Questioning the IS field's capacities for understanding the consequences of the digital

In this short paper I pose the question of whether the IS field is rigged for adequate analysis of the worlds we help build. Currently, massive digitization, datafication and virtualization transform fundamental aspects of our private and public life—transformations that Shoshana Zuboff sees as being of a "civilizational" scale (Zuboff, 2015b). I wish to see that meta-discussions in the IS field does not limit themselves to the standard themes, whether it is the field's identity, status and destiny in the institutional landscape, or lamenting the lack of "native" theories. Today it is also pertinent, I argue, to address the field's capacity to critically evaluate and assess the worlds we help build. Our community, claiming to understand digital technologies, should be a central provider of insights on what digital technologies do to organizational and social life. The paper is an initial attempt to reflect around how well our accumulated insights have prepared us to understand and assess today's dynamics around the digital, and to indicate a way forward.

The problem of being "relevant"

The emphasis on practical relevance is widely shared in the IS field, as we seek to generate useful knowledge for designers, implementers and managers. Hirscheim and Klein (2012) identify the roots of the field in computer science, management and organization theory, operations research and accounting. The main audiences are business communities and public sector, and the field's empirical orientation is mainly to the organization, sometimes extending to inter-organizational networks, but it is less concerned with a society level analysis. A large proportion of IS research groups are located in business schools; a position which reinforces an emphasis on managerial relevance of the research outputs and on the organization as research object. The motivations for research, from which we again derive our research questions, are generally constructively oriented. According to Grover and Lyytinen (2015): "The fundamental knowledge interest that underlies information system (IS) research is this: how can an IS […] be effectively deployed in the human enterprise?" This desire to be relevant to managerial and organizational concerns generates a research orientation towards applicable knowledge. The bulk of research outputs are advice on how to build and implement systems, it is in other words skewed towards the technology *production* phase, rather than addressing the after-life of *distribution* and *consumption*. The interventionist orientation of IS has shaped the field's evaluative repertoire and its criteria of "goodness". Currently, I would claim that the field has an emphasis on rational and efficiency-driven values and exhibits a pronounced pro-innovation bias and even a celebration of "radical transformation" and "disruptive innovation". Perhaps the IS community should question whether its search for managerial relevance and empirical orientation to the production phase has fostered a too uncritical engagement with digital technologies?

We now start to see how innovations enabled by digital platforms reshape whole industries. With new forms of services and ways of delivering services, novel opportunities and efficiencies emerge. But we also see how existing consumers' and workers' protection regulation are undermined, as these new business models escape or outright defy regulatory control, and facilitate centralization and amplification of informational power. Also other concerns have been voiced. Ekbia and Nardi (2014) point to how existing mechanisms of reward, fulfilment and compensation disappears when the 'machine' pushes tasks to end users, who has become indispensable mediators in the "heteromation" regime that followed automation and augmentation. Similarly, Jaron Lanier

describes how certain design patterns "pull us into life patterns that gradually degrade the ways in which each of us exist as an individual" …. "treating people as relays in the global brain" (Lanier, 2010, p.x). Even stronger statements are found in Shoshana Zuboff's analysis: humanity is in for an "epochal contest with great powers" (Zuboff, 2014) that are "profoundly anti-democratic" (Zuboff, 2016), coming from a newly mutated surveillance capitalism backed by a "military-informational complex". The disintermediation, commodification and corporatization of new domains that are achieved with the help of digital technologies, may be seen as relating to larger forces of global neoliberalist agendas.

Should the IS community put more effort into investigating the consequences of this digital transformation that we celebrate and support? Should we worry whether our field's knowledge production may get "hijacked" by processes that will eventually lead to futures that are not desirable? Perhaps the IS field suffer from a certain myopia caused by feeding managers "relevant knowledge". Do we need to consider new audiences and broaden our research themes from production (design, development and implementation) to also address distribution and consumption of digital technology?

How to study digital technologies?

Stanley Fish, in his fight against activism in academia (Fish, 2006), advice scholars to not strive to make their subjects "relevant" to students, but rather the opposite–to "academize" their research subject. This implies "to remove it from whatever context of urgency it inhabits in the world and insert it into a context of academic urgency where the question being asked is not 'What is the right thing to do?' but 'Is this account of the matter attentive to the complexity of the issue?'" Academizing a subject may mean to see the subject in a historical perspective and chart its emergence, to apply comparisons with other phenomena to locate its particularities, and/or to subject it to theory-informed analysis. I think we would do well to follow Fish's advice and place our analyses into historical context, or to compare the phenomena we study across sectors and across socioeconomic and geographical locations. To analyze the emergence of cloud services in the light of a history of predecessors, as e.g. Mosco (2014) does, offers very different insights than just hailing it as an innovation and asking how companies should navigate to exploit the business opportunities that emerge. However, I would argue that the form of academizing that the IS field should do, goes beyond what Fish advocates. IS deals with phenomena that are of huge real-world importance and that exhibit a dynamism that far exceeds the traditional academic fields that Fish refers to. I do believe that there is a need for academics to seek a position of constructive and interventional engagement. We need an evaluative capacity, not only detached and post-hoc analysis. This kind of knowledge needs, however, to be grounded better than in delivering "relevant" knowledge to managers. It needs to relate to the potential futures created and to incorporate resources needed for discerning and acting towards these futures. We should ask whether our field's conceptual, theoretical and methodological toolboxes are equipped for this ramped-up responsibility that the current digital transformation of our world calls for.

The current critical, evaluative capacity of the IS field is limited. Rather than being concerned with whether a theoretical resource is "native" to the IS field, I find it more urgent that we develop "native questions" – questions which depend on a deep knowledge of the digital, which is the IS fields home ground. Applying Fish's criterion—are our accounts of the matter attentive to the

complexity of the issue?—will soon reveal that we need allies beyond IS in order to give adequate accounts of the multi-faceted, swift and fundamental transformations that happen. There are however, relevant resources in the field's heritage, and we should articulate, revitalize and extend existing these insights and sensitivities. Questions can be posed to some mainstays of IS research—e.g. the focus on the "IT artefact" and the socio-material interplay, we well as the traditional form and orientation of research outputs.

Should we seek to know the "essence of the digital" or "the digital in action"?

How important is it to understand "the IT artefact" and how should we understand it? "Being specific on technology" has been a longstanding call from IS researchers (Monteiro and Hanseth, 1995). Orlikowski and Iacono's (2001) "desperate seeking" for adequate conceptualizations of what should be the field's core object—the IT artefact—resonated with IS researchers (the paper has been cited more than 2300 times). The nature of the digital has been examined and unpacked in perceptive and comprehensive manner by IS researchers (e.g. Tilson et al., 2010; Yoo et al, 2010; Kallinikos et al., 2013 to mention a few of many more contributions). Zuboff, however, seem to take another angle, claiming that: "we have not yet successfully defined 'big data' because we continue to view it as a technological object, effect or capability. [...] 'Big data,' I argue, is not a technology or an inevitable technology effect. It is not an autonomous process. […] It originates in the social, and it is there that we must find it and know it "(Zuboff, 2015b, p. 75). "Technology is the camouflage, not the driver. That means our responses must be political and social." (Zuboff, 2014). When we have acquired an understanding of the digital, we should also ask (or in other words, start to study) how these digital capabilities are being utilized—by whom, for what purposes, with which consequences. The IS field's empirical scope could be broadened beyond production to also encompass distribution and consumption, and the constructive agenda could be complemented by a critical and evaluative agenda. Seen in this light, knowledge of "the digital essence" is not sufficient and we need also to understand how the digital is being mobilized in socially structured setting.

In IS, "politics" is usually thematized as an (undesirable) fact of organizational life—politics is what thwarts the techno-rational interventions that we wish to see succeed. There is a critical, although marginal tradition in IS, especially if we define the field more widely than the core MIS tradition. There are critical theory-informed studies examining the conditions for discourse, power analyses drawing in particular on Foucauldian conceptions of power, and the Participatory Design tradition with its clear emancipatory agenda for users and workers. These offer a number of correctives to theory and practice, but seems to have had little practical uptake in a profit-maximising context and are also usually limited to project- and system-level interventions during the design phase. Despite this, these research traditions carry insights, theoretical resources and methodological sensibilities that could serve us well when preparing to examine the futures we participate in. Here there are experiences with how to challenge patterns of dominance through interventions (e.g. action research). In the light of Zuboff's critique, it would be worthwhile for IS to revisit these fields, and to examine their riches of conceptual and methodological resources. It is one of several moves that could help revitalize sensitivity towards inequality and asymmetries in how technologies are utilized. In addition, IS researchers could seek alliances with researchers and research fields that have a more explicit interest in the social. If we ally e.g. with political economists, we might be able to study "the social relations, particularly the power relations, that mutually constitute the production, distribution and consumption of resources" (Mosco, [1996]2009, p.2).

The IS field's acquired knowledge of what digital materiality entails would be a crucial component is these more ambitious studies. Sound analyses of the large-scale transformations are impossible without proper knowledge of the digital. We need to build on the insights of IS researchers that have shown us e.g. the impact of layering and decoupling that comes with digitalization, the recursive and self-reinforcing dynamics of the information economy, the power invested in architectural control points, the implications of the easy reprogrammability that distinguishes the digital from other technologies, and numerous more insights. We need good conceptualizations and descriptions of the digital—not to capture it in 'laws' or 'theory' that seek to define its essence—but to be able to ask the right questions and to see what it does in action.

The IS field has long since moved beyond simplistic one-directional "effect" models, towards more nuanced understandings that emphasize the mutual and ongoing interactions that shape both the technology and the organizations. The sociomateriality turn has contributed towards this with a specific vocabulary, drawn from broader social science and in particular STS and feminist studies. For some IS researchers, Orlikowski and Scott's well timed and well framed presentation might have been their first encounter with the influences of post-modernism and post-structuralism that had for some time shaped theoretical work outside IS. After some years with a definite interest, there seems to be a certain disappointment that nothing great came out of it, beyond rather sterile, inward-looking exercises in theoretical sophistication, or simplistic, post-hoc 'labelling' exercises rather than deeper engagement with the theoretical questions (see e.g. the review and critique by Parmiggiani and Mikalsen 2013). In general, we would do well to recognize that there are dynamics around theoretical "turns" which have epistemological and political consequences, where discursive work related to appropriation and visibility gets done (Davis, 2015, p. 126). We should question what it may do for IS. Specifically, sociomateriality theory in Barad's formulation derives from an interest in scientific knowledge production. To transpose the observations of the nature of quantum physics to IS (the technology-organisation relation) is not straightforward, beyond at a very generic level (relational ontology, attention to enactment, seeing agency as distributed etc.). The concept of the agential cut can serve as a resource for reflexivity, making us to examine how the research approach help configure the observable reality we claim to report on. The greater question is, however, why we keep examining the interrelation between technology and the social—for what purpose do we seek to trace entanglements or allocate agency in an empirical context? The specifics of the concrete empirical cases seem to lead to already well-iterated insights (e.g. that agency is relational and distributed). What kind of knowledge are we after here—is it again the "essence" of the relationship? What if we conclude that yes, technology and organizations are continuously enacted, through intimately related, multidirectional, non-predictable and multifaceted relations, and then move on. Perhaps we should rather invest "sociomaterial attention" to neglected topics—issues where the materiality of the technology is critical. Let us study the health effects of recycling printed circuit boards, and examine what mercury, lead, cadmium, zinc and chromium in e-waste does to the open landfills, water bodies and farming land where it ends. What about digital materiality is it that makes people lenient about robbery of digital goods (e.g. personal data), and what interventions can help make it visible and raise awareness about it? To detect how the "constitutive entanglement" works in such cases, and the recursively nested performative effects, will be a crucial resource for evaluations and interventions.

Conclusion: Develop knowledge for building worlds

With Information and communication technologies we are building worlds, and we should realize how the digital infrastructures in our worlds are taking on a fundamental importance in shaping our societies. The most urgent question is not any longer whether or how technology shapes social and organization reality – but what kind of worlds we, as IS researchers, help build? We need to develop knowledge relevant for responsible design, with a critical register based on an evaluative agenda. We should not only be a Science of the Artificial which addresses "builders' questions", but address broader questions of longer timeframes and larger empirical scopes than the initial design of technology. Creating technology is just the start. Victor Frankenstein's sin was not that he created the monster, but that he fled from it as it awoke rather than care for it and introduce it to life among the humans. If we help birth monsters, then we need to see them for what they are, and learn how to live with them. We need vocabulary with analytic edge, not just blurry softness like co-evolution and enactment. We need concepts that carry capacity for normative assessments, such as e.g. configuration (Suchman, 2012). We need to cultivate ambivalence towards our research object, something a one-eyed search for managerial relevance doesn't encourage. Characterizing the researcher's duty as "disclosure" (Hekman, 2010; Spinosa et al., 1997) carries a stronger sense of responsibility for the outcomes of knowledge in the world. We don't need another "turn" in theory or in method, but to look again at what should be our foundational knowledge interest, on what issues we should pursue insights.

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