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# Information Systems and Assemblages

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## 1 Introduction

The theme for the 2014 IFIP WG 8.2 working conference was ‘Information Systems and Global Assemblages: (Re)Configuring Actors, Artefacts, Organizations’. The motivation behind the choice of the conference theme has been the increasing appreciation of notions of emergence, heterogeneity and temporality in IS studies. We found that the conference provided an opportune occasion for inviting scholars interested in exploring these notions, their relevance and promise for IS studies. The concept of the ‘assemblage’ [1], already referenced in IS studies, as will be discussed below, and with significant popularity in other fields, such as anthropology, geography and cultural studies, provided the stepping stone for approaching the heterogeneous, emergent and situated nature of information systems and organization. In particular, we opted for highlighting the ‘global assemblage’[2] as a metaphor to talk about challenging yet often creative tensions that emerge as global imperatives (geographical, intellectual, procedural and others) interact with local arrangements of actors, artefacts and organizations. Here ‘global’ does not mean universal or everywhere, but mobile, abstractable, and capable of recontextualization across diverse social and cultural situations.

This book provides a collection of contributions by scholars who responded to our invitation, adding depth and breadth to our understanding of the concept and its value for IS studies. At the same time, some contributors chose to discuss emergence, heterogeneity and situatedness in different terms, drawing upon alternative theoretical traditions and concepts. The result has been an engaging and stimulating mix of ideas that points towards the ‘multiple’ trajectories – current and future – of this exciting stream of research.

## 2 Information Systems as (Global) Assemblages

Approaches that stress the performative, processual and relational aspects of organizational practice, have received increased attention in recent years. Drawn from diverse philosophical and theoretical traditions, their boundaries are often blurred, intimating the mutability, subversiveness and tentativeness of the very phenomena they study. Discussions of agency and materiality have found a prominent place in the development

of these approaches, inviting audiences to reconsider ideas of structure, power and accountability in organizational practice. Emphasis has often been placed on micro-processes of organizing and change, revealing the contribution of interactions at specific localities to the unfolding of the organization as a whole. As such, these approaches problematize the relationship between the social and the technical, the abstract and the specific, the ostensive and the performative, the universal and the particular.

The idea of the assemblage appears to originate in the work of Deleuze and Guattari [3], explicated beautifully by DeLanda [4, 5]. At the same time, Anderson and McFarlane identify another potential reference point in what they call an “‘after’ actor-network theory literature” [6, p. 125]. What appears to be common in both cases, nonetheless, is that the concept offers an opportunity for subverting prevailing notions of structure by emphasizing movement and the temporary, socially, materially and discursively accomplished “coming-together” of heterogeneous entities into social practices. As Marcus and Saka point out,

Assemblage is thus a resource with which to address in analysis and writing the modernist problem of the heterogeneous within the ephemeral, while preserving some concept of the structural so embedded in the enterprise of social science research [1, p. 102].

The concept of the assemblage affords insight into the emergence, temporality, spatiality, distributed agency and fragility of social formations [6], the implications of which are revealed vividly and intensely when abstract ideas, routines, technologies and classifications travel to different locations. As Collier and Ong suggest, “As global forms are articulated in specific situations – or are territorialized in assemblages – they define new material, collective and discursive relationships” [2, p. 4]. Examples include various forms of technoscience that, as Sassen suggests “can accommodate multiple particularities” [7, p. 457], such as the human genome, standards regimes, and digital networks.

Hence, the concept of the assemblage emerges as particularly relevant to IS studies that explore the design, development and implementation of abstract technological forms instantiated in particular locations and temporalities. It is not surprising then that the concept has found its place in early technology studies grounded in a practice perspective [8, 9]. The practice turn in social sciences is predicated on an interest with the situated, the local and the relational [10] and the idea of the assemblage serves particularly such purposes. Its use in IS studies became even more popular with the development of the sociomaterial perspective [11, 12] and the ongoing scrutiny of the relation between the social and the material [13, 14]. References to ‘sociomaterial assemblages’ in IS studies indicate engagement with the perceived heterogeneity, tentativeness and locatedness of the alignment and realignment, configuration and reconfiguration of actors, technological artefacts and organizations. As Orlikowski notes, “The performativity of the sociomaterial assemblage is thus fleeting, fragile, and fragmented, entailing uncertainty and risk, and producing intended and unintended outcomes” [11, p. 1445]. These counterintuitive characteristics appear to consistently attract further attention in IS studies, as demonstrated by the interest in applying the concept of sociomaterial assemblages in both conceptual and empirical studies [15, 16]. Even more so, the idea

of the ‘assemblage’ does not remain limited to the sociomaterial perspective. Instead, it also finds ground in alternative theoretical conceptualizations, as evidenced in recent work [17].

Such increasing interest in “assemblages” suggests this may be a timely opportunity to consider the kind of questions that IS scholars can generate through the application of the concept and how an “assemblage theory” may be of value to the field. Relevant questions have already been posed elsewhere [6], centered on the difference that assemblage thinking can make to studies of relationality and heterogeneity; the relation of the concept to other seemingly familiar concepts, such as network and apparatus; theorizing order and change; and, implications of such an ontological thesis for politics and ethics. Several of these questions have been addressed by contributors to this book, at the same time accentuating particular themes of relevance to IS studies, such as exploring the subjects, rationalities, techniques and practices that constitute information systems as heterogeneous and situated assemblages; discussing temporality and emergence in information systems and organizational change; and, producing alternative insights on the contribution of digital innovation to industry and organizational practices.

### **3 Overview of the Book**

We would like to thank the authors for their contributions to the conference. Some of the papers address directly the theme of the conference, while others address topics relevant to IFIP WG 8.2 beyond the specific call, as per our invitation. In our effort to group the papers, we attempted to identify common underlying issues that could steer discussion and generate insight during the conference sessions.

#### **3.1 IS/IT Implementation and Appropriation**

The first group of papers apply alternative theoretical lenses to the study of IS/IT implementation, adoption and use. Lauterbach and Mueller approach what they perceive as terminological heterogeneity in the literature on IT adoption and use it as a starting point for their contribution. They review the development of the field, including positivist and constructivist accounts, and propose a process model of IT adoption with the aim of integrating the field. The authors argue that such an effort brings to the fore questions regarding conceptual clarity, as well as areas available for further investigation. Plumb and Kautz apply a phenomenological approach to the study of IT appropriation in early childhood and care organizations, drawing upon Heideggerian insights. They approach IT artefacts as objects of reflection that through processes of ‘place making’ become tools and eventually take the role of ‘equipment’ in organizational practices. The authors understand such a phenomenological theory of appropriation as contributing to the sociomateriality debate, as it portrays technologies as inextricably entangled in practices. Yeow and Faraj propose an alternative vocabulary for studying IS implementation from a sociomaterial perspective. Drawing upon the notion of ‘performation’ they shift emphasis to how assemblages are rendered performative in the presence of pre-existing sociomaterial contexts. In this light, they bring to the fore the

'invisible work' that is necessary for assemblages to be made to perform, the relevance of discursive practices in stabilizing the meaning of an assemblage as performative and the principle of 'performative exigency' as driving sociomaterial change.

### **3.2 Ethnographic Accounts of IS Use**

A second group of papers offer ethnographic accounts of IS use drawing upon two quite different contexts. Chughtai and Myers present the findings of an ethnographic study of young IT professionals, exploring their 'absorbed' engagement with IT artefacts. The authors propose that the entwinement logic of practices, grounded in Heideggerian insights of 'Being-in-the-World', provides a fruitful, holistic lens for explaining the seemingly comfortable use of IT artefacts by this generation. Such a lens conceptualises practices as sociomaterial and spatiotemporal and technology as entwined in practice – more specifically, as equipment, purposefully used, drawing upon and developing skills. Eades and Zheng wish to contribute to the discussion of Information Systems beyond the realm of business practice and present a study of a commemorative counter-mapping ritual where systems such as Google Earth were employed. The study draws upon the concept of the assemblage to discuss issues of temporality, spatiality and becoming in mapping practices that draw upon translocal technologies and contexts and have transgenerational effects in identity construction.

### **3.3 Structures and Networks**

Another group of papers discuss intra- and inter-organization structures and networks. Aryal, EL Amrani, and Truex employ the concept of the assemblage to approach the development of 'competency centers', namely governance structures and processes that coordinate and facilitate the post-implementation phase of Enterprise Systems. They reach the conclusion that the value of such (fluid and temporary) structures depends on how the constant movement between 'material' and 'expressive' constructs, on the one hand, and forces of 'territorialisation' and 'deterritorialization', on the other, is handled within organizations. Lund dissects the challenges encountered in developing digital innovation drawing upon the case of an e-newspaper initiative. In approaching the subject matter, the author draws the picture of a digital ecosystem as a heterogeneous network of interested parties, with heterogeneous knowledge resources, expectations and requirements that raise political tensions. Concrete ways in which these challenges can be addressed are proposed.

### **3.4 Health Care IS**

A number of papers in the conference are located in the health care context, reflecting an enduring interest of the IFIP WG 8.2 community in health care information systems. Two papers offer a critical eye on developments in that field. Robertson, Nicholas, Rosenfeld, and Travaglia discuss the social and political issues that underlie practices of knowledge production through health information systems. Specifically, the authors question the practices of knowledge production touching upon several issues, such as

big data, classificatory systems and digital materiality. Further, they argue that health information systems do not adequately engage with the lived experience of patients and discuss the potential contribution of information on space/place in this direction. Cornford and Lichtner use the concept of the assemblage to approach the digitization of drugs, namely, the integration of digital services into the practices of using drugs. They problematize the seemingly prevalent rationale behind this movement - achieving certainty in medical provision. They produce an 'anatomy' of digital drugs, drawing upon three domains in which issues of their value are raised, (in-)use, research and governance, and point towards relevant questions for the IS community.

### **3.5 Social Media**

Studies of social media with various applications and objectives also found a place in the conference. Pousti, Urquhart, and Linger engage with the role of social media in chronic care management. They identify an affordances perspective as pertinent for the study of social media in healthcare management, as it acknowledges that the meaning of such media and their respective affordances do not reside in the artefact per se, but emerge through material-discursive practices. They move to discuss particular affordances and constraints related to the use of social media in chronic health care management. Duzdert, Fayard, and Oiry draw upon the myth of Asterix and the organization of the inhabitants in the Gaulish village with regards to knowledge, as to explore the tensions and challenges that may occur during the implementation of Knowledge Management Systems 2.0. The authors comment on the relevance of myths for approaching organizational phenomena and engage with the role played by shared national representations in the implementation of Information Systems. Mirbabaie, Ehnis, Stieglitz, and Bunker set out to study communication roles enacted through social media in the face of extreme events. They argue that due to the pervasiveness of social media in everyday life, 'command and control' systems, including governmental agencies, need to engage with information generated on these platforms by organizations, groups and individuals. The research proposed by the authors aims at facilitating effective communication among these parties during an extreme event.

### **3.6 IS Design**

The final group of papers engage with pertinent issues in IS design. Baskerville and Pries-Heje problematize the suitability of criteria such as generalizability and transferability for the evaluation of design theories. They understand design science as different from natural or social studies, as it is materially prescriptive and engages with contexts that may not even presently exist. They propose the criterion of 'projectability' and discuss its relevance, acknowledging two forms of projectability - actual projection into material artefacts or other design theories. Baskerville, Davison, Kaul, and Wong extend an invitation to re-consider the relevance of 'systems' in Information Systems research, a concept which, they argue, has faded in recent studies. Drawing upon the results of a study on system designer roles, they reach the conclusion that engaging with 'Systems of Information' instead of 'Information Systems' may be more pertinent to

new challenges facing systems designers. These challenges emerge from the requirement to preserve the systematicity of information practices in the context of transitions from old to new systems.

## 4 Conclusion

It is our belief that contributions in this book advance discussions on the notions of emergence, heterogeneity and temporality and mobilise our further engagement with the relevance of (global) assemblages in IS studies. The very heterogeneity of the components of this book; the individual chapters with their distinct objectives, choice of field and conceptual armoury, level of engagement with the theme of the conference; their contingent “coming-together” in this single volume, temporarily stabilizing discussions that have been and instigating discussions that will be; their continuous dispersion, as they seek to develop into different forms and align with further assemblages. These are all valuable mementos of another “coming-together” in beautiful New Zealand, in the forum of the IFIP WG 8.2 working conference, left to remind us of the promise of assemblage theory for IS studies.

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