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The socio-material pragmatics of e-governance mobilization

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ABSTRACT

E-governance, with reference to the relationship between the individual and the state, develops in dense networks of human and technological actors. However, mobilization of information technology in e-governance is not a straightforward instantiation of such ambitions but rather a tinkering process in which actors and their interests are combined and transformed. In this paper we examine this idea by investigating the development of a Swedish national public healthcare portal representing a complex, multilevel, and political environment. In this endeavour, the principle of symmetry from Actor-Network Theory and an event-based approach in the analysis play important roles. We show that the development process involves envisioning the future (even if vaguely), implementing concrete ideas about technological functionality and platforms, reconciling diverse interests, prioritizing and framing political concerns and breakdowns, and working toward realization of abstract goals. In this process, the technological actors play a role as important as that of the human actors. The paper concludes that e-governance relationships emerge that rest upon socio-material pragmatics influenced by political transformations that are often unanticipated.

1. Introduction

The relationship between the individual and the state is increasingly mediated by information technology in general and the Web in particular (e.g., Anttiroiko, 2004; Blakemore, McDonald, Hall, & Jucuite, 2010; Chadwick & May, 2003; Evans & Yen, 2006; Gauld, Goldfinch, & Horsburgh, 2010; Lips, 2007; Margolis & Moreno-Riano, 2010). Consequently, the emergent development of such technology is of special importance (Groenewegen & Wagenaar, 2006; Güney & Cresswell, 2010; Ranerup, 2011). Like all technological arrangements that public authorities implement in various public service arenas, in conjunction with laws and regulations, e-governance reflects a complex relationship between the individual and the state (Anttiroiko, 2004; Chadwick & May, 2003; Evans & Yen, 2006; Lips, 2007). For example, in an analysis of the e-governance relationship in an often-cited article, Chadwick and May (2003) distinguish among three models of interaction ("managerial," "consultative," and "participatory") and describe the relationships this interaction creates between individuals and the state.

The claim of this paper is that, to increase our critical knowledge of the formation of individual-state relationships, it is important to understand how the development processes in general and the related everyday tinkering in particular mobilize human and technological actors (Doolin & Lowe, 2002). Therefore, the research question of this paper is: *How are human and technological actors mobilized in the development of the e-governance relationship?* The paper's main motivation is that most research today on such development processes focuses on human actors or organizational aspects, almost omitting technology's role as an actor. This is also true of some research, such as Actor Network Theory (ANT) that is based on a theoretical perspective that supposedly treats technology as a viable actor (see, for example, Cho, Mathiassen, & Nilsson, 2008; Heeks & Stanforth, 2007). Of course, this does not mean that technological perspectives as well as the technological artefact as such are absent in the research field of e-government. Rather, the opposite is true. However, clearly the e-governance relationship involves not only human actors but also, and equally important, technological *actors* (Callon, 1986; Latour, 1992). Thus, we need to address this area more seriously. Therefore, we need to increase our knowledge, using empirical evidence, about the roles of technological actors as well as human actors in processes where information technology (IT) is developed. The method of investigation in this paper is a theoretically informed exploratory, interpretative, and longitudinal case study of the development process of a Swedish national (and publicly financed) healthcare portal. The paper presents a rich case of the moulding of an e-governance relationship.

In the next section the paper reviews previous research on aspects of e-government development, in particular as that research relates to the question of this study. A brief description of ANT follows that provides the theoretical framework of the study. ANT is used to focus on actors and events in the formation of the healthcare portal technology. The next section presents the research methodology of the paper, followed by an account of the network formation associated with the healthcare portal. After an analysis and discussion of the findings, the paper presents some conclusions and suggests areas for future research.

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2. Background

2.1. General organizational aspects in e-government development

A main theme in the research concerns the more general organizational aspects in the management of the development processes. A number of researchers have studied this area. Meneklis and Douligeris (2010) proposed a set of guidelines for architectural design based on theory and case studies. These guidelines emphasize the importance of clarification of concepts, of recognition of emerging technologies, and of the critical engagement of participants using their own perceptions. Folkerd and Spinelli (2009) studied the consequences of user exclusion and fragmented requirements captured in e-government where areas of concern, such as user involvement, user acceptance, and lack of systems integration, are defined. Anthopoulos, Siozos, and Tsoukalas (2007) described collaborative and participatory technological tools and methods that public employees can use in development that is characterized by its capacity to enhance government rationalities rather than commercial and economic ones. In contrast, van Velsen, van der Geest, ter Hedde, and Derks (2009) proposed a citizen centric approach for requirements engineering using repeated rounds of low-fidelity prototype design. Thus, in focusing on organizational issues researchers often emphasize a specific aspect of the process and either propose a tool or a methodological approach to resolve a perceived problem.

2.2. Values in e-government development processes

A second research theme concerns the developer-user values that are implicit in e-government development processes. Henningsson and van Veenstra (2010) identified 64 barriers to IT-driven governmental transformation in relationship to governance, managerial, and technical competence values. They ranked the importance of these barriers and described how they might be handled. Brewer, Neubauer, and Geiselhart (2006) argued that public administrators should take an active role in designing and implementing e-government systems in order to promote and safeguard democratic principles. In a similar vein, Nour, AbdelRahman, and Fadlalla (2008) described the connections between contexts and goals (or values) in e-government development in relationship to a nation's democratic development and e-government maturation. They argue that this view of e-government development may be of practical value to policymakers in formulating e-government policy goals consistent with their organizational context. Cordella and Iannacci (2010) studied how e-government design and implementation processes are influenced by interests and values more directly associated with the aims of e-government reform. They found the reform outcomes were a recursive combination of political, social, and technological components. Although each of these research studies focuses on values in e-government, they offer few detailed descriptions of the trajectories of actors who are involved in the development process as a whole.

2.3. Political aspects of activities and actors in e-government development

2.3.1. Studies based on a variety of theoretical approaches

A third research theme concerns the political aspects that are associated with actors and their activities in e-government development. Dovifat, Brüggemeier, and Lenk (2007) described e-government development projects as micro political arenas where human actors form strategies and fight for power in four sequential stages: ignition, concept development, implementation, and routinization. Other researchers have proposed the use of stakeholder analysis as a framework for examining the diversity of human actors and their interests in such development activities and processes (e.g., Skiftenes-Flak & Rose, 2005). Horton and Wood-Harper (2006), who proposed Social World Theory as a framework for following the on-going configuration of e-government trajectories, focused on the role of groups with shared commitments in the pursuit of a common task. In this theory, social and abstract ('technological') objects are referred to as boundary objects that have relevance in several social worlds. However, the role of these latter objects is subordinate to those of the human inhabitants of these social worlds. ANT has also been used to focus on actors and their politicized networking in e-government development (Heeks & Stanforth, 2007). The aim of such networking is to connect participants with an idea (i.e., enrol them) through a process of translation. In contrast to these other theoretical frameworks, ANT addresses the roles of both human and non-human actors in processes. According to ANT, it is not the diversity of actors and their interests (Skiftenes-Flak & Rose, 2005) per se or the human actors in the on-going configuration of e-government development (Horton & Wood-Harper, 2006) that are important but rather the emergent networking of human and technological actors that may, or may not, result in a commitment to a particular aim.

2.3.2. Studies based on ANT

Various e-government studies use ANT as a theoretical framework. Whitley and Rukanova (2008) applied the ANT concept of symmetry (Latour, 1992) between human and non-human actors in their study of technology in border control. They concluded that since there are similar problems in border control related to people (human actors) and goods (technology), it is fruitful to study both sets of actors simultaneously. Using ANT, Ranerup (2007) studied a Decision Support System (DSS) designed to support portfolio management in public pension systems. Ranerup applied the principle of symmetry in her examination of how technology, the human user, and the two together perform activities. Her conclusion was that DSS is a partial attempt to create a qualified hybrid system fit for performing advanced tasks in pension reform.

Taking another perspective, Heeks and Stanforth (2007) suggested that an ANT analysis of the politics of processes in public sector systems is an excellent way to understand project trajectories and network formation among organizational actors, including the distinction between global and local actors. They observed that actors' emergent power plays are central to understanding such processes, whether these processes are successful or not. Stanforth (2006) used ANT to study e-government projects with a focus on success and failure in networking and on global and local actors. Stanforth's study emphasized the importance of a strong obligatory passage point linking global and local actors. In a similar vein, in a study of global and local actors, Ochara (2010) found that local actors' interests are much more weakly inscribed or represented than those of global actors. Holmström and Robey (2005) studied the organizational consequences of an online analytic processing tool in a municipal environment. In their study they focused on the politics of the successive enrolment of diverse groups of actors within the organization by describing the modifications to the actors' perceptions of the system. Vikkelsø (2007) made a detailed account of tensions, innovations, and important events associated with human and non-human actors in a process of standardizing electronic patient records. She found that sometimes information infrastructures have unexpected transformative effects as far as patients, professionals, and health records.

In another study of a DSS in pension reform, Ranerup (2008) analysed the politics of actors who attempt to influence the behaviour of system users. Other researchers have studied general policymaking and processes that deal with actors' conversion of ambition into praxis (Hardy & Williams, 2008; Navarra & Cornford, 2009; Shin, 2010). In these studies, the researchers discuss and partly apply various ANT concepts with a focus on standard translation analysis and network formations. Ayyad (2009) and Guah, Hackey, and Baloh (2009) proposed the use of ANT in e-government contexts although they draw on it in a limited way. Cho et al. (2008) studied a development process in public healthcare that focused on the dynamics of content and context. These researchers tested a particular methodological approach that involved focusing, structuring, and presenting a case