

Social Informatics in Practice: A Guide for the Perplexed

by Elisabeth Davenport

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How does computerization happen in organizations? Where and when are decisions made? Who makes them? What are the consequences? Computing is both a complicated process, involving many actors, devices, locations and timeframes, and a complex process, as decisions made at one place and time percolate in unexpected ways through layers of organization. Though most of us work in this complexity, we rarely consider the web of larger complications, focusing instead on local worlds. We leave the big picture or vision to others – strategic planners and designers – and if we do not like what they do, we work around it, modifying their plans in ways that are sometimes creative (what Fleck (1994) calls “learning by trying”) and sometimes destructive.

The dissonance between planning and action is a salient concern in systems management and systems science. Some analysts seek to “align” planning and implementation by undertaking analysis and modelling the workplace with a high level of control using standard methodologies. Others attempt to bring users on the ground and designers together early in the life cycle process using techniques of participative or user-centred design. Yet others are more interested in explanation than control – they seek to make visible the social choices that are at work across different levels of organizational computing and to show how the “there and then” of design and procurement appears as the “here and now” of local practice. Social informatics, as developed by Kling and his col-

leagues, is an approach to describing computerization that falls into this third category. Though the scope of social informatics is broad (home computing, teleworking, e-learning, scholarly communication), the focus in the current article is on workplace or organizational computing.

Social Informatics as Practice-Based Research: Workplace Studies

Social informatics is one of a number of approaches to studying information and communication technology (ICT) in the workplace. (The text by Horton, Davenport & Wood-Harper (2005) places Kling’s work in a broader tradition. The texts by Williams and Edge (1996), Williams (1999) and by McLoughlin (2000) provide useful introductory reviews of socio-technical approaches in general.) Though such approaches vary in scope and on the emphasis given to specific methodologies, they have a common interest in how technology is humanized, in contrast to how humans may be systematized. Though the usefulness of such distinctions (human/technical; subject/object; agent/structure) may be questioned in a world of pervasive computing, where a non-polar term like *augmentation* may be more appropriate, in many organizations the historical distinction has shaped the installed base, the ways in which computing is perceived and the rationale for design and training. For socio-technical researchers the question of how technology is humanized with an installed base that is sometimes “inhumane” has a simple answer: go

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to the workplace; stick with practitioners; observe, ask questions, absorb on-site documentation and elicit accounts and reflections as practitioners go about their tasks and encounters. Luff and his colleagues in their 1997 text on workplace studies convey some sense of the range of materials and interactions that are involved.

Though this type of research can be interventionist in intent – some adherents of activity theory, for example, have a strong ethical commitment to improving systems design – much of it is sociological and seeks to uncover and explain the coupling of technology and social order. The methods used are rigorous, as the accounts that are provided by practitioners must be as complete as possible. Analysts differ in their stance on interpretation, notably on the issue of generating theory on the basis of categories and codes that reflect the interpretations and explanations of outside researchers rather than those in the workplace. (Crabtree and his colleagues (2000) show why this issue is important in their discussion of ethnography and ethnomethodology.) Some analysts assert that externally imposed codes cannot reveal the social order of an observed workplace and that reliable ethnographers will thus present instances of the achievement of social order, not interpretations, as instances are all that can be realistically achieved and all that is required. Other analysts seek “patterns in the fieldwork” (see the 2001 text by Martin and his colleagues) or use frameworks and models that support theorizing. Social informatics typically works with *explanatory frameworks*; two of these frameworks, *technology action frames* and *the ecology of games* are discussed in the following section.

A framework for reflecting on organizational computing was first presented by Kling and Scacchi in 1982 (as the *web of computing*) and persists more or less intact across the subsequent development of a body of social informatics empirical work at the University of California at Irvine, Indiana University and elsewhere (see the Irvine and Indiana websites at <http://crito.uci.edu/si> and www.slis.indiana.edu). The

framework supports observations at different levels of organization and provides examples of categorization and coding structures that allow connections to be made across the levels, as is common in many qualitative research studies. However, social informatics’ recognition of a historical dimension is distinctive – observations on relationships are not confined to current practice.

A vignette illustrating this practice can be found in a Kling and

Iacono (1994) study of a municipal computing system in “Riverville,” which was not performing as specified, according to local administrators, but which was presented as a success by those higher up. Using a specific social informatics framework (the *technology action frame*), Kling and Iacono unravel the history of the project and offer the following explanation: the system’s “primary value was in enhancing the welfare agencies’ image when they dealt with Federal funders and auditors” and that local administrators “gained substantial advantage by keeping the story of its administrative value alive.” In a later version (1998), this explanation is presented as a computerization pattern: “When new understandings become part of local discourse they often remain local, rather than being widely circulated across other organizations and social settings... It is for this reason that public discourse about new technologies and the technological frames embedded in them can remain relatively stable and misrepresent actual practice for long periods of time.” Such generalization from repeated instances is common in the work of Kling and his colleagues, and it acts as a means of validation for social informatics research.

As noted above, the social informatics approach begins with a view of the “here and now,” often (though not always) in Kling’s papers, a problematic “here and now” framed in terms of a standard (de-humanizing) model of organizational systems. The local and immediate is explored by asking those concerned about their issues and concerns. This opening frame is the entry point to an exploration of how things “got to be how they are.” A second frame addresses this local “where and when” in terms of what Kling and Scacchi refer to as the “production lattice,” a complex of interests, alliances, negotiations and power-plays that are realized across a period of time. The outcome of these factors is a material installation – the computing – that raises issues and concerns among those who work in it. Design and implementation is the topic of a further frame – infrastructure – the invisible element of com-

puting in organizations (until it breaks), whose “where and when” are hidden to many of the actors and are often the purview of a specialist caste such as the IS or IT department. A fourth frame considers the macro level of sectoral and societal rhetorics and ideologies and concepts of normative technologies, which shape what organizations think they ought to install and thus shape the material practices of infrastructure by promoting, for example, some standards (and their associated vendors) over others or some lines of public investment over others. As noted at the start of this article, decisions made at this level may percolate down to a “here and now” and transform it into something puzzling and difficult.

Social Informatics Frame Work in Organizations

The term *frame* has been used liberally in the previous sections, and it may be helpful at this point to consider where and how this concept unfolds in Kling and Iacono’s work. The “technology action frame” draws both on work by Orlikowski and Gash (1994) on technology frames and on the notion of the “collective action frame” elaborated in social movement research. Social movement research embraces more than grievances, and framing (the seminal text here is Goffman, 1974) and ideology are now salient concerns. Frames, according to Snow (2004), are a useful unit of analysis for practitioners and researchers. They accommodate multiple levels of inquiry and involve a range of techniques to analyze different factors that affect the dynamics of social movements, such as political opportunity, discursive fields, opportunity structures and narrative identity. These factors influence the process of frame articulation, or “the connection and coordination of events, experiences and strands of one or more ideologies so that they hang together as a kind of collective packaging device that assembles and collates slices of observed, experienced and/or recorded reality.” The selective reporting of positive outcomes in project reports, even in the face of alternative accounts, is an instance of such frame articulation. When accumulated, such accounts are an important element in the alignment of those who make high-level decisions for technology policy.

It is thus not difficult to map frame analysis onto the “web-of-computing” model. Issues and concerns can be explained in terms of personal frames, while the production lattice can be described in terms of collective framing. An important insight from social movement theory is that frames are power tools and that a dominant frame depends on/allows the mobilization of resources and the recruitment of “bystanders.” Where frames collide, computerization will falter, and attempts to resolve conflicts in such cases may have surprising outcomes.

An alternative social informatics model for theorizing about organizational computing is the “ecology of games” (Dutton, 1999). From this perspective, technology is the outcome of a number of competing strategies. These strategies reflect the struggles of interest groups at different levels of organization to ensure that their interests are conserved in what is installed. A technology configured at one level of organization may be re-configured differently at another to ensure that local interests are protected. The systemic adjustment of resources, actors and activities is ongoing, and choices are made on the basis of social outcomes rather than technical efficiency. An important dimension of social informatics is to explore where and when such games are played. Concepts such as *frames* and *games* suggest a range of activities and actors that goes far beyond the simple “tool” and “user” models of conventional technical analysis. Kling and his colleagues indeed propose a number of alternatives to the traditional language of computing: *social actor* (Lamb and Kling, 2003), *socio-technical interaction networks*, *guilds* and *truth regimes* – terms they suggest have higher resolving power than *users* or *user groups*.

Social Informatics as Organizational Practice

This paper so far has discussed social informatics as a research approach that is embedded in practice and has shown how the world of practice feeds the explanations that are developed (and sometimes co-developed with practitioners) by researchers. But can non-academic practitioners easily use the social informatics framework in their workplaces? Managers and non-academic practitioners often ask if this approach is for academic researchers only and want to know what it can offer a manager or a designer or a practitioner that will improve their experience of technology. The answer is simple: social informatics provides a way of extending your field of vision with multiple points of view and of categorizing what you see that allows the consequences of technological choices to be traced across the different frames. The social informatics framework draws attention to actions, events, people and processes that are often ignored and allows explanations to be pursued and critical paths to be identified. It can thus support more realistic efforts in design and post-implementation development in organizations.

The level of effort involved is a common second question. The time and effort to acquire relevant data and analyze it are no greater than those required in the “one-off” traditional approaches to organizational analysis that are mentioned at the start of this article. These vary, of course, in style and purpose. Formal approaches to computer design such as structured systems analysis and design, for example, require considerable investment of time in the design and implementation

of interview or questionnaire protocols. User-centered design approaches such as contextual design and use-case modelling require those involved to undertake extensive grounded observation and derive actionable abstractions of processes from them. More sustained approaches to analysis that involve ongoing performance measurement like the Balanced Score Card (which has some structural resemblances to the social informatics framework described above) make heavy demands on data-gatherers at all levels of organization. Though the effort involved is not trivial, practitioners can thus be reassured that social informatics is not unusually "effortful."

For some practitioners, social informatics accounts appear to be "after-the-event" analyses that work in a similar way to existing review techniques such as failure analysis. This view assumes that social informatics is undertaken as a one-off or

infrequent activity whose costs can be set against measurable benefits. But this is a misperception, as social informatics is not a diagnostic or benchmarking technique offering recipes for success or failure. Though the approach does draw on company history and experience of computing, the past is invoked to allow you to understand how technological choices tend to be made in your organization and how these lead to the outcomes that characterize technology in your work. But the key point is to remember that ICT has unintended consequences. Practitioners thus need to develop a habit of mind, a sense of sustained technological realism that does not raise false hopes when systems are installed. This discipline will leave them less vulnerable to the utopian accounts of planners and vendors and policy-makers. The social informatics framework can thus be seen as a form of grounded risk analysis.

For Further Reading

Articles and Books

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Websites

CRITO: Center for Research on Information Technology and Organizations at UC Irvine - <http://crito.uci.edu/si>

School of Library and Information Science, Indiana University – www.slis.indiana.edu

RCSS: The Research Centre for the Social Sciences @ the University of Edinburgh – www.rcss.ed.ac.uk/technology/SSICTref.html