

# Reflection, Reflexivity and the Notion of Technology

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## Abstract

*Drawing on ethnomethodological conceptualizations of reflection and reflexivity, this paper develops a radical reflexive discourse of technology as simulacra, and critically examines the study of technology and the lessons to be learned from this perspective. As such, the paper investigates the textual practices in determinist, humanist, and post-humanist writings about technology, and re-conceptualizes the concept of technology as a radically postmodern notion.*

**Keywords:** Postmodernism; Technology; Reflection; Reflexivity; Globalization

## 1. The ‘Human-Technology’ Relationship

The nature of the relationship between technology and the human reflects the old but worthy debate between determinism and voluntarism of all studies at the intersection of the physical and the social (Arnold, 2003; Barley, 2007). At this intersection, there is a) the dilemma of free will, that is, the nature of causality between the physical and the social, and b) the dilemma between determinism and voluntarism, where the first holds humans as subjects’ ‘pawns’ of a system of forces that condition their behavior, while the latter grants to humans the leading role in their own existence that they model with the choices they make (Barley, 2007). As a result, the concept of technology is grounded in three views. First, an influence, free from outside control and tending to change the motion of society (Faraj & Pachidi, 2021; Kelly, 2010). Second, the accounts that downplay the direct causality of technology in favor of social processes. Third, the affordances of technology and how managers can leverage them to convert workflow processes to a largely automatic operation (Edwards, 1994). These three views foster tensions between representation, social production, agency, and action. Therefore, the theoretical challenge for scholars is not solely to pick one of the views, but to suggest an alternative lens that can address the neglected ontological question regarding the nature of technology (Faraj & Pachidi, 2021) and its tangled relation with the human (Zammuto, Griffith, Majchrzak, Dougherty, & Faraj, 2007). How

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might that task be achieved? we suggest here that reflection and reflexivity (Pollner, 1991) can provide such an alternative.

## **2. Reflection**

Reflection refers to the act of carefully considering an idea or a notion. It offers the possibility of seeing a notion from a fresh perspective facilitated by a new angle of investigation; that fresh perspective would ideally unveil the truth of the notion in reality that extends beyond the boundaries of generally accepted and recognized assumptions and experiences of a particular body of knowledge (Gephart, 1996b; Grandy & Mills, 2004; Pollner, 1991). Existing boundaries have both external and internal edges. Ontology constitutes the outer edge; the phenomenon of the inquiry produces the inner one (Pollner, 1991). Reflection is not concerned with unsettling the ontological suppositions on the boundaries of a concept; rather, it addresses the inner edge by reinterpreting the subject under investigation (Grandy & Mills, 2004; Pollner, 1991). The concept is akin to Woolgar's (1988) benign introspection of the inner story at the self-evident frontiers of a certain phenomenon, which is undertaken to offer alternatives to established reality. Reflection in social science requires a thorough analysis of human conduct to show "the alternative and differential human processes at work in this conduct" (Gephart, 1996b, p. 204). Reflection illuminates new avenues of inquiry, which are then scrutinized with regard to "conceptual and empirical resources" (Gephart, 1996b, p. 204). For instance, one may reflect on technology by conceiving it as the interface between an organization and its external environment and use scientific knowledge of that interface to highlight how uncertainty drastically alters the structure of organizational processes. Furthermore, the practice seeks to reflect "the social and/or natural world," that is, to mirror "a true image of the world" that is established and compelled by "the outer rim" of traditional theoretical exercise and applications (Pollner, 1991; 376; Gephart, 1996b, p. 204). Therefore, reflection neglects to "open up space for new theories or postmodern alternatives to positivism" (Gephart, 1996b, p.207).

## **3. Reflexivity**

Reflexivity differs from reflection in regarding "the basic features of the phenomenon under consideration" as a problem requiring a solution (Gephart, 1996b, p. 204). The concept treats the outer edge (ontological assumptions) with suspicion and regards it as a problem requiring a solution (Gephart, 1996b; Grandy & Mills, 2004; Johnson and Duberley, 2003; Pollner, 1991). Reflexivity bifurcates into two ways of problematizing this outer edge as endogenous or radical (Gephart, 1996b; Grandy & Mills, 2004; Pollner, 1991).

### 3. 1. Endogenous Reflexivity

The first manifestation of reflexivity is endogenous reflexivity, which accepts realist ontology and assumes that only human sense-making can explain how social reality comes to being (Grandy & Mills, 2004; Gephart, 1996b). The endogenous reflexivity problematization alludes to the analysis of “how what members do about social reality constitutes that reality” (Pollner, 1991, p. 372; see also Gephart, 1996b, p. 204). It therefore deals with the local formulation of interpretations, narratives, and social order in contexts where the meaning of those contexts is determined by the narratives produced. The same holds for those narratives whose sense depends on the settings in which they originate (Gephart, 1996b, p. 204). Endogenous reflexivity, therefore, attends to “the self-generating properties of settings and phenomena, the mutual elaboration of settings and accounts” (Gephart, 1996b, p. 205). For instance, one might look into the literature of a scientific community by analyzing their philosophical and theoretical assumptions, generating written accounts of their narratives, and then inspecting in detail how their contributions simultaneously constitute the context of the phenomenon they tackle (Gephart, 1996b).

Endogenous reflexivity (Pollner, 1991; Gephart, 1996b) offers a theoretical framework to access the concept of technology. It encourages researchers to view technology as a “sense-making resource or [as] interpretive schemes” that emanates from our discourses, textual renderings, and social and customary habits of performing an activity or the scientific writing of technology scholars (Gephart, 1996b, p.208; Gephart, 1993). The purpose for which endogenous reflexivity rests on realism as an ontology that supposes that our world is real and we can only recognize it and know it through means of “interpretation and sense-making” (Gephart, 1996b, p. 208). Accordingly, our interpretations of that world vary according to our viewpoints and cultural stands. Therefore we, as social actors in our world, interpret it “differentially”.

In contrast, a positivist or objectivist ontology deems any differential interpretation a result of certain flaws in our interpretative process (Berger & Luckmann, 1966;1967; Gephart, 1984; Gephart, 1996b, p. 208). Endogenous reflexivity hence re-establishes technology and ceases to treat it as a single coherent entity, which enables scholars to explore the social instances and settings where technology and its associated notions and phenomena are present as themes in discourses and narratives of social actors (Gephart, 1996b). On the grounds of ethnomethodology—which investigates how members of a community use daily conversations to build a shared view of the world—neither technology nor the firm exists in and of itself, but, rather, because of sense-making practices that bind it to the organization and generates knowledge about both entities (Gephart, 1984).

This perspective indicates technology is a socially constructed reality created through sense-making (Gephart, 1984). Advocates of the perspective can therefore abandon the quest for “true reality” and substitute an exploration of the “practices” that support technology and its realities (Gephart, 1996b, p. 209). Considering that the intentions, curiosity, attention, and comprehension of social actors are not the

same, distinct descriptions of technology will materialize (Molotch & Lester, 1975; Gephart, 1996b). Technology sense-making is hence essentially political as it requires those descriptions to serve as foundations for action in settings marked by contentious and differing descriptions (Gephart, 1996b). Disruptions to technology and how to attend to them can hence be addressed by referring to discourses and textual descriptions enacted in situ which illustrate disparate opinions of technology and social reality to legitimize the “interests and actions” of social actors (Gephart, 1996b, p. 209). At the core of the application of endogenous reflexivity is the situational exploration of the senses and usage of technology, that is, examining the management of senses ascribed to technology in settings where its related issues emerge as matters of interest (Gephart, 1988b; Gephart, 1996b). These matters reflexively begin to be constitutive of the social and organizational production of technology (Gephart, 1996b, p. 209).

Endogenous reflexivity offers a practical exhibition and explanation of the diverse realities emerging from these divergent descriptions and interpretations, and demonstrates how the narratives of the scholarly communities generate the realities they encounter (Gephart, 1996b). It curtails the treatment of technology as comprising recognizable “facts of the world” and therefore reveals the sense-making and interpretive practices that mark technology and the social as “in situ contingent” actions of certain communities and players (Gephart, 1996b, p. 210). Consequently, endogenous reflexivity sets up a *sine qua non* for elaborating differential explanations of technology congruent with privileging technological matters in our research inquiries. Endogenous reflexivity converts technology from the “factual domain of the natural world” into “a socially constructed feature of society” (Gephart, 1996b, p. 211). It allows the researcher to investigate technology as a first-order construct upon which to establish second-order concepts that include actors “first-order concepts and meanings” (Gephart, 1996b, p. 211; Schutz, 1962). Put differently, endogenous reflexivity allows a) conceptualizing technology based on society and real human discourse, and b) analyzing particular settings where textual renderings and factual discourse about it happen, and c) grounding the theorizing on data gathered from these settings, which subsume “the meanings and interpretations of actors themselves” (Gephart, 1996b, p. 211). Furthermore, endogenous reflexivity is carried by methods that attend to the examination of bodies of text like textual analysis (Gephart, 1993), deconstruction (Derrida, 1991; 1997), narrative analysis (Gabriel 2000, Greimas 1987), or discourse analysis (Fairclough, 1985; 1993), and conversational analysis (Heritage, 1984). By and large, endogenous reflexivity can be deployed to show how the actions of a community of scholars and sense-making yield the properties of technology as a feature of the social world. Those properties can demonstrate how realistic other narratives and discourses are and, therefore, can de-reify narratives that would otherwise be taken for granted and accepted as truth (Gephart, 1996b, p. 211).

Importing endogenous reflexivity to investigate the research on technology challenges its positivist ontology and technological determinism by necessitating realism as ontology that is fundamentally divergent from positivism (Gephart, 1996b). Endogenous reflexivity de-reifies technology and blocks any implicit

credence of its technological aspects being truth resistant to the dynamics of social construction (Gephart, 1996b). In fact, endogenous reflexivity infringes taken-for-granted positivist assumptions about technology, and as a corollary regards the claims of scholarly communities as a problem requiring further exploration and alternative accounts (Gephart, 1996b). By so doing, endogenous reflexivity increases uncertainty about the salient aspects of technology; the significance of these aspects is itself socially constructed via the practices of interpretation and the sense-making of social actors (Gephart, 1996b).

Ultimately, there remains no objective position that the researcher can take to impartially discern revealing facts (Gephart, 1996b). Even conceptualizing technology as being composed of certain variables or developing a plain set of technology and analytics variables — to be handled in terms of causality and implications to attend to technological disruption issues — is itself treated as a problem, whereas “human meanings” are pictured as constitutive of technology, and not only as artifacts that come into view from passive experiences with the objective technology (Gephart, 1996b, p. 211-212).

### **3. 2. Radical Reflexivity**

The second manifestation of reflexivity is radical reflexivity. A researcher who is “self-referentially aware” that reflection does not happen in a vacuum but within an indiscernible and implicit domain of assumptions occurring prior to both the reflective process and the subject matter of the reflection might pursue radical reflexivity (Gephart, 1996b, p. 205; Pollner, 1991, p. 376). What radical reflexivity does then is to recover the tacit assumptions that give rise to the frame where both reflection and endogenous reflexivity can take place (Gephart, 1996b). It disputes the ‘truth’ of the accepted social reality by challenging the core and equivalent forms that produce the established domain of this reality (Pollner, 1991; Grandy & Mills, 2004). Radical reflexivity, therefore, is an “abnormal discourse” (Pollner, 1991, p. 376; Rorty, 1979, p. 320) that plays havoc with “normal inquiry” and “ordinary discourse,” disturbs reality, and challenges the foundational properties of discourse upon which “the sensibility of the discourse presumably rests” (Gephart, 1996b, p. 205). It takes up the process of remaking the natural (Pollner, 1991, p. 377) and involves a recognition of the established and distinctive attributes of “human meanings and actions” (Pollner, 1991, p. 370; Gephart, 1996b, p. 205). However, this alternative, what Rorty describes as “abnormal discourse” (1979, p. 320), seeks to provide a necessary framework that unsettles these taken-for-granted assumptions, rather than becoming a substitute that might supplant it (Pollner, 1991; Grandy & Mills, 2004). Disrupting the established boundaries of a certain subject of inquiry is the merit whereby radical reflexivity creates and sustains opposing versions of truth, a process that opens the door for other inquiry options (Grandy & Mills, 2004; Pollner, 1991). As a corollary, radical reflexivity enlarges the scope of inquiry toward territories beyond the settled ones of established theories to produce new

understanding of the foundations and assumptions of our knowledge (Gephart, 1996b, p. 205).

Radical reflexivity (Pollner, 1991; Grandy & Mills, 2004) attempts to examine and extend the boundaries of reflection and endogenous reflexivity to identify the boundaries of human knowledge as a whole (Gephart, 1996b). It problematizes the fundamental assumptions underpinning perspectives of a particular conception of the world and even the likelihood of conceptions of the world as human method by which a worldview is brought about (Gephart, 1996b). Here, we discuss Baudrillard's (1983, 1994) simulation and simulacra as the bases of radical reflexivity and show how their use in scholarly texts on technology "unsettles the outer rim" of the factual accounts found in literature on technology (Gephart, 1996b, p. 212; Grandy & Mills, 2004, p. 1159).

Simulacra materializes from simulation (Gephart, 1996b), that is, "the generation of models of a real without origin or reality" (Baudrillard, 1983, p. 2). The Merriam Webster dictionary defines simulation as "the act of simulating," that is, to give or assume the appearance or effect of that which one is not or does not possess. It passes along the stages of the image and encloses the whole structure of representation (Gephart, 1996b). In the first stage of the image, representations are mere reflections, that is, the production of an image as if by a mirror (Gephart, 1996b). In the second stage, the reality is concealed or altered in representation from its original course, meaning, or state (Gephart, 1996b). In the third stage, the image emerges to signal "the absence of any reality" (Gephart, 1996b, p. 212). In the last stage, the image bears neither resemblance nor relation to reality (Baudrillard, 1983, p. 11), and therefore becomes "fully simulacral," that is, the quality of a sign that erodes "the reality principle" (Baudrillard, 1983, p. 43).

Simulation happens in settings where "the model precedes reality", and as such facts do not follow an independent course, that is, they emerge only at the junction of models (Baudrillard, 1983, p. 32; Gephart, 1996b, p. 212). Therefore, illusion is impossible for the real is no longer viable (Gephart, 1996b, p. 212). Simulation is inherent to science, which progressively implements models to forgo its object; eventually models replace their objects completely (Baudrillard, 1984, p. 14; Gephart, 1996b, p. 212). The simulacrum is the entity that emerges through the simulation process (Gephart, 1996b) that is "the truth which conceals that there is none" (Baudrillard, 1983, p. 1). Science is contingent upon simulation for the ontology of science considers "only that which is reproducible" as real (Baudrillard, 1983, p. 146), and as a consequence a real entity, on the grounds of science, is not genuine, but, rather, only the items that can and have been representations of originals (Gephart, 1996b). The copy hence supersedes and replaces reality, and science is concerned only with the copy "the simulated, the displaced, the reproduced" that is "the simulacral" (Gephart, 1996b, p. 213).

Three orders of simulacra exist (Baudrillard, 1994;1983; Gephart, 1996b; Grandy & Mills, 2004). The first order is the "natural simulacra," which reproduces images based on reality while a difference between the fake and reality is kept (Baudrillard, 1994, p. 121; Gephart, 1996b, p. 213). The second order is "the products" that are representations and copies that relinquish any difference with the real, in that they

assimilate semblances and dissolve the real. As such the first-order “counterfeit” is therefore renounced in favor of the “re-production” (Baudrillard, 1983, p. 83-95) that effaces “the original” by subsuming and dislodging it (Gephart, 1996b).

Simulation models are third-order simulacra, that is, entities completely within a simulation, such that each link, opposition, and inconsistency between real and imaginary is removed in the sense that there is no imaginary left and that the real turns into the hyperreal “that which is already produced” (Baudrillard, 1983, p. 83-147; Gephart, 1996b, p. 213).

The passage from one order to the next shows an inclination toward reassimilation of the break between the real and the imaginary, the break within which is situated “ideal or critical projection” (Gephart, 1996b, p. 213). Projection is “implosively reabsorbed” within third-order simulacra, which leaves room for neither fiction nor reality (Baudrillard, 1994, 122-125; Gephart, 1996b, p. 213). Third-order simulacra represent the flow of the model in as much as they do not go beyond the real but “displace it, colonize it, and thereby anticipate the real” (Baudrillard, 1994, p. 122; Gephart, 1996b, p. 213). It is then no longer possible to “isolate the process of the real, or to prove the real” (Baudrillard, 1983, p. 41). One can avail themselves with the notions of simulation and simulacra to construct a radically reflexive discourse on technology that unsettles the conventional and scientific discourse that conceives technology as a “real” element of the world (Gephart, 1996b, p. 213). The notions of simulation and simulacra prompt examining “the origin, maintenance, and reproduction of the real, and contextualizing the scientific observer and ourselves within the framework of simulated environments” (Pollner, 1991, p. 377; Gephart, 1996b, p. 213).

#### **4.1 Implications for Management and Organization Studies**

Reflexive explorations are concerned with subverting scientific and literary texts' assumptions and grand narratives and their meaning. Accordingly, reflexivity is recognized for providing solid theoretical implications at the expense of managerial contributions. Therefore, the theorizing of this paper is intended to encourage alternative future lines of inquiry about the nature of technology. Using the new conceptualization of technology as simulacra, scholars can apply the instantiation method that involves engaging with the data comprehensively at the micro-level and over time to identify how micro-level socio-technological entanglement evolves and becomes embedded at multiple levels of organization (Lambin, 2002; Rossi, 2007; Brondoni, 2015). Instantiation could also be deployed to show the role of communication in the role of technology in constituting organizations. The approach can also outline a communicative theory of technology and organizations and display how personal behavior influences the performativity of technology at the macro level.

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