ON THE METHODOLOGICAL AND PHILOSOPHICAL CHALLENGES OF SOCIOMATERIAL THEORIZING: AN OVERVIEW OF COMPETING CONCEPTUALIZATIONS

ICIS 2012 PANEL STATEMENT

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Abstract

This panel discusses how to take the ontological paradigm of Sociomateriality to the field using alternative theoretical lenses that embody sociomaterial ideas. Based on exemplary papers, Samer Faraj, Karlheinz Kautz, Daniel Robey, and Ulrike Schultze present the advantages of the lens they have drawn on to inform their empirical research. Through their discussion the panelists illustrate how they designed their studies accordingly and defend why their approach allows them to make empirical observations of the Sociomaterial.

Informed by this comparative debate, the audience gains insights into the panelists’ experiences with conducting, writing, and editing Sociomaterial research. The audience will thus understand the methodological differences of the alternative lenses as well as important commonalities that make a study sociomaterial. As a key takeaway, the panel provides guidance on how to contribute to sociomaterial theorizing, thus supporting the recent trend towards Sociomateriality in the IS research community.

Keywords: Sociomateriality; Epistemology; Ontology; Methodology; Materiality; Theory building
Introduction

“We [the web kids] grew up with and in the internet. [...] We don’t ‘surf’ on the internet; for us, the internet is neither ‘place’ nor ‘virtual place.’ It is not an extension to reality, but part of it. It is an invisible, but ever-present layer; entangled with its bodily surroundings: we do not use the Internet; we live with and within it.”

Piotr Czerski (2012), “We, the Web kids”

Even though the information systems discipline has long been seen as a nexus of research at the intersection of social and technological systems (Lee 1999, 2001, 2004; Orlikowski and Iacono 2001; Sidorova et al. 2008; Weber 2003), the increasing interspersion of human life with modern information and communication technologies challenges our theorizing. As illustrated in the above quote, Internet technologies and social media, in particular, increasingly serve as extensions of our senses (McLuhan 1964) in that they support the generation, apprehension, and processing of information. Consequently both social and technological facets of human life become increasingly and inseparably intertwined with one another. Many examples, ranging from the omnipresence of mobile communication in daily life to the uprising of democratic movements in the Middle East through platforms such as Twitter and Facebook, illustrate that neither human behavior (i.e., the social) nor technological feature (i.e., the material) operate in isolation. As a result, living with and within the Internet (Czerski 2012) is a phenomenon we as IS scholars need to take seriously in order to be able to develop theories that describe, explain, and predict phenomena of interest.

To study these phenomena, both the material and the social need to be conceptualized to make them comprehensible for research. Early approaches to theorizing IS in organizations often focused on either one or the other. One of the main research streams in technology-related research during the 70’s and 80’s, technological determinism, for example, assumed that technology influences the social but not the other way around. In sharp contrast, social constructivist approaches drew on theories such as, for example, Structuration Theory (Giddens 1984), and attributed primacy to the social and how it influences technologies. Eventually, however, these were in turn criticized as social or humanist determinism (Berg 1998). The first concepts trying to reconcile these positions by looking at the reciprocal relationship between the social and the material emerged with the socio-technical approaches (Emery and Trist 1960; Mumford 2006; Williams and Edge 1996). Over time, however, the principal dualism between the social and the material of these approaches was replaced by perspectives that see the two as inextricably intertwined and inseparable (e.g., Bijker 1993; Haraway 1991; Latour 1987; Law 1992; Pickering 1993). In an attempt to conceptualize the intertwining of the social and the material, these forms of theorizing were adopted in IS research and are often considered under the umbrella concept of Sociomateriality (Orlikowski 2007).

In the IS discipline, the turn towards sociomaterial theorizing has produced a number of important conceptual contributions (e.g., Leonardi and Barley 2010; Orlikowski 2007; Orlikowski and Scott 2008). However, the application of sociomaterial lenses to empirical work seems to be lagging behind. Exceptions include prominent journal articles that demonstrate sociomaterial theorizing (e.g., Introna and Hayes 2011; Leonardi 2011; Scott and Orlikowski 2012; Wagner et al. 2010) as well as conference contributions that employ some of the associated paradigms (e.g., Leclercq et al. 2009; Riemer and Vehring 2010; Schulzle 2011; Svahn et al. 2009; van Osch and Mendelson 2011; Zorina and Avison 2011). Furthermore, the upcoming MIS Quarterly special issue on Sociomateriality (Cecez-Kecmanovic et al. 2011) indicates that there is considerable interest in the application of this ontological lens to IS research.

Reflecting on our experiences of trying to apply the sociomaterial lens to theorize our own empirical work, we believe that researchers often face challenging problems when trying to translate the conceptual tenets of this ontological paradigm and the approaches it embodies to actual fieldwork. Moreover, the variety of lenses available that are based on sociomaterial ideas can lead to a confusing plurality of approaches. As each of these approaches comes with ontological assumptions and epistemological challenges of its own, we find that aspiring sociomaterial researchers are often left with little guidance on how to design their studies, let alone an established body of proven techniques for data collection and analysis.

In light of these challenges, the panel invites experienced scholars to a debate about taking their approaches to the field. Representing a variety of theoretical lenses, the panelists will share their experiences with operationalizing their sociomaterial ontology and will be challenged to explain why they believe that they were actually able to observe the entanglement of the social and the material. In this way, we expect the panel to be both
illuminative of data collection and analysis techniques, and controversial in the sense that the panelists will challenge each other on the fit between their respective empirical setting and their choice of theoretical lens.

Through the panel we hope to advance our disciplinary understanding of the methodological requirements a study must fulfill in order to make sociomaterial theorizing possible. As the panelists are advocating different approaches, the audience will get to know important similarities and differences between these lenses. A panel is an ideal medium to get this discussion out to a broad audience and fuel the diffusion of sociomaterial ideas to empirical IS research on phenomena such as mobile technologies and social media usage where – as the opening quote indicates – the entanglement of individuals with the technology is undeniable and important to theorize. Such theorizing will advance the IS discipline by providing convincing conceptualizations and exciting explanations of phenomena that a look at the material or the social alone would likely not have yielded.

Controversial Issues and Panelists’ Positions

Basic tenets and controversial issues

Existing sociomaterial lenses share basic assumptions, such as post humanism, performativity, historic entanglement or imbrication, agency, and relationality. As discussed above, these assumptions are leveraged to address technology’s increasing presence, which has led scholars to emphasize that the relationship between the social and the material represents a duality rather than a dualism. However, the nature of this duality remains a matter of debate. Thus we find ourselves with differing conceptualizations. While they share some assumptions, they differ on the perhaps most important one: One camp holds that the material and the social are inseparable with separation only being an analytical possibility (Orlikowski and Scott 2008). The other presumes that the social and the material are both ontologically and analytically separate (Leonardi 2011).

The former promotes the assumption of ontological inseparability. It posits that the social and the material are ontologically inseparable through their entanglement in practice (Orlikowski 2010). Entities such as individuals, information systems, or organizations become a sociomaterial assemblage in which the material and the social are separable only analytically. Consequently, not only do humans have agency, but so does the material. Both are performative, that is, only together do they constitute reality. Acknowledging that neither social nor material holds primacy over the other, sociomaterial theorizing in this vein attempts to overcome the tensions introduced by both technological and humanist determinism (Orlikowski 2007), as well as the a priori boundaries between the social and the technical, evident in structurational theories that seek to understand their mutually determinate nature (Orlikowski and Scott 2008).

In contrast, other approaches reject the idea of ontological inseparability. For example, Leonardi (2011) promotes an imbrication perspective. It assumes the social and the material to be distinct but interdependent phenomena which are imbricated (in the sense of interlocked) with each other. That is, they are not only separable analytically, but also ontologically. Imbrication thus differs in its view on agency by arguing that human agency holds primacy over material agency in the sense that humans act with intent – material agents do not.

Beyond these perspectives, Johri (2011) breaks middle ground between inseparability and separability by developing a lens he calls sociomaterial bricolage. He posits to follow the inseparability hypothesis but argues that he would have to separate the social and material in the field in order to differentiate elements making up the work practice under investigation. This is in line with Kautz and Jensen (2012) who, in providing a critique of contemporary sociomaterial approaches, suggest to conceptualize things as identifiable parts of a whole.

In summary, quite a few lenses embody the sociomaterial paradigm. Examples include actor-network-theory (Law 1992), socio-technical ensembles (Bijker 1993), Cyborgs (Haraway 1991), imbrication (Leonardi 2011), affordances (Gibson 1977), human-machine (re)configurations (Suchman 2007), performativity (Barad 2003), the mangle of practice (Pickering 1993, 1995), digital formations (Latham and Sassen 2005), technological information (Kallinikos 2006), algorithmic configuration (Callon and Muniesa 2005; MacKenzie 2006), and sociomaterial bricolage (Johri 2011). Each serves as a sensitizing device to recognize and theorize the intertwining of the material and the social, but not necessarily shares the assumptions of the others.

As indicated by Johri (2011) and Kautz and Jensen (2012), a real challenge, also in light of these differences, lies in putting these approaches to work. What methodological approach suits such a complex theoretical foundation? From an epistemological perspective, we perceive unraveling such a complex assemblages or imbrication to constitute a considerable methodological challenge. Without adequate translation of its philosophical tenets and abstract constructs to the field, sociomaterial approaches run the risk of losing their ability to improve our understanding of the phenomena we seek to understand.
Nevertheless, IS researchers are increasingly interested in applying sociomaterial ontology to their research, as discussed above. Adjacent fields, often perceived to be reference disciplines of IS research, further support this development by also showing an increased attention towards the sociomaterial, from management (e.g., Leonardi and Barley 2010; Orlikowski 2010) and organization research (e.g., Feldman and Orlikowski 2011) to science and technology studies (e.g., Berg 1998) or software engineering (e.g., Marick 2008). Despite this growing adoption of a sociomaterial stance, we feel that the question of what this/these philosophical orientation(s) actually mean(s) for IS researchers in the field deserves a more elaborate discussion. In our own work we frequently experience that the sophisticated ontological and complex theoretical tenets make it difficult to craft research projects. This problem is intensified by the plethora of concepts that constitute sociomaterial theorizing (Barad 2003; Bijker 1993; Law 1992; Pickering 1993; Suchman 1987; etc.), and equally pertains to both the ontological as well as the epistemological assumptions.

Ontologically, what differentiates a study that examines an inseparable sociomaterial assemblage rather than a very close dualism of the material and the social? Are the different lenses compatible with one another and, if so, are they complementary or redundant? How do ontological considerations impact the epistemological? As for the epistemological facet, how should sociomaterial studies be designed? Which empirical design is most appropriate for certain phenomena and under what conditions are certain sociomaterial lenses appropriate? What data to collect and how to analyze it? What is important to frame sociomaterial articles convincingly?

In setting up this panel, we became aware that answers to these questions are not universally shared. While the sociomaterial approaches have been elaborated from a conceptual point of view, the application of this theorizing in the empirical realm is often a matter of debate. Questions of whether and how researchers applied their lenses’ differing tenets in designing and executing their studies seem to be controversial.

The proposed panel

It is these questions on the operationalization of sociomaterial approaches in empirical settings that the proposed panel intends to discuss. While the main goal of the panel is to be instructive for people who wish to engage in sociomaterial research, its main structure revolves around competing conceptualizations. Using one of the studies they have conducted or were involved with, each panelist represents different ontological assumptions and theoretical lenses. We will ask each panelist to illustrate how their assumptions and lens have enabled them to analyze the social and the material and how their work provided meaningful grounds for sociomaterial theorizing. Each of the panelists will have to address the following guiding themes:

1. What phenomenon did you study and why did you choose your particular lens?
2. How did you collect data and how does this relate to your specific lens?
3. How did your lens sensitize you during data analysis?
4. What were the challenges you encountered in theorizing using your lens?

To address these questions, we invited panelists who have not only employed a sociomaterial lens in their own empirical and editorial work, but who have also made considerable contributions to IS research over the years. They will thus be able to provide exciting insights into both working with sociomaterial approaches empirically and theorizing from a sociomaterial point of view. The following panelists constitute our panel:

**Samer Faraj and the affordance lens:** Faraj reports on a multiyear $50M computerization of a national land registry in a Mediterranean country. He describes how he used a sociomaterial lens, specifically the lens of affordances (Gibson 1977), to study how actors engaged in actions where technology was enrolled during the process of technology appropriation. By focusing on essential moments of technology enrolment by actors and the enactment of novel micro-practices, he suggests the usefulness of an affordance perspective on technology appropriation. Based on the empirical work, he discusses affordances as technology-enabled action capabilities that are relationally constituted in the performance of organizational practices and the fulfillment of roles. Faraj concludes with an evaluation of the usefulness of affordances and related sociomaterial approaches to explore technology-induced reconfiguration.

**Daniel Robey and the affordance lens revisited:** Robey takes a sociomaterial approach that preserves the ontological distinction between material objects and human actors. He advocates the use of affordances as a concept that describes the relationship between these two entities. Robey’s approach avoids the treatment of Sociomateriality as a holistic concept in which human actors and material objects are viewed as inseparable and mutually constitutive, largely because of the empirical difficulties that such an approach presents. Beyond experiences from his own ongoing work on the affordances of mobile technologies as enacted by mobile work-
ers, Robey draws upon his editorial experience with empirical studies published in Information and Organization that engage with the relationship between physical objects and human action (e.g., Harwood 2011; Introna and Hayes 2011; Jonsson et al. 2009; Østerlie et al. 2012). These papers serve as illustrations of fieldwork that engages with material objects (digital and non-digital) and theorizes based on empirical analyses of the relationship between human actors and material objects.

**Ulrike Schultze and the performativity lens:** Schultze draws on her research on identity performance with avatars in the virtual world, Second Life. She discusses why she adopted a sociomaterial lens to make sense of the cyborgian existence. As more and more people experience geographic and virtual spaces, as well as physical and virtual bodies, these become increasingly entangled. She illustrates how she applied post-humanist performativity (Barad 2003) as an approach for sociomaterial theorizing. Beyond this, she also shares her experiences with a particular data collection method, namely photo-diary interviews. Schultze presents the pros and cons of using photo-diaries as a technique for collecting data that make the materiality of the digital world apparent, and that provide insight into how digital embodiments are entangled with physical embodiments in (cyborgian) identity performance.

**Karlheinz Kautz and the performativity lens revisited:** Kautz bases his work on a critical stance concerning the plethora of sociomaterial concepts used in IS. He focuses on the concepts of ontological politics, performed relations, and agential cuts when considering IS development and implementation as sociomaterial practice. Drawing from a contentious case of the development and implementation of an innovative IS where the project and the resulting IS were simultaneously seen as a success and failure, he examines the production of controversial assessments to offer a sociomaterial framing of IS success and failure. Success and failure are understood as the result of ontological politics and the performance of sociomaterial relations. Agential cuts allow the identification of developers, technologies, methodologies, tools, users, managers, contracts, business processes, design documents, code, etc. and the analysis of their intra-action during the emergence and reconfiguration of such sociomaterial assemblages and help explain IS success or failure.

Building on the similarities and differences between these competing sociomaterial lenses, we expect this panel to provide a forum for the exchange of viewpoints, ideas, and arguments to help promote and better understand not only sociomaterial approaches, but also their practical applications to empirical IS research. We suggest that the emergence of sociomaterial conceptualizations of information systems creates considerable opportunities especially in light of the entanglement between people and technology, as expressed in the Web Kids Manifesto (Czerski 2012) cited at the beginning of the proposal. However, it also warrants a careful debate on how we as a discipline can put it to work. We also want to draw careful attention to the pitfalls and difficulties of such a philosophically complex debate and draw our colleagues’ attention to some of the issues to be aware of when trying to apply this philosophical paradigm empirically.

After attending this panel, we hope that participants will have gained practical advice for conducting sociomaterial research, as well as insight into the methodological implications of sociomaterial theorizing. We thus hope to not only contribute to clarifying what sociomaterial approaches are and what they mean for IS researchers, but also to actively stimulate discussion and debate about its usefulness.

**Panel Structure**

The ability to promote an idea to a broad audience is one of the key strength of a panel. Given the rising interest in Sociomateriality, we believe that a panel is ideally suited to allow aspiring sociomaterial researchers to tap into this debate and better understand some of the controversial methodological issues.

At the outset of the panel, the facilitators provide a brief motivation for the panel and introduce the panelists and their specific angle on the topic. Afterwards each of them gives a ten-minute opening statement to introduce their respective study, characterize their work by means of the guiding themes introduced above, and provide some information on their perspective on Sociomateriality. The audience is then invited to participate. As this panel is also inspired by the two facilitators’ experiences and difficulties in applying sociomaterial theorizing to a study of the introduction of a corporate wiki, they will kick off the discussion with a few prepared introductory questions. Serving as the audience’s advocate in following up on the guiding themes, the facilitators will critically challenge the panelists to elicit more detailed answers and compelling insight into their work.

The facilitators will also solicit questions, comments, and issues from the broader IS community via the IS world newsletter and the AIS World listserv before the conference. These questions and comments will then be incorporated into the audience discussion. Furthermore, during the panel, participants will be able to com-
municate questions and comments either directly or through Twitter (with the use of a hashtag to be announced at the beginning of the panel). One of the facilitators will communicate the questions to the panelists while the other will moderate the discussion. By these technology-enabled means both before and during the panel, the panel will maximize the interaction between the IS community and the panelists.

At the end, each panelist will be asked to briefly summarize her/his key takeaways and comment on the likely future development of Sociomateriality as a paradigm to inform empirical IS studies. To make a lasting contribution to our field beyond the conference and the audience able to participate, we also plan to document the positions of the panelists as well as the discussion with the audience. In this way, the insights and debate generated during the panel will be made available to the wider IS community.

**Panelists’ Biographies**

**Samer Faraj (McGill University)**

Samer Faraj is Associate Professor and holds the Canada Research Chair in Technology, Management & Healthcare. He is academic director of the McGill World Platform for Health and Economic Convergence. His current research focuses on complex collaboration in settings as diverse as health care organizations, knowledge teams, and online communities. He is also interested in how new information technologies such as social media are transforming organizations and allowing new forms of coordination and organizing to emerge. Faraj was part of the organizing team for the symposium on Sociomateriality held at The Academy of Management Meeting in August 2010. His reflections on the field and the developments since will provide an exciting perspective on current and future sociomaterial research.

**Karlheinz Kautz (Copenhagen Business School)**

Karlheinz Kautz is Professor in Information Systems Development. His research investigates the development, management, and impact as well as the diffusion and adoption of information systems and information technology innovations. Beyond his interest in the concept of Sociomateriality his current research focuses on contemporary information system development projects as complex adaptive systems and, consequently, on complex adaptive systems theory. In this context he is involved in a larger study of agile and more traditional business and development processes in the German information technology industry. His position and contribution will place Sociomateriality in a European context of systems thinking, sociotechnique, and phenomenological approaches to software tool and material approaches.

**Daniel Robey (Georgia State University)**

Daniel Robey is Emeritus Professor of Information Systems. His research deals with the consequences of information systems in organizations and the processes of system development and implementation. This research includes empirical examinations of information systems development work and of the effects of a wide range of technologies on organizational structure and patterns of work. It also includes the development of theoretical approaches to explaining the development and consequences of information technology in organizations. In his tenure as Editor-in-Chief of Information and Organization, Robey has developed the journal into one of the key outlets concerned with the social construction of information technology and the implications of information systems for organizational change. As such, the journal has attracted a number of influential manuscripts on the role of the social and the material and has made important contributions to better understanding their interplay. Complementary to this, Robey has long been an important contributor to the discussion on information systems’ role in organizational change.

**Ulrike Schultze (Southern Methodist University)**

Ulrike Schultze is Associate Professor in Information Technology and Operations Management. She is also a visiting Associate Professor at Lund University, Sweden. Her research explores the work practice implications of information technology. Her most recent project examines identity performance in a world increasingly infused by social media and virtual others. As such, her work studies the intimate entanglement of social and material aspects and how they influence each other. Her research into the avatar-self relationship in the virtual world Second Life received NSF funding. Schultze’s work frequently relies on multi-method research designs, which include ethnographic observations, interviews, and surveys. Her experience with multiple qualitative methods will be an important addition to the panel’s methodological focus.
References


Czerski, P. 2012. February 11-12. "My, Dzieci Sieci (We, the Web Kids)," in: *Dziennik Bałtycki (The Baltic Daily).* Gdańsk, Poland: p. 11.


