

Editorial Preface

Understanding Sociotechnical Action: An Introduction to the Special Issue

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The decision to propose this special issue reflects a relatively long-standing and continually developing body of work that assists understanding of interactions surrounding the utilisation of ICTs in work and social environments. The papers were developed following a workshop held at Napier University, Edinburgh (UK) during June 2004. The workshop brought together academics interested in understanding sociotechnical action, either in terms of the ways in which we may — or indeed, *whether* we may — theorise about such action, or in relation to methods that may be appropriate for developing our empirically based knowledge. Our thinking behind the request for submissions to the special issue had been stimulated by a number of traditions, including: social shaping of technology, soft systems thinking, social informatics, and socio-technical systems, amongst others. The original workshop was stimulated by a concern that where problems arise with computerization projects it is often because those involved have failed to grasp the complexities of sociotechnical action involving ICTs. Existing approaches to design and implementation are constrained in a num-

ber of different ways. These constraints often arise as a result of the ways in which such approaches try to address (or not, as the case may be) sociotechnical aspects — or more likely, technical, and possibly some social dimensions. In some cases, action is modelled as a series of disembodied socially neutral tasks, articulated as a set of activities and goals (or as organisational processes) that are defined by a designer working with the metaphor of the ‘systems life cycle’. Such approaches often assume a development that involves a ‘system’ being built from scratch, and yet increasingly, it is pre-developed ‘packages’ of technology that have to be configured in, with, and by, institutional settings. Sawyer and Crowston (2004, p. 43) argue that there has been ‘too little systematic attention paid to the arrangements, interactions, and elements of ...socio-technical relationships’.

One way of improving this situation would be to adopt a truly sociotechnical approach to understanding action — i.e., not merely looking at the ‘social’ and the ‘technical’, but endeavouring perhaps to address the idea of mutual constitution in appreciat-

ing ‘sociotechnical’ action (a feature of the original workshop call for papers that Mutch takes issue with here). The majority of the contributions to this special issue draw upon recent empirical work as a basis for expanding existing views, and exploring new interpretations of sociotechnical action. Such insights are however not confined to a discrete groups of scholars working within a single field. The contributors to the original workshop came from a number of fields of study where related work is going on, including for example: Human Computer Interaction (HCI), Computer Supported Cooperative Work (CSCW), Information Systems (IS), Social studies of technology (SST) — and the papers developed, and accepted for this special issue reflect that breadth. Hence, the range of insights that they bring to this area of enquiry are wider than those often found in contributions to this area in published work, and, we think, of interest to a broad community of readers. The papers contribute to debates about the validity of sociotechnical approaches, their feasibility and utility in understanding interaction involving technology and humans. Each of the papers presents us with ways of thinking about, and understanding, ‘the arrangements, interactions, and elements of ...socio-technical relationships’ (ibid.).

It was interesting to note in the inaugural editorial of this journal the identification of a core area of interest for IJTHI as, “the impact that ICT has on individuals and collectives such as formal or informal organisations” (Stahl, 2005, p.iii), because such a view was in marked contrast to the spirit of our originating call for papers. The idea that the introduction and utilization of technology in organizational settings may be more complex than technologically deterministic accounts intimate has been informing academic work in the UK for 50 years — i.e., challenging the view of technology and society as separate spheres with the former having effects upon the latter. The notion that

technology comprises more than artifacts (Woodward, 1970) is widely accepted. The ‘mutuality’ (Child, 1987) of technology, that is the inseparability of technological and social practices of organizations, and the indeterminacy of technology related change in organisations (Wilkinson, 1983) are concepts informing much empirical work. Hence the impetus for researchers to consider ‘social’ and ‘technical’ as, to varying degrees, mutually constitutive has had a growing audience amongst academics over recent decades as a means of improving our understanding technology introduction and use — and is a facet reflected (and challenged) in the papers here.

We would instead call for contributions that move beyond such deterministic notions such as ICT ‘impact’. The idea of ICT ‘impact’ does perhaps reflect the systems thinking that has been so dominant in the information systems tradition (in the UK at least), which for all its desire to foster socio-technical thinking cannot, it seems, escape the limitations of the ‘systems’ metaphor. The implication is that a ‘system’ has effects that can be discerned by getting to the bottom of the relational properties governing the interaction of the constituent elements. This idea of technology as something that ‘impacts’ upon work practices and other social processes needs to be explicitly challenged.

The social shaping of technology (SST) as a theoretical perspective offers us an alternative to such a technologically deterministic perspective. Here the idea that ICTs are shaped through a variety of social, cultural, institutional, and economic interactions provides numerous opportunities for research. SST as an area of theory reflects an appreciation of the interpretive flexibility that surrounds the application and usage of information technologies in organizations (Williams & Edge, 1996), while proposing that information technologies and institutional based practices are mutually constitutive (Mackenzie & Wajcman, 1985).

Work within a social informatics (SI) frame reflects similar thinking. Kling's (1987) desire that those developing accounts of computerization utilize web models "to better account for the major social relations which influence the development and use of computerized technologies in complex organization" (p.350) reflected the early days of what has been termed social informatics (Kling, 2000). There is an implicit hope (ibid.) that the detailed analyses developed under the banner of social informatics will provide "increased understanding" that will result in ICTs that are "actually workable for people and can fulfil their intended functions" (p. 228). There is a clear desire to develop studies from a historical perspective, with an explicit call to investigate the 'temporal relations' (Kling, 1987, p. 317) and processes amongst participants in ICT initiatives. With the social informatics tradition (e.g., Kling & Scacchi, 1982; Lamb & Kling 2002) we are asked to consider a sense of interlinkage or intertextuality, of mutual interdependence, and especially of complexity. Within social informatics we are encouraged to confront not just the information processing, social and institutional properties that characterize computer systems, but also to consider their shape, the power relations inherent in aspects of their choice and use, the social relations and action, and the history of the trajectory that accompanied any instance of ICT development and use. Hence, both SST and SI provide pointers to addressing the prevailing research challenges.

Each of the papers in this special issue reflects a desire to confront these challenges in developing our understanding of the complexities of sociotechnical action. In addition, collectively they would appear to us (as editors) to share a number of concerns about sociotechnical action research as follows. The first of these concerns is the dearth of analyses that may inform as well as explain. Clausen and Yoshinaka (for whom the social

and the technical are inextricably intertwined), developing the concept of socio-technical spaces (that are an 'occasioning as well as a result' of sociotechnical choices) suggest that this may provide a 'sensitising guide' for managers and developers, offering some support for interventions by means of 'increased sensitivity towards the selection of issues to be opened for deconstruction and subsequent politicisation compared to issues that could be left as closed stable constructions. Sawyer and Tapia, less specific, suggest that there is a need for 'intermediate guidance' represented as contingent or localized models.

A second concern is the scant attention paid to timing and the passage of time. Mutch, for example, observes, 'even at the level of situated action at the micro level, our analyses are often too quick to conclude that a particular instantiation is a "success" or a "failure" when we are only looking at a brief snapshot. Given that we are aware of the plasticity of technology and the creative ability of users, albeit it within a more or less strong contexts, we need to allow time to unfold to be able to see if what we are recording are durable effects or mere growing pains"'.

A third concern is the need for greater specificity in the terms that are used to account for technology and context. There is little agreement even among the small sample of authors whose contributions are published in this special issue on the extent to which the social and the technological are mutually constitutive. For Goldkuhl and Agerfalk, the social and technical are 'dimensions along which to study work practices'; Clausen and Yoshinaka, in contrast, take a strong position and declare that the two are 'inextricably intertwined'; Pellegrino takes a similar position, stressing the importance of discursive structures: 'the mutual constitution of the social and the technical emerges as interaction of socio-material and linguistic issues situated in specific organizational contexts'. Mutch,

who acknowledge that a mutual constitution is 'seductive', suggests that the two must be kept apart (analytical dualism) if their interaction is to be understood: 'The challenge is to examine the interaction between the structures which people create (including information and technology) and the subsequent action in which people engage'. As is noted above, it appears that much sociotechnical work does not study action in the long term, a serious deficiency we think. And we cannot deny that the case studies that are presented here are short-term - at the level of the systems project (BPR implementations, and administrative system for the care of the elderly, an intranet platform).

Though the social need not involve technology (though it often does) technology always involves the social, though the extent to which this can be comprehensively explored will be constrained by time. Several contributors make the point that it is difficult to fully account for sociotechnical ensembles working within the IS domain as boundaries may be difficult to draw. Sawyer and Tapia, for example, endorse the notion of an 'ensemble', but focus purely on users and users' social network in their account, leaving the vendor and the supply network out of the story. Clausen and Yoshinaka provide details of a number of players, but, again, reveal little of the vendors or builders, focusing their accounts on commission and design.

While the concerns are, in our view, important, they are not in themselves completely new (see for example, Kling & Scaachi, 1982). That they do remain a concern for researchers in this area is perhaps surprising given that over twenty years have elapsed since the publication of work from researchers such as Checkland (1984), Kling and Scaachi (1982), and Mackenzie and Wajcman (1985) that sought to encourage more socially informed views of technology utilisation. We have seen considerable development in work under the theoretical umbrel-

las of SST and SI, and we have argued elsewhere (Horton, Davenport, Wood-Harper, 2005) that such work should be a cause for optimism in contributing to the development of a substantial body of systematic analyses of sociotechnical relationships and action that can foster new understanding. The papers in this issue are a contribution to that cause.

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