

# RETHINKING RESPONSIBILITY IN THE DIGITAL AGE: A NARRATIVE APPROACH

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## **Abstract.**

Researchers, policymakers, and industry are increasingly aware of the urgent risks and threats arising in the digital age. Their awareness of this urgency has led to a rise of interest in responsibility. While this ‘turn to responsibility’ has been well-intentioned, an underappreciated problem is that the dominant, centuries-old view of responsibility is not up to this task – it is unable to make sense of the increasingly extended scope of responsibility in the digital age because it is mired in outdated assumptions about causality, agency, and human action. Inspired by Paul Ricoeur’s philosophy, we show the benefits of rethinking responsibility as an ongoing process of becoming responsible—that is, becoming responsible by being imputed through the narrative emplotment of extended sociomaterial events. We illustrate the benefits of this conception for the digital age using vignettes from plagiarism detection, social media, and AI. The paper concludes by proposing a Ricoeur-inspired narrative topology of the multidimensional time-space of responsibility emplotment. The paper calls on the MIS community and society more broadly to draw on this topology to reflect on their imputations and take up responsibility, individually and collectively.

*Keywords:* responsibility, information technologies, imputation, temporality, narrative events, emplotment, Ricoeur

# 1. INTRODUCTION

In recent years, there has been a turn to responsibility in many large public organizations (European Commission, 2022; US Department of State, 2023), as well as in the corporate and business world (World Economic Forum in 2019; Yokoi et al., 2023). To facilitate this turn, a new conceptualization of responsibility is required for the digital age.<sup>1</sup> For centuries, responsibility has been ascribed to human actors performing actions with well-defined, circumscribed, direct, stable, and attributable consequences. The purpose of this attribution, in turn, has been to assign actions to certain actors, individually and collectively, for which they are taken to be responsible. Inspired by the Aristotelian and Kantian traditions, the dominant conception of responsibility has been individualistic and human centered. That is, it has focused on attributing responsibility to an individual who can be identified as the cause of a given action and praised or blamed for the specific consequences that flow from it.

The historically dominant conception of responsibility is fast becoming inadequate. Successive waves of technological development, increasingly extensive, interconnected, agentic, and autonomous, have complicated the straightforward assignment of responsibility to individuals (Baird & Maruping, 2021; Demetis & Lee, 2018; Gunkel, 2020; Johnson, 2015; Rowe et al., 2024; Yoo et al., 2012). Given the scope and significance of the consequences that may emerge from new technological infrastructures, reimagining responsibility and its becoming differently in ways that allow actors to take up responsibility, both individually and collectively, has become urgent for society.

This paper proposes a new conception of responsibility that is better suited for the digital age. In doing so, it adopts a sociomaterial and narrative perspective that focuses on continuous processes of imputation. Imputation is understood as the process of “attributing an *action* to its true author” (Ricoeur, 1994, p. 30, emphasis added), and sociomaterial is understood as the intertwined and co-constitutive relationality of the social and the technical in the organization of practices and processes. This perspective attunes researchers to an increasingly entangled techno-social world as well as the performative<sup>2</sup> nature of such entanglements (Orlikowski & Scott, 2008). Moreover, in this approach ‘narrative’ is understood as the relational plotment of an interconnected

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<sup>1</sup> Throughout the paper, we use the term “digital age” and “digital” to refer to contemporary society in which human action is significantly and substantially mediated or enacted through pervasive digital technologies or broader global digital infrastructures, underscoring the inseparability of the nature of society and the technologies that organize it.

<sup>2</sup> Sociomateriality has been conceived in diverse ways (Cecez-Kecmanovic et al., 2014). This paper takes the performative or enactive conception (e.g., Orlikowski and Scott 2008; Introna 2013, 2014) in which the social and the technical co-constitute each other—i.e., they enact or bring into existence each other as that which we already take them to be in and through their ongoing relational becoming.

trajectory of events and non-events that impute actions to an interweaving set of human actors involved in their ongoing enactment (Ricoeur, 1985, 1998)—much like a story of our own making. The narrative perspective highlights the linkage of the past, present, and future in responsibility to account for the ongoing enactment of imputation in a digital world.

While this sociomaterial and narrative perspective differs sharply from traditional conceptions of responsibility, it aligns well with an emerging research stream, not yet well-known in information systems (IS) research, that has presented relational, distributed, hybrid, and narrative conceptions of responsibility (Coeckelbergh, 2020, 2023; Verbeek, 2011). It builds on this stream by focusing on the sociomaterial processes of imputation through which digital technologies relationally enact particular individuals (e.g., users, operators, owners) or organizational entities as already responsible—a process that will be referred to below as the becoming of responsibility. For example, consider the following contrast: a knife used in a murder can leave traces that are then gathered and interpreted by criminal investigators. The knife, however, does not contain a distributed system of narrative traces that identifies and interconnects who did what, where, and when. By contrast, digital technologies make it possible to trace, extend, and (re-)express actions, as part of their ongoing functioning (Yoo et al., 2012). Moreover, digital technologies, in their functioning, enact responsibilities, as argued subsequently. To account for these distinctive features of digital technologies and infrastructures, the narrative approach expands and enriches current research on responsibility in the digital age by focusing on narration and the role of temporality (de Vaujany, 2024; Baygi et al., 2021; Scott and Wagner, 2003), infusing it with a stronger orientation toward the future and the temporal process of becoming responsible. This narrative approach is inspired by the work of the philosopher Paul Ricoeur (1983, 1985, 1998, 2003). Closely engaging with Ricoeur's notion of imputation, as produced in narrative emplotments, offers rich possibilities to rethink the becoming of responsibility in the digital age.

The paper proceeds in four parts. It begins by providing a more detailed account of the traditional concept of responsibility and its limits, bringing together related work on responsibility. In the second section, it proposes an approach to rethinking responsibility for the digital age. The third section illustrates the benefits of this approach by presenting three case examples: plagiarism detection, social media, and artificial intelligence (AI). The fourth section outlines a Ricoeur-inspired narrative topology of the multidimensional space of responsibility and calls on social actors to reflectively take responsibility, individually and collectively.

## 2. THE IMPERATIVE TO RETHINK RESPONSIBILITY IN THE DIGITAL AGE

The traditional concept of responsibility identifies responsible individual actors as those who have the capacity to choose freely and who possess a clear understanding of what they are doing (Smiley, 2017). We use this classic conceptualization of responsibility mainly for analytical and contrasting purposes herein, while also acknowledging a significant body of work that challenges this conceptualization, as outlined subsequently. To start, note that this classic concept of responsibility relies on two important conditions (Coeckelbergh, 2020): the “control condition,” which requires individuals with a conscious intention to both act and have the freedom to act, and the “knowledge condition,” which requires individuals to have sufficient understanding of what they are doing when they act. This traditional account thus refers to responsible actors in two ways. Descriptively, actors are the causal source of their actions, and evaluatively, they are judged to be blameworthy of harm resulting from their actions. This view is widely used in contemporary life, such as when organizations initiate disciplinary procedures or allocate bonuses, but also when courts make judgements of guilt or innocence. Mitigating factors, which reduce an individual’s level of responsibility, could be traced to specific limitations of individuals’ freedom to choose or their ignorance about the full scope of what they were doing<sup>3</sup>.

This traditional conceptualization of responsibility can be characterized and critiqued through three interrelated assumptions it takes for granted:

1. *Linearity of the world:* The traditional conceptualization of responsibility assumes the existence of a linear world made of successive and direct causalities from independent to dependent variables. Responsibility is related to someone who acts intentionally in a causal world, where human actions are the direct sources of good or bad outcomes. This allows a person to be identified as the original author or cause of an action.
2. *Single space–time for agency:* The traditional conceptualization of responsibility assumes spatio-temporal proximity. A “contemporaneity” (Jonas, 1973) of intentions, actions, and their consequences that inhabits the same present, such that an adverse outcome can be directly tied to the action itself. As a result, linking an agent’s intentions, actions, and consequences in a single chain of events becomes possible.

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<sup>3</sup> For an account of the problem of how the fragmentation of knowledge affects responsibility in an organizational context, see Luban et al. (1992).

3. *Centrality of intentional human action in the present*: The traditional conceptualization of responsibility assumes what Jonas (1973) calls “anthropocentric” ethics. In this view, human actions are governed by intentions formed by rational actors who then have the power to exercise their intentions in the world. As such, nothing of moral relevance happens outside the scope of this *conscious* intent here and now.

Digital technologies, if conceptualized as interconnected and heterogeneous sociomaterial processes and systems, make the attribution of responsibility increasingly problematic and complex (Johnson, 2001; Jonas, 1973, 1984; Noorman, 2018; Young, 2006). Ethicists have shown how the complexity of new technologies gives rise to the problems of “many things” (Coeckelbergh, 2023), in which many different processes are involved in the creation of some product, and of “many hands,” in which many different individuals are involved in complex processes (Van de Poel et al., 2012). Interconnected and heterogeneous sociomaterial processes (which is referred to as the digital world) undermine each of the three interrelated assumptions that underpin the traditional model of responsibility.

## 2.1 From Collectivity to Connectivity and Nonlinear Consequences

First, beyond the *linearity of the world* (i.e. an experience of successive and direct causalities), digital technologies, through their radical connectivity, allow for the circulation of actions in ways that make the consequences of actions far more indirect and unstable, making the imputation of an action to someone acting intentionally, with causal consequences, increasingly difficult. The distinction Bennett and Segerberg (2012) pose between “collective” and “connective” activity helps clarify this issue. Whereas *collective activity* assumes some collective awareness, underlying agreement, and voluntary participation, *connective activity* refers to crowd-based actions that are linked, assembled, and dispersed in and through sociomaterial assemblages. Such digitally mediated, connective actions do not necessarily require an identifiable actor, leader, or a specific agenda to exert its power. Connectivity is enough for such actions to emerge, expand, and be transformative. Thus, in the context of connectivity, imputation of responsibility becomes even more diffused and uncertain. In some sense, everyone implicated becomes responsible, or at least co-responsible, for actions whose developments and effects are largely unknown to them (Young, 2006), with damages that are unforeseeable and consequences that are nonlinear. X (formerly known as Twitter) is a case in point. Seemingly innocuous content posted in response to a local narrative event can be tagged, swept up, and recontextualized into a broader algorithmically produced narrative in unpredictable ways. This recontextualization, in turn, may implicate the original author in new and unintended

ways. Similarly, algorithmic trading in international markets can cause a “flash crash” (Galouchko et al., 2022), wiping out billions of dollars without it being possible to know exactly who or what caused it.

## **2.2 From Proximate to Extended, Interconnected, and Emergent**

### **Actions**

Second, beyond the *single space-time for agency*, digital technologies facilitate the introduction of a new and unprecedented scale of action. They can connect the distant past to the present and the future in much the same way as they connect remote places to the “here and now,” thus bringing discontinuous pasts and futures to the present (Hernes & Schutz, 2020). Through *connective action*, digitalized practices introduce a spatio-temporal extension and distance in which the doer, deed, and effect no longer inhabit a “proximate sphere” (Jonas, 1984). Digital technologies and their processes thus radically expand agential flows (Baygi et al., 2021), enabling an extended duration that connects various localized presents in some other distant place (de Vaujany, 2024; de Vaujany & Mitev, 2017; Sassen, 2001). Connectivity rendered possible by digital infrastructures, such as engagement algorithms, increasingly transforms single actions embedded in local narratives (a tweet) into connective actions circulating in narratives on a global scale (a viral tweet/storm), potentially converting a local beneficial action into a harmful one in another time and place. This interconnective digital flow from the local to the global, through spatio-temporal extension (Lawless et al., 2017), obscures the causal connections between original actions and their eventual consequences (Coeckelbergh, 2013, 2020; Karunakaran et al., 2022; Waelbers, 2009). For example, the tagging and recontextualizing of a tweet can be instantaneous or can happen months or years after the original tweet. Thus, inappropriate posts can be almost invisible in the present but return in some distant future to implicate the author who might have since become a very different person. As such, the digital self becomes a spatio-temporally performed and extended subject whose actions become diffused and archived (Richardson & Hessey, 2009) in ways that might impute it with responsibilities, without any agreement from or discernible involvement of the author.

## **2.3 From Intentional Human Actions to Posthuman Performative**

### **Agencies**

Third, beyond the importance of *intentional human action in the present*, everyday practices in digital societies are increasingly embodied and hybrid, making the distinction between human and nonhuman actors impractical

(Haraway, 1987). Recent discussions have explored the shift from human to “posthuman” (Gherardi & Laasch, 2022) and “more-than-human” (Introna, 2019) infrastructures and criticized the excessive focus of current research on conscious, human-focused agency or systems. With digital technologies and their practices, the idea of a consciousness grounded in intentional awareness is increasingly problematized. Digitality operates in an immersive world in which agency is enacted and shared in a fluid way between the human and nonhuman entities it keeps enacting (Latour, 2005), thereby challenging the separation between intentional actors and the world that the traditional account of responsibility assumes. Sociomaterial processes both act and enact simultaneously and performatively (Introna, 2014). For example, through its algorithmically choreographed conversations, X does not just represent and distribute the messages intended by its contributors; it also actively produces meaning as it fosters connectivity and creates trends. It relies on algorithms that are both directive (fostering certain directions) and responsive (adapting to responses). Thus, over time it performatively produces and connects conversations rather than merely reflecting the intended messages it hosts. In the end, “humans do not only read technologies, but technologies on the other hand ‘read’ the human” (Coeckelbergh & Reijers, 2016, p. 336).

This circulation of emergent conversations challenges traditional forms of imputation. A narrative approach would suggest that sociomaterial assemblages increasingly auto-produce or enact imputation as they actively and algorithmically curate flows. Some flows are suppressed, while others are amplified with varying consequences. As a result, sociomaterial practices are not only performative (Orlikowski, 2005) but also imputative. That is, in their performativity, they not only actively produce the world (through entangled agencies) but also actively impute actors as being already responsible for what happened or did not happen—we further discuss this key point subsequently. X posts, for example, may get swept up and recombined with others and suddenly impute the contributors as being sexist or racist regardless of their initial intentions. If the linearity, proximity, and originality of the relationship between an action and its consequences become subverted, imputation itself is transformed into an emergent outcome that can come from elsewhere and implicate individuals unexpectedly.

## **2.4 A Need to Think of Responsibility Differently**

Ultimately, the traditional concept of responsibility is inadequate to grasp the complex changes outlined previously. The imputation of responsibility has become complicated (Hanson, 2009; Noorman, 2018) in the digital age, as fast-changing networks of complex human and technological agencies increasingly extend, assemble, dissolve, and impute responsibility while producing pervading narratives—increasingly at an

unprecedented scale. In contemporary society, becoming responsible is thus a continuous and emergent process. To deal with this complexity, the development of an extended spatio-temporal perspective and an appreciation of the continuous process of the becoming of responsibility are necessary.

In response to this transformation of responsibility, the development of distributed, joint, hybrid, relational, and hermeneutic approaches to responsibility in the digital age has made some progress (Coeckelbergh, 2020, 2023; Hanson, 2009; Johnson, 2006; Verbeek, 2006, 2011). Table 1 presents a contrasting analysis of these various approaches from the standard to the more relational approaches. These new and emerging approaches provide a relevant way to describe the distributed, eventful, and processual character of responsibility, comprising multiple human and nonhuman agencies witnessing the same event of a technology acting in the world (Gunkel, 2020; Hanson, 2009; Taddeo & Floridi, 2018). These increasingly relational approaches put emphasis on actors' responsibility (for their actions, but also toward others) as a form of "answerability" and "explainability" (Coeckelbergh, 2020), underscoring the backward- and forward-looking dimensions of responsibility to make sense of the present while shaping the future responsibly in the digital age (Coeckelbergh, 2023).

Despite the value of their contributions, these approaches leave unresolved the concrete problem of the imputation of responsibility, as enacted in sociomaterial processes. Specifically, they do not (1) consider the *imputative function* of the narrative power of digital technologies in any significant sense or (2) really address the importance of the *imputative force* of sociomaterial performativity.

Understanding the imputative nature of sociomaterial processes is important because it shapes how responsibility becomes enacted, concretely and specifically. Moreover, understanding it narratively allows for both temporality and performativity to be rendered visible. Without such an exploration, the multidimensionality of the space of responsibility will not become visible, making it difficult for actors to take responsibility. Thus, what this paper argues is a need for the sociomaterial imputation of responsibility to be rethought in fundamental ways that build on the work outlined in Table 1 but extend it in important ways. This can be done by reengaging with Ricoeur's work, especially by focusing on the sociomaterial enactment of imputation, which is the aim and central focus of this paper.

Given the need to update the concept of responsibility for current times, it might seem counterintuitive to reach back to older work developed slightly before the digital age, but that's the approach we are taking by drawing from the work of Paul Ricoeur (1983, 1985, 2003). Indeed, Ricoeur's work has resonated with IS researchers for decades (Boland et al., 2010; Klein and Myers, 1999; Lee, 1994; Stahl, 2005), and we believe his insights on narration, responsibility and imputation are increasingly relevant now, if understood as a processual approach to



narrative events and their becoming. This is because his work is particularly oriented around understanding the world as a continuous flow of enacted texts and nothing is surer than the ongoing textualization of the world through digital media and AI, stressed decades ago (Barrett, 1989; Zuboff, 1988) and continuing today (Kiesow et al., 2023; Romele et al., 2020).

Ricoeur's approach is hermeneutic in that it is concerned with the ongoing interpretive process of sensemaking (or production of meaning) through narrative configurations of events (plots). Narrative configurations impute responsibilities to specific actors or groups (Davidson & Vallée, 2016). It is also phenomenological in that it involves understanding the relational conditions of the ongoing performative actions of actors and their subjectivation. This includes the subjectivation of the actors involved in the narrative as well as the readers enacting it and discovering themselves through the process of reading. Together, Ricoeur's hermeneutic approach to phenomenology emphasizes the relational meaning-making dynamics at play—between interpreter and world, between events and their configuration in narratives, between temporal experiences and their organization through narratives (Davidson, 2014; Ihde, 1971). Throughout the paper, terms such as “narrative,” “narration,” “narrative events,” and “narrative emplotment” should be taken specifically in this hermeneutic phenomenological sense.

**Table 1.** Synthesis of Conceptualizations of Responsibility in the Digital Era

Conceptualizations of responsibility	Principles	View of agency	Temporal orientation	View of (digital) technologies	Contributions	Limitations/constraints
<b>Standard, classic approach of responsibility</b>						
<p><i>Traditional approach of moral responsibility</i></p> <p>(Aristotle, 1984)</p> <p>(Kant 1785/1964; 1797/1996)</p> <p>(Jonas, 1973)</p>	<p>A linear world (i): attribution of responsibility according to a logic of causal relationships</p> <p>Identification of well-defined, circumscribed, direct, stable, and clearly imputable consequences</p> <p>Two preconditions: 1. “individual control condition” coupled with the need to identify the responsible agent; 2. “agent’s knowledge condition” (consciousness)</p>	<p>A singular space–time for agency (ii)</p> <p>Causal agency of outcomes: attribution of responsibility to human actors performing actions.</p> <p>A “judgment” from outside (Kant, 1785/1964): identification of guilty individuals who must be blamed for a fault they have committed</p> <p>Focus on <i>individual responsibility</i> and the <i>agent of responsibility</i></p>	<p>Prevalence of human consciousness in the present (iii)</p> <p>Backward-looking, retrospective orientation, turned toward the past.</p> <p>A form of responsibility out there, waiting to be unveiled</p> <p>Contemporaneity of actions and consequence, which inhabit the same present</p>	<p>Instrumental view of technology, deemed as: - Tools and means employed by human users to specific ends, independent of their level of sophistication (Feenberg, 1991; Heidegger, 1977; Johnson, 2006; Nissenbaum, 1996); - A direct or indirect product of human decisions and actions (Johnson, 2001, 2006) - Objects under human control</p> <p>Human-centered perspective that assigns responsibility to humans exclusively, not to technology. Technology as a mediation of the moral situation between the user of technology and</p>	<p>Affirmation that only human beings possess rights and responsibilities.</p> <p>Emphasis on individual control over action (e.g., Fischer &amp; Ravizza, 1998)</p> <p>Characteristic of inevitability: responsibility attribution cannot be otherwise because attributing moral responsibility to technology would lead to an underestimation of human responsibility and constitute a barrier to accountability (Mowshowitz, 2008; Nissenbaum, 1996); doing otherwise would lead to the risk of blaming technology for own mistakes (Siponen, 2004).</p>	<p>Reductive view of technologies (no consideration of differences in design, implementation, use, and levels of sophistication)</p> <p>Inadaptation/invalidity of traditional conceptualizations of responsibility to technological evolutions and innovations (interactivity, autonomy, and sociability), which makes technology more than mere tools. Fissures in the way responsibility comes to be decided, assigned, and formulated</p> <p>A widening “responsibility gap” (Matthias, 2004): impossibility of holding human beings responsible for actions over which they have insufficient or no control</p> <p>Neglect of the “patient” of responsibility (i.e., <i>to whom</i> moral actors are responsible; Coeckelbergh, 2020)</p> <p>Lack of a forward-looking perspective of responsibility</p>

the victim of technology  
(Bryson, 2010)

Emerging alternative approaches: Hybrid and relational approaches of responsibility						
<b>Distributed responsibility</b> “Distributed agency” coupled with “distributed responsibility”  (Verbeek, 2005, 2006, 2011) (Taddeo & Floridi, 2018)	Distribution of responsibility across a network of interacting components (Taddeo & Floridi, 2018; Verbeek, 2011)	Networks of responsibility include not just other human beings but also organizations, natural objects, and technologies (Verbeek, 2006, 2008, 2009, 2011)  Distribution of moral agency over both humans and technological artifacts (Verbeek, 2008, 2009)	Generally backward-looking	Agentic view of technology  “Ethics of things” (Verbeek, 2011) and “technological morality” (Verbeek, 2006)	Converging efforts to assign some level of moral agency to machines and technologies (Gunkel, 2020)  A conceptual solution to the problem of “many hands” (Nissenbaum, 1996; Van de Poel et al., 2012); a comprehensive view of responsibility based on the acknowledgment of its distributed character through multiple agencies (e.g., Van de Poel et al., 2012)  Recognition of the “agentic role” of technological artefacts in shaping human actions, beyond a mere instrumental role (Baird & Maruping, 2021; Mihale-Wilson et al., 2022)	Difficulty of/impossibility for technology to meet the criteria for moral agency and moral responsibility (control and knowledge, freedom, and consciousness; a non-sense that technology can act voluntarily or without ignorance) (Coeckelbergh, 2020)  Problem of responsibility attribution due to several challenges:  (1) Lack of clarity (2) Flexibility of interpretations: (3) Instrumentalization and possible irresponsibility (4) Upholding of an external judgment  A controversial issue: the extent to which one might assign “agency” and “responsibility” to technologies remains controversial and contested  Irresoluteness of the practical problem of how to distribute the responsibility concretely; risk of an unactionable blur
<b>Joint responsibility</b>  (Hanson, 2009)	Joint responsibility as an extension and elaboration of actor-network theory (Latour, 2005)  Application of responsibility to both nonhuman and human beings	“Extended agency theory”: moral responsibility of extended agencies, distributed over both human and technological artifacts (Hanson, 2009).	Backward-looking and anticipatory or forward-looking	Mutual dependency  Attribution of responsibility to “actor networks” and cyborgs (Hanson, 2009)  Production of actions by composite, fluid subjects understood as “extended agencies”	Recognition of the moral relevance of actions performed by and through digital technologies (e.g., AI)  Focus on the appearance of specific technologies as being responsible actors (e.g., advanced AI) (Coeckelbergh, 2009)	
<b>Hybrid responsibility</b>  (Gunkel, 2018, 2020)	“Hybrid responsibility,” distributed across a network of interacting humans	Distribution of responsibility across a network of human beings, organizations,	Mostly backward-looking (need to respond to the	Distinctions between tools (instruments used by human agents) and machines, designed and implemented to take	Constructive engagement with other people, technology, and the environment (more than with moral individualism)	

(Johnson, 2006)	and machines (Gunkel, 2018, 2020)  Moral and causal sense of responsibility	natural objects, and technologies (Johnson, 2006)	consequences of actions)  Forward-looking dimension, need to determine the current state and future possibility of and for responsible robotics	the place of human agents (e.g., autonomous technology), opening gaps in the usual way of assigning responsibility  “Quasi-responsibility” of technology (Stahl, 2006)  Technology and machines as moral actors and moral patients (see Bryson, 2016; Gunkel, 2018)	Appreciation of the mutual dependency of all actors for their common well-being	
<b>Relational responsibility</b>  (Coeckelbergh, 2020)	Relational approach of responsibility as “answerability” and “explainability” (responsibility <i>to</i> others)  (Coeckelbergh, 2020)  Two aspects 1. Who is responsible for something (responsibility attribution) 2. Who is responsible to whom (answerability and explainability)	Preconditions of control, knowledge, and awareness  Responsibility as “social actors” (responsibility of humans as agents, but also as social actors, who, in their specific roles and social contexts, must answer to others for what they do to them)	Backward-looking explainability: humans’ decisions and actions need to be explainable if they are to be responsible; answerability for past actions  Forward-looking explainability: actions need to be framed and shaped in ways that ensure responsibility for the future	Recognition of the “many-hands” issue coupled with the “many things” issue (elaboration of; Nissenbaum, 1996; Van de Poel et al., 2012)  Exclusive human agency: only humans can be responsible agents  Absence of moral agency due to technology (technologies can have agency but do not meet traditional criteria for “moral agency” and “moral responsibility”)	Development of a more social and patient-oriented (vs. traditional) approach through a relational emphasis  Recognition of the temporal dimension of the problem of responsibility attribution (both backward- and forward-looking) (consideration of the historical and societal context; Coeckelbergh, 2020).  New emphasis on responsibility as social (responsibility as a relation)  Recognition of the challenges of responsibility attribution in an era moving from the agency of “many	Reliance on the two Aristotelian preconditions of responsibility and impossibility to consider digital technology responsible agents, despite recent technological evolutions (in terms of interactivity, autonomy, and sociability; Gunkel, 2020)  Difficulty in how to put relational responsibility into practice

	Focus on both the agent and the patient of responsibility (Coeckelbergh, 2020).				hands” to the distributed agency of “many things”	
<b><i>Hermeneutic responsibility</i></b> (Coeckelbergh, 2023)	Responsibility as a form of “hermeneutic responsibility” (i.e., the responsibility to make sense of, interpret, and narrate)  A responsibility to provide answers to what happens to actors and to others, emerging from their existential situation as humans (Coeckelbergh, 2023)	Preconditions of control, knowledge, and awareness, explaining that only humans are the experiencers and bearers of responsibility  A hermeneutic responsibility in general and for technology: responsibility of humans to make sense of, with, and, against technology (e.g., AI)	Backward- and forward-looking responsibility, to make sense of the present and shape the future	Capacity of modern technologies (e.g., AI) to co-shape oneself and co-write own narrative  “Narrative technologies” (Coeckelbergh & Reijer, 2016) which participate in meaning-making and contribute to hermeneutic responsibility  Exclusive human responsibility: only humans carry and should carry the (end) responsibility (e.g., with and against AI; Coeckelbergh, 2023)	Conceptual elaboration of a renewed, narrative and hermeneutic form of responsibility, in the context of new technology such as AI  Acknowledgment of technologies’ narrative power and participation in meaning-making activities  Emphasis on humans’ freedom in defining the role of technologies in those narratives and in the writing of those narratives  Opening of a possibility to engage with technologies such as AI not only in morally and politically responsible ways but also in meaningful ways (Coeckelbergh, 2023)	Risk of the dilution of responsibility, lack of clarity on: - How to distribute responsibility in practice. - How to trace the attribution of actions to someone (their actual author) by using a hermeneutic and narrative approach. - How to engage responsibly and concretely with new technology. - How to create (new) narratives to shape a responsible future with technology. - How to bring temporality and a future orientation through this narrative and hermeneutic approach.  Lack of consideration of the imputative dimension of technologies (modern technologies are not only performative but also imputative)

### 3. A NARRATIVE APPROACH TO RESPONSIBILITY

Insofar as the standard model of responsibility has become overwhelmed by the challenges of the contemporary digital age, this section outlines an alternative, narrative approach to responsibility (Ricoeur, 1983, 1985, 2003). Ricoeur (2003) affirms the contention that the traditional conception of responsibility is in crisis and needs to be rethought in at least three ways: (1) an approach that is more temporally oriented; (2) an approach that is not centered exclusively on freely made, individual choices; and (3) an approach that is not anthropocentric and appreciates the heterogeneous actors involved in sociomaterial agency. One of the main problems with the traditional account of responsibility is that it only applies retroactively, after an action imputed has occurred. It tends to be backward-looking rather than forward-looking; the consequences of an action have already occurred by the time a judgment is made. Yet the reality of a contemporary increasingly digital world requires both a backward and a forward-looking form of responsibility that is oriented toward the prevention of future harm and can intervene *ex ante* rather than *ex post facto*. As Ricoeur (2003, p. 130, emphasis added) notes, “It is an imperative and an injunction requiring us to act so that there is still a humanity after us, *directed towards a future* that is as vast as are the effects of our technological interventions.” To develop this forward-oriented approach of past, present and future actions, Ricoeur (1994) emphasizes the temporal dimension of imputation. How are actions imputed to actors? How have they been imputed (as anticipation in the past)? How are they imputed today, in our present interpretation of past actions? How will they be imputed in the future, ahead of our contemporary judgement?

Imputation attributes a role or action to someone for making something happen or for failing to make something happen (Ricoeur, 1998). When an action is imputed to an agent, the agent is considered the one who initiated the act and caused its subsequent consequences (Ricoeur, 2004). The key difference between imputation and responsibility is that it is *actions* that are imputed to an actor, and it is this actor who is then held responsible for the actions and the consequences that flow from them. This process of making someone responsible for an action, however, can unfold in one of three ways: (1) someone else can impute an action to the individual (“you are the one who did that”); (2) an individual can be made responsible relationally, by finding themselves in a specific role<sup>4</sup> or a position; or (3) an individual can reflexively impute an action to themselves and claim it as their

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<sup>4</sup> Archetypal examples include the responsibilities a parent has toward a child due to the parent/child relationality and the responsibilities managers have for their staff in their role as “manager.”

own doing (“I am the one who did that”). Imputation thus introduces an orientation that is forward-looking, relational, and self-imputed (“I am the one who will deal with that”).

With this broader conception of imputation, Ricoeur (1994) highlights two important features: (1) an *extended temporality*, in which imputation is rooted in the present but is also oriented toward both the past and the future, and (2) an *expanded process*, in which one can be imputed (made responsible) by someone or some process as well as impute oneself (take responsibility). In these respects, imputation lays the foundation for the expanded notion of responsibility that is necessary in the digital age.

## **4. Narration: Self-imputation and Becoming Imputed**

### **4.1 Narration as a Process of Becoming**

Ricoeur argues that narrative or narration is a fundamental process of understanding and making sense of human experience as it unfolds dynamically in time; narratives make experience intelligible. Consider, for example, the way that narration or “telling a story” of what happened at a meeting when a decision was made allows participants to connect different events within a meaningful whole to make sense of, or give a sense to, why a certain decision came about in the way that it did. Ricoeur is, however, not saying that narration is a process of merely describing a preexisting and already meaningful reality; rather, he is claiming that social reality is brought into meaningful existence, or enacted, through a process of narration—differently stated, narration is performative. There can be competing stories—senses or configurations—of how the decision came into existence in the meeting. Nevertheless, even if narration is meaning- or world-making and remaking, this does not imply that social reality is “just stories”; a pre-narrative experience of life events clearly exists. Narration gives this experience structure and meaning.

Narration as world-making connects disparate actions or events in the meaningful whole of a plot (Dosse, 2001). A plot establishes meaningful relationships between seemingly unconnected, heterogeneous events and actions (or non-events and missed actions), in a way that replaces the classic logic of a simple causal relationship. From this perspective, Ricoeur (1985, 1998) argues that narration makes it possible to revisit past and anticipated events. For him, reexploring non-events (e.g., not taking an action) through narration facilitates taking responsibility for the future. As Ricoeur (1998, p. 8) stresses “it is in fact by delivering through history, the promises that have not been kept, that have been prevented and repressed by the subsequent course of history, that a people, a nation, a cultural entity can access an open and living conception of its tradition” (Ricoeur 1998, p. 8).



Likewise, anticipated events or non-events, their possible becoming, and our conceptions of the past and the future, what Reinhart Koselleck calls the “space of experience” and the “horizon of expectations” (see Ricoeur, 1985 in the general conclusion of his book), can impact the sense of our responsibilities in the present. What we have not done in the past to save the planet, what we are not doing today to save it, matter as much as what we claim to have done and to do. We have a responsibility towards future generations about it (Jonas, 1984; Ricoeur, 1994). Telling the story this way, from the perspective of a remote future, opens a space for our responsibility in the present.

Thus, exploring the potential of unfulfilled events (e.g., a missed decision, a failed recruitment, a lack of response, a failed entrepreneurial venture) is a powerful opportunity to take responsibility for the past and the future, differently. Things could have been different yesterday, they could be different today, they could bifurcate at any moment tomorrow. The ethical space of our non-doings is always bigger than what is first perceived and claimed. This imaginative exercise can help to reimagine the imputative possibilities of a narrative and to keep the future open to the possibilities of new actions. How then is narration as world-making relevant to imputation by the self and others in the digital age?

## 4.2 Self-imputation: Becoming a Responsible Subject

People can impute themselves and others as responsible actors through the production of narratives—that is, by narrating their actions to themselves and others as they emerged in situated events (Ricoeur, 1994). Why do people do this? Human actors, as subjects, are not transparent to themselves, nor are other actors they encounter (Dunne, 1996). For example, when challenged by others about why they did something in a particular situation (or event), they cannot simply look “inside” themselves to find the reasons already there to be revealed—in the same manner that one can inspect the decision logic of a computer program, written in a procedural programming code, to identify the rules it used to select a particular course of action. Rather, what actors typically do is make sense of their past actions by creating a coherent and meaningful narrative out of the appropriate series of actions and reactions to establish an intelligible sense of connection and teleological development between them—what Ricoeur (1992) calls a process of mimetic emplotment.<sup>5</sup> This narrative emplotment process gives shape and meaning to actors’ actions over time, for themselves and for others. It then allows them to respond by saying, for

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<sup>5</sup> In Ricoeur’s (1983, 1985) narrative theory, *mimesis* refers to the ongoing and dynamic interpretive process of creating or appropriating meaning through stories/narratives. Mimesis goes beyond the traditional notion of “imitation” by emphasizing the *active role* of actors themselves in shaping and being transformed by the narrative. Active participation and appropriation are crucial for ongoing meaning-/world-making.

example, “I did it because this and that happened and that made me feel in a particular way, which forced me to do this and that, because that is the sort of person that I am.” Importantly, this narrative process of sensemaking is not merely an explanation of actors’ past actions in a particular event; it is also the ongoing appropriation and development of their own *identity*, for themselves and for others—an identity that is open but stable. This narrative identity making is central to being able to impute oneself as the author of a deed in the past because of the inherent temporal nature of imputation. Ricoeur’s paradigmatic example of this is the promissory act. The act of promising serves both as an index of the extension of identity or selfhood through time and as a commitment to that very claim of continuity in selfhood. Implicit in the act of making a promise is the simultaneous attestation of the capacity to make a promise and the continuity to being able to fulfill such a promise. Moreover, the making of a promise is inherently ethical in that it acknowledges the indebtedness of one actor to the other and the trust that the other puts in the actor’s faithfulness in keeping their word.

Altogether, this ongoing and continual creation of a coherent overarching narrative identity interweaves the past, present, and future in ways that produce and simultaneously render possible the imputation of the very self that is being explained. In doing so, a narrative emplotment always concurrently implicates the past, present, and future in what Ricoeur (1983, 1985) calls the threefold mimesis of prefiguration, configuration, and refiguration. Here, the key point is that actors become imputed, or enacted as the original authors of their actions, in the unfolding narrative identity they reflectively construct of themselves, with and for others.

### **4.3 Sociomaterial Imputation: The Production of Responsibility**

The narrative approach also argues that complex, distributed sociomaterial processes themselves give shape and meaning to human actions over time (more materially than before the age of digitality)—actions attributable to certain types of actors or characters<sup>6</sup> in a plot. This narrativizing aspect of technology as a sociomaterial process is demonstrated in actor–network theory scholarship—in terms of both its textuality (i.e., its need to be interpreted) (Law, 2019) and its enactive performative mode of becoming (i.e., actively enacting the world of ongoing action) (Latour, 1994). More specifically, drawing from the work of Ricoeur, Coeckelbergh and Reijers (2016) argue that digital infrastructures themselves (e.g., Facebook), in and through their “code-at-work,” (p. 84) organize human actors/characters and events into a meaningful whole as narrative emplotments.

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<sup>6</sup> The notion of a character is invoked here to denote the idea of a certain type of person/personality that produces the plot and is to some degree produced by the plot. This is a familiar notion in novels—the characters are involved in producing the plot, but the plot also produces the characters the readers. Thus, the plot constitutes a hermeneutic (part/whole) relationality that is performative.

The argument here is that sociomaterial processes configure actors' understandings of themselves and others, as certain actors, as they become caught up in these heterogeneous systems and processes. Actors become imputed through their relational enactments as certain types of characters in an unfolding sociomaterial plot with very specific, associated *relational* responsibilities. Relational responsibilities flow directly from actors' relational enactments in the narrative plot, such as the way a parent's relationship with a child automatically produces certain responsibilities due to such relationality. The key point here is that "users" of technological systems do not simply have predefined responsibilities as such; rather, their responsibility is produced through their enactment as specific actors (or characters) in the sociomaterial plot—for example, in social media, as followers, influencers, victims, heroes, in the context of something happening (a rumor, a scandal, the appearance of a new sponsor, etc.). Consequently, sociomaterial processes, in their performative enactment, are narrative in at least two respects (see Coeckelbergh & Reijers, 2016; Kaplan, 2006; Reijers & Coeckelbergh, 2020): first, sociomaterial processes, in their ongoing functioning, produce narrative emplotments that configure specific types of actors (users or participants) and associated digital actions/events into a meaningful temporal whole; second, humans make sense of themselves, narratively, in relation to the sociomaterial processes in which they are implicated. These two aspects of narrative entail certain relational responsibilities, which are illustrated in the case examples provided subsequently.

#### **4.4 Imputation through Sociomaterial Emplotment: Prefiguration, Configuration, and Refiguration**

This section elaborates further on the processes of narrative emplotment (Ricoeur, 1992). Again, Ricoeur (1983, 1985) identifies three mimetic processes that constitute the flow of "narrative time" or the hermeneutic sensemaking arc: *prefiguration* (the elaboration of the preexisting building blocks necessary to construct a narrative), *configuration* (the concrete process of assembling and organizing the narrative events into a plot to tell the story), and *refiguration* (the process of continuously re-interpreting and re-enacting the outcomes of configuration).<sup>7</sup> These three processes are co-present in the unfolding of narrative meaning. Prefiguration (as past events in the present) and refiguration (as future events in the present) draw on each other and give depth to the

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<sup>7</sup> In terms of interpreting a text, prefiguration is the *prior understanding* or meanings that is brought to the text, configuration is the *active process of interpretation* or meaning giving to and of the text, and refiguration is the repeated *reinterpretation*/meaning that is brought to the text in every subsequent encounter. Ricoeur's (1983, 1985) point, however, is that the interpretive frame brought to the meaning-giving process is *narration*, which by its very nature emplots.

meaning of the present. The unfolding narrative interconnects events and, to that end, follows the logic of a plot to enact “different elements like characters, motivations, and events in a meaningful whole” (Coeckelbergh & Reijers, 2016, p. 331). Importantly, these mimetic processes are also temporally relative, in the same way that before, during, and after are temporally relative to a positioning event. The narrative approach builds on these three aspects of the narrative mimetic process to make sense of how particular actors/characters are constituted and, as such, relationally imputed in and through the connective flow of sociomaterial emplotments.

First, note that any ongoing sociomaterial reality has emerged in a *prefigured time* (Ricoeur, 1985). This means that any event in the narrative flow is always and already situated in the context of preexisting cultural and historical narratives. This preexisting knowledge includes norms, assumptions, expectations, and biases that narratively frame what, when, and how actors make sense of the world. Here, Jasanoff’s (2015) idea of sociomaterial imaginaries, which function as preexisting narratives to help create visions of the future, is pertinent. For example, future technological developments can be explained, justified, and made sense of by drawing on the existing and widely accepted narrative of inevitable technological development, growth, and progress, and vice versa (Boland & Schultze, 1996). Also important is how an actor can become produced as a “protagonist” or a “passive bystander” in and through such inevitable progress narratives. Such a prefiguration of the narrative possibilities establishes and grounds the “grammar,” or building blocks, and logics of the evolving narrative emplotment. For example, the existing global financial infrastructure prefigures what counts as value, what can be traded, and by whom. As such, social actors tend to think, act, and imagine the future of value and value creation in these prefigured ways. Furthermore, these sociomaterial processes also already prefiguratively produce some individuals as responsible actors (e.g., traders, clearing houses, trading platforms) and others as irresponsible actors (e.g., speculators, insiders, manipulators), with associated consequences.

Second, sociomaterial emplotment of digital technologies introduces an ongoing and open temporal *configurative* movement (Coeckelbergh, 2020) that imposes a sense of meaningful order on heterogeneous actors, enabling an extended duration in which many diverse actors become connected. That is, in their temporal unfolding, digital sociomaterial processes configure heterogeneous events and nonevents, assembling them into a meaningful whole that defines actors/characters and relationally assigns responsibilities, and, in doing so, transform those implicated in its emplotment as being already imputed (Ricoeur, 1985). For example, new digitally mediated narrative events, such as the introduction of subprime mortgages and cryptocurrencies, transform the unfolding narrative of value and value creation in fundamental ways. That is not all though; through their ongoing configurative movements, such narratives also transform a vast array of actors, caught up in the plot, as already

relationally imputed and responsible in specific ways. Such configurative emplotments not only act in the present but also alter the meaning of past events. For example, in the narrative configuration of the securitization of the debt of subprime mortgages into bond-like investments, mortgage-backed securities, which traded on global markets distant from the assets they were supposed to represent, enact the actors involved as irresponsible, even unfathomable. Yet, in the narrative flow of the financial market at the time, they were deemed financially appropriate, logical, and even innovative. The temporal extension and configuration of a given unfolding narrative can be short (focusing on the present moment of the narration) or long (extending from the past to future of an action and a narrow or broad set of events wrapped in the narrative), depending on how a situation is narratively enacted. During the 2009 financial crash, for example, the subprime housing bubble, the structure of financial institutions, the regulators, and the global financial system were narratively imputed. Each time the temporal horizon of the configuring narrative becomes extended, the actors/characters implicated and imputed become transformed. Being attuned to this temporal extendibility, or openness, and how it is perceived is important to make sense of which actors become imputed (made responsible, and how) or when self-imputing (taking responsibility, and how) occurs.

Third, the sociomaterial emplotment of digital technologies also simultaneously raises the issue of ongoing refiguration of the narrative. Refiguration is about the life of a narrative beyond its original expression—that is, its re-interpretations, re-arrangements around new points of origins, new temporal framings, unexpected points of rupture, and new trajectories of narrative events. Narrative emplotments are polysemic; they can be reinterpreted in a variety of ways—hence the notion of interpretive flexibility of technology (Doherty et al., 2006). Technology designers know this; they often discover unintended uses of their designs as users refigure them, sometimes quite drastically. For example, the digital configuration of the global financial markets created the possibility for their refiguration through algorithmic trading. Through this refiguration, temporality shrinks to nanoseconds, and latency and trends in the data become the keys to success, not fundamental knowledge of the markets. This imputes responsibility very differently. Coders, algorithm designers, algorithms themselves, and data streams replace traders, and they can produce a financial crash in the blink of an eye. The plot of value creation becomes transformed, and whole new sets of actors are imputed in the production of value. What is clear through these narrative emplotment processes is that sensemaking is increasingly decentered, dislocated, and diffused, far beyond the control of any central actor (Coeckelbergh, 2020, 2023; de Vaujany & Clegg, 2024; Hanson, 2009).

Two principal elements of the narrative approach are necessary to highlight. First, narratives are extended in space and time as unfolding trajectories that come from and are heading somewhere in which the narrative

events and nonevents (things that were expected and did not happen, failed to happen, or have not yet happened) implicate and impute human and nonhuman actors—the storyline and its ongoing emplotment. Second, the mimetic narrative process by and through prefiguration, configuration, and refiguration processes does not just relationally impute actors in its ongoing movement or flow; actors (e.g., researchers, designers, managers, policymakers) also draw on the interpretive value of the narrative mimetic framework to make sense of their imputation of responsibility, individually and collectively. Figure 1 outlines sample questions that can guide such hermeneutic sensemaking process.

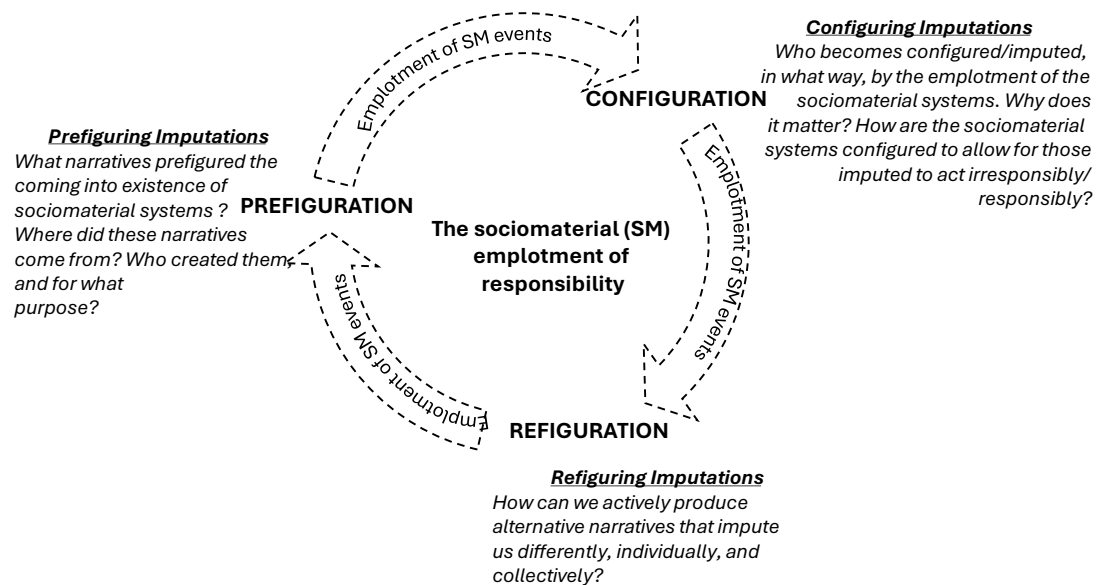


Figure 1. Three mimetic emplotments of sociomaterial events

## 5. A NARRATIVE THEORY OF THE PROCESS OF SOCIOMATERIAL IMPUTATION: THREE EXAMPLES

The mimetic emplotment of sociomaterial events, presented in Figure 1, helps us make sense of and elaborate on the imputative nature of sociomaterial assemblages,<sup>8</sup> examples of which we will elaborate here. What these

<sup>8</sup> The notion of sociomaterial assemblages suggests an open and fluid collection of heterogeneous sociomaterial processes (consisting of intertwined technological systems, organizational procedures, work practices, policies, and the like) that work collectively to produce certain outcomes, many of which are emergent and not necessarily intentional. Indeed, it is exactly the unintentional performative outcomes of responsibility making that are captured

sociomaterial assemblages show, beyond the algorithms and interfaces, is a specific narrative emplotment of the so-called users, or actors more generally, as becoming responsible, relationally and specifically. These examples are not exhaustive; rather, they serve to highlight the rich possibilities being offered. They focus on digital assemblages whose openness and plasticity epitomize key contemporary trends in the design and use of IS.

The illustrative discussion begins with a simple but prevalent and familiar example—plagiarism detection. This is then followed by a more socially prevalent example—social media—and then an emerging and widely debated example—AI. These examples demonstrate the fundamental way imputation (and responsibility) can be rethought by drawing on the hermeneutic phenomenology of Ricoeur, specifically the mimetic narrative framework. In the last section, we return to these examples.

## 5.1 Plagiarism Detection Systems

What are the narrative emplotments that prefigure plagiarism detection? That is, what are the prevailing narratives that make plagiarism detection stand out as an obvious and meaningful technology in need of being enacted? Some educators would suggest that students are increasingly encouraged, and pressured, to “cut and paste” as a manner of writing digitally, in which it has become difficult to judge if what is presented is in fact the students’ original work (Heim, 1999). Most educators would agree that this problem in appraising the originality of a work reflects a form of cheating—that is, presenting another’s work as one’s own. Why is the problem in or with academic writing and assessment framed in a narrative of originality, cheating, or stealing? The classicist J. Mira Seo (2009) argues that the claim of plagiarism (the “stealing” of words and ideas) requires a narrative of commodification to work. In higher education, this narrative is of the commodification of education, in which the student is now increasingly enacted as a customer, the academic as a service provider, and the academic essay (with its associated credits) as the site of economic exchange—academic writing for credit, credit for degree, degree for employment, and so forth. Within such a market-oriented narrative emplotment, the academic essay is enacted as an important commodity whose originality (or ownership) needs to be ensured—that is, against the unoriginal copy, presented fraudulently (Introna, 2016). Thus, in this narrative emplotment, plagiarism detection makes sense, with students, when detected, imputed as frauds or thieves and typically disciplined or expelled. If this is the case, how do sociomaterial assemblages such as *Turnitin* narratively *configure* the unoriginal? That is, how do they impose

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in this example (Introna, 2013). For a more philosophical discussion of assemblages, see Delanda’s (2016) work on assemblage theory.

order, define actors, assign motivations, and establish assumed cause-and-effect relationships that function to detect and impute the “plagiarist.”

In its ongoing ordering, Turnitin is a text-matching algorithm—it does not detect plagiarism. Instead, it compares a reference text with source texts in its database to identify fragments of text that are similar and therefore assumed to be copied. Similarity is taken as an exact correspondence in the string of consecutive actors between source and reference texts. The algorithm provides an “originality report” that gives an overall “similarity index” of the percentage of text in the reference document that was matched with sources in the database. In the narrative configuration of the Turnitin similarity report, a copier becomes imputed as a plagiarist, a cheat. It should be noted, however, that the reasons students use copying as a form of writing might be complex and manifold, especially for nonnative speakers having to write in the academic style (Hayes & Introna, 2006). Moreover, educators, presented with “originality reports,” are configured or imputed as the actors responsible for detecting such “cheats.” Likewise, in this narrative, the academic disciplinary committees, presented with this Turnitin evidence, are imputed as being responsible for maintaining the integrity of the education (commodity) system. This is not the only transformational work to which this sociomaterial narrative pertains.

In the unfolding movement of the plagiarism detection narrative, academic writing becomes refigured as being not about learning but about not being “detected.” Thus, students turn to ghostwriters or, more recently, generative AI to produce more creative texts that cannot be detected as preexisting pieces. In this narrative flow of commodification and plagiarism detection, students become enacted, not as being responsible for their own learning but as being responsible for producing “original” products. In addition, tutors become enacted not as teachers but as detectors of the unoriginal. Although this is not true of all students and teachers, it is the transformative emplotments (e.g., narrative events, logics, roles) that these mimetic narratives enact in their meaning—or world-making. This situation then raises important questions about how students and teachers impute themselves, the narrative refigurations they offer that make them responsible, differently—that is, how they take responsibility differently.

## 5.2 Social Media Platforms

Social media, such as Facebook, X, and Instagram, have now become pervasive. What are the narrative emplotments that *prefigure* social media? That is, what are the prevailing narratives that make social media stand out as a meaningful enactment of the social world? This is a complex question. Undoubtedly, the narratives of pervasive smartphone devices, of connection and connectivity (always on), of networking, of personalization, of



user-generated content (Web 2.0), of the attention economy, and more (Van Dijck, 2013) have played key roles in this process. It could be argued, however, that the most significant of these is the attention economy (Franck, 2019), for without it, there would be no “social” media. Getting and keeping attention is a revenue-generating narrative, as advertisers and traditional media actors know so well. One of the most compelling technologies for getting and keeping attention is, indeed, social media (Lovink & Rasch, 2013). In the narrative employment of social media, to connect or be connected and to share are mostly taken as a social or collective good (Baygi et al., 2021).

How does the narrative of social media configure (see Ricoeur, 1983, 1985) the meaning of the social? In the world-making employment of the social media narrative, the meaning of *being social* becomes configured as digital connection (Bennett & Segerberg, 2012)—connection in the form of “following” or being “followed.” In the narrative flow of social media, a socially active person has a following and is a follower. Gaining social influence and currency is about cultivating followers and engaging them; to not have followers, reposts, or likes is to remain socially invisible, isolated, and irrelevant. Holding the attention or engagement of followers requires content that is “liked”—often posts that are unusual, extreme, outrageous, or controversial. To “like” (or not) is an affective engagement; it implies an affective judgment—the language is important here. To “like” is not just to agree with the post, it is to feel it as well, which creates a stronger connection and engagement.

On occasion, these affective judgments might coalesce, through the action of engagement algorithms, to form affectively like-minded groups (echo-chambers), often on a global scale (Chun, 2018). Like-minded groups might target specific individuals/organizations in the pursuit of a particular political or social agenda. The more an individual/organization is targeted, the more visible the posts become in social media streams (through connections such as comments, likes or dislikes, or retweets), and the more visible they become, the more the individual/organization becomes targeted (Karunakaran et al., 2022)—and this repetition can produce truth (e.g., because repeated claims tend to be judged as valid or true, Dechêne et al., 2010). Engagement algorithms look for trends, patterns, waves, and rhythms in connections to identify “sticky” posts to be pushed into user streams, to produce more *engagement* and, with it, more posts. Social media platforms need the flow of social media activity (e.g., following, (dis)liking, retweeting) to endure. Engagement algorithms and users are imputed, relationally, to ensure exactly this ongoing flow. X, with its viral tweetstorms, epitomizes this engagement employment logic. The most controversial, “sticky” tweets will tend to appear in the home timeline of user accounts. What makes them controversial is often the extreme expression and judgment they convey. Most users understand this—this is being “social” in the world of social media. Being outrageous, controversial, and radical is exactly the sort of character

that the engagement-focused sociomaterial emplotment tends to produce. Extreme views and provocative content keep the media streams flowing, often normalizing these controversial views. Even the connective flow of those who dislike what they express inadvertently pushes the visibility of these views further, continually increasing their (truth) value for the algorithms that choreograph the feeds (Dechêne et al., 2010). In the world of “engagement,” responsible actors are those who keep social media streams flowing—to (re)tweet, to like, to comment, and so forth. As they coalesce into connected like-minded groups, social media users become increasingly imputed as actors that need to cultivate connections—by being outrageous, controversial, and extremist—to keep the already connected *engaged*. Riding on this stream of media flow, in a symbiotic or parasitic relationship, are also influencers, advertising brokers and agents, platform providers, and others, all monetizing the attention of engaged users.

In social media, refiguration assumes the form of a flowing wave that keeps imputing and re-imputing roles and agencies in transformative ways. In the refiguring narrative of social media, the curation of one’s social media account becomes the curation of one’s identity—a unique way of telling the story of one’s life. It becomes a narrative in which users impute themselves in particular ways, such as being somebody who cares for the environment, a conservative, a supporter of some politician or activist movement, and so forth. Furthermore, this social media can then become a way for others to impute users, as being this or that sort of person. For example, when social media users apply for a job, their social media account becomes the way other people see them—and continue to see them, even their much younger version. Their tweets/posts continue to be “their words,” an expression of themselves, even when they are no longer that person; indeed, many users often find themselves in a position of trying to disassociate from their earlier X/Twitter selves, in an attempt not to be held responsible. In the narrative emplotment of social media, users’ identities become multiple, and imputations of them become complicated and multifaceted in ways that make explaining “who they really are” difficult—likewise for their attempts to take responsibility (or not).

### **5.3 Artificial Intelligence**

The case of AI, particularly the rise of sophisticated deep learning models, provides another example in which to reflect on the imputations at stake with digital sociomaterial assemblages. What are the narratives that *prefigure* AI as meaningful technologies to be pursued? This is a complex question. There is a long history of attempts to develop an autonomous agent that would be able to pass the Turing test (i.e., exhibiting intelligent behavior indistinguishable from that of a human) (Biever, 2023). Central to this stream of work is the widely accepted

narrative that AI can and will eventually overtake humans in cognitive capabilities (Boden, 2016), to become more expert than the human expert, so to speak. In this narrative, the human decision-maker becomes imputed as being a biased, noisy, and faulty (Kahneman et al., 2021) actor who should be replaced by unbiased, rational, and objective algorithmic intelligence. For example, the Nobel laureate Daniel Kahneman (2017, emphasis added) claimed: “You *should* replace humans by algorithms whenever possible.... Even when the algorithms don’t do very well, humans do so poorly and are so noisy that just by removing the noise you can do better than people.” In this pervasive narrative of the faulty human is an almost moral obligation to replace noisy humans with objective and efficient algorithms. This narrative is part of a larger narrative on the objective neutrality of technology that often drives the push for replacing inefficient faulty humans with technology, which has been widely criticized by scholars in science and technology studies (Feenberg, 1991; Winner, 1980).

How does AI narratively configure expertise or knowledge? In the world of AI, what counts as knowledge or knowing is essentially configured as statistical correlation (Mondal et al., 2023). In short, deep-learning models learn statistical patterns in real-life data by consuming enormous training data sets (often invisibly supervised by human agents; see Casilli, 2024). In this narrative employment of AI, statistical correlation is necessary and sufficient for knowing: “society will need to shed some of its obsession for causality in exchange for simple correlations: not knowing why but only what” (Mayer-Schönberger & Cukier, 2013, pp. 6–7). In this narrative, correlation surpasses the search for causation, typical of scientific practice. In other words, correlation produces facts, efficiently and objectively. This narrative of AI producing objective and obvious facts, through statistical correlations, has been criticized by scholars, who have shown that these algorithms mirror biases in their training sets in their correlations (Crawford & Calo, 2016), are operationally opaque black boxes in which the logic of their operation cannot be explained by their developers (Castelvecchi, 2016), or tend to make up very plausible facts, referred to as hallucination (Else, 2023). These arguments are not repeated here; rather, these algorithms’ sociomaterial agency—of producing facts from statistical correlations—needs to be considered within the context of what we refer to as correlational performativity (see Chandler, 2019).

As noted previously, sociomaterial performativity is the process by which sociomaterial processes produce or enact what such relational systems already assume (Introna, 2013). In the case of correlational performativity, it produces, through prediction, the facts (or truth) that such prediction practices already assume and is part of a world beyond the narrative events at stake with AI learning processes. To make this claim more concrete, consider, the use of AI to predict crime hotspots to prioritize police resources, or what is known as predictive policing (Richardson et al., 2019). These predictive-policing algorithms are typically trained on

historical crime data to produce expertise on predicting crime hotspots. When deployed, these systems use correlational patterns in the training data to produce facts (or predictions) on where crime is most likely to happen. In response to these predictions, police resources are allocated to monitor these hotspots more frequently. More policing means that more crime becomes detected and visibilized (in the areas pinpointed by the system) and more prosecutions occur, which then feeds the learning algorithms, confirming them as correct in their prediction (or production of facts). However, crime data produced by policing practices are not records of underlying patterns of criminal behavior per se; rather, they are more appropriately measures of the response to perceived criminal behavior (Shapiro, 2021; Sheehey, 2019). What this example shows is that patterns of criminal behavior are assumed in the correlations, which, when acted upon, produce the very correlations (or facts) that are already assumed—supposedly validating the expertise of the algorithms. Yet something very different might instead be causing these correlations (e.g., policing practices rather than underlying criminal behavior). Thus, it can be argued that correlational performativity, in its assumed production of facts/truth, might become sophisticated sociomaterial processes for the production of false facts—false facts that remain undetected when framed in the narratives of objectivity, neutrality, and efficiency that serve as justification for the adoption and use of AI in almost every aspect of contemporary social life. Instead, taking responsibility means using an alternative narrative that not merely imputes the human as “faulty,” which it undoubtedly is, but also recognizes that any supposed facts need to be considered in a broader context that requires human judgment (Arendt, 1981); indeed, it requires putting the human back into the equation, rather than getting rid of the so-called faulty human.

Finally, in its ongoing *refiguration*, correlational performativity has the potential to lead to serious injustices and put democratic institutions at risk. Correlational performativity, in engagement algorithms, for example, is not just about bringing like-minded people together; it actively produces “like-mindedness,” sometimes with devastating consequences (Chun, 2018). The key point here is that AI is a complex sociomaterial assemblage with the imputative power to criminalize communities, stereotype ethnic groups, produce hate speech, enact fake news, and more. As such, society needs to become better at understanding these imputations that the correlational performativity of AI can and is producing continuously, in an unprecedented manner; yet it remains mostly unchallenged owing to the powerful narrative framing of these technologies. This issue is all the more urgent now that imputation has become increasingly more complex with generative AI (Khosrowi et al., 2024; Lebovitz et al., 2021), such as Chat GPT, which has extraordinary power to answer anything in ways that continuously produce a natural conversational narrative.

## 6. BECOMING RESPONSIBLE: RECAPITULATION AND IMPLICATIONS

This concluding section brings into focus what the journey was about. We argued that the traditional conception of responsibility is limited and that a narrative approach to responsibility can help reveal the complex multidimensionality of responsibility and its significance in the digital age—specifically, a digital world characterized by connectivity (Bennett & Segerberg, 2012), nonlinear consequences, extended and emergent actions, and posthuman performativity (Scott and Orlikowski, 2022; Orlikowski, 2005). With a focus on the notion of narrative emplotment of responsibility and its interrelated processes of prefiguration, configuration, and refiguration, we showed how sociomaterial assemblages enact narrative emplotments in their ongoing functioning and, in doing so, relationally enact actors as already responsible. That is, these assemblages relationally frame who is responsible through their doing or non-doing, their activity or passivity, of what happened, happens, or may happen. Beyond this, human actors make sense of their own responsibility by constructing narrative emplotments of themselves as imputed to take responsibility, differently. As such, narrative emplotment helps reveal the temporality of the becoming of responsibility, as it shifts the focus from thinking about the attribution of responsibility for the consequences of past actions to the becoming of responsibility in the present and its ongoing unfolding in the future. Significantly, thinking about responsibility in terms of narration and narrative emplotment does not just unpack the nuanced multidimensionality of the space of responsibility in more temporal terms; it also concretely suggests that responsibility making and taking is fundamentally a matter of narrative emplotment and re-emplotment—that is, the particular ways that events are (re)organized into a meaningful whole to position actors as responsible (or not) in very specific ways. Understanding this allows for a very different way of thinking about and through responsibility. To help clarify what this narrative approach adds, we highlight three interrelated narrative emplotments<sup>9</sup> of responsibility: (1) *causal responsibility* as responsibility attribution, (2) *relational responsibility* as responsibility making, and (3) *narrative responsibility* as responsibility taking (both individual and communal) (see summary in Table 2). With this approach (in particular our description of the first modality),

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<sup>9</sup> Each of the narrative emplotments proposed here have prefigurative, configurative, and refigurative mimetic process dimensions associated with them. Together, they account for the multidimensionality of the emplotment of responsibility. However, not all three of these mimetic processes in each of the discussions of the different narrative emplotments are outlined here given space limitations; rather, the most relevant emplotment process dimensions for the discussion are highlighted.

we depart from the terminology and view of Coeckelbergh's (2023) as we characterize the becoming of responsibility differently from his approach, specifically to highlight how we extend his use of Ricoeur's work.

**Table 2:** Different Narrative Emplotments of Responsibility

<b>Narrative emplotment of responsibility</b>	<b>Ontological assumptions</b>	<b>Imputative logic</b>	<b>Temporal focus of imputation</b>	<b>Imputative force</b>	<b>Main focus of the emplotment processes</b>	<b>Imputative outcome</b>
Responsibility <b>attribution</b> <i>Causal responsibility</i>	<ul style="list-style-type: none"> <li>▪ Autonomous subject</li> <li>▪ Linear causality</li> <li>▪ Anthropocentric</li> </ul>	Imputation by narration of causal inference	<i>Past</i> actions	A third party (judge)	Configuration	The <i>guilty</i> /praiseworthy subject for punishment/reward
Responsibility <b>making</b> <i>Relational responsibility</i>	<ul style="list-style-type: none"> <li>▪ Enacted subject</li> <li>▪ Relational enactment</li> <li>▪ Posthuman</li> </ul>	Narrative imputation by relational sociomaterial performativity	The unfolding <i>present</i>	Sociomaterial performativity	Configuration	The <i>responsible</i> actor with certain relational obligations
Responsibility <b>taking</b> (Individual) <i>Narrative responsibility</i>	<ul style="list-style-type: none"> <li>▪ Becoming subject</li> <li>▪ Reflective enactment</li> <li>▪ Sociomateriality</li> </ul>	Narrative self-imputation by reflexively reworking of the sociomaterial emplotment	The <i>future</i> self	Individual reflexivity	Refiguration	The <i>ethical</i> subject facing the other
Responsibility <b>taking</b> (communal) <i>Narrative responsibility</i>	<ul style="list-style-type: none"> <li>▪ Becoming community</li> <li>▪ Reflective enactment</li> <li>▪ Sociomateriality</li> </ul>	Narrative communal-imputation by reflexively reworking of the sociomaterial emplotment	The communal <i>future</i>	Communal reflexivity	Refiguration	The <i>ethical</i> community with a shared fragility

The traditional narrative emplotment of responsibility is concerned with the attribution of responsibility to an individual for the consequences of past actions by a third party (e.g., a judge, a jury)—what can be called *causal responsibility*. This emplotment assumes a knowledgeable human subject that, in some intentional sense, caused certain consequences or wrongdoing through past actions. Imputation is achieved through the narration of a set of causal inferences that link the actions of the human actor to the consequences in a meaningful or compelling way, thereby producing (or configuring) the actor as the guilty party to be punished for the wrongdoing or the helpful actor to be thanked. What are the implications of an attribution narrative of responsibility for IS professionals? In the digital age, the emplotment of responsibility attribution has become both easier, due to the abundance of trace data and extensive digital forensic technologies, and more difficult, due to extensive technologies for obfuscation and anonymization. Given the characteristics of the digital age (discussed previously), technology professionals—in their design and implementation of sociomaterial assemblages—might have specific responsibilities as practical wisdom (*phronesis*) to ensure that they balance the legitimate demand for privacy and security with the need for responsibility attribution, demanded for the administration of justice. For example, on social media platforms it might be important for an author/user to be attributed responsibility for hate speech, the incitement of violence, grooming, trolling, defamation, misinformation, and more. Conversely, it might be important not to be able to attribute responsibility to an author/user who is a dissident, political activist, or critic functioning in totalitarian regimes.

Contrasting this traditional view is a narrative emplotment of responsibility in which sociomaterial assemblages relationally enact actors as already responsible by making them responsible, relationally—what can be called relational responsibility. Central to this approach is the ontological assumption of sociomaterial performativity (Introna, 2013; Orlikowski, 2005). Imputation is achieved through the *relational* enactment of actors/characters in an unfolding sociomaterial plot with specific *relational responsibilities*—that is, relational responsibilities that flow directly from such relationality in relation to, for example, the responsibilities of a parent to a child, a manager to employees, or a state to its citizens. The first case example of responsibility making in sociomaterial assemblages showed how plagiarism detection systems enact students as being responsible for producing “original” texts and how they relationally enact teachers as responsible for detecting illegitimate unoriginal “copiers.” The second case example revealed how social media assemblages (1) enact users as being responsible for gaining and holding (or not) the attention of their “followers,” which is often achieved by being outrageous and controversial, and (2) enact curating algorithms as being responsible for producing increasing



“engagement”—and both are enacted as responsible to keep the social media streams flowing, because that is what the attention economy demands. The third example showed how machine learning algorithms not only reflect crime but also produce crime and the criminals implicated, recursively.

What are the implications of such responsibility making of sociomaterial assemblages?

It could be argued that designers and implementers of sociomaterial assemblages—and perhaps IS professionals specifically—should be concerned with not just what their systems do, or should do, but also what sort of responsibilities, or responsible actors, they are producing continuously. How users of these technologies are relationally enacted as responsible depends specifically on how they become narratively framed, as enacted through digital interfaces, for example. Are they offered options (enacted as those who have choices), or are their responses algorithmically curated to an implicit end, in service to another’s interests (enacted as naive followers), for example. Moreover, does this performative making of responsibility—in the specific obligations it imposes through its emplotment—enact actors and their relationality in unexpected ways? For example, what has plagiarism detection done to the nature of the educational relationship between teachers and learners, what has social media done to contemporary sociality when families sit together but are glued to their respective screens, what has predictive policing done to policing and its relationship to local communities, and so forth?

Responsibility is not just attributed to (as suggested by the traditional approach) or produced relationally through (as argued previously) sociomaterial performativity (i.e., in which responsibility is in a sense caused by another, such as a third party or heterogeneous sociomaterial processes) from the outside, as it were. Instead, responsibility has also what Ricoeur (1994, 2000) argued is a more endogenous lifeforce or vitality, when actors reflexively impute themselves or indeed take responsibility—what can be called narrative responsibility. Taking responsibility presupposes subjects with multiple identities (e.g., manager, citizen, customer, activist) who are involved in the ongoing, open-ended work of becoming, subjects who reflexively and continuously rework their own subjectivity (i.e., the kind of person they are becoming). In taking responsibility, self-imputation is achieved when individuals and communities reflexively rework their narrative emplotment, thereby refiguratively imputing to themselves that they are in fact responsible—to designate or recognize themselves as the actors responsible for their actions, nonactions (things they should have done but failed to do), and their consequences. The key point here is that the reflexive reworking of the narrative emplotment, through re-narrating it differently, transforms them from a patient to an agent, from someone made responsible to someone taking responsibility, differently. More specifically, they refiguratively rework their emplotment to produce themselves not just as responsible subjects but also as ethical subjects—as beings capable of being responsible, not just for their own actions but for other people

as well (Ricoeur, 1992). Why? Because they become reflectively aware that their life story, their employment, is intertwined with the life stories of others, who may depend on them and for whom what they do (or not do), in taking or not taking responsibility, has real and material consequences, now and in an unfolding uncertain and fragile future. Such responsibility taking has as its primary orientation the prevention of *future* harm. What are the implications of this backward and more importantly, forward, exploration of responsibilities for IS stakeholders (e.g., scholars, teachers, managers, publishers, designers)?

Let us return to the case examples above. Actors should take responsibility for the way they implicitly or explicitly build their values, assumptions, and biases into the sociomaterial processes they co-construct. For example, from where did the assumption that plagiarism is equal to the verbatim copying of text come? Did it emerge because that is what was algorithmically possible to do (to digitally compare texts) and because checking whether a writer had indeed taken the ideas of others (without crediting them) is not algorithmically possible to do? Should the designers of Turnitin not be made responsible, through the creation of counter narratives? Or even more profoundly, should they not take responsibility? In addition, how do users (e.g., teachers, students, administrators) take responsibility for their sociomaterial employments by plagiarism detection systems? Should teachers not take responsibility to construct different and critical narrative employments of what assessment, writing, and learning are about that transform their relationality with students—perhaps from a focus on detecting to one on learning? Or do they simply accept the sociomaterial employments as enacted by Turnitin because it is mandated, efficient, and easier? Do teachers not have a responsibility to their students and their education to question the employments of these sociomaterial assemblages, to ask questions about what education might become (or mean) in a world where these sociomaterial employments become normalized? One can make the same arguments about the sociomaterial employments of social media and the correlational performativity of AI. The central point here is that sociomaterial employments have ethical and political consequences, and these consequences flow directly from the relational enactments that these systems make possible (or not), as argued by Winner (1980) and Suchman (1993) in their examination of how systems, through their design and use, enact specific social and political arrangements. As such, responsibility needs to be taken by those that construct them, who need to impute themselves as being responsible. How? By designing/constructing responsibly—that is, working with others to become more attuned to the future employments that their systems might enact and the consequences this might have for users. Practically, this might be done, for example, through the adoption of value-sensitive development and design methodologies (Flanagan & Nissenbaum, 2014; Friedman, 1997). It can also be

done by making technologies more transparent (Brey, 2000) or conversational about their underlying assumptions and modes of performativity (de Vaujany, 2024; Dubberly & Pangaro, 2009; Pangaro, 2010).

Finally, responsibility for others and the communal future should not just be taken by individuals. Collectively, IS professionals, policymakers, governing bodies, governments, and others need to take responsibility for what the collective whole is becoming (Hanson, 2009). The future is open and is being made in the present through narrative emplotments (Urry, 2016). When producing sociomaterial narratives about technological futures, actors already implicitly shape the contours within which future meaning-making becomes possible or is likely to happen (Urry, 2016). Undoubtedly, politics and political discourse have become differently imagined and practiced in the world of social media—likewise being with friends. Although he wrote long before the advent of present-day technologies, Ricoeur (1994) highlights this idea and invites readers to reflect on the sort of grammar—or sociomaterial narration possibilities—being produced collectively, to be able to imagine and produce the future differently. How can actors take up this future-oriented responsibility collectively? They might follow Winner (2001), who argued that the flow and development of technology have become more or less autonomous, and as such, controlling its emerging evolution is no longer possible—the chain of events will follow its preconfigured arc, no matter what. Alternatively, IS professionals, policymakers, governing bodies, governments, and others could collectively choose to bear the burden of responsibility by imputing themselves as being responsible for the future and narrating it differently—that is, by producing careful narratives of the events or nonevents of the past (Ricoeur, 1998) but also alternative narrative framings of the future that open up new spaces for responsibility taking (Urry, 2016).

For example, one might actively question the narratives that are being created collectively that make the development of certain technologies and their trajectories seem self-evident. Consider, for example, the narratives being produced by AI enterprises, IS academics and professionals, the media, and policymakers about the future of work, science, medicine, and social ordering in a world where AI has become a dominant force; a certain *inevitability* pervades all these narratives. AI will take actors jobs and will develop unprecedented new ways of producing knowledge, new drugs, and so forth. Indeed, some critics have argued that AI might supersede human intelligence, becoming an existential threat to humanity itself (Ord, 2020). These narratives of inevitability might become (or made) true if responsibility is not taken collectively to configure turning points, to rethink not just the imaginable but also *the unexpected* (Hovorka & Peter, 2021), to explore what happened or will happen but also what did not happen (yet) or will not happen (non-events), and to cultivate what Whitehead (1938/1968) called a “culture of possibilities.”

The future is not already made; everyone can take responsibility for it collectively by actively reflecting on the trajectories that flow from the available sociomaterial assemblages and how they might shape these trajectories through their design and policy interventions. This is an ongoing, never-ending job for designers and managers who need to think about what they could have done differently and what they can do differently now and in the future. Consider, for example, the attempts by Dreyfus (1992) a few decades ago and Gabriel (2020) more recently to articulate a narrative of the limits of AI and the irreducibility of human experience. Just because something is technically possible does not mean that it should be done, that it is inherently inevitable, or that it should be implemented (Gardiner, 2006). Developing these refiguring alternative narratives, or elaborating alternative narrative trajectories from the past to the future (and vice versa), requires “speculatively engaging with the future on its own terms, rather than as an extension of the past” because “[o]ur [collective] future(s) deserve reflection on what we do before we [let] loose monsters into an unprepared world” (Hovorka & Peter, 2021, p. 464).

In conclusion, the aim of this paper was to argue that the digital age demands the rethinking of responsibility. It revealed a risk that responsibility might be thought of and taken too narrowly as being responsible for the consequences of past actions and nonactions, individually or collectively. Although this is necessary, responsibility is more multidimensional and complex, involving heterogeneous actors and taking account of not just the past but also the present and, importantly, the unfolding future. And the narrative approach of Ricoeur, as outlined previously, may facilitate such expansion of the space of responsibility, especially the taking of responsibility. Importantly, our intention was not to identify who is responsible for what or in what way; nor was our intention to provide rules or guidelines that would simplify the space of responsibility. Indeed, our aim was quite the opposite—to problematize responsibility and, through its different narrative emplotments (attributing, making, and taking), show its multidimensional complexity. Why? We wanted to make visible responsibility’s impossible urgency so that everyone implicated will become compelled by, inspired by, and even perhaps fearful of the enormity of their individual and collective responsibility. Our goal was to show how to face this and *take responsibility now*, rather than leaving it to some unknown others who might or might not step in to save everyone individually and collectively from their inability to take responsibility—a responsibility that is urgently facing the world, calling for all to respond continuously and creatively.

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