctly coloured uniforms and badges, but they also thought differently about warfare."¹⁵⁷⁵ Not only did the British lack any commonly agreed understanding of combined or joint military operations in the early 1990s, they also were culturally somewhat anti-intellectual (at least concerning the formal study of war/warfare) and subsequently quite skeptical of military doctrine. Scott observes that: "prior to the establishment of a joint Higher Command and Staff College course in 1997, much UK doctrine was inherently tactical in nature...the result was a focus on the conduct of battles."¹⁵⁷⁶ Here, the application of single paradigm 'standard operating procedures' and linear, set practices creates a rather formidable opposition to design theory and critical institutional reflection.

While the first *British Defence Doctrine (BDD)*, created in 1996 was intended to rectify many of these inter-service and institutional issues by providing "an unambiguous military-strategic statement to sit above the joint and single-service operational and tactical doctrine as their overarching and authoritative source,"¹⁵⁷⁷ it was created in keeping with a modernist military paradigm. The new doctrine was crafted and promoted by top-down leadership, thus maintaining the authority of the centralized hierarchical form. In a departure from previous British military doctrine, a military senior leader did not sign the first version of the *BDD*; rather the Secretary of State for Defence, Michael Portillo validated it as a politician.¹⁵⁷⁸ The second edition of the *British Defence Doctrine* would be published in 2001 and put forth what it defined as the key essentials of British military doctrine, termed "the British approach to military operations."¹⁵⁷⁹ This second edition of the *BDD* was significant in that it helps frame the epistemological choices that frame the British military paradigm.

¹⁵⁷³ Oliver Kingsbury, "Re: 20200806 Close Hold Please: Draft Design Book Chapter on CAN, AUS, UK Prot-Design Movements Some Light Summer Reading," August 27, 2020. Personal correspondence with the author.

¹⁵⁷⁴ Mäder, "The Evolution of British Military Strategic Doctrine in the Post Cold War Era," 22–23.

¹⁵⁷⁵ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 88.

¹⁵⁷⁶ Scott, "The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force," 87.

¹⁵⁷⁷ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 236.

¹⁵⁷⁸ Mäder, 238.

¹⁵⁷⁹ Mäder, 247.

The second edition of the *BDD* “identified six essential elements, or key themes that ran through the entire doctrinal thinking of Britain’s Armed Forces”¹⁵⁸⁰ including ten ‘principles of war’ thought to be enduring in all conflicts in some manifested combination. Mader remarked that “the enduring ten ‘principles of war’ were not a new theme in British doctrinal thinking...[the second edition of the *BDD*] merely re-emphasised their significance as general guidelines for any type of operation and all levels of command.”¹⁵⁸¹ Thus, they formed for the UK a core epistemological choice that clearly demonstrated a functionalist paradigm in keeping with contemporary war paradigms of the American, Canadian, and Australian Armed Forces of the Twentieth Century. Even as late as 2001, British military doctrine was only just becoming mature, and was highly wedded to dominant modernist, functionalist organizational frames for how and why to apply organized violence.

Subsequently, the British stance on any design movement requires a nuanced inquiry, in that the British military does not even use the term ‘design’ in their doctrine or professional discussions.¹⁵⁸² Instead, they apply several combinations of terms with understanding, decision-making, problem solving all heavily impacted by human and organizational factors.¹⁵⁸³ Thus, the British currently seem comfortable with framing military challenges in complexity as well as military sociology without confusing their forces with the term ‘design’ at all. However, even such terms such as ‘understanding’ or ‘decision-making’ remain problematic when considered from modernist and postmodernist positions.

While the British Army entered the Post 9-11 ‘War on Terror’ with far more relevant counterinsurgency experience due to operation in Northern Ireland, the British military has largely been stagnant in any novel, ‘ground-breaking’ conceptual developments and is only circumstantially connected to the military design movement.¹⁵⁸⁴ That said, there are subtle cues that some of the foundational ideas in military design are indeed creeping into British defense theory and practice. Like the Australian and Canadian militaries, the British sent high-performing officers to SAMS at Fort Leavenworth in the 2005-2010 period where several either experienced Naveh’s SOD firsthand or were able to study systemic operational design in detail and bring back those ideas into the MoD. Hayward, a British Army officer authored his 2008 monograph on Naveh’s design and now as a Colonel in the MoD is actively implementing design concepts at their strategic level.¹⁵⁸⁵ However,

¹⁵⁸⁰ Mäder, 249.

¹⁵⁸¹ Mäder, 249.

¹⁵⁸² Scott, “The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force,” 101.

¹⁵⁸³ Ministry of Defence Development, Concepts and Doctrine Centre, *Joint Doctrine Publication 04: Understanding* (Shrivenham, Swindon, United Kingdom: Ministry of Defence, Shrivenham, Wiltshire, United Kingdom, 2010); Ministry of Defence, *Joint Doctrine Publication 04: Understanding and Decision-Making*; United Kingdom Ministry of Defence, *Joint Doctrine Note 3/11*.

¹⁵⁸⁴ Jackson, “Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies,” 90.

¹⁵⁸⁵ Hayward, “Planning Beyond Tactics: Towards a Military Application of Philosophy of Design in the Formulation of Strategy.”

these individual advocates of design remain in the minority and reinforce Ryan's observations that the dense, theoretical qualities of Naveh's original SOD proved too difficult for mainstream military assimilation or export.¹⁵⁸⁶

In the first doctrinal revolution for the modern British Army in the 1980s-1990s, an informal precursor of military design appeared to occur under the direction and facilitation of Bagnall, aptly described as "the father of modern British military doctrine."¹⁵⁸⁷ Realizing that the British Army as an institution was culturally apathetic towards formal and universal doctrine, Bagnall formed a group of reformers that operated much like a design team would, nicknamed the 'Ginger Group' and tasked to informally generate institutional change across the British Army through new doctrine and theory.¹⁵⁸⁸ This group was fluid in membership with a diverse group of high performers, of which many would rise to high ranks and continue to shape transformation within the British Army through the Twenty-first Century and into the 'War on Terror' period.

Bagnall's reformation in the 1980s through the 1990s proved to be a crucial phase for the British Army to move from small, close-knit Regimental groups of practitioners towards a larger British military community of practice. Bagnall needed to alter what had been centuries of continuous Army culture based on the premodern military era (Feudal European), with the two anomalies of the World Wars with the rapid expansion and large-scale drafted unit requirements being largely inconsequential towards the British military mindset.¹⁵⁸⁹ Ironically as compared to the American, Canadian and Australian Armed Forces in the late 1990s where subsequent reform to mechanistic modernist practices required disruption through postmodern design, the British Army first needed this shift towards uniformity and hierarchical doctrine. Bagnall saw the British Army of the 1950s-1970s as too oriented on improvisation and contextualism that worked well in 'small wars' in colonial and post-colonial settings. Without Bagnall's emphasis on British professionalization and modernization for expanding "their intellectual horizons and make them recognise the complexity of warfare and high-level command."¹⁵⁹⁰ British Army culture might have remained decidedly fragmented into isolated communities of practice unable and unwilling to share across the profession.

With the Soviet conventional threat looming larger than ever in the 1980s, Bagnall and his 'Ginger Group' sought education through doctrine and reform in order to craft a military organization capable of coordinating campaigns at the corps level and above.¹⁵⁹¹ Only formal doctrine and operational planning could prepare the British for large-scale conventional campaigns in expected war in the European

¹⁵⁸⁶ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016.

¹⁵⁸⁷ Mäder, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era. 1989-2002*, 86.

¹⁵⁸⁸ Mäder, 87.

¹⁵⁸⁹ Mäder, 84-85.

¹⁵⁹⁰ Mäder, 88.

¹⁵⁹¹ Mäder, 88.

theater against the Soviets. Despite that conflict never occurring, the British Army instead validated Bagnall's reformation by playing a key combat role in defeating Iraq's ground forces during the First Gulf War in 1990-1991. As most Anglo-Saxon militaries experienced a similar frustration in the Twenty-first Century with their conventional and formalized campaign design and operational planning failing to achieve strategic effects against asymmetric opponents, the British by 2006 would also begin to question the modernist approach to war. This is where some glimmers of military design appear to manifest within British military theory and doctrinal form.

Across two major wars in Iraq and Afghanistan and through nearly a decade of various attempts by western industrialized militaries at counterinsurgency operations therein, the British began to reflect upon the modern or post-Cold War British military doctrine as well as how militaries in the 21st century were realizing "the right general with the right doctrine leads to victory" was no longer relevant.¹⁵⁹² Additionally, the continued close partnership and exchange of ideas between the American and British militaries during the critical counterinsurgency stages for Afghanistan and Iraq in the 2001-2010 period facilitated the exchange of various design concepts and critical reflection towards institutionalisms. As Long observes, failure, as well as the observation of failure by other militaries despite different contexts and practices appears to have strong influences towards thinking about one's thinking in war.¹⁵⁹³ The British demonstrated this with a pronounced shift in their operational doctrine towards the end of the first decade of the new millennium.

In 2009, General Paul Newton, while serving in the Development, Concepts and Doctrine section as the Assistant Chief of Defence Staff for the UK became the first British military leader (at least in a public forum) to attempt to introduce design-like concepts into British Joint Doctrine. In the preface to the now discontinued *Joint Doctrine Note 3/11: Decision-Making and Problem Solving: Human and Organizational Factors*, Newton criticized existing British Joint Doctrine as insufficient on the core topic of human thought and behavior. The first version of JDN 3/11 became a formalized effort to introduce some proto-design concepts into British military doctrine while administering this disruptive task in a manner rather distinctive from the American, Canadian and Australian endeavors.

In terms of doctrine published by the Ministry of Defence, JDN 3/11 was unusual in several aspects. It built upon key military applications for complexity theory and human understanding in emergent and dynamic war contexts that were broadly discussed in the slightly earlier publication of *Joint Doctrine Publication 04: Understanding in December of 2010*. JDP 04 was the more formal and authoritative of the two, with a Joint Doctrine Note carrying significantly less prominence than a Joint Doctrine Publication as a 'Doctrinal Note' exists as suggestive or conceptualized and non-regulatory guidance to the force. By publishing JDN 3/11 in the Joint Doctrine Note configuration, the Ministry of Defence was able to

¹⁵⁹² Long, *The Soul of Armies*, 223.

¹⁵⁹³ Long, 223.

incorporate far more challenging and potentially disruptive ideas and language than into JDP 04.

JDN 3/11 introduced the acknowledgement that “some problems cannot be managed by process alone....complex problems beg comprehensive responses.”¹⁵⁹⁴ Yet within five years, the next version of JDP 04 smoothed over much of what the 2011 version of JDN 3/11 offered and returned to a more analytic based military worldview that sought convergence through shared understanding, the identification of common causes of conflict, and systematic constructs nested in physics and engineering language.¹⁵⁹⁵ This conceptual ‘doctrinal note’ introduced some significant concepts previously undetected in British defence doctrine. First, the entire document was grounded in complexity theory, which categorically rejects many of the modernist military decision-making methodologies as far too linear, prescriptive, and simplistic. JDN 3/11 addresses ‘thinking about thinking’ or what sociologists term ‘reflective practice’ by devoting an entire chapter to how people think.¹⁵⁹⁶ Another chapter is devoted to how groups and teams are built and work best together, adding several interpretivist elements normally not seen in military doctrine. JDN 3/11 took a critical stance to military organizations as largely dysfunctional, and throughout the document included vignettes of military (often British) failures in thinking, organizational change, and understanding.

JDN 3/11 provides one British perspective on what military design conceptually can provide a military force, despite the lack of ‘design’ terminology and more significantly the absence of any formal design methodology. Unlike American design methodologies such as the American Army, Marines, and Israeli Defense Force’s use of design methodological graphics and sequences, JDN 3/11 addresses design only in abstraction. Complexity theory, reflective practice, and an emphasis on cultural subjectivity are present throughout JDN 3/11, but the document lacks any sequential or structured methodology for how a practitioner ought to “do design” in a military context. This could again reflect British military culture where there is a pronounced emphasis on gaining tacit knowledge through apprenticeship and oral traditions, and a disregard for the rigid and prescriptive nature of published military doctrine. Further, British military culture maintains a high degree of skepticism as well as reflective practice, as indicated in their doctrine often willing to feature examples of British military failure as learning points.

Although speculative, one suggestion in the structuring of JDN 3/11 is that any concept that addresses tacit and abstract processes such as military design should not and could not be placed into a prescriptive doctrinal form from a British military frame and in accordance with their cultural and social values. This might explain why the British chose to avoid any graphic or formal methodology despite many models existing across traditional and non-traditional design applications.

¹⁵⁹⁴ United Kingdom Ministry of Defence, *Joint Doctrine Note 3/11*, 11.

¹⁵⁹⁵ Ministry of Defence, *Joint Doctrine Publication 04: Understanding and Decision-Making*, 3–5.

¹⁵⁹⁶ United Kingdom Ministry of Defence, *Joint Doctrine Note 3/11*; Visser, “Schön: Design as a Reflective Practice”; Gero and Kannengiesser, “An Ontology of Donald Schön’s Reflection in Designing.”

However, without additional study this is largely speculative. The elimination of JDN 3/11 five years after first publishing it also indicates either a partial rejection of the concepts by their military, or potentially a conflict between the disruptive nature of design and some cherished British military tenets that were jeopardized by the publication of doctrine that addressed organizational dysfunction in an entire chapter.¹⁵⁹⁷ It also could be the case that the British military found these concepts irrelevant or incompatible with existing practice and tradition. Lastly, concepts that are ignored, misunderstood, or rejected by the Armed Forces have a short shelf-life in contemporary doctrine.

JDN 3/11's publication date of June 2011 nearly coincides with the U.S. publication of a new Field Manual 5.0: Operations in March 2010 that featured the first full chapter on military design for the American Army. Both documents explore the concept of 'wicked problems' or complex adaptive systems that are emergent and categorically reject traditional military analytic-based decision-making. Further, British military doctrine writ large began including complexity in the 2011-2012 period with the addition of 'wicked problems' in their 2012 Joint Concept Note 2/12 titled "*Future Land Operating Concept*."¹⁵⁹⁸ As the JCN 2/12 forms the basis for British Army force development and "acts as the basis for discussions with our principal allies and relevant international agencies [on how] future operations will most likely be [organized],"¹⁵⁹⁹ the inclusion of military design concepts and systems thinking is promising within the focus of this military design research.

The new British doctrine posits that militaries tend to think in particular ways that often are insufficient for the vast complexity of the situation, and that often one's favorite conceptual tools become self-serving and harmful. JCN 2/12 criticizes the military over-dependence and infatuation with new technology, accusing it of promising to control the uncontrollable in war, and more significantly that new technology often represses military creativity and imagination.¹⁶⁰⁰ Unlike the American and Australian design experimentations, the British also positioned select interpretivist elements into doctrine as a valuable tempering tool for the analytical objectivity dominating most western military methodologies.¹⁶⁰¹ The Canadians by using a mixed-methods agnostic approach did by 2018 feature select interpretivist readings and postmodern concepts in their National Security Programme level education thus overlapping British efforts in design doctrinal concepts.¹⁶⁰²

Despite these design concepts present in some degree at least in draft doctrinal form, the British institution still largely adhered to the dominant military functionalist paradigm. Analysis remains principal in determining reductionist laws

¹⁵⁹⁷ United Kingdom Ministry of Defence, *Joint Doctrine Note 3/11*, 4-1.

¹⁵⁹⁸ Director Joint Forces (Concepts and Doctrine), "Joint Concept Note 2/12: Future Land Operating Concept" (Ministry of Defence, Shrivenham, Wiltshire, United Kingdom, May 2012), 1-2.

¹⁵⁹⁹ Director Joint Forces (Concepts and Doctrine), "JCN 2/12."

¹⁶⁰⁰ Director Joint Forces (Concepts and Doctrine), 2-10.

¹⁶⁰¹ Director Joint Forces (Concepts and Doctrine), 3-8.

¹⁶⁰² "Canadian Forces College 2018-19 National Security Programme DS/CF 592- Modern Comprehensive Operations and the Complexity of Contemporary Conflicts," 24-25.

and processes, and a single objective “real world” is decried to exist within which militaries might leverage understanding with action to defeat adversaries. This was more present in *JDP 04: Understanding* published in 2010 and blends design elements with an overarching modern military paradigm expressing a functionalist outlook upon warfare.

For example, *JDP 04* lists ‘develop empathy’ as a necessary objective in gaining ‘comprehensive understanding’ which correlates to a systematic rather than systemic appreciation of complex security contexts; one can comprehensively understand and gain control if able to accumulate enough information more rapidly than one’s adversary. It also suggests the expectation that knowledge curation remains relevant so that this accumulation provides the comprehensive understanding, despite dynamic complex systems functioning in nonlinear, emergent manners that reject efforts to preserve information as timeless or universal.¹⁶⁰³ Along with this tension, *JDP 04* also defines ‘actors’ as appreciated within an ‘environment’, and the doctrine directs professionals towards accumulating more analysis and situational information in order to improve decision-making.

Since approximately 2012-2014,¹⁶⁰⁴ multiple British military units have embraced a deliberate planning heuristic aid termed ‘The Seven Questions.’ This detailed planning sequence is associated with various commercial consultation processes and is most commonly paired with the Horton Academy, a commercial enterprise.¹⁶⁰⁵ While the process is promoted as a creative and critical thinking model to apply to complex security challenges, the concepts and rigid methodology presented in the seven questions demonstrates much closer alignment with the American Army’s Military Decision-Making Process (MDMP) and features little if any design theory, language or methods. The booklet promotes creative thinking and not to “slavishly follow the process”¹⁶⁰⁶ while paradoxically directing the planners to remain enemy-focused instead of framing the self’s logic as Naveh directs first in design praxis, and that the outputs of the seven questions must result in what is a convergent military plan using identical terms and analytic processes to virtually all existing western military detailed planning efforts. Neither the booklet nor any associated content of ‘The Seven Questions’ has any design content recognizable for designing for commerce or designing for war.

There is limited evidence of direct design application within the British Armed Forces publicly available at the time of writing, although there are suggestions that several human-centered design methodologies have operated either circumstantially or in isolated applications within the UK defence forces. While various methodologies such as the Stanford ‘hexagonal design model’ as well

¹⁶⁰³ Snowden, “A Leader’s Framework for Decision Making,” 1–14.

¹⁶⁰⁴ The precise date of introduction of ‘The Seven Questions’ planning methodology is in dispute and could not be precisely determined through this research.

¹⁶⁰⁵ The Horton Academy, “Combat Estimate: 7 Questions Booklet” (self-published online, n.d.), <http://www.mod.gov.sl/docs/doctrine%20-%207%20questions%20handbook.pdf>.

¹⁶⁰⁶ The Horton Academy, 4.

as Agile and other product/user experience commercial design methods are potentially in use, the British Design Council holds a prominent position within the UK for commercial design endeavors and has since 2005 offered a 'double diamond design process model' for commercial design activities.¹⁶⁰⁷ While this model is now utilized around the globe, it is potentially more influential within the UK due to its local origin and strong overlap with other contemporary commercial design methods. However, numerous 'design and innovation' white papers from British industry have increased since 2017 without much clarity on what particular design methodology the MoD ought to incorporate.¹⁶⁰⁸

There are some interesting renaissance-like qualities of Naveh's systemic operational design across the Anglosphere in recent years, largely stemming from his productive period mentoring students and teaching SOD at Fort Leavenworth from 2005-2009 formally and informally a few years beyond that. Hayward, a British SAMS student from 2008 would study SOD and attempt individual design integration attempts subsequently as he progressed through his career with limited impact. In a 2020 interview, Hayward reflected on some of his attempts to use postmodern theory, SOD, systems theory, complexity theory and other disruptive ideas to stimulate reflexive practice and innovation within the MoD:

In the first instance of using postmodern design I was just graduated from SAMS and Russia invaded Georgia, and during my school year we actually focused on that region so when I returned to my organization I became the guy who knew a thing or two about the new security environment. The MoD completely misunderstood what Deleuze and Guattari framed as 'smooth versus striated space' and I called this the 'policy paradox.' I felt I was able to see the woods for the trees and I attempted to introduce design from Naveh into the MoD at that early point.¹⁶⁰⁹

Hayward would continue with another recollection of applying postmodern design theory in what he framed as the design 'zenith point of military interest' which he felt was the 2008-2010 period for Afghanistan. For both the British forces

¹⁶⁰⁷ Design Council, "Eleven Lessons: Managing Design in Eleven Global Brands: A Study of the Design Process" (self-published online, 2007), [https://www.designcouncil.org.uk/sites/default/files/asset/document/ElevenLessons_Design_Council%20\(2\).pdf](https://www.designcouncil.org.uk/sites/default/files/asset/document/ElevenLessons_Design_Council%20(2).pdf).

¹⁶⁰⁸ Mike Wilkinson and Simon Jewell, "UK Defence Innovation- Design and Implementation of a System to Realise Value through Exploitation of Novelty" (Niteworks in conjunction with the Ministry of Defence; Defence Equipment and Support, 2017), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692445/NWP_-_UK_Defence_Innovation.pdf?fbclid=IwAR0q7-LFiQ4FY72tRrhitP2vcAfAR5-USzMPZ6tRtdckUdAmCMca8Yg8zQ.

¹⁶⁰⁹ Edward Hayward, Interview of Colonel Edward Hayward, British Army, August 6, 2020 on Military Design Theory in America and Great Britain during 2008-2020, interview by Ben Zweibelson, oral interview over digital medium (Zoom application), August 6, 2020, 2.

deployed there as well as the entire NATO partnership, there was no useful strategy nor effective communication across the Regional Commands (RCs) and Hayward would attempt once more to inject some design theory into British security operations there. The British forces were, in Hayward's opinion stuck in a 'prescriptive orders' mindset where standardized drills and check-lists would support a command-led and 'intent-driven' military organization. "Shut up and do as you are told" is the more colorful example offered in his own assessment of this fixation on a nation-state, World War II era logic for doing things by doctrine and an unquestionable military decision-making frame.¹⁶¹⁰ He would attempt to apply his own reinterpretation of Naveh's core SOD logic that he termed 'outcome orders' which is the antithesis of the aforementioned prescriptive orders. 'Outcome orders' does not have a 'commander's intent' associated with the guidance and features a rough provisioning of available resources while seeding micro-action to military subordinate units within a macro-desired military outcome.¹⁶¹¹ Despite his individual efforts, the majority mindset of British forces would fail to think differently:

The whole thing really crumbled in Afghanistan. I generally think that there was a period from 2006 through 2010 where we grappled with design-like ideas and then it all just became too difficult. We were overtaken by the complexities and frustrations in Afghanistan. I think about halfway through [by 2010], the politicians got bored with us. Senior military officers were insisting that only they could give military advice but they themselves had not fought since the Cold War...it became strategy by abacus, and risk reduction took over instead of thinking critically and creatively about strategy. We failed to understand Afghans. [British] units would prepare for a combat tour overly assured in their training that reinforced doctrine and beliefs about traditional war such as Russia and we could not change how we thought in war in a place like Afghanistan; when Russia invaded Georgia the military got all excited about finally returning to an enemy and a war they understood and something that could match our doctrine and set practices. I returned from Afghanistan and talked with senior British Generals and told them that we [as an institution] thought about our careers but not our profession. We knew all about our values but had no idea about our beliefs. We need to stop going after solutions to problems we know and go after really difficult things.¹⁶¹²

¹⁶¹⁰ Hayward, 2-4.

¹⁶¹¹ Hayward, 3-4.

¹⁶¹² Hayward, 8-10.

Individual efforts by designers such as Hayward aside, the British Armed Forces today are only just recently forming some design-like endeavors within the Ministry of Defense. Some efforts come from outside commercial design entities and consulting groups such as the Niteworks' 2017 *UK Defence Innovation* white paper as well as a new MoD group titled the 'Defense Digital Service' group that centers on "[paving] the way for the rapid delivery of user-centred products and services in Defence."¹⁶¹³ Hayward as a British Colonel is leading an 'Emergent Concepts Team' (ECT) that works at the national level for the MoD and advises on design and innovation through what Hayward explains is a combination of Naveh's postmodern design with a desire to look at new ways of thinking about war and shifting to considering the 'known unknowns'.¹⁶¹⁴ As these remain fragmented and rather minority fielded efforts within the broader MoD, British design remains in a 'proto-design' state at least militarily. Unlike Canadian and Australian contexts, there is a significant commercial design methodology that was created in the United Kingdom, is popular commercially around the world, and has made some limited inroads into the MoD again in scattered applications primarily for new security products and military user experiences. This is the British Design Council's 'Double Diamond' design process.

Briefly, the 'Double Diamond' design process, like the Stanford 'D-school' model as well as military design methods employs a sequential articulated process coupled to a geographic heuristic aid as depicted below. The 'Double Diamond' breaks the design process down into four distinct phases of 'discover', 'define', 'develop' and 'deliver' with the entire process oriented towards the commercial 'user experience and new products' ontological anchoring that all non-military design frames feature as explained in the third chapter. Epistemologically, the UK 'double diamond' is expected to be iterative with designers cycling back and forth through the methodology and repeating the diamond 'divergent' and subsequent 'convergent' ideation experiences, thus creating a pattern of 'double diamonds' if the designers were to visualize their journey. This sequencing is less structured and sequential than the IDEO 'hexagonal' model and further removed from the rigid planning epistemology assigned within U.S. Army Design Methodology and its Marine cousin depicted in the fifth chapter. The 'double diamond' is clearly oriented towards the designing for commerce and not designing for the application of organized violence as Israeli SOD is, due to the Design Council framing each phase of the double diamond process to correlate to market research, user studies, managerial information, and aligning distinct design phases to bringing a new product or experience to a competitive commercial market.¹⁶¹⁵

¹⁶¹³ Rich Crowther, "Creating the Defence Digital Service (DDS) in MOD," *Defence Digital* (blog), December 16, 2019, <https://defencedigital.blog.gov.uk/2019/12/16/creating-the-defence-digital-service/?fbclid=IwAR1jBfnPXwwco5EUcz3MGiULZ6RlsxCA5yDwdomxSkL0Hw8Jac-nZXL67UY>.

¹⁶¹⁴ Hayward, Interview of Colonel Edward Hayward, British Army, August 6, 2020 on Military Design Theory in America and Great Britain during 2008-2020, 9.

¹⁶¹⁵ Design Council, "Eleven Lessons: Managing Design in Eleven Global Brands: A Study of the Design Process," 3-5.

In the first of two graphics below on the British 'Double Diamond' methodology, the detailed structure of how this civilian design approach is presented based on how the British Design Council explains their practice within available published content.¹⁶¹⁶ As this methodology was developed after the more prominent IDEO "hexagonal" sequence of human-centered design as explained in the third chapter but prior to other variations such as IBM's "Enterprise Design Thinking",¹⁶¹⁷ the British commercial design method expresses numerous design concepts and processes considered common to most human-centered design communities of practice. Unlike other contemporary HCD methodologies, the 'Double Diamond' emphasizes iterations of divergent and convergent design activities associated with particular new product or user experience sequences between where they position their initial definition of the design challenge, and where they determine a design outcome based on the delivery and subsequent feedback looped evaluation of said delivery to the targeted market.

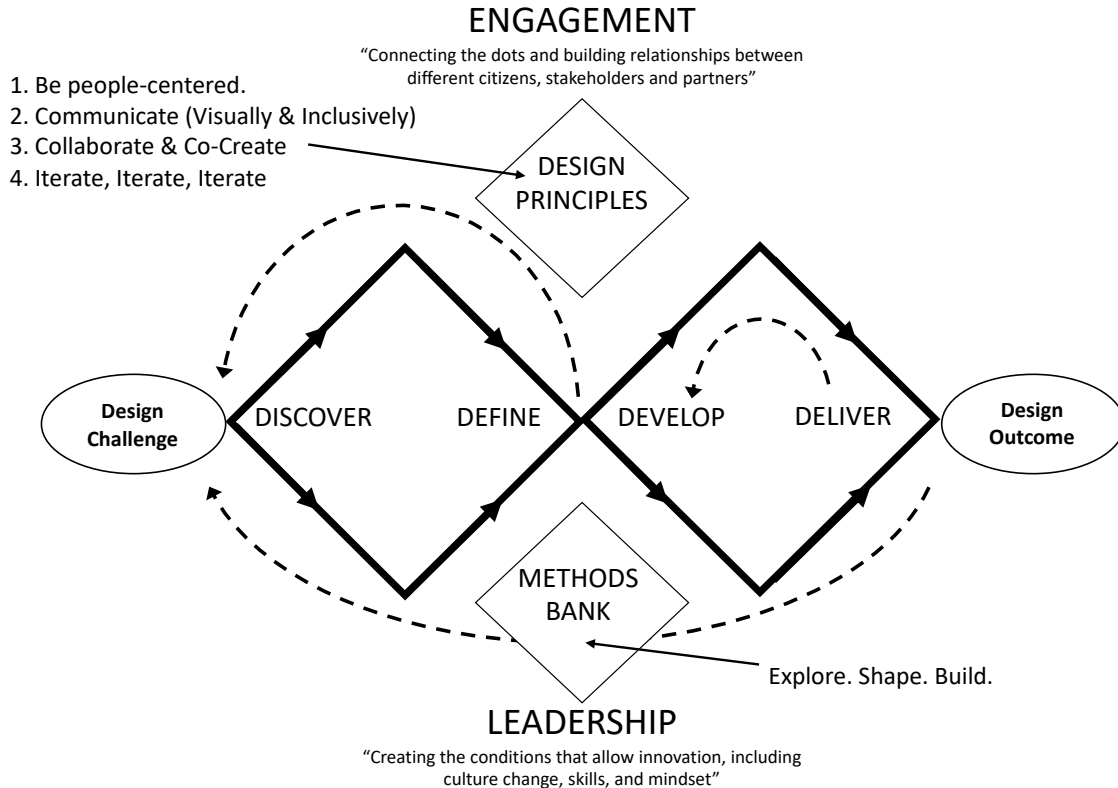
The Double Diamond depiction of cycles of divergent thinking leading to convergent design thinking and back and forth through different aspects of a design process came from the work of Bela Banathy from 1996. The original 'Double Diamond' process was used by the British Design Council from 2005 through 2019, where the Council updated the original model with additional elements depicted below. Although still informally best known as the 'Double Diamond' design process, the Council did retitle their new version as the 'Framework for Innovation' and added the elements of 'engagement', 'design principles', their 'methods bank' as well as a dotted line implying how a nonlinear, iterative design journey works within the framework.¹⁶¹⁸ The latest 2019 design model is presented below as it retains the core 2005 design process as well.

¹⁶¹⁶ Design Council, "Eleven Lessons: Managing Design in Eleven Global Brands: A Study of the Design Process."

¹⁶¹⁷ Cutler, "IBM Design - Operationalizing Artificial Intelligence"; Johnson, *IBM Design Thinking Field Guide Version 3.1*; Gilbert and Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson."

¹⁶¹⁸ Dennis Hambeukers, "The New Double Diamond Design Process Is Here," digital online blog, *The New Double Diamond Design Process Is Here* (blog), October 2, 2019, <https://medium.com/design-leadership-notebook/the-new-double-diamond-design-process-7c8f12d7945e>.

British Design Council's "Double Diamond" Design Process Model



The above graphic is again a commercial example of a uniquely British perspective on how to pursue design praxis within an economic design endeavor for new user experiences or novel products. In other industry-produced 'design white papers' the authors also offer up clearly commercial design and innovation suggestions where the terms 'client', 'profit and cost', and other 'designing for commerce' concepts are juxtaposed against British defence logistical or equipping needs that indirectly link to the application of organized violence.¹⁶¹⁹ The examples that the British Design Council offer in their 2006-2007 content remains entirely commercial, while some more recent public content suggests that the British Ministry of Defence has incorporated some human-centered design methods such as this 'Double Diamond' process into some MoD logistical, technological, and potentially organizational needs of the British military. Therefore, this chapter will close this last section with an epistemological framing of this design methodology as no other existing methodology exists at this time that is definitively associated with the British Ministry of Defence or any British military service at large scale.

In the second figure below, the 'Double Diamond' shares many of the epistemological structures of other human-centered design methods such as IDEO's hexagonal design method. The British Design Council frames the consumer's user needs by associating this 'design challenge' starting point with some design

¹⁶¹⁹ Wilkinson and Jewell, "UK Defence Innovation- Design and Implementation of a System to Realise Value through Exploitation of Novelty," 48.

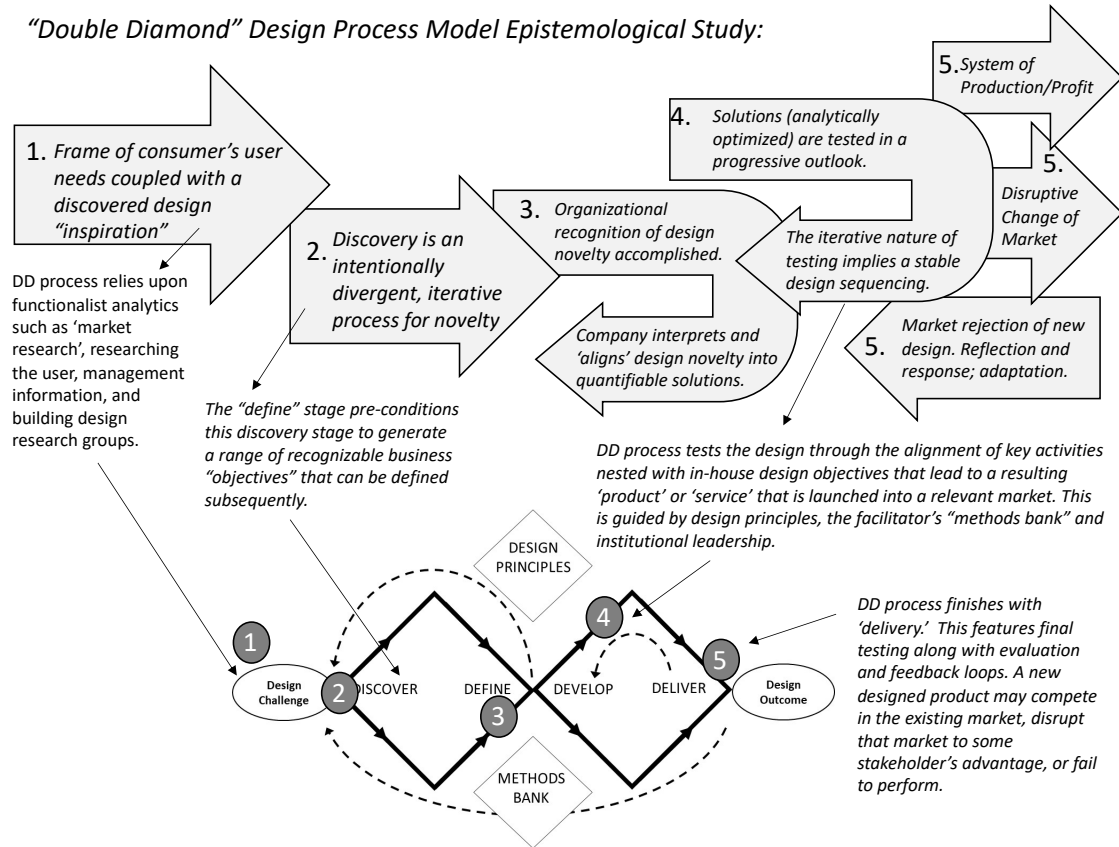
inspiration either from the client, leadership, or possibly another source. Yet this initial step of defining the design challenge and establishing their discovery phase of divergent design iterations is coupled to deliberate market research, user research, management analysis as well as setting up design research groups. This is a strong indication of a functionalist paradigm which is not unexpected in that most commercial design methods appear derived from within a functionalist frame. This also illustrates how Naveh's postmodern concepts used in complex security challenges are uniquely unlike these aforementioned design models for economic interests.

As the designers using this British commercial method diverge iteratively to generate a wide range of possible and emergent designs, at some point the facilitators will move the team into a convergent process of 'definition' where recognizable business objectives begin to narrow down the designs assessed as useful for subsequent development and an elimination of designs that are either rejected or potentially unrecognizable in emergent promise by that company as well as the design facilitators. There is some concern here that, like other single-paradigm or 'paradigm unaware' modes of design, this methodology could create self-rationalizing loops of business objectives in the convergent phases of 'define' and 'deliver' that fail to appreciate design emergence, non-linearity, dynamic system transformation as well as destructive innovation.

In the second pronounced phase of divergent, iterative design praxis, the British 'Double Diamond' method aligns design novelty into quantifiable design solutions that appear to feature some qualities of analytic optimization or validation within existing business or market beliefs. These solutions appear by the methodology to suggest a progressive outlook in how 'testing' these designs in a divergent developmental phase will then shift into a convergent 'delivery' phase that will end the Double Diamond process through a design outcome. This 'second diamond' portion demonstrates another iterative process of testing a design through the alignment of key activities nested within in-house company design objectives as guided and articulated by leadership and expressed through how the British Design Council identifies design engagements and narratives.

These in-house objectives support launching the newly designed product or service into a relevant market. Epistemologically, like the 'D-School' design methodology explained in the third chapter, the 'Double Diamond' process could create a design outcome that continues or generates a new form of production/profit that is within the anticipated commercial strategy of that client. The design outcome could radically transform some or all of that same market positioning some stakeholders with a novel advantage as well as entirely new challenges and problems, or the design outcome could fail to perform. In some of these outcomes, the design methodology loops back to the first framing step, or back into a divergent 'develop' phase using feedback or commerce metrics.

"Double Diamond" Design Process Model Epistemological Study:



The above graphic is the author's depiction of the epistemological choices and logical structuring that occurs above the Double Diamond methodological application. Of note, this methodology like those of the earlier commercial examples in Chapter Three as well as the U.S. Army and Marine Corps' military design methodologies are vulnerable to single-paradigm design praxis. Naveh's application of postmodern theory as well as a deliberate emphasis on paradigm awareness, consideration of alternative paradigms (social paradigm theory), and the intentional use of postmodern deconstructive concepts is not demonstrated within this British commercial design method. This does not mean that these concepts cannot be used, rather their lack of epistemological placement merely indicates that unless a designer intentionally uses these theories and subsequent methodological applications, the design outputs may lack any necessary organizational critical reflection nor push that organization into novel experimentation beyond institutionally sanctioned limits as well as essential reflexive practice.

While the British military does not yet have any clear military design methodology within their doctrine nor in their professional education program, they do have design-like concepts as well as numerous references to conceptualization, innovation, creativity, social construction of reality, and the need to reform existing modern military decision-making methods due to an over-abundance of issues shared across the Anglosphere. Kingsbury, leading a team in 2020 at the British Army's Land Warfare Centre remarks: "we've just started on a project to try and simplify a lot of our doctrine; too long (12k pages!), too complex,

too much duplication and contradiction, too much pseudo-intellectual language disguised as weak ideas, etc, etc.”¹⁶²⁰ Yet the British military is experimenting with military design and in some cases such as Hayward and his new design and innovation cell supporting the Ministry of Defence,¹⁶²¹ he is drawing directly from his experiences learning Naveh’s SOD when it was offered at Fort Leavenworth. Whether Hayward and others within the British military succeed in promoting military design discussions and experimentation is to be determined, as is any commercial development of alternative ‘user-centric’ design methodologies into British defence and foreign policy endeavors.

Chapter Conclusion:

This chapter presented three ‘proto-design’ movements from across the Anglosphere and collectively with the more robust Israeli and American military design efforts reflect the most advanced western democratic societies charged with safeguarding the free world against adversarial nation-states as well as non-state aggressors. The application of organized violence today in the Twenty-first Century is more complex and unlike previous conflict periods, thus driving a security organization demand for different ways to make sense of thought and action in war as well as a new way to frame postmodern warfare as well as the postmodern context of societies today. As Mader reflects:

The postmodern soldier of Western democratic societies is accountable for his way of waging war as in no other ae before, the outcome of his decisions and actions are the subject of immediate media coverage. In such an environment, no matter how overwhelming the technology, minor frictions- the inevitable casualties of combat, the one missile gone astray into a residential area, the one soldier mistakenly killing civilians at a checkpoint or the one unfortunate incident of friendly fire- can have a disproportionate impact on the course of action by shaping domestic and international public opinion and influencing political reactions.¹⁶²²

While the British set upon their own distinct way of considering military doctrine, education and innovation in the Post-Cold War and into the Post 9-11 era, their military design movement has lagged beyond that of the rest of the Anglosphere. Traditionally, the Australian and Canadian armies have “tended to adapt American and British conceptual developments to suit their own

¹⁶²⁰ Kingsbury, “Re: 20200806 Close Hold Please: Draft Design Book Chapter on CAN, AUS, UK Prot-Design Movements Some Light Summer Reading,” August 27, 2020.

¹⁶²¹ Hayward works in the Centre for Historical Analysis and Conflict Research (CHACR), a think-tank established on behalf of the British Army to offer independent and objective views.

¹⁶²² Mäder, “The Evolution of British Military Strategic Doctrine in the Post Cold War Era,” 309.

circumstances" in security operations and war,¹⁶²³ yet in this emerging area of military design theory and practice, the first area of initial experimentation and implementation occurred in Israel. This arguably could be the result of Israel's more intense and perpetually existential regional security challenges since its formation, and also the Euro-sociological and geo-political interrelationships of Israel and the Anglosphere may also factor in as well. Regardless, the initial work of Naveh quickly spread to America where it took hold yet was modified, mutated, as well as in many ways rejected by American services. The Australians and the Canadians would differ in their reception of design theory as well as how they would experiment with it over the last decade or more.

Thus, despite military design theory emerging from Israeli and subsequent American experimentation as the primary stimulation for alternative war framing in both Australia and Canada, these military institutions in this chapter all took different paths toward today's international and loosely connected community of design practitioners.¹⁶²⁴ The Canadian military would maintain much of the traditional 'modern military frame' with postmodern theory and disruptive design practices largely remaining in the periphery of military professional education, doctrine and practice until recently.

Australian military progression toward design theory would integrate select aspects of complexity theory and systems theory more readily into modern mechanistic decision-making methodologies while largely rejecting Naveh's postmodern concepts. British design development would occur potentially in subtle, rather indirect ways by not mentioning the specific term 'design' but indicating some key aspects of complexity theory, systems theory, and in isolated and individual experiences, postmodern design concepts as well. Over the last two decades, the Canadian, Australian and British militaries would each move in distinct and often independent paths toward challenging or even breaking from the modern military frame for warfare that espouses a universalistic epistemology, standardized doctrine, convergent behaviors, analytic optimization and an emphasis on a centralized command hierarchy for thought and action.

Sookermany, in citing postmodernists Baudrillard and Lyotard observes that they both "point towards a configurative plurality grounded in the local and/or contextual as the 'distinct organizing principles' for a postmodern worldview. Accordingly, the postmodern break with the modern belief in a universalistic epistemology is replaced with a personal and contextualized involvement in

¹⁶²³ Jackson, "Moving Beyond Manoeuvre: A Conceptual Coming-of-Age for the Australian and Canadian Armies," 90.

¹⁶²⁴ Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; Paparone and Reed, "The Reflective Military Practitioner: How Military Professionals Think in Action"; Ben Zweibelson et al., "Over the Horizon Podcast 5 – Designing Future Security: An International Roundtable on the Military Design Movement," iTunes or Soundcloud, Over the Horizon Podcast Series, accessed February 12, 2018, <https://overthehorizonmdos.com/2018/02/12/podcast-5-designing-future-security-an-international-roundtable-on-the-military-design-movement/>.

defining the 'truth.'"¹⁶²⁵ Military design provides this postmodern plurality in thought for postmodern militaries, although it does this in tension of the modern linear and single-paradigm rationalized mode of decision-making in war. Postmodern design therefore is unlikely to ever be well represented in any potential military design codification to doctrine, nor will it become a majority topic within professional military education or expressed in mainstream military discourse for some time.

Despite this difficult position for postmodern military thought, experimentation and development, the proto-design movements of the British, Canadian and Australian militaries continue to develop as of 2020. Design theory is becoming more popular in discourse, professional education, military conferences and workshops as well as the expansion of various communities of military practice.¹⁶²⁶ Multiple militaries across Europe and elsewhere are developing design movements or expressing formal interest in how to use design thinking in the application of organized violence.¹⁶²⁷ While some of this design appears to remain commercially or academically civilian in orientation and therefore associated with new user experiences and products that can be utilized in warfare, some are experimenting with military design in a postmodern and organizationally disruptive, transformative form. The next chapter addresses some long-term possibilities for the overarching military design movement and what opportunities, risk and consequences are over the horizon.

¹⁶²⁵ Sookermany, "On Developing (Post)Modern Soldiers," 62.

¹⁶²⁶ Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; JSOU User et al., *Advanced Military Design, Panel of International Experts: IMDC Conference, Ottawa, CA-Part 2 Q&A*; Zweibelson et al., "Over the Horizon Podcast 5 – Designing Future Security: An International Roundtable on the Military Design Movement"; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices."

¹⁶²⁷ Jeffrey van der Veer, "The Rise of Design: Why an Innovative Concept Is Emulated in Armies around the Globe" (Master thesis of Military Strategic Studies, The Netherlands, Royal Netherlands Defence Academy, 2015), <http://militaryepistemology.com/the-rise-of-design/>; Zweibelson et al., "The Emergent Art of Military Design: Swedish Armed Forces and the Contemporary Security Environment"; Porkolab and Zweibelson, "Designing a NATO That Thinks Differently for 21st Century Complex Challenges"; Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces"; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)."

Conclusion Chapter: The Arrival of the Military Comedian for Applications of Organized Violence in a Postmodern War Movement

Well-worn problem-solving paths become deeply entrenched in the minds of people, and indeed in the structure and procedures of an organization...if the organization operates in a stable environment and has the time to hone its procedures to perfection, and its culture is seen to be very successful, the emotional bond of people with what they see as the unchangeable DNA of the organization can become very strong.

- Kees Dorst¹⁶²⁸

The growing body of these [military design] thinkers seem to have hit the critical mass required for the establishment of disciplinary self-awareness a few years ago (perhaps 'interdisciplinary self-awareness' better suits).

- Aaron Jackson¹⁶²⁹

We find that the reason for the burden of overall planning and cultural design- and it is a burden- is the price of 2,500 years of the occidental habit of talking about everything of systematic doubt and questioning...the price is that each goddess or ghost or poltergeist that is expelled out of reality has to be replaced by permanent innovation efforts. Therefore, each "witch-doctor" has to be replaced by medicines, psychiatrists, or other types of value engineers. Each taboo or prejudice has to be replaced by a law or rule and therefore this is a process that generates more and more, larger and larger, and more complex systems, and the domain of design is extending beyond the scope of the individual experience, professional competence, and capacity.

- Horst Rittel¹⁶³⁰

This research is the first detailed epistemological study of military design methodologies, presenting a new sub-discipline of practice for security studies and contemporary war theory. In order to establish this, a distinction was framed for how humans design for commerce and how they design through warfare for the application of organized violence. In doing so, this research also presents the first comprehensive epistemological study on how and why designing for commerce is distinct and insufficient for societal needs in respect to designing for security affairs.

¹⁶²⁸ Dorst, *Frame Innovation: Creating New Thinking by Design*, 17.

¹⁶²⁹ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 10.

¹⁶³⁰ Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*, 137.

This is an entirely new area for additional research, and with commercial design methodologies being vastly dominant and composing the aggregate of design communities of practice, this particular and peculiar military difference in context, form and function essentially prevent one epistemological design frame from extending directly from commerce and civilian applications extensively into security applications.

In framing the origin for most all contemporary military design communities of practice in this research, this project provides the most complete and thorough academic study of Shimon Naveh and the Israeli Defense Force's development of 'systemic operational design' yet completed. Although select previous studies explored portions or specific periods of SOD theoretical development or operational application in security affairs and military education, they lack the comprehensiveness of this research, access to central stakeholders, contemporary interviews, published and unpublished doctrine as well as concept papers, and observations over several decades of SOD development and experimentation. There are no epistemological studies of SOD or any military design methodology, and exceedingly few examinations of commercial design methodologies beyond single-domain or specific school or brand recognition.

Whether Israeli or American, formal design doctrine features no epistemological content or even acknowledgement of source design theory, further perpetrating institutional lack of awareness on the design movement. This research synthesizes the military design movement today as well as demonstrates the tensions, overlap and interplay with other forms and function of design enterprise, as well as traditional military planning and strategic-making logics. At the philosophical level concerning war theory and how societies choose to make sense of reality and the application of organized violence, this research summarizes premodern and modern military institutional frames and how societies made sense of war and warfare across significant eras of conflict.¹⁶³¹

While the premodern and modern military movements in history have already been rendered in exceptional detail and explanation by Bousquet, Gat, Mäder, Keegan, Vagts, Malešević, Jackson and others as illustrated in the second chapter of this research, this research introduces the postmodern military comedian as a metaphoric device on how the military design movement *now contributes to a new and different mode of thinking and acting in war*. This metaphor is intentionally provocative, in keeping with the disruptive, deconstructive spirit of postmodern theory and how comedy at an epistemological level functions to challenge, critique, and disrupt social norms in order to stimulate transformation. If human application of organized violence is entering postmodernity, the military design mode of sensemaking arguably is the first expression of such thought and action by using

¹⁶³¹ The term 'period' is often associated with a unit of geological time in geology, with 'era' composing a series of related periods. As military paradigms and institutional approaches to war and warfare are somewhat arbitrary yet chronological, the higher status of era over period provides a sufficient and appropriate unit of measurement in that while there could be numerous periods of war and warfare, there are unavoidably fewer eras for philosophical inquiry.

postmodern theory to reinterpret war and warfare differently than previous war logics.

An additional outcome of any research project is the exposure of new areas for further research, as well as the illumination of previously unconsidered or uncharted areas now visible for consideration, debate, and study. There are unavoidable gaps in research, with this project addressing numerous key areas of focus while deliberately choosing not to study areas outside of the scope of said research. This conclusion will address each the major aforementioned contributions that this project provides to the broader security studies field, design theorists and practitioners, military professionals and academia across multiple overlapping as well as dissimilar disciplines. This conclusion will also consider the shortfalls, gaps and areas for future further research now identified through this deep study of military design.

The Challenging of the Modern Westphalian Order:

In order for the argument for military design to be considered, the issue of why things no longer work for militaries in making sense of complex reality and war needed attention. This in itself is a controversial topic and even deserving of its own specific study outside of this research. Nonetheless, the methods, logic, terminology, and entire belief systems of nation-state instruments of military power are no longer accomplishing what they seek to do in the application of organized violence. Modernity of war is no longer absolute, and the chips in the plaster are growing at an alarming rate for military professionals.

This research provided multiple examples where present day adversaries are not 'playing by the rules of war' and demonstrate both a manifestation of war within postmodernity as well as the potential to frame and appreciate these alternatives to nation-states in postmodern philosophical stylings, including the utilization of postmodern theory to challenge modern war logic. One recent example is that of the Islamic State, where Stern observes: "Thus, ISIL aims to create a post-Westphalian world...ISIL presents a new type of threat to the international community. On one hand, it is in control of territories within two states recognized by the United Nations: Iraq and Syria...On the other hand, it rejects the post-Westphalian system of states. It claims to have reestablished the caliphate."¹⁶³²

While the Islamic State no longer functions in 2020 as it did years earlier when Stern, Farah, Levitt, Dishman and others wrote of the alternative threat to the Westphalian Order, the proto-state and global terrorist/criminal enterprise demonstrated the fragility not just of Westphalian monopolization of 'organized violence' for determining what war and foreign policy could/could not be, but also the limits of effectiveness of traditional or modern military logics for how and what to do to accomplish those war aims. The rationalization of the modern world is now under assault by postmodern challenges. Whether one uses the term 'post-conventional', 'post-industrial', or as Reitano and Trabulsi frame the technologically

¹⁶³² Stern, "ISIL and the Goal of Organizational Survival," 200–205.

networked 'hyper-connected world' where "social media has become the showcase of organized criminal groups to demonstrate their power and profits with impunity,"¹⁶³³ this new context is in paradox with the earlier modern-world order of things. Drug cartel leaders can demonstrate 'narco-narcissism' while flaunting illicit wealth on public Instagram and Twitter accounts for millions of followers while still disrupting and confusing nation-state opponents.

This emergent vulnerability to what was previously the dominant Westphalian Order for waging warfare between states for the last several centuries subsequently creates the question of 'what might militaries do to think and act differently' if the existing modern doctrine, methods and terminology as well as the epistemological and ontological frameworks supporting those things are now insufficient. This is where the military design movement comes in, and where the postmodern comedians of war join the premodern war hero and the modern military manager as the new trope or metaphoric device to cohesively frame this new development in war.

The First Epistemological Study of the Military Design Movement:

Today, the military design community of practice has potentially reached a maturation point in which some advocates of the design movement even suggest it could be a sub-discipline within security studies, although this cannot be answered here and requires greater discussion within the security studies broader discipline.¹⁶³⁴ Despite critics of Naveh's original SOD theory accusing the Israelis of demonstrating conceptual shortcomings in the 2006 Lebanon War as reason to categorically reject postmodern design concepts wholesale, the design movement nonetheless expanded into contemporary military communities of practice across all major western industrialized security forces over the last several decades. A decade ago, any proposal that 'military design' as a movement should be recognized as a sub-discipline of any field would have been premature and unfounded due to the low-density population of design practitioners, lack of experimentation in the field, limited distribution of theory and military doctrine as well as the immaturity of design formal education across the professional military education system.

Even today, military design remains a fiercely debated topic and many institutions are struggling with whether to include it and how to implement it within various services, military components, schools, doctrine, and practical application in war. As the third through sixth chapters demonstrated, the military design movement has taken a nonlinear and strange path of twists and turns as it

¹⁶³³ Tuesday Reitano and Andrew Trabulsi, "Virtually Illicit: The Use of Social Media in a Hyper-Connected World," in *Beyond Convergence: World Without Order*, ed. Hilary Matfess and Michael Miklaucic (Washington, D.C.: Center for Complex Operations; Institute for National Security Studies, 2016), 215.

¹⁶³⁴ Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies"; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 10.

spread from Israel out to the American, Australian, Canadian and European militaries, largely through grassroots efforts and the promotion of design advocates in small communities of practice. In each of the previous decades since the genesis of 'original SOD' in 1995 in Israel, different institutional barriers have arisen depending often on who, where, and how the design was being expressed, as well as what the targeted areas under disruption or deconstruction of said design inquiry were and *whom valued their preservation*.

Despite the institutional objections or perhaps even because if it over the last few decades, an ever-increasing range of contemporary security forces are now exploring the disruptive, deconstructive and experimental processes broadly contained under the 'military design' mode of thought and action in the application of organized violence.¹⁶³⁵ The experimental qualities as well as the counter-cultural aspects of design, coupled with institutional frustration over contemporary security quagmires such as Iraq, Afghanistan, Syria, Africa, and beyond present fertile ground for military introspection not just of the tools and technology, but of the belief systems, decision-making methods, doctrine and language of warfare. Military design experimentation is at the forefront of multiple institutional transformative efforts, with small design cells now becoming mainstream special staff functions across conventional, special operations and even geographic combatant command levels.¹⁶³⁶

Some militaries produced design doctrine, others provide design education, and others still appear willing to experiment with design's challenging meta-methodological approaches to postmodern war through a multi-perspectival reflexivity, yet as a whole no one mode or method of design practice has demonstrated a stand-out superior mode of designing for organized violence. In the generation of military design doctrine as well as the establishment of various military design methodologies beyond the first Israeli one created by Naveh et. al, there has been little evidence of any epistemological consideration on why and how this military design is created, or whether the mode of design is uniquely tailored to the content or the form for designing organized violence with the exception of preliminary design research by Paparone.¹⁶³⁷ This lack of epistemological

¹⁶³⁵ The author, as a military design educator at the Joint Special Operations University, has seen the rise of formal military design educational interest occur in Sweden, Norway, Denmark, the Netherlands, NATO, France, Germany, Italy, Hungary, Canada, Australia, various South American nations, as well as parts of Central and Eastern Asia in their security organizations over the last five years alone. In 2010-2015, only a handful of mostly Anglo-Saxon military forces were seriously experimenting with military design outside of Israel.

¹⁶³⁶ The author, as part of his work for the Joint Special Operations University, engages with formalized military design cells such as in the 75th Ranger Regiment, U.S. Space Command, Australian Commando Regiment, European militaries, and other contemporary 'general purpose' military forces in the U.S. Department of Defense.

¹⁶³⁷ Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

awareness or study of different military design methodological forms¹⁶³⁸ is a vast research gap for military professionals and students of war theory.

Framing Distinct Differences of Commercial and Military Design:

This project proposed that the pursuit of monopolization of organized violence is dissimilar yet intertwined with commercial endeavors, just as the design logic for war is teleologically motivated in applications of organized violence to seek ultimate benefit for humanity (although frequently at the direct benefit of the society wielding said instrument of military power). This is a critical contribution to both the military institution as well as commercial design enterprise and multiple design disciplines. Previous to this study, there is no research or primary sources offering an epistemological framing of commercial design methods and that of designing for security applications, nor is there any available detailed scholarship on design from this multidisciplinary perspective.¹⁶³⁹ Designers until now might not even realize other reasons to design, nor consider difference between design mindfulness and purpose in whether designing for commerce or designing for war.

As many defense leaders, policy makers, and commercial enterprises focused on design applications are now interacting extensively on national level, strategic down to tactical design concerns, this research provides the first essential study of the tensions, overlap, and interplay between these two dissimilar design epistemologies. The third through sixth chapters provided epistemological study of multiple military design methods as well as at a meta-design level the epistemological distinction of designing for commerce and designing for war. This is essential for today in that senior security leaders encounter many advocates of 'design' that blur between civilian, commercial, and security contexts with often the same terminology and practices at least superficially appearing useful to some challenges, while confusingly inappropriate in other applications. This research enables deep appreciation of 'design' at a meta-level for various stakeholders, communities of design practice, and design theorists.

This examination includes the commercial design community, of which this research presented areas of theoretical and practical overlap, tensions and interplay in the third chapter. Commercial design orients towards the creation of new products that benefit society, as well as the introduction of new user experiences that transform societies over time; these design logics teleologically motivate in commercial enterprise that seeks to benefit humanity. As the third chapter

¹⁶³⁸ The only other researchers working on these topics are writing partners and colleagues of the author. Paparone's epistemological study of military design does not address the various military design methods in particular as this research does, nor does he address civilian design practice. Jackson's work draws extensive inspiration from earlier draft versions of this dissertation research as well as earlier published research by this author on these particular topics and are therefore complimentary yet chronologically secondary to this primary work. See: Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)."

¹⁶³⁹ Outside of preliminary research, lectures and draft documents by the author pursuing this research project.

explained, their products and users certainly are used in war, but civilian design methodology itself is not entirely useful for direct application or assimilation into war activities except in specific, often technological or commercially similar instances. This position may still be challenged in the future as many commercial design enterprises continue to assume their design method is appropriate for any and all applications to include security affairs. How those fare in implementation as compared to military design methods may result in further debate on this particular topic. For this research, pure commercial design application in security contexts is strongest within existing user experiences in warfare and new user products or artifacts of warfare.

These include such focuses as military hardware, software, logistical, administrative or other overlapping function where civilian and military practice are largely interchangeable. There has not been any clear epistemological framing of commercial design practice and how core differences between this mode of designing and that of designing for war require peculiar interplay methods of a design facilitator in order to bridge commerce-oriented design to specific military contexts. As more commercial designers are entering into policy and security applications and either directly applying a civilian design method or crafting some hybrid for tailored military usage, this research will be a primary resource for future design pedagogic and epistemological perspectives. Normative design form, function, and education requires reflexive practice and this meta-methodological inter-disciplinary perspective.

By framing the meta-design enterprise in this commercial and security orientation, it is additionally the first academic study to ontologically and epistemologically present civilian design logic at a meta-methodological level, and subsequently differentiate it philosophically from contexts requiring the monopolization of organized violence. Krippendorff, Archer, Papanek, Simon, Rittel, Alexander, Nelson and other design theorists have over the last half-century advanced multiple design fields of thought on civilian design considerations,¹⁶⁴⁰ yet no existing research thus far has framed designing for commerce and designing for organized violence so that both communities of practice can now engage in advanced discourse beyond methodological or technical nuances. Recent attempts in select journals or blogs reflect direct influence with drafts of this research¹⁶⁴¹ or inspiration as well as extensive referencing of pre-existing academic content

¹⁶⁴⁰ Krippendorff, "Propositions of Human-Centeredness; A Philosophy for Design"; Papanek, *Design for the Real World: Human Ecology and Social Change*; Simon, *The Sciences of the Artificial*; Protzen and Harris, *The Universe of Design: Horst Rittel's Theories of Design and Planning*; Alexander, *Notes on the Synthesis of Form*; Nelson and Stolterman, *The Design Way*.

¹⁶⁴¹ Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit."

developed by the author.¹⁶⁴² In those small groups recently discussing this topic, the author or his current published research is central to their positions.

While this research is of benefit to the cross-disciplinary boundaries between commercial and civilian design theorists and practitioners and those of military strategists, planners as well as military designers, the critique of leading military design schools is of paramount interest to professional military education at all levels within the international industrialized military communities. Currently, the only research done on multiple military design methods remains limited in scope to a single service methodology,¹⁶⁴³ single doctrine,¹⁶⁴⁴ or in only recent research done in tandem to this author's own design research in support of this research, to multiple contemporary military design methods.¹⁶⁴⁵ Regardless, no research is available outside of this work that addresses the epistemological and ontological structures of each leading military design school of thought, to include the epistemological structuring of SOD across Naveh and Graicer's own publications.

The origins and philosophical motives of Naveh's SOD for the IDF are studied only in limited fashion outside of this research, and due to Naveh's reclusiveness as well as the IDF's general secretive nature for defense ideas, a detailed epistemological study of the three versions of SOD is unavailable outside of this work. Although the history of Naveh's intellectual journey from Israel to Fort Leavenworth and beyond is significant, the selective acceptance of some concepts and the epistemological rejection of core logics by various military institutions (to include the IDF) is a particular area of previously unresearched content. This extends into the American, Australian, Canadian and other militaries as well. As of

¹⁶⁴² Gilbert and Zweibelson, "Compelling Transformations of Traditional Organizations: IBM's Phil Gilbert & JSOU's Ben Zweibelson"; Michael Keegan, "Military Design Thinking: A Conversation with Hal McNair, Ben Zweibelson and Nate Schwagler," sound file, The Business of Government Radio Hour, accessed December 31, 2019, <https://federalnewsnetwork.com/business-of-government-hour/2019/10/military-design-thinking-a-conversation-with-hal-mcnair-ben-zweibelson-and-nate-schwagler/>; Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay"; Ben Zweibelson, "An Application of Theory: Second Generation Military Design on the Horizon," *Small Wars Journal*, February 19, 2017; Zweibelson, "Designing through Complexity and Human Conflict: Acknowledging the 21st Century Military Design Movement"; Ben Zweibelson, Designing for the Future of Defense and Security (Interview Part 1), interview by John Sarubbi, Over the Horizon Journal, April 23, 2019, <https://othjournal.com/2019/04/23/designing-for-the-future-of-defense-and-security-interview-part-1/>.

¹⁶⁴³ Grome, Crandall, and Rasmussen, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration."

¹⁶⁴⁴ Headquarters, Department of the Army, *Army Design Methodology (ATP 5-0.1)*; Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels"; U.S. Marine Corps, MAGTF Staff Training Program Division, *Marine Corps Design Methodology*.

¹⁶⁴⁵ Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces"; Zweibelson et al., "The Emergent Art of Military Design: Swedish Armed Forces and the Contemporary Security Environment."

2020 there are dozens of nations with defense forces or services seeking to incorporate a military design practice into their educational system or formal military decision-making processes, with an increasing interest in the theoretical, doctrinal, and historical origins of military design accompanying this expansion.

While Australian and Canadian proto-design efforts currently exist, this research primarily focused on American Army and Marine design methods as those are overtly practiced within the militaries, educated at military schools and present in some doctrinal form while drawing direct inspiration from Israeli SOD. American services are introducing doctrine, formal education, practical applications from the field, as well as a vigorous academic debate on what military design should or should not be in form and function. The Australian and Canadian forces do not yet meet many of these thresholds although their design developmental paths are still emerging at the time of this writing.¹⁶⁴⁶ The sixth chapter of this project demonstrated the 'proto-design' communities of design practice in Australia, Canada, and the United Kingdom with respect to military as well as select commercial design praxis. While there are vast design communities and activities in these societies, only those with clear linkages to Naveh's SOD, or to some other key source of military design study in this project warranted inclusion in this chapter.

The struggles of academics, military leaders and educational faculty appear to have similarities as well as differences in this collective challenge to implement design as their American military counterparts.¹⁶⁴⁷ Australian military design is also showing signs of development, although Jackson stipulates that design endeavors have occurred within the Australian Defense Forces, but that they have occurred "in an ad hoc manner, involving several different design efforts occurring in isolation from one another."¹⁶⁴⁸ A more detailed study of both of these military design efforts as well as how and why Naveh's military design, commercial design concepts, and other disciplinary influences occurred and the institutional resistance would be of significant academic value to the international military design community. In particular, the emergent interest in international militaries seeking their own military methodology for designing in war is promising, as those stories need to be

¹⁶⁴⁶ The Australian military does not practice a specific form of military design, nor does it offer design education formally as of 2020 despite having some design qualities within Australian doctrine since 2009. The Canadian military has provided an 'agnostic' style of mixed-methods design education at the Canadian Forces College over most of the past decade yet there is no Canadian design doctrine nor do Canadian military forces overtly practice one particular style of design over another. Additionally, the influence of American Army and marine military design practice appears in part to be a powerful forcing function in coalition and partnered military interest in military design.

¹⁶⁴⁷ Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education"; Zweibelson, Whale, and Mitchell, "Rounding the Edges of the Maple Leaf: Emergent Design and Systems Thinking in the Canadian Armed Forces"; Anderson, "From Systemic Operational Design (SOD) to a Systemic Approach to Design and Planning: A Canadian Experience."

¹⁶⁴⁸ Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?," 11.

told as well, and academic study of the epistemological and ontological choices in how these new military design methods are constructed will need to be conducted.

Comprehensive Epistemological Study of Naveh's Military Design:

This project presents the most complete, comprehensive and updated study of Shimon Naveh's three-decade experimentation with military design concepts, to include exclusive interviews and an epistemological inquiry into all three periods of 'systemic operational design' praxis through the facilitation of Naveh and Graicer, his primary collaborator. Although previously less understood in contemporary Israeli design studies, this research articulates the significant contributions to Israeli SOD by Graicer, as well as the problematic relationship Naveh and Graicer have with IDF efforts to publish and codify design into their doctrine. Graicer's own contributions and her philosophy of design praxis is yet another area for additional research, particularly due to her own differences with Naveh on facilitation, style and method.

Naveh's design concepts were novel and broke entirely with conventional, traditional military theory of action in the 1990s. SOD would even in its first incarnation promote a 'meta-methodology' for multi-perspectival reflexivity using epistemological study of war and warfare. It positioned the military, all key actors and the idea of war itself into a post-industrial world for the application of organized violence understood through iterative framing and reframing using postmodern theory and self-disruption. Naveh demanded organizational change beyond the limits of the legacy system's tolerance, and for this he would encounter exceptional institutional resistance. However, many of the core lessons that Naveh stressed would not necessarily be adapted by the IDF in each of the phases of design praxis shown here, nor would many of them translate well into foreign militaries. This research posits that Naveh is the first significant 'military postmodern comedian' in this shift from the industrialized, modern war frame towards the postmodern frame as explained in this project. Through a combination of his own provocative genius, hubris, personality and experience as a military leader in war, Naveh has fostered his military design idea from isolated developmental military project into a world-wide phenomenon of postmodern warfare.

As the pathfinder for numerous military design offspring that comprehend war differently, Naveh continues to be regarded as incendiary, disruptive, and controversial. He is the first postmodern disruptor of war theory, the military comedian willing to deconstruct cherished belief systems in order to create vital cognitive space to reform them anew. Some seek to understand his ideas, while many others 'don't get the joke' and instead offer solutions of management or heroic behaviors in order to accomplish activities in the application of organized violence. Naveh's primary work remains 'In Pursuit of Military Excellence: The Evolution of Operational Theory.'¹⁶⁴⁹

¹⁶⁴⁹ Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*.

In his original thesis, Naveh insists on a new mode of thinking for postmodern war where the modern institutional beliefs are disrupted and replaced by a dynamic, meta-methodological form requiring multiple perspectives and critical self-reflexivity in order to generate that which is needed in war but does not yet exist. Naveh employed his campaign to stimulate a paradigm shift in war by using postmodern concepts and systemic thought to challenge the dominant modern institutions; he nonetheless only could stimulate limited and largely single-paradigm assimilations of design into the dominant modern military institutions set on conserving legacy epistemological and ontological structures. Naveh's theory as well as access to his practice remains elusive and frequently misunderstood. This research moves the entire military design community of practice further in discourse by clearly demonstrating the primary military design methodologies, contemporary institutionalized doctrine on design, the tensions between these communities and that of commercial design and reductionist operational and strategic planners, and the limits of forcing design discourse through any one single war frame such as the modern Westphalian-centered one for warfare.

Yet in many ways, Naveh failed at many of the larger and rather ambitious efforts to change the IDF, to introduce a new way of thinking and acting in war, and how to implement these ideas so that they are not defeated by the war institution itself as it seeks self-preservation when confronted by this disruptive agent of transformation. This research presents that failure for the first time without the previous geo-political distortions or anti-design biases of earlier Naveh studies.¹⁶⁵⁰ Naveh's original message to the IDF he had attempted to radically change would subsequently be distorted in a way that the modern military institution would apply so that 'design thinking' could be assimilated, castrated, and shackled to the existing linear, reductionist mode of detailed military planning. This would occur in the early 2000s and once again in the last decade through the inclusion of design into Israeli doctrine, and the perpetual backstabbing and policy debates on whether the IDF ought to have Naveh educating senior officers or not. The postmodern military comedian would see his own creation be perverted back into tactical planning logic as the modern military institution would assimilate design to render it less disruptive, both in his own army as well as abroad where other militaries took notice of SOD.

Despite being rejected initially by the IDF in 2005-2006, Naveh would move his ideas into the American, Australian and Canadian militaries over the last two decades of further experimentation, theoretical development and practical application in war contexts.¹⁶⁵¹ However, as this research demonstrated in the institutional codification of these design concepts into various Army, Marine and associated doctrinal forms, once again the postmodern radical ideas would largely

¹⁶⁵⁰ This is not to say that this research is not without bias. However, 'failure' as presented here is framed without the clear political agendas as seen in Weizman's study of Naveh, or of the clear anti-postmodernism positions of institutional defenders such as IDF leadership and academics such as Vego.

¹⁶⁵¹ Naveh, "The Australian SOD Expedition: A Report on Operational Learning"; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design."

be 'de-fanged.' The trojan horse of postmodern design theory would not yet displace the single dominant paradigm for major military institutions, as demonstrated in this research where American Army and marine design doctrine and practice shows the intolerance of non-functionalist epistemological or ontological concepts for war. While this research articulates the cultural, social and institutional reasons for this in two American military services, there remains ample research space for further study of American Air Force, Naval, Cyber and Special Operations Forces (SOF) concerning military design as well as the broader international security arena.

Even in Israel where the IDF would once more welcome Naveh and his small group of radicals back after a seven-year expulsion, IDF design doctrine in 2015 would omit or downplay the provocative and disruptive qualities of SOD in order to protect the legacy modern-war logic of the institution.¹⁶⁵² Naveh and Graicer's non-involvement in the IDF design doctrine production would be a continued pattern of institutional rejection in each of these nations where the postmodern theorists and mavericks were ignored or silenced by the larger institutional defenders via doctrine, professional military education, and methodological inclusion of design concepts therein. Although the modern-postmodern divide was addressed in the second chapter of this research, the growth of postmodern military theory and design practice continues to expand as of the time of this research.¹⁶⁵³ In subsequent years, it may accentuate this divide or potentially trigger significant military reform depending on how persuasive or disruptive postmodern military comedians are within their various security organizations.

The disruptive qualities of design remain valid alternative modes for war logic and organizational change for the American, Israeli, Australian and Canadian militaries as well as other associated security organizations demonstrating minority populations of design theory and practice at the time of this research. Of principal value to the military profession, this research highlights the two ends of the spectrum for this military shift from the modern war frame to one in postmodernity to occur. The design self-disruptive radicals are the minority elements advocating a postmodern mode of mutliperspective, paradoxical and highly reflexive design logic that is potentially more suitable in this proposed post-industrial context than the modern linear and mechanistic form currently dominating military thought. Yet they face an uphill battle against the majority still reliant upon the modern war logic.

The modern war institutional defenders remain the majority, where senior policy makers and decision-makers that steer the massive centralized hierarchy will

¹⁶⁵² Israeli Defense Force Doctrine and Training Division, "Design: Learning and Knowledge Development Processes for the Development of Concepts at the General Staff Headquarters and the Major HQ Levels."

¹⁶⁵³ Sookermany, "Military Education Reconsidered: A Postmodern Update"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020; Zweibelson et al., "The Emergent Art of Military Design: Swedish Armed Forces and the Contemporary Security Environment"; Jackson, "Towards a Multi-Paradigmatic Methodology for Military Planning: An Initial Toolkit"; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

tilt doctrine, policy, and organizationally sanctioned behaviors and ideas away from postmodern disruption in an attempt to preserve convergent practices that idolize yesterday's style and form for organized violence. This is well documented in this research where the American Army and Marines have introduced in various doctrinal publications, concept papers, education, and application in war select components of postmodern design without the core elements that dismantle all existing contemporary doctrine, decision-making methods, and the single-paradigm insistence on a technologically rationalized and highly tacticized belief system for war activities. The military managers of war continue to reject the postmodern radical insights of the inciteful design comedian of postmodern war. Yet the jokes continue to slowly chip away at the institution's intellectual barriers.

The postmodern military design logic of Naveh's SOD remains unique in the international military community today in that few have adequately incorporated enough of his multi-perspectival and meta-methodological concepts to include the IDF's own doctrinal publication extension. It is also another example of Naveh's failure at accomplishing his short-term goals in implementing a SOD-style design practice in American and Australian forces directly. However, the length of time required to make this major an institutional transformation in how and why they think and act in the application of organized violence should not be measured in years or even decades. This transformation may take a generation or more, potentially. Nonetheless, as of this writing, Naveh's grand experiment within the IDF remains a minority within a minority.

Essentially, outside of two small groups of Israeli senior leaders and general officer students per year in Tel Aviv, the majority of the IDF remain unexposed to the core disruptive and transformative military logic for decision-making and continue to be wedded to a highly tacticized mode for thinking and acting in war. As Naveh has argued about the exclusiveness of his approach to design thinking as 'the stuff for generals only', Naveh may have no objections to the rest of the IDF remaining a largely modern, analytically oriented and highly tactical enterprise as long as the leaders experimenting with the deep strategic and operational challenges are using his design and not traditional linear and reductionist military logic. This still is problematic and an area for further research as to whether any form of military doctrine is capable of extending the scale of postmodern design education beyond that of small-scale design education at the guidance of select mavericks and war comedians willing to thumb their noses at the institution.

Naveh's design bias concerning senior leaders as the 'only proper students of design'¹⁶⁵⁴ is also an area requiring further evaluation; his stance may be exclusive to the geo-political nature of Israel as a medium-sized western nation surrounded

¹⁶⁵⁴ Specifically, Naveh advocates that while subordinate officers certainly can learn design, only the general officer in a high position of authority can intellectually and administratively employ military design to enact dynamic transformation and innovation. This is why Naveh teaches IDF general officers, and not Israeli field grade or junior officers. See: Shimon Naveh and Ofra Graicer, Naveh audio 14OCT2019 9min19sec Day 1 afternoon.MP3, interview by Ben Zweibelson and Nathan Schwagler, personal interview, October 14, 2019.

by existential threats in perpetual conflict, and that in his own words, "Israel has no strategy, only operational and tactical security concerns."¹⁶⁵⁵ Or, his ideas on postmodern design may also have become institutionalized by much larger contemporary defense organizations in a way that is in epistemological tension with the core spirit of military design theory and a self-preservation aspect of any potential 'Kuhnian-inspired paradigm shift.' Potentially, military designers are the antibodies and disruptors of the modern institution just as postmodernists operate in tandem and on the periphery of mainstream modern thought. Design may indeed be incompatible with indoctrination, serving more as an 'anti-doctrine' only to operate as a cognitive alternative and disruptive of any subsequent military doctrine produced by an institution for war. In keeping with this notion, this conclusion chapter closes with an 'anti-conclusion.'

While the American Army and Marines have formally structured apparent military design methodologies that are largely divorced from the IDF original, the Canadians and Australians remain in some proto-military design status. The Australians continue to move methodically with an interest in meta-methodological multi-perspectival reflexivity, but until now have remained as Ryan characterizes one pole of the military design position. If Naveh and his core devotees are the purists, then the rest of the militaries to include the Australians are the pragmatists potentially seeking to simply design so that it does not threaten the existing single-paradigm, reductionist mode of modern military logic that has served armed forces throughout the industrialized era for applications of organized violence.¹⁶⁵⁶

As the American Army and Marines currently embrace this second school of institutional conservatism for design, the Canadians seem to take a third route of design agnosticism where potentially, the experimental space for design meta-methodological application can sort out differences and interplay with the modern reductionist logic that institutions continue to cherish for war theory. As none of these international differing modes for military design sensemaking are yet fully studied or compared, this is yet another area for future research. If there indeed is a new sub-discipline of security studies as this project proposes, it will continue to develop and gain additional community members of practice from an increasingly interdisciplinary, international security affairs population. This research is the first to attempt to frame this emergent community and demonstrate the epistemological as well as methodological distinction of design from traditional military decision-making modes as well as adjacent commercial design forms.

Of War Heroes, Managers, and Comedians: Iterative Experimentation

Shifting from military institutions that perceive reality within a single paradigm of functionalism toward something else is itself a major challenge that may take a generation or more if such a transition from modernity to postmodernity

¹⁶⁵⁵ Naveh's personal conversation with the author as well as Nathan Schwagler and Ofra Graicer in Tel Aviv, Israel on October 14th, 2019.

¹⁶⁵⁶ Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," November 4, 2016; Ryan, "A Personal Reflection on Introducing Design to the U.S. Army," 2016.

occurs. The ontological security for militaries that exclusively employ a modern war frame and generally embracing set, linear decision-making methodologies creates comfort in how modern military doctrine, practices, decision-making methodologies and core belief systems are maintained and interpreted. This postmodern transformation requires militaries to adapt a meta-paradigmatic stance where they employ a form of reflexive practice concerning their epistemology, ontology, and subsequent methodologies concerning warfare and war itself. The approach used to practice this is through postmodern military design rather than strictly modern operational planning or single-paradigm military strategy. The military manager, master of technological and mass-industrial war activities that would define the twentieth century is most comfortable interpreting reality through modernity and may fiercely contest these challenges. The manager may also be accompanied by the still-present premodern movement military 'hero,' romanticized and carefully promoted in culturally-sanctioned narratives so that societal belief systems can be maintained and embellished even in the horrific application of organized violence through the ages.

The hero and the manager are now threatened by the arrival of a disruptive, radical and confusing new military movement for transformation of war- the postmodern military comedian for war. While the manager had war philosophers, the modern military movement imposed a clear and uniform war frame on a fixed 'nature of war' within which core principles and laws might be observed and tested. The postmodern comedian of war disrupts this belief system, and introduces alternative war philosophical considerations that are paradoxical, provocative, and also capable of unexpected (novel) future forms for thought and action in the application of organized violence. War is considered as occurring in the context of postmodernity, and can be interpreted differently using a postmodern style as well as drawing from postmodernism for novel and paradoxical logics.

There is no critical reflection in war without philosophy. The war hero and manager perspectives certainly would agree with this, although in the premodern and modern periods 'comedy' in tandem with philosophical inquiry had a specified time and place of low importance to strategy and military organizational design. In this new postmodern military design movement, the comedian of war moves the notion of paradox, alternative perspectives, deconstruction, and disruption to the forefront of military sensemaking and out of the peripheries of military discourse. That which was marginalized or dismissed in the modern obsession with analytic optimization in the application of organized violence is now focused upon. Design in all disciplines feature experimentation complete with a need to disrupt the legacy frame in order to inject change; comedy in this research is the intentionally provocative metaphoric device to demonstrate postmodern alternative perspectives. These challenge and deconstruct often ritualized and sacred military belief systems in incendiary, even comical ways if only to generate transformation in war.

Critchley remarks that humor is essential to being capable of engaging in philosophical inquiry.¹⁶⁵⁷ The requisite irony and satire of postmodern thought both permits the rejection of previously unquestioned epistemological assumptions on war's nature and character, while also struggling to avoid collapsing upon its own logic into confusion and senselessness.¹⁶⁵⁸ The postmodern military comedian enables radical change through self-disruption; the military designer destroys in order to make room for novel creation of unarticulated war needs. Naveh, Hirsch, Martin, Graicer, Kochavi, Paparone, Beaulieu-Brossard, Ryan, Butler-Smith, Jackson, Dufort, Zweibelson and others demonstrate in this project the dynamic, disruptive and experimental mode of designing for war differently through postmodernity and using postmodernism. While not every military designer within the postmodern community of practice openly applies postmodern concepts or even agrees to such labels, holistically this emergent military design community of practice does produce stylistically postmodern effects and outcomes, through intentional as well as unintentional designs.

Although postmodern theory, arising in the latter half of the twentieth century has seen numerous intellectual champions apply these radical ideas to war and society, these theorists remain largely outside the mainstream institutional production of military policy, doctrine, methodologies for decision-making, and organizational form and function for war. The works of Virilio have been applied intricately to technology and war by Bousquet,¹⁶⁵⁹ while Naveh, Challans, Schneider and Graicer have integrated Deleuze, Guattari, and Foucault into military operational alternative reasoning.¹⁶⁶⁰ Zweibelson has rendered similar theory for war and military organizations with Ranciere and Baudrillard,¹⁶⁶¹ while Sookermany, Alliez, Lazzarato, and Chia and Holt have pursued even broader postmodern theorems on the nature of postmodern war.¹⁶⁶² Paparone has employed social paradigm theory which in itself requires acknowledgement of postmodern style in order to break out of a single-frame logic of modernity.

Yet the controversial and counter-cultural nature of these minority military theorists have mostly operated outside of the interiority of military institutions where even today, new doctrine and strategy policy continues to churn out

¹⁶⁵⁷ Critchley, *On Humour*, 99.

¹⁶⁵⁸ Kay, "'A New Postmodern Condition': Why Disinformation Has Become So Effective," 2.

¹⁶⁵⁹ Antoine Bousquet, *The Eye of War: Military Perception from the Telescope to the Drone* (Minneapolis, MN: University of Minnesota Press, 2018); Virilio, *The Information Bomb*; Virilio and Lotringer, *Pure War*.

¹⁶⁶⁰ Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*; Graicer, "Beware of the Power of the Dark Side: The Inevitable Coupling of Doctrine and Design"; Naveh, "Between the Striated and the Smooth: Urban Enclaves and Fractal Maneuver"; Deleuze and Guattari, *A Thousand Plateaus*; Foucault, "Discourse and Truth: The Problematization of Parrhesia."

¹⁶⁶¹ Zweibelson, "The Ignorant Counterinsurgent: Rethinking the Traditional Teacher-Student Relationship in Conflicts"; Zweibelson, "Preferring Copies with No Originals: Does the Army Training Strategy Train to Fail?"; Baudrillard, *Simulacra and Simulation*; Baudrillard, *The Gulf War Did Not Take Place*; Ranciere, *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*.

¹⁶⁶² Sookermany, "On Developing (Post)Modern Soldiers"; Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*; Alliez and Lazzarato, *Wars and Capital*.

convergent narratives that espouse a modern war frame. This features reductionist terminology, methodological dominance of tacticization, and an overarching 'ends-ways-means' logic of analytic optimization for war as demonstrated in the second chapter. While a new community of military design practice is emerging within the broader field of security studies, the majority of military organizations continue to downplay or marginalize much recognition of military design except when a service or component formally publishes design in doctrine. This appears, as Ryan stated in personal correspondence, to be a major signaling to a military force that the organization is now authorized to attempt design practice in security contexts.¹⁶⁶³ This also may explain why so few military design doctrinal documents have thus far been produced. The development of military doctrine for design is itself another area for future research. Potentially, the assimilation of design into any service doctrine marks the defeat of design in that capacity. Military design may operate like a wild animal that dies in captivity if deprived of the freedom to remain the nomad.

Prior to this research project, the various military design communities of practice were somewhat isolated in that no formal study of the different design schools of thought was available. Individual military institutions had conducted their own formal inquiries into design theory and practice,¹⁶⁶⁴ yet each of these branches appeared unable to realize *at the meta-methodological level* clear epistemological, ontological, and subsequent methodological overlap, tension and interplay. Recent endeavors by select design theorists have been successful at organizing discourse and inter-disciplinary awareness of this new sub-discipline of military design,¹⁶⁶⁵ making this project more significant for continuing this necessary discourse at a meta-methodological and multi-perspectival mode for reflexivity in design praxis. Otherwise, each military organization will continue as this research demonstrates and produce service-specific design doctrinal instructions that are incommensurate with other branches of design thinking to include between similar military services such as the Army and Marines, or one nation's armed forces and another in the same coalition or partnership.

The Postmodern Military Comedian of War: Disruptive Innovators

A key focus for this research was to explain the rise of postmodern military design cast within what some offer as a post-industrial world of increasingly complex challenges¹⁶⁶⁶ impervious to the legacy modes of military thought and

¹⁶⁶³ Ryan to Zweibelson, "Re: Research Question on SAMS, 2009-2010 Period for Design (UNCLASSIFIED)," February 26, 2020.

¹⁶⁶⁴ Grome, Crandall, and Rasmussen, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration."

¹⁶⁶⁵ Beaulieu-Brossard and Dufort, "Conclusion: Researching the Reflexive Turn in Military Affairs and Strategic Studies"; Beaulieu-Brossard and Dufort, "The Archipelago of Design: Researching Reflexive Military Practices"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Paparone, "Designing Meaning in the Reflective Practice of National Security: Frame Awareness and Frame Innovation."

¹⁶⁶⁶ Williams, "The Global Crisis of Governance."

action. Naveh's original ideas and sophisticated blending of postmodern ideas with complexity theory and architectural artistry and design became the core research focus to articulate this implementation of postmodern theory and action into war. War had entered a postmodernity and in order to transform militaries still holding to modern war frames and belief systems, the designer needed to articulate through postmodern theory as well as generate a postmodern style of inquiry unlike the traditional, linear, entirely analytic logics of modern Westphalian Order warfare. A brief history of the various military schools of thought was thus provided to readers so that the subsequent core arguments on postmodern war would contextually have a logical foundation. The second chapter started with the premodern war frame and institutional mode for the application of organized violence beginning with the Feudal Era for Western Europe after the fall of the Roman Empire. As one transition can be identified where a premodern war frame shifted into a modern way of thinking and acting in war, the notion that yet another shift could occur (or is occurring) becomes a feasible position to argue from.

The military comedian could not exist in the premodern era for warfare due to clear cultural, societal, and institutional barriers. Any disruptive war visionaries that did reveal themselves frequently were branded as heretics or insane and dealt with accordingly. Humor, critical reflection, the imagination to construct alternatives to the accepted reality, and the cognitive freedom to reflexively practice was shunned for a host of reasons that defended the traditional power structures, castes and belief systems of the premodern world. Innovation and imagination of course were expressed in this period, yet they were accomplished in different contexts and through sanctioned carriers of said innovation; many still were burned at the stake for attempting to usher in significant (and necessary) change. The military comedian, as a metaphoric device for a mode for framing war and warfare, could also not thrive in the modern era for warfare due again to institutional barriers directing a particular analytically optimized and pseudo-scientific rationale for war's form and function. If the war manager cannot hypothesize, test, validate, repeat, and codify into military doctrine the concepts, they are dismissed as inferior or insufficient 'knowledge.'

To shift from the modernist war orientation that functioned within a single paradigm and generally embracing set, linear decision-making methodologies would require militaries to adapt different positions on strategic thinking, creativity and design. The military manager, master of technological and mass-industrial war activities that would define the twentieth century was accustomed to the legendary military 'hero,' romanticized and carefully promoted in culturally-sanctioned narratives so that societal belief systems could be maintained and embellished even in the horrific application of organized violence through the ages. Yet earlier proto-manager versions grew from the Industrial Revolution and Europe's Age of Enlightenment in order to advance war machines of the new nation-state into massive, complicated, and increasingly destructive instruments of national power.

Arguably, the technological advances of the twenty-first century provide perhaps greater war advantages to the postmodern war comedian than to the

traditional hero or manager construct. Small fringe groups that previously faced many more obstacles can today coordinate, communicate and act with organized violence in ways unprecedented and often to the direct disadvantage of traditional nation-state military forces. Although decentralized militant and terrorist groups are well documented throughout the modern and premodern eras, examples of this postmodern comedic disruption of war are a much more recent phenomenon and additionally are largely underrepresented in academic study. Radical groups such as the far-right 'Boogaloo Movement' that publicly emerged in 2019 appear to capitalize on the trends of social media and complex narratives by blending comedic, often absurd content in the forms of memes while infusing serious operational, tactical and ideological content within. One of the first to study the group, Goldenberg's observation below illustrates a dangerous manifestation of the postmodern military comedian in war:

While many still use the boogaloo meme jokingly, an increasing number of people employ the phrase to incite an apocalyptic confrontation with law enforcement and government officials or to provoke ethnic warfare. This ambiguity is a key feature of the problem: Like a virus hiding from the immune system, the use of comical-meme language permits the network to organize violence secretly behind a mirage of inside jokes and plausible deniability. Evolving threats, from this vantage, can emerge all at once, undetected and with no top down organization at all. Traditional qualitative analysis methods, by themselves, fall short in the capacity to detect such self-organized genocidal violence over massive scales of data, through inside jokes and unknown dog whistles.¹⁶⁶⁷

The postmodern war comedian, if not recognized within emergent adversaries, may be misdiagnosed in war hero or war manager constructs. The rapid rise of social media, expansion of affordable information technology, and the gradual diffusion of centralized, controlled information conduits of earlier generations towards a noisy plurality of endless competing alternative narratives creates a powerful incubation setting for new adversaries. The Boogaloo Movement is just one of many state and non-state security entities beginning to use these alternative modes to thought and action in the application of organized violence. The growing Antifa movement in the United States presents yet another, while the decentralized activities of smaller, smarter drug cartels in South and Central America as well as new developments in terrorist proxy groups such as Hezbollah

¹⁶⁶⁷ Alex Goldenberg, "CYBER SWARMING, MEMETIC WARFARE AND VIRAL INSURGENCY: How Domestic Militants Organize on Memes to Incite Violent Insurrection and Terror Against Government and Law Enforcement," *Network Contagion Research Institute*, 2–3, accessed June 8, 2020, <https://ncri.io/reports/cyber-swarming-memetic-warfare-and-viral-insurgency-how-domestic-militants-organize-on-memes-to-incite-violent-insurrection-and-terror-against-government-and-law-enforcement/>.

provide even more examples.¹⁶⁶⁸ It may indeed take militaries capable of thinking within the postmodern military comedian frame in order to appreciate and outwit opponents capable and willing to extend their own thought and action away from the legacy modes for war and warfare. If militaries continue to re-apply traditional modern war logics exclusively to emergent security challenges of postmodernity, they will continue to waste resources and lives while being unable to make sense of the military failure.

When Icarus Flew Too Close to the Sun: Drowning in Design

This research project extends well before formal attendance at a university, dating back several decades where the author completed undergraduate studies in civilian design applications, and served in the American armed forces for over two decades to include exposure to Naveh and military design at the mid-career point. It is certainly possible to be too close to one's own research topic, and in this case where the military design community of practice has expanded rapidly over the last decade, the author has become a rather central actor within that movement. This can color any academic endeavor to frame any of the core topics of this research to include the controversial nature of Shimon Naveh, the evaluation of design methodologies such as SOD or the U.S. Army Design Methodology, and the framing of commercial and military design. As the author studied under Naveh and others directly mentored by Naveh, this small academic community of SOD proponents unavoidably depart from a similar landscape of source material, core concepts, as well as loosely shared beliefs on design theory, military form and function, and controversial mixing of disciplines to include postmodernism.

The author runs the entire design program for an entire American combatant command (COCOM) that features extensive educational outreach into many coalition, joint, service-specific and international military schools, academies, units and industry; the author promotes many of the design concepts argued within this very research. The author's previous body of published academic work (at least in quantity) rivals that of nearly every other primary military design theorist or practitioner worldwide. The author has a personal relationship with many of the military design theorists, educators and practitioners within the movement, and has by default become one of the main figureheads associated at the top level of justifying the validity of this community of practice. The author would be one of the very first possessing a doctoral degree focusing exclusively on the military design movement, and thus the bias of self-interest even for academic pursuits is a clear hazard. In terms of primary sources on military design, the author's own extensive published research also raises bias concerns in that there are only a small group of active researchers and authors of contemporary source material on these topics.

¹⁶⁶⁸ Atran, "The Islamic State Revolution"; Levitt, "Hezbollah's Criminal Networks: Useful Idiots, Henchmen, and Organized Criminal Facilitators"; Stern, "ISIL and the Goal of Organizational Survival"; Fussell and Lee, "Networks at War: Organizational Innovation and Adaptation in the 21st Century."

This all makes for a difficult bias test on the content, conclusions, and ability to fairly assess the history and meaning of this entire proposed movement in military thought and action. However, the alternatives are stark in comparison. The ability for an outside academic unfamiliar with the military profession, unable to maneuver within the unique and fiercely insular military culture and language, and untrusted by the many primary sources within this controversial movement would face far different challenges to cover this same content, and encounter entirely dissimilar yet likely potent bias concerns as well.

In an example of pure happenstance and emergence, the entire portion of this research concerning designing for commerce and designing for war (chapter three) might never have been included had the author not been formally educated and exposed to civilian graphic design and later military design methods from the U.S. Army and from Naveh. Most designers struggle with understanding at an epistemological level their own parent design mode for practice, with exceedingly few examples of designers operating in both commercial and governmental or military contexts. While this opens yet another door for bias concerns, the author concludes that formal academic qualification and deliberate practice in real-world applications in multiple design settings yields a very fertile ground for academic research and insight. Had the author not already been formally educated in graphic design, the opportunity to later articulate military design against another design discipline might not have occurred; the author is one of a small group of multidisciplinary designers drawing from various dissimilar design communities of practice.

Lastly, the growing prominence of the author's own status as a leading military design theorist and educator is not unnoticed, and therefore any successful argument supporting this proposed 'new sub-discipline of security studies' clearly benefits the author. Nonetheless, one academic can certainly influence the path of a community in some degrees of drift, yet there are more than enough leading design researchers, educators, theorists and practitioners actively challenging the broader security studies field using these same design concepts today. Their diversity of thought, multiple perspectives, and indeed their own biases are worthy of additional research, reflection, and recognition.

An 'Anti-Conclusion' for Tomorrow's War fought with Yesterday's Ideas

Western industrial societies in general have clearly dominated the latter few centuries of war and civilization, and at this time appear poised to continue for the short term an extension of military supremacy in capability as well as capacity in these emergent and increasingly complex conflict conditions. If a modern nation-state needs to commence a conventional high-intensity war in traditional physical domains such as land, sea, and air using advanced technology and large-scale military forces, only contemporary adversarial nation-states have the capability to engage as well, despite such a conflict being likely as horrific and comprehensively destructive as anything previously. The Westphalian Order remains supreme, despite cracks appearing in the plaster. This is the expectation of any 'high

intensity' war strategy regardless of national rival or rivals, and yet another reason why societies continue to seek out alternatives to these war contexts to pursue organized violence through other means. This also forms the first and more powerful defense of war in modernity; the modern war frame imitates natural science logic and demonstrates technological precision in the application of organized violence more intensively and pervasively than any premodern example.

Most current 'future operating concepts' that orient national defense or security policies for the next few decades identify traditional state adversaries and promote the essential national interests in maintaining and advancing effective military conventional parity or even overmatch in the case of the United States against major nation state threats.¹⁶⁶⁹ However, a growing minority of military theorists, strategists and futurists offer alternative futures where the industrialized west is not necessarily in such a dominant position for the application of organized violence,¹⁶⁷⁰ nor are Westphalian nation-states the main form of organized violence in future wars either.¹⁶⁷¹ War itself is under transformation, yet rarely do any security study researchers outside of postmodernists assume that a fixed 'nature of war' concept is itself an illusion. Postmodernity, war understood and waged with postmodern stylings, and the direct application of postmodern theory toward war and warfare are all various aspects of this blurred transition out of the modernity of war.

Despite these contemporary debates on the future relevance of western military power and influence, these same sophisticated and well-resourced military organizations are increasingly plagued by misapplications of traditional and largely linear methodologies for sense-making, decision-making, and potentially entire guiding philosophies on warfare.¹⁶⁷² The analytic-oriented and centralized hierarchical structured militaries of the industrialized west apply a rational decision-making frame towards ideally similar opponents, yet these structures are

¹⁶⁶⁹ Joint Chiefs of Staff, US Department of Defense, "The National Military Strategy of the United States of America 2015" (Joint Chiefs of Staff, US Department of Defense, June 2015), 1–5; Joint Force Development, U.S. Department of Defense, "Joint Doctrine Note 1-19; Competition Continuum" (Joint Force Development, U.S. Department of Defense, June 3, 2019), 1–11; United States and Donald Trump, "National Security Strategy of the United States" (The White House, December 2017), 1–4, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>; U.S. Special Operations Command, "USSOCOM Special Operations Forces Future Operating Concept Version 0.21 (Draft-Predecisional)" (U.S. Special Operations Command, November 15, 2018), 3–5.

¹⁶⁷⁰ Malešević, *The Sociology of War and Violence*; Sookermany, "On Developing (Post)Modern Soldiers"; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*; Gray, *Postmodern War: The New Politics of Conflict*; Paul Virilio, "Impure War: Introduction to the New Edition of 'Pure War,'" in *Pure War*, trans. Mark Polizzotti, "Twenty Five Years Later" edition (Cambridge, Massachusetts: MIT Press, 2008), 7–13; Bousquet, "Chaoplexic Warfare or the Future of Military Organization."

¹⁶⁷¹ McFate, *The New Rules of War*.

¹⁶⁷² Bousquet, "Cyberneticizing the American War Machine: Science and Computers in the Cold War"; Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, xiii; Naveh, Schneider, and Challans, *The Structure of Operational Revolution: A Prolegomena*, 7–10; Paparone, *The Sociology of Military Science: Prospects for Postinstitutional Military Design*, 90–97; Sookermany, "On Developing (Post)Modern Soldiers," 40–45.

now assumed as inappropriate and insufficient for confronting non-hierarchical, networked and divergent threats that are increasingly familiar in twenty-first century competition.¹⁶⁷³

While military historians and defenders of the modern military form often frame World War I, World War II, the Cold War, The First Persian Gulf War, and multiple other smaller scale conflicts and peacekeeping endeavors as successful validations of existing and legacy decision-making methodologies, a longer and more recent list can also be made under the description of 'failure.'¹⁶⁷⁴ The increase in peacekeeping, humanitarian missions and non-traditional utilization of military forces since the Cold War has become more prominent.¹⁶⁷⁵ Yet few of these military challenges are completed where a military force can subsequently articulate any sense of a traditional 'victory.' All still can, however, express multiple forms of failure, stalemate, dwindling political interest and meandering strategic goal setting.¹⁶⁷⁶ Additionally, the polarization of 'wins versus losses' itself is problematic from a contextual standpoint. Dramatic system change occurs in nonlinear, emergent paths that might be obscured by socially held beliefs that particular conflicts are interpreted as a victory where that only perpetuates increasingly irrelevant or counter-productive war logics forward.

In stark and radical terms, postmodern military designers posit that the modern war frame consisting of nation-state centric, physical domain expressed, and technologically rationalized applications of organized violence is coming to an end for societies *except for in rare circumstances*. The atomic bomb would be the pinnacle of the modern technological mastery of reality where, as Virilio observes, the great bomb could smash matter so massively as to halt the expansion of physical war in totality and render it "cold." Now, the rise of social change and perpetual technological connectivity has ushered in the post-industrial world (postmodernity) where the 'information bomb'¹⁶⁷⁷ does greater damage to the complex network of relationships, beliefs and ideas across a dynamic cross-cultural, more virtual reality that is better appreciated using postmodern critiques supporting multi-perspectival reflexivity. Returning to Baudrillard and a postmodern perspective on the inversion

¹⁶⁷³ Miller et al., "Harnessing David and Goliath: Orthodoxy, Asymmetry, and Competition"; Monk, "Strategic Design for the Complex Realm"; Sageman, *Leaderless Jihad: Terror Networks in the Twenty-First Century*; Rothstein, "Less Is More: The Problematic Future of Irregular Warfare in an Era of Collapsing States"; Clarke-Hill, Li, and Davies, "The Paradox of Co-Operation and Competition in Strategic Alliances: Towards a Multi-Paradigm Approach."

¹⁶⁷⁴ Bolger, *Why We Lost: A General's Inside Account of the Iraq and Afghanistan Wars*, xxxix–xlii; Max Boot, *The Savage Wars of Peace: Small Wars and the Rise of American Power* (New York: Basic Books, 2002), 336–46; Anthony Cordesman, "American Strategic and Tactical Failures in Iraq: An Update," *Center for Strategic and International Studies*, no. Working Draft for Outside Comment (August 8, 2006): 1–14; Ahmed Hassin and Benjamin Isakhan, "The Failures of Neo-Liberal State Building in Iraq: Assessing Australia's Post-Conflict Reconstruction and Development Initiatives," *Australian Journal of Politics and History* 62, no. 1 (2016): 87–99; Maurer, "On Failure."

¹⁶⁷⁵ Moskos, Williams, and Segal, "Armed Forces after the Cold War," 3.

¹⁶⁷⁶ Chia and Holt, *Strategy without Design: The Silent Efficacy of Indirect Action*, 22; Monk, "End State: The Fallacy of Modern Military Planning," 16–20.

¹⁶⁷⁷ Virilio, *The Information Bomb*, 63–75.

of the modern war frame concerning the Nuclear Age (end of modernity) entering the Information Age (of postmodernity):

Deterrence is not a strategy, it circulates and is exchanged between nuclear protagonists exactly as is international capital in the orbital zone of monetary speculation whose fluctuations suffice to control all global exchanges. Thus the *money of destruction* (without any reference to *real* destruction, any more than floating capital has a real referent of production) that circulates in nuclear orbit suffices to control all the violence and potential conflicts around the world.¹⁶⁷⁸

The certainty of war in modernity was ultimately realized and surpassed by the atomic weapon of total nation-state obliteration. Yet in postmodernity, the nuclear bomb is not itself as destructive in war as the conceptualization of abstract systems of power, symbols, signs, and codes that now in postmodernity transform what war is, how warfare unfolds, and what is actually occurring that cannot be explained using the analytic, mechanistic logic of modernity. The challenge now is that military forces continue to project into the future the industrialized form and function of an organization that no longer accomplishes the application of violence as it intends to. As Baudrillard offers: "we live in a world where there is more and more information, and less and less meaning."¹⁶⁷⁹ Augmentation to the legacy frames for making sense of war and warfare is insufficient; military design provides the path for complete disruption, deconstruction, and transformative reformation of how organized violence will be expressed in the postmodern war movement.

Yet the modern war frame remains deeply wedded in modern military institutionalisms. Only gradually over the last three decades *has it shown signs of weakening, if only to allow postmodern ideas on war within*. With the promises of advanced technology and surgical military precision in sanctioned violence failing to deliver, technologically advanced western nations within this new post-industrial world have responded through social, cultural and political reaction. Due in no small part to popular opinion once conflicts linger or veer wildly off the original intentions, militaries seem to become more open-minded to change and radical, disruptive concepts when they are losing. The demands of the public matter in western nation-states by their construction; military institutions can and will change when directed by conditions and enemy activities as well as political and/or public demands for reform.

The American, Canadian and Australian militaries began to explore military design applications starting around 2005 through present day, while Israeli defense soul-searching occurred a decade earlier yet still intertwined in the collapse of the Berlin Wall and the ceremonious end of the Cold War. The birth of military

¹⁶⁷⁸ Baudrillard, *Simulacra and Simulation*, 33.

¹⁶⁷⁹ Baudrillard, 79.

postmodern thought and action emerged within the Israeli Defense Forces first and largely through the experimentation and intellectual rigor of Shimon Naveh. Yet in three decades his ideas remain exceptionally controversial, misunderstood by many, and still a minority perspective within a small yet increasingly influential community of military design practice scattered across largely western and militarily dominant nations.¹⁶⁸⁰ This shift from a modern and analytical one towards an epistemologically dynamic, multiparadigmatic one would not be easy nor be quickly grasped by militaries eager to implement 'design thinking' into existing operational planning doctrine and professional military education systems.

This institutional resistance coincides with a remarkably disruptive period over the last three decades where the previously 'balanced' bipolar world of mutually assured nuclear annihilation has faded, to be replaced by a new multipolar reality where the atomic destruction of matter is fragmented and proliferating as new technology and ideas alter the earlier state-centric exclusivity of these mass-destruction systems. Rivals in war now apply organized violence in new and unfamiliar modes that render legacy system tools irrelevant or counterproductive.¹⁶⁸¹ Virilio proposes that the nuclear bomb is now eclipsed by "the information bomb, capable of using the interactivity of information to wreck the peace between nations."¹⁶⁸² The useful occupation of physical terrain for war needs is in question, while the war of ideas and information across cyberspace, social constructed reality and disruptively into previously undisputed beliefs and assumptions have left militaries and their careful analytic doctrine for linear decision-making in war turned upside-down.

Thus, multiple minority schools of new military thought have emerged around the world in the last three decades¹⁶⁸³ to embrace postmodern theory, dismantle the legacy systems of war, and radically restructure existing military organizations conceptually away from a single-paradigm stance for methodologically limited tacticization of war by rules, principles and natural science expectations. Military design now functions in the American, Canadian, British, Australian, and European militaries as well as beyond. These communities of 'military design theory and practice' have been introduced to the larger military institutions and are changing how security forces think, act and organize in war in this new century of increasing complexity, uncertainty, and dynamic change.

¹⁶⁸⁰ Beaulieu-Brossard and Dufort, "Introduction to the Conference: The Rise of Reflective Military Practitioners"; Jackson, "Introduction: What Is Design Thinking and How Is It of Use to the Australian Defence Force?"; Zweibelson, "The Multidisciplinary Design Movement: A Frame for Realizing Industry, Security, and Academia Interplay"; Graicer, "Self Disruption: Seizing the High Ground of Systemic Operational Design (SOD)."

¹⁶⁸¹ McFate, *The New Rules of War*.

¹⁶⁸² Virilio, *The Information Bomb*, 63.

¹⁶⁸³ Jackson, "Design Thinking in Commerce and War: Contrasting Civilian and Military Innovation Methodologies (Final Draft)"; Mitchell, "Stumbling into Design: Teaching Operational Warfare for Small Militaries in Senior Professional Military Education"; Beaulieu-Brossard, "Encountering Nomads in Israel Defense Forces and Beyond," 2020; Porkolab and Zweibelson, "Designing a NATO That Thinks Differently for 21st Century Complex Challenges."

The modern military institution places exceptional emphasis on analytic optimization for warfare, attempting to render all conflicts into isolated frameworks where universal principles and quantifiable sequences for linear logic can be neatly wedded to pre-existing campaign plans and lengthy estimates that attempt to anticipate and categorize all conceivable outcomes prior to the first bullet fired. The codification technique of these modern militaries is that of doctrine and convergent thought through uniformity, risk reduction, and a rationalization of all things war. This requires a scientific treatment of all shared military terms, a uniformity and 'timelessness' as well as 'non-contextual' quality so that no matter the conflict, the broad principles, metrics and practices can be brought to optimized application for the nation-state in need of security affairs.

This means that any developments, innovation and even the call for experimentation in war or warfare must first pass a test that determines a 'scientific-rationalized' framework so that any and all attempts to challenge or change the modern system must first comply with an epistemological devotion to said modern frame. This is where postmodern military design breaks with the modern frame, and why military institutions remain skeptical of any new terminology, logic or practices that appear alien or paradoxical to the indoctrinated ways of the modern war system. Hirsch reflects on the rejection of SOD by the IDF in his conclusion, yet his concerns extend into most military rejections of postmodern ideas in contemporary debates on the changing qualities of war and warfare:

One of the popular conclusions [on the IDF failings in the Second Lebanon War] was that the new terminology of operational art [Systemic Operational Design] was at fault. I was blamed, as before, for using an exalted language which, it was claimed, was not fit for the IDF. There were those who had waited for this chance to attack the field they had always despised and get rid of OTRI methodologies. I continue to insist that in a modern army there must always be the combination of "*saфра v'sayfa*" -book and sword. High language, learning, research, and writing are virtues, not faults.¹⁶⁸⁴

This shift from a modern and analytical one towards an epistemologically dynamic, multiparadigmatic one would not be easy nor be quickly grasped by militaries eager to implement 'design thinking' into existing operational planning doctrine and professional military education systems. The last laugh may be that of Naveh, in that after three decades of fighting to transform how the IDF conceptualize war and warfare, the international military community of design practice is now established and continuing the disruption and transformation in uncharted paths. The arguments against the arrival of postmodernity are now challenged by a growing group of advocates demanding a reconceptualization not

¹⁶⁸⁴ Hirsch, *Defensive Shield: An Israeli Special Forces Commander on the Front Line of Counterterrorism, the Inspirational Story of Brigadier General Gal Hirsch*, 394.

just of warfare, but of war itself. This is the rise of the postmodern military comedian of war.

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