Mindful Value Creation and Destruction

Unpacking the Complexity of Design Practice in Human-Data Interaction

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1 BACKGROUND AND MOTIVATION

The concept of value in design and HCI research has evolved significantly over the past decades, moving from predominantly economic considerations to a more nuanced understanding that encompasses social, ethical, and experiential dimensions. Value Sensitive Design (VSD) emerged as a foundational framework, providing methods to consider human values throughout the design process [1]. This approach emphasises the importance of examining both direct and indirect stakeholders, investigating how system properties support or hinder human values, and understanding how values manifest in practice. Building on VSD, Worth-Centered Design [2] introduced the concept of "design worth" - examining what makes technology worthy of human effort and attention. This framework shifted focus from abstract values to concrete benefits, considering practical utility alongside experiential and social worth. As JafariNaimi et al. [3] argue, values in design should be treated as hypotheses that are continuously tested and refined through practice, rather than fixed principles.

The digital economy has further complicated our understanding of value, introducing new dimensions of data-driven value creation and destruction. While traditional economic frameworks like Service-Dominant Logic [4] help explain value co-creation between stakeholders, they fail to fully capture the complexities of Human-Data Interaction [5]. As Sellen et al. [6] observe, digital technologies fundamentally change how values are reflected and enacted in society, requiring new frameworks for understanding value creation and destruction. These changes have particular significance for design practice. Shilton [7] documents how values and ethics in HCI have evolved from focusing on individual user experiences to considering broader societal impacts. This expansion of scope aligns with Nathan et al.'s [8] call to envision systemic effects throughout the interactive system design process. The emergence of data-driven design has introduced new challenges in balancing different forms of value - economic, social, moral, and ethical [9, 10].

Recent work has highlighted how value can be both created and destroyed through design decisions. Bardzell's [11] feminist HCI framework demonstrates how design choices can either perpetuate or challenge existing power structures, while Leong and Iversen's [12] values-led participatory design approach shows how community engagement can help navigate complex value trade-offs. Agrawaal et al [13] highlight that designing mobility applications to enable efficient way finding may undermine other values, such as a sense of community and discovery of place. These perspectives resonate with emerging research on value co-destruction [14], which highlights how misaligned values or misused resources can lead to negative outcomes. As data-driven technologies become increasingly prevalent, designers face new challenges in understanding and managing value creation and destruction. This includes considerations of data practices [15], algorithmic

fairness [16], and the broader implications of AI systems [17]. These challenges call for new approaches that can help designers navigate the complex landscape of value in Human-Data Interaction.

2 RELATED WORKS

2.1 Modern Conceptualization of Value Creation and Destruction

Value has long been regarded as a complicated term to comprehend across disciplines [18]. Contemporary frameworks have evolved to recognise how value operates in both business and technological systems. The concept has shifted from purely objective measures to emphasise creation through products, services, experiences, and relationships that generate positive outcomes for diverse stakeholders. In business contexts, this shift is reflected in the evolution from GoodsDominant (G-D) Logic to Service-Dominant (S-D) Logic [19]. G-D Logic represents a worldview characterized by 'valuein exchange', 'a firm-centric approach', 'linear value creation', and 'customers as value destroyers'. S-D Logic instead emphasises 'value-in-use', 'network-oriented creation', and 'customers as co-creators'. HCI research extends this further, with Sellen et al. [6] showing how digital technologies create distinct forms of value by transforming our relationships with time, space, and human connection.

The concept of value constellations [20] highlights how successful companies conceive of strategy as systematic social innovation through continuous design and redesign of complex business systems. Le Dantec et al. [21] build on this by demonstrating how technological systems can either support or undermine community values through their design choices. While S-D Logic explains value creation in the digital economy [22], Data-Dominant Logic [23], specifically addresses how data-driven methodologies ground value creation. Drawing on these theories, design scholars propose conceptual design process that continuously enables value creation [24, 25].

Value creation is an interactive process with potential for positive (co-creation), neutral (non-creation), and negative (co-destruction) consequences [26, 27]. Value destruction often arises from resource misuse [13] or unfair, one-sided value creation. Lintula et al. [28] identify three interrelated aspects affecting value co-destruction throughout the dynamic and interactive formation process: orientation in terms of goals and intentions; resources including their lack, misuse, nonintegration, loss and attempts to restore; and perceptions encompassing expectations, incongruence of practices, insufficient perceived value and value contradictions. This framework, when combined with HCI perspectives helps explain how technological systems can simultaneously create organisational value while destroying other forms of value such as privacy, autonomy, or community cohesion.

2.2 Data-driven Value Creation and Destruction

In the digital economy, data is considered a critical resource for value creation, yet HCI research reveals how this process is more complex than simple resource exploitation. While data-driven methodologies transform raw data into information through capturing, transforming and communicating it [9], Bardzell [10] demonstrates how these seemingly technical processes can either challenge or reinforce existing power structures. Raw data, by itself, has limited value without understanding its context and provenance, but this contextualisation process itself embeds particular values and assumptions. Scholars have identified various types of value created through data-driven methodologies. Porter and Heppelmann [29] outline organisational values including quicker product introductions, new business models, and enhanced customer success. However, HCI researchers like Iversen et al. [30] show how participatory approaches to data system design can help balance these organisational goals against other forms of value, preventing unintended value destruction through misaligned data practices. This extends Speed and Oberlander's [9] broader perspective encompassing economic, social, moral and ethical dimensions.

Data creates value through appropriate combination, contextualisation, and interpretation of different datasets [30], but Le Dantec et al. [21] demonstrate how these practices can either support or undermine community values depending on their alignment with social practices. Data practices involve choices about collection and analysis that reflect producers' subjective values rather than neutral decisions [14]. As Jasanoff [32] argues, data does not simply represent objective reality

but constructs particular versions of reality assembled for specific purposes - whether business plans, political objectives, or research aims. This understanding helps explain why data-driven value creation often leads to unintended consequences - or value destruction and/or displacement. While organisational metrics might show value creation through improved efficiency, Shilton [6] reveals how these same practices can destroy value at personal or community levels. As data and metrics shape what becomes visible or hidden [33], value creation and destruction occur simultaneously through data practices, requiring careful consideration of how data choices shape human experience and social relationships.

2.3 Design Challenges in Data-driven Value Creation and Destruction

With increasing interest in data-driven methodologies, both design research and HCI communities have explored how designers engage with data to create value [34, 35]. Knobel and Bowker [36] argue that designers must consider how values become embedded in technical systems through seemingly neutral design decisions, while scholars like Prendiville et al. [37] examine how service design can create social and economic value through data practices.

Recent work spans multiple approaches to value creation through data-driven methodologies. HCI scholars propose novel methods based on VSD, such as Value-sensitive algorithm design [38], Value-sensitive AI [39, 40], and guidelines for VSD within Responsible AI [41]. Others includes frameworks for organisational value creation [42], methods for contextualising data to identify user values [43], critical investigations of inclusive, fair, and ethical data-driven systems [15, 44] and environmentally sustainable and equitable interactions with data-driven products and services [45]. These technical advances are complemented by Bardzell and Bardzell's [46] examination of how design choices in data systems can either challenge or reinforce existing social inequities, particularly when developing AI systems for vulnerable populations [47]. The tension between different forms of value creation becomes particularly evident in participatory design approaches. Iversen and Smith [48] demonstrate how community engagement in data system design reveals conflicts between economic efficiency and social cohesion, while Worth-Centered Design [2] provides frameworks for negotiating these trade-offs.

While existing studies are widely recognised and valuable, they have certain limitations. HCI and design research rarely examine how designers navigate value destruction - when creating one form of value inevitably diminishes another. This is partly because the studies tend to focus solely on the specific values of direct stakeholders [49, 50, 51], rather than exploring the broader dynamics of value creation and destruction from the perspective of indirect stakeholders.

This gap in understanding how designers manage competing values in data-driven design is particularly critical as AI systems become more prevalent. While researchers investigate technical solutions for fairness in ML systems [52], less attention has been paid to how designers make decisions when faced with inherent value conflicts. We argue that addressing these gaps will enable designers to create value while mindfully managing inevitable trade-offs and potential harms. Our workshop builds on these discussions, focusing on understanding the complexity of design practice in relation to value creation and destruction in Human-Data Interaction. We aim to bring together researchers and practitioners to foster broader reflection and dialogue on navigating these challenges.

3 WORKSHOP OBEJCTIVES AND THEMES

In this workshop, we aim to better understand the complexity of design practice for value creation and destruction in Human-Data Interaction by synthesising both published and unpublished works. Our goal is to create an unapologetically honest platform for broader public discussions about Data-driven design's real impact on society and its unintended consequences. To achieve this, we will explore following topics and themes through the application of Speculative Design [53], Participatory Design [54], and Systemic Design [55] techniques to concretise pathways for Value Creation and Destruction in Human-Data Interaction.

1. **Creating a safe space for honest dialogue to challenge the narrative of design as a driver of value creation:** We will begin the workshop by challenging the dominant narrative of design as solely a driver of value creation. By removing professional façade, participants will share genuine stories of unintended consequences, failures and ethical dilemmas in Human-Data Interaction. We will incorporate a virtual adaptation of Design. Regret. Confess. -a Victorian-era

cast iron public urinal repurposed as a confession booth for designers (Melbourne Design Week, 2025)- to collect narratives of catastrophic oversight, regret, and complexity, creating a compelling reflection on both the successes and failures of design in Human-Data Interaction.

2. **Encouraging Critical Self-Reflection on Value Destruction:** We will examine diverse mechanisms of how value is created and destroyed in Human-Data Interaction. Using *Giga-mapping techniques* [56] and our bespoke *Value Destruction cards*, participants will gain deeper understanding of how design decisions shape particular versions of reality and navigate inherent value conflicts. This approach moves beyond oversimplified narratives of value creation and innovation, fostering a deeper engagement with the complexities of data-driven design practice.

3. **Envisioning the Future of value destruction:** Participants will recognize that failures and unintended consequences are inevitable yet essential aspects of Human-Data Interaction. They will collaboratively develop practical guidance to approach value creation and destruction more mindfully, considering moral, social and environmental implications while minimizing unintended harm.

4. **Establishing a platform for value creation and destruction in Human-Data Interaction:** We will document design's shadow side and alternative approaches through the workshop website and publications, ensuring that insights reach beyond the workshop event. The website will act as a central hub for ongoing discussions, allowing a wider audience to engage with emerging challenges and collaboratively develop strategies for navigating complex value trade-offs.

We believe DIS to be the ideal venue to explore this topic and create a discursive platform, given its diverse attendees working across Data- and AI-related topics, methodologies, and disciplines. The prevalence of HCI research on Human Data Interaction aligns with the community's growing focus on value creation, displacement, and destruction in the digital economy.

4 ANTICIPATED OUTCOMES

This workshop aims to create a platform that extends beyond the workshop event, fostering continued reflection, dialogue, and action on the complexities of value creation and destruction in Human-Data Interaction. As a journey toward it, the key outcomes of the workshop will include a position paper, a platform for public discourse, and increased public awareness.

Position Paper: We aim to use the insights gathered in this workshop and through the examples provided in the call to develop a position paper which will continue the conversation and pose questions for future work. By documenting key arguments, case studies, design failures, ethical dilemmas, and overlooked consequences, this position paper will serve as a foundational resource for designers, researchers, and policymakers engaged in Data-driven value creation.

Public Awareness: We also intend to disseminate this work in engaging and accessible formats to audiences beyond the HCI community, fostering connections with the public and initiating collaborative partnerships (e.g., in collaboration with Turing Innovation Catalyst Manchester).

Platform for Public Discourse: To ensure that the dialogue continues beyond the workshop, the workshop website will serve as a community-driven resource that invites designers, researchers, and the public to engage in an open and honest dialogue about the real impact of design on society.

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