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ABSTRACT

Starting from personal construct theory (PCT), this article explores the use of two complementary approaches to investigate the interdependence of organisations and information systems. These two techniques — repertory grid analysis (RGA) and cognitive mapping (CM) — were used to investigate the dynamics of this interaction. Changing business models and information technologies were investigated in two distinct work settings; in each case, the technique contributed substantial insight into the role of information systems in that context. The analysis shows that the techniques have matured to a stage where they provide a basis for improved understanding of the organisational complexities related to information technologies. The techniques focus on the social construction of meaning by articulating and interpreting the discourse that surrounds the development, implementation, and use of information technology in organisations. It is these ongoing discourses that create the dynamic complexities in organisations as they play themselves out and develop over time. Current research has articulated and improved awareness of the issues and concerns that surround computer-based information systems. Despite the differing contexts and work processes, the findings from each case suggest that this has made managers more conceptually agile, leading to improved integration of organisational processes and technology. The article concludes by drawing out the idea of the development of a conceptual model to act as a framework for the analysis of cognitive schema and shared understanding. In developing and participating in this shared understanding, both organisational and technological communities could increase their awareness of each other’s issues and concerns, thereby enabling them to improve the conceptual agility of the organisation.

Keywords: case study; cognitive mapping; communication gap; financial IS; managerial productivity; socio-technical design; strategic IT management

INTRODUCTION

This article looks at the significance of the social construction of meaning within communities of discourse (Orr, 1996) that surround information technology and organisational management. Organisational discourse is central to the communication of concepts and ideas that enable individuals and groups to (1) make sense of the
world in which they work and (2) understand the changes to work brought about by information systems. Recent work (Orlikowski & Barley, 2001) has highlighted the advantages of focusing research on work processes rather than either information technology or the organisation itself. Such a focus was adopted in this research, enabling the influences of computer-based information systems (CBISs) and organisations on one another to be explored.

Technological change, such as that involving CBIS, involves developers, workers, and managers in a complex and extended dialogue. This dialogue is characterised by two important dimensions. First, the level (detail) of design activity ranges widely during the evolution of a CBIS. Second, and perhaps consequentially, responsibility for activity surrounding the CBIS is shared between a number of individuals; such sharing could be simultaneous or sequential (e.g., project phases). Although formal role assignments might be in place throughout the evolution of the project, changing responsibilities and work assignments mean that the relationships are constantly renegotiated as the project progresses. Project phases are characterised by the evolution of new channels of communication that supersede previously existing ones. This research explores the dynamics of this evolutionary dialogue and the extent to which it can be related to the ability to manage change.

In this research, both the organisation and technology were conceived of as processes. In order to explore the complex interactions and dialogue among the various communities involved in a CBIS project, these investigations sought to avoid the limitations of taking a snapshot of a specific project. The research interest is in the social construction of the technology through the development of specifications, documents, and other communications that contributed to the dialogue surrounding a CBIS. The projects sought to explore the processes that sustained the discourse about the CBIS and the organisation. The social construction of meaning that takes place as the technology and organisation simultaneously evolve or unfold over time provides the locus from which the significance of the issues and concerns faced by those involved can be presented and interpreted, that is, to make the relevant parties aware of the dynamic complexities in their organisations. However, articulating and monitoring this dialogue is not a trivial task. This article describes two alternative, but related, approaches. These were used in independent organisational settings. The aim of this article is not to demonstrate intercase generalisability per se, but rather to demonstrate the value of the process perspective, the complementarity of the data-gathering and analysis techniques employed, and their capacity to elicit shared mental models. The two approaches to the development of shared mental models show that they can be used to improve conceptual agility; that is to say, the ease with which issues, concerns, and values from one community of practice (for instance, software developers) can be brought to mind in another community (for instance, organisational managers).

The research techniques used were repertory grid analysis (RGA) and cognitive mapping (CM). They were used to address the problem of providing a forum or a medium for the exchange of ideas and concerns between the technological and organisational communities. Although by no means comparable in terms of the work they undertake, the organisations studied faced similar issues in articulating and ad-
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