19 IMPLEMENTATION OF A CUSTOMER SERVICES INFORMATION SYSTEMS STRATEGY IN A HIGHER EDUCATION CONTEXT: An Integrative Perspective

Tayfour A. Mohammed
Helen J. Richardson
University of Salford
Salford, United Kingdom

Abstract   *Higher education institutions (HEIs) in the United Kingdom are undergoing strategic changes, not least being the introduction of a new fees scheme and the identification of information and communication technologies (ICTs) as central to their strategic vision. However, little is known about the contexts and processes of formulating and implementing information systems strategy to support university "customer" and "user" communities. This paper investigates the process of customer service strategy implementation as at GM University using an integrated perspective that conceptualizes the implementation process as a network formation, interconnected with both the strategy context and content. Our theoretical framework draws on both "contextualism" and actor network theory to understand the IS strategy implementation process. We demonstrate that IS strategy implementation is an emergent and dynamic process. Our conceptual framework provides us with an insight into the process of implementation that transcends the human strategic agency to the "collective" transformation process.*

Keywords   IS strategy, HEIs, contextualism, actor network theory

1   INTRODUCTION

In the past two decades or so, higher education in the United Kingdom has witnessed a considerable change resulting from a number of successive initiatives such as the edu-

cation reform act in the mid-1980s and the information systems and technology value for money study in the late 1990s (Clarke 2001). The result has been a greater expansion in the UK higher education sector in terms of both the number of students and institutions, shrinking budgets from government and funding councils, the emergence of nontraditional higher education institutions (HEIs) that are heavily reliant on information and communication technologies (ICTs) in addition to considerable changes in "patterns of demand and competition" for higher education (Allen et al. 2002; Gemmell and Pagano 2003; Richards et al. 2004).

In response to such changes, many universities embarked on strategic planning and "began to strategically re-focus their management efforts…and many have identified ICT as an essential function to survive in this environment" (Allen et al. 2002, p. 159). Huge investments have been made in computer-based information systems such as enterprise resource planning systems in the quest to achieve efficiency and effectiveness in back office integration (Allen et al. 2002; Pollock 2000), often with very little attention being paid to the front office service provision.

Although it is apparent that the UK HEIs need a sound strategic vision for information systems to meet the increasing challenges, it has been suggested that many HEIs are incapable of coping with such challenges because they are still using traditional strategic planning methods (Richards et al. 2004). A need, therefore, arises for a more integrative approach that addresses change in a more dynamic way (Dufour and Steane 2006).

This paper investigates the process of customer service IS strategy implementation at GM University (pseudonym) using an integrated perspective that conceptualizes the implementation process as an interconnected network formation, interacting with both the strategy context and content. We draw from both actor network theory (ANT) (see Callon 1987; Latour 1987; Vidgen and McMaster 1996) and contextualism theory (see Karyda et al. 2005; Pettigrew 1987; Walsham and Waema 1994) to examine the processes of enrolment and coalition building during IS strategy implementation and the mutual shaping process taking place between implementation processes and the content and context of the strategy. The basic thesis of this paper, therefore, is to show how the use of the theoretical framework, which combines ANT and contextualism, would enhance and further our understanding of the IS strategy implementation process.

The remainder of this paper is structured as follows: In the next section, we provide a review of literature on alternative perspectives in IS strategy implementation, followed by the theoretical framework; we then introduce our research methodology and the case background; this is followed by the analysis section and discussion of the major findings using the theoretical framework. Finally, we conclude by emphasizing the dynamic and emergent nature of strategy implementation and how ANT and contextualism can illuminate our understanding of the IS strategy implementation process.

2   LITERATURE REVIEW

The literature on strategic change or strategy implementation has been described as inconclusive and fragmented because it spans multiple disciplines (Dufour and Steane 2006).

The concept of *strategy* with respect to computer-based information systems has involved a variety of conceptualizations. Cavaye and Cragg (1993) distinguish between different forms of strategic use of IS such as IS as support for strategic decision making, IS as supporting or shaping an organization's competitive strategy, IS used as a tool to support and implement strategy, and IS as enabler for strategy formulation. Galliers and Leidner (2003) contend that information system planning is the "process by which IS strategies are formulated and/or emerge" (p. 27).

Dufour and Steane (2006) identify four paradigms in the strategy and strategic change implementation literature: the classical, the contingency, the behavioral, and the political. The basic premises of the classical or rational approach is that the whole strategic change process can be centrally *controlled* and that the "formulation and implementation" of change strategies "are two sequential and discrete stages" (Dufour and Steane 2006, p. 130). The basic emphasis here is on achieving *efficiency* through rational planning, rational decision making, use of rational tools and techniques, and the ability to recognize the gap between the planned and the implemented.

The classical approach has received a considerable level of criticism; for example, Dufour and Steane argue that it "fails to capture the interactive relationship between formulation and implementation as well as the political dimensions of change process… one of the main weaknesses…is its lack of descriptive validity" (p. 131). Clarke (2001) suggests that the classical approach is highly simplistic and its implementation questionable; it is based on the idea of a stable environment and any changes would thus destabilize strategic content. Another observation is that the classical model is grounded in a belief that change is a technical, nonpolitical activity, which proceeds in response to the directions of rational leaders (Dufour and Steane 2006).

The contingency approach to strategy implementation is based on a projected mismatch between the strategy and the contextual forces. Organizations, when implementing a strategy, have to choose between various structures and processes that achieve the best fit with both internal and external environments (Dufour and Steane 2006). Burnes (2004) argues that one problem with the contingency model is the inherent difficulty in identifying the critical situational variables. Dufour and Steane also maintain that the contingency approach neglects the behavioral and political issues in the strategy implementation process.

The behavioral approach considers the human actions and behaviors as well as the motivations for such actions and behaviors. The major emphasis in this approach has been on the organizational culture perspective. Clarke notes that organizational *culture* and *structure* are key factors to be considered in the process of IS strategy formulation and implementation. There is ubiquitous research that supports the culture–IS/IT strategy (for recent, comprehensive reviews of culture in IS research, see Kanungo et al. 2001; Leidner and Kayworth 2006). For Clarke, culture as a shared set of beliefs emerges from the social interaction of all organizational members, and change management is the underlying premise of IS strategy formulation and implementation.

The behavioral approach is criticized for its focus on internal organizational culture and the content of strategic change at the expense of seeking a broader, contextual explanation of strategic change (Dufour and Steane 2006).

The political perspective on strategic change implementation has gained popularity in IS/IT research. It focuses on the impact of power and influence on the implementation

process by investigating the various sources of power such as technical skills and knowledge and the control over allocation of resources (Dufour and Steane 2006). The key element in the political approach is the proposition that technologies, and their "organizational consequences, are products of choice and negotiation by powerful individuals and groups within the organizations" (McLaughlin and Badham 2005, p. 836). Therefore, IS/IT strategy implementation in this case is understood as an emergent process that reflects the dynamics of the adopting context (see Dawson et al. 2000; McLoughlin et al. 2000).

Although the political perspective is seen as somewhat capable of bringing strategic change outcomes and processes to the organizational context, thereby attending to the cause and effect issues, it has been criticized for its neglect of the links between the two or of how networks are formed (Dufour and Steane 2006). We introduce an integrated perspective that attends to both the network formation and the links with both the context and content of strategic change.

3   THEORETICAL FRAMEWORK

Our theoretical framework draws on both contextualism and actor network theory to understand IS strategy implementation as a dynamic, contextual, and emergent process. In organizational politics and the IS/IT literature, change is commonly understood as both *negotiation* and *coalition building* processes which are dynamically intertwined (Koch 2001). It has been argued that, "when enrolling actors in a coalition, it is likely that the content of change program changes; change programs emerge from the intentions of the actors in the setting" (Koch 2001, p. 259).

Contextualism as a theoretical approach for understanding organizational politics and change historically developed from two main research streams. The first is the Warwick University research group (see Pettigrew 1987, 1990). The second is Aston University group (see Child and Smith 1987). Pettigrew (1987) believes that one major weakness in strategic change literature has been its narrow emphasis on issues such as the role of leadership as well as its "snapshot" nature. Consequently, he proposes that the contextualism perspective provide "holistic and dynamic analysis of changing" (Pettigrew 1987, p. 655). As applied to strategic change, contextualism is a multilevel theory that seeks to analyze and understand the *context*, *content*, and *process* of change as well as the interconnection between the three (Pettigrew 1987). According to Pettigrew, context comprises both the broader socioeconomic and the inner cultural, political, and structural contexts. Content, on the other hand, refers to the type or area of intended change (e.g., changes to the technology, business processes, structures, human resource, etc.). The process of change "refers to the actions, reactions, and interactions from the various interested parties as they seek to move the firm from its present to its future state" (Pettigrew 1987, p. 658).

We believe that research on strategy implementation could also benefit from concepts drawn from ANT to enhance our understanding of the dynamic and emergent nature of strategy implementation. Recent research in strategy by Steen et al. (2006) further support such arguments by contending that "strategy-as-action puts the human strategic actor center stage, actor-network theory propagates a further flexibility in the nature and

characteristics of the actors involved" (p. 308). ANT is a social theory dedicated to understanding how change and order are negotiated (Scott and Wagner 2003). It focuses on understanding "socio-technical systems as negotiated order constructed, tested, and reproduced through action" (Kim and Kaplan 2006, p. 37). Conceptualizing the process of IS strategy implementation as a process of building a network of heterogeneous associations through the acts of enrolling various human and nonhuman actors, aligning and translating the divergent interests (Callon 1987; Steen et al. 2006) would enable us to highlight on the role of the hybrid or quasi-object strategic agency in the transformation process (Vidgen and McMaster 1996; Walsham 1997).

Over time, the strategic visions inscribed in computer-based information systems strategy would change as new actors join the network of aligned interests. Further, the formation and implementation of IS strategy involves an extensive persuasion for others to buy-in (Lee and Myers 2004).

Thus when combining ANT with contextualism, researchers are able to demonstrate the dynamic and emergent nature of IS strategy implementation as an ongoing process for the creation of heterogeneous associations that is believed to answer the question of how IS strategy emerges in practice and how it becomes stabilized (Steen et al. 2006).

The theoretical framework discussed in this section will be used to empirically study the process of implementing IS strategy in one of the UK HEIs (GM University). However, it is important to point out that what is reported here represents early outcomes of an ongoing implementation process; therefore, it may not be taken as conclusive.

4   THE CASE STUDY AND RESEARCH METHODOLOGY

This section provides a description of the case study and historical perspective of the implementation of an IS strategy in the case institution. In addition, it also describes the research design approach and methods used for collecting research data.

4.1   Research Design and Data Collection

The research design of this study is based on an interpretive ethnographic intervention (Corbitt 2000; Walsham 1993), in the Information Service and Technology Division (ISTD) at GM University. The case was mainly determined by the unique opportunity offered to the researcher to study the process of IS strategy implementation "in its context from initiation to implementation" (Nandhakumar et al. 2005, p. 226). Myers (1999) observes that the main difference between ethnographic research and case study research is the extent of the researcher's immersion in the context and the availability of participant observation field notes.

Ethnographic research is criticized for its lack of breadth and the difficulty of making generalizations from a single organization (Myers 1999). However, as Walsham and Wema (1994) point out, the problem of generalizing from a single case organization is related to interpretive epistemology, where the emphasis is not on statistical validity but rather on the plausibility of the findings. Lee and Baskerville (2003) proposed a framework for IS researchers to generalize their findings while enhancing the relevance of their research.

Our data sources include "in-action" field notes from participant observation, in-depth semi-structured interviews with project teams, informal social discussions with participants, and documentation such as minutes of meetings, project reports, training materials, and presentations. Access was granted on the basis of presenting a consultancy report from the findings of the intervention to the ISTD senior management.

The interviewees include project managers, the customer support center (CSC) manager, the first-line coordinator, the change management controller, business analysts, service delivery managers, and application developers. Interviews were designed to encourage interviewees to give their interpretations by directly narrating their stories about the ongoing processes in the IS strategy implementation. Therefore, interviews vary between participants based on their role in the implementation process. All interviews were tape-recorded and transcribed immediately after the interview. Interviews lasted between 60 and 90 minutes.

4.2   Case Study Background

GM is one of the largest universities in the United Kingdom, located in the northwest part of the country, with approximately 2,000 academic and support staff within the faculties and support services, as well as over 18,000 full-time students.

The Information Service and Technology Division (ISTD) of GM University provides library services, IT desktop services, PC hardware support, e-mail facilities, campus telephony network, and application development sustaining all University ICT and telecommunication services. The catalyst to change lay with the impression of ISTD senior management that these multiple services were proving inconsistent and did not provide the level of responsiveness that were increasingly demanded by customers. The main reason, according to the ISTD management, is because the services were based on a help-desk call management system (called SM) which was seen as increasingly outdated and unsupportable. The staffing model used in the enquiry desk was based on a part-time and rota basis, which was considered inefficient and lacking in continuity.

In October 2004, an external consultant (Mr. Davidson[1]) was appointed to review the overall enquiry service in order to deliver a holistic solution that would address the shortcomings of the current system and radically improve the quality of response provided to the customers and users. After a series of presentations and workshops, the consultant was able to convince ISTD senior management that if they were really looking for radical improvement in customer services, they should look beyond a simple replacement of the call management software. The result was the creation of a strategic change program called the *customer resolution information services project* (CRISP), which is strategically positioned as the implementation of a customer-focused strategy in the delivery of all services offered by ISTD. Therefore, apart from the replacement of the call management system, the scope of the strategic change program included service processes redesign and the adoption of best practices in service delivery and support such as British Standards (BS15000) and IT infrastructure library (ITIL). At the

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[1]All names in this paper are pseudonyms in compliance with confidentiality and ethical agreements.

end of Mr. Davidson's contract in April 2006, a new staged-implementation plan was worked out with the newly appointed internal replacement project manager. This included the decision to implement new Internet protocol call center (IPCC) software for improved scripting and call monitoring and the relocation of first- and second-line support staff. In July 2006, Key Milestone 1 (KM1) became the official temporal vision of the strategy implementation process.

In the following section, we will analyze the data collected using our theoretical framework to show how networks of heterogeneous associations were formed, stabilized, and destabilized during the process of IS strategy implementation. We will also demonstrate how strategy emerges through the dynamic interrelationship with the content and context of the strategy.

5   ANALYSIS

In this section, we will apply our theoretical framework to analyze the case study outlined above. We focus primarily on the strategic vision of the CRISP under two periods: during external consultant Davidson's time and the post-consultant time when a new internal project manager took over. The emphasis is to show how the vision is transformed through processes of enrolment and translation used to form coalitions that align actor's interests as well as highlighting the interconnection between such process and the strategy content and context.

5.1   Actor Network Theory as a Process Theory

There is a general agreement among both strategic management and information systems scholars that process studies provide better understanding of how and why things evolve over time (Langley 1999). IS strategy implementation, for example, has been described as a process in which actors participated in a process of "persuasion, bargaining, and sometimes direct confrontation" for building coalitions that were constantly shifting (Lee and Myers 2004, p. 360).

Contextualism theory requires researchers to adopt a particular behavioral perspective or theory for analyzing the unfolding processes in their context (Karyda et al. 2005). In this paper, we argue that ANT is a qualified theory to illuminate the strategy implementation processes since recognizing that actions drive the processes requires not only the human agency but the collective agency of both human and nonhuman actors (Karyda et al. 2005).

Employing concepts such as *enrolment*, *translation*, *network stabilization*, and *black boxing*, ANT provides better ways of viewing strategy implementation or, alternatively, examining why such networks fail to establish themselves" (Walsham 1997, p. 469).

5.2   Process of Network Formation

The unfolding patterns of events in our case demonstrate how networks of aligned interest were formed around the strategic vision/strategy of both the consultant and the

new project manager. The consultant used his knowledge and expertise in business process reengineering consultancy to develop a strategic vision for improving customer services and the internal project manager used contextual knowledge to forge a more conservative path to change.

Through a series of translations, the consultant specifies the divergent interests (Steen et al. 2006) to enrol a number of actants, such as the senior management team, the software vendor, service support application (SSA) and business support systems (BSS) packaged systems, ITIL standards, users group, ITIL training organizations, etc. For example, the senior management team expressed interest in efficient and effective customer support as well as their need for information on key performance indicators to move to activity-based costing, which is expected to enhance control over resource allocation. Such translation also enrols other allies, such as software vendors, process reengineering and project management software, ITIL training providers, etc. User groups and team leaders were enrolled as change champions through training activities that presented generic benefits from the suppliers' rhetoric.

Being described as "excellent in talking and selling his ideas," the consultant was able to form a coalition enrolling different actants into a stable network that sustained his strategic vision for almost two years. However, research indicates that, over time actors, their interests, and the strategic vision that drove the strategy implementation process would change (Lee and Myers 2004). Voices from all over ISTD were raised, showing concerns that, "*its two years since CRISP started and nothing tangible has been delivered yet*" (project team member). Another voice argued that, "*after six months I realized that he [the consultant] cannot deliver anything because as a project manager he fails to produce a project plan*" (associate director 1). The result was a decision to replace the consultant with a new project manager. Consequently, the network formed around his strategic vision was destabilized. The new project manager started creating his own network to assist in implementing KM1, which is expected to deliver something tangible.

5.3 Content of Strategic Change

ANT understands the strategy content as an outcome of negotiated interests between different actors (Lee and Myers 2004) rather than "as an outcome of a rational decision making process" (Markoczy 2001, p. 1015). As new actors enrol in the network, the contents of the strategy black box need to be renegotiated to translate the interests of new allies.

The new project manager believed that it was not possible for the ISTD to implement Mr. Davidson's radical transformation vision and instead he worked out his new strategic vision based on "quick fixes for quick wins"— in the short-run, there is a feeling that they must be seen to deliver and make incremental changes through learning and continuous improvements. The scale of change in KM1 as proposed by the new project manager includes IPCC implementation and limited aspects of a new application called business support systems (BSS): process and structural changes and the remaining modules of BSS, were to be considered in later phases of the implementation process.

Conceptualizing the implementation process as a network and coalition formation has illuminated the dynamic of interplay between the process of implementation and the content of strategy.

5.4 Context of Strategic Change

The study of strategic context has been an essential element in strategy and change research. Sahay and Robey (1996) describe context as "the social structure that both constrains and facilitates human agency directed toward the implementation and use of information systems" (p. 256), but with the capability to shape both the context and process of implementation. Actors in processes of stabilizing and destabilizing their networks of alliances draw on the context whether internal (cultural, structural) or external (competitive, technological) to inform their actions and interactions and by these very actions they created and maintained their networks. Therefore, "context shapes the outcome of the processes" (Karyda et al. 2005, p. 251).

In our case, as a result of the implementation, the senior management team saw an opportunity in the external technological development to enrol more allies into the implementation process to embrace the need for change.

We also get external change coming upon us, not least technology. Technology continues to change at a vast rate and it is difficult at times to integrate this properly into what we do, and I think we have to acknowledge that (Director 1).

Focusing on limited software implementation is a comfort zone for the current project manager compared to the sea-change in organizational culture demanded during Mr. Davidson's regime.

5.5 An Integrated Perspective

In the above analysis, we demonstrate that ANT as a process theory has the power to provide rich insights into the dynamics of strategy in action. However, the contextualism perspective on strategic change implementation requires taking into consideration the influence of strategy context on the implementation processes, and linking these processes to strategy content (Karyda et al. 2005; Pettigrew 1987).

Combining ANT with a contextualism perspective in investigating strategy implementation brings more emphasis on the interrelatedness between the process (network formation) and both the strategy content and context. Further contextualism may provide a window of opportunity to bring context into ANT analysis.

6 DISCUSSION

While the external consultant and the internal project manager both had a strategic vision for ISTD as a hub for customer services, their experiences with the project differ significantly. The theoretical framework combining ANT and contextualism allows better understanding of these differences. The analysis provided above suggests that these differences can be attributed to variations in communication strategy. The external consultant advocated a vision of radical transformation grounded in his expertise in business process reengineering consultancy. In the implementation process, he tried to communicate that message and sell his vision as the only possibility for customer service

delivery, not subject to other interpretations. The consultant's inability to deliver weakened his voice since it meant failure to enrol other speakers. Project deliverables are very good speakers and representatives for themselves and the project sponsors, consequently the process of networking remains at the controversy stage. The consultant also attempted to lead the project team into believing that he had a very intimate relationship with the director and used that as a way of enforcing and communicating his vision, as evident from a statement by a member of the project team:

> *Knowing that you were working really hard on the project and hear some consultant…telling you that he had some intimate relationship with the director, that he said no one in the ISTD is good enough to do this job, you really got to believe in that and that didn't help.*

Relating the consultant implementation process to the content aspect of the strategy, we recognize that his emphasis on communicating his vision of implementing the whole change package at once explains why the strategy contents remained a black box. He refused to negotiate with others for an agreed set of deliverables over time and this would also explain why he failed to provide a project plan. As we indicated in the theoretical framework, having success in both the process and content of strategy implementation requires intelligent understanding of the implementation context. Looking at the way the consultant communicated his vision in the process of implementation and how he presented the content of his strategy, we see that he lacked an understanding of the context in which ISTD operates. Mr. Davidson, for example, demanded full resourcing, insisting on promises from the director that the project be the number one priority. He failed to appreciate the limited ISTD budget, the lack of overall strategic planning within ISTD, and the role of ISTD within the overall University strategic planning. Mr. Davidson seemingly shared his radical vision with some senior managers.

> *CRISP is not just about the implementation of a software solution; it is a radical transformation of how we handle customer services and the service desk* (Associate director 1).

However, in the context of the institution as a whole, change demanded that ISTD have some deliverables in place prior to the commencement of the new academic year, and his lack of contextual awareness resulted in improper connectedness and a flawed relationship between the implementation processes, the strategy content, and the contextual understanding.

The new project manager on the other hand, equipped with a thorough understanding of the implementation context, realized that, with the limited resource availability, the internal organizational cultural, and the political environment, it was not practical to implement the whole strategic content in one big-bang deliverable and took a more conservative route to change. Consequently, the content black box was opened for negotiation and the communication strategy focused on network building based on the fact that results speak louder than promises. The content is to be implemented using a phased approach with clear set of deliverables at each stage, then built on incrementally through a process of continuous improvement.

> *CRISP is the foundation for continuous improvement process and there is always a chance of making things better. Change is an ongoing process; we need to adapt continuously* (New project manager).

Each deliverable indicates the enrolment of a new actant to the network, which can speak loudly of itself and the network it represents. Therefore, as the project continues delivering results, different actors, both humans and nonhumans, will engage in communicating the message. In this case, we moved from the situation in which the consultant as project leader is in the role of change agent to the position where we have "collectif" or hybrid change agency comprising of the project team (human) and deliverables (nonhuman). The experiences of the new project manager show us how actors draw on the context in the process of stabilizing their networks and context plays a major role in shaping the outcome (content) of that process (Karyda et al. 2005).

On a practical level, our discussion raised the question of how organizations make the best use of external consultants involved in change programs, requiring a decision on which responsibilities be given to consultants and which would be better kept in house.

7   CONCLUSION

Strategy implementation is a longitudinal and dynamic process that requires building and maintaining networks of allies over along period of time. However, keeping such allies over time often proves to be problematic because of the need to align with both the context and the content of the strategy. Applying a conceptual framework that combines ANT and contextualism theory provides us with better understanding and insight into the process of implementing strategy contents within a context.

Acknowledgments

References

Allen, D., Kern, T., and Mattison, D. "Culture, Power and Politics in ICT Outsourcing in Higher Education Institutions," *European Journal of Information Systems* (11:2), 2002, pp. 159-173.
Burnes, B. "Kurt Lewin and the Planned Approach to Change: A Re-appraisal," *Journal of Management Studies* (41:6), 2004, pp. 977-1002.
Callon, M. "Society in the Making: The Study of Technology as a Tool for Sociological Analysis," in W. E. Bijker, T. P. Hughes, and T. J. Pinch (eds.), *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, London: The MIT Press, 1987, pp. 83-103.
Cavaye, A. L. M., and Cragg, P. B. "Strategic Information Systems Research: A Review and Research Framework," *Journal of Strategic Information Systems* (2:2), 1993, pp. 125-137.
Child, J., and Smith, C. "The Context and Process of Organizational Transformation-Cadbury Limited in its Sector," *Journal of Management Studies* (24:6), 1987, pp. 565-593.

Clarke, S. *Information Systems Strategic Management: An Integrated Approach*, London: Routledge, 2001.

Corbitt, B. J. "Developing Intraorganizational Electronic Commerce Strategy: An Ethnographic Study," *Journal of Information Technology* (15), 2000, pp. 119-130.

Dawson, P., Clausen, C., and Nielsen, K. T. "Political Processes in Management, Organization and the Social Shaping of Technology," *Technology Analysis & Strategic Management* (12:1), 2000, pp. 5-15.

Dufour, Y., and Steane, P. "Competitive Paradigms on Strategic Change: Mapping the Field and Further Research Development," *Strategic Change* (15), 2006, pp. 129-144.

Galliers, R. D., and Leidner, D. E. "Information Systems Strategy," R. D. Galliers and D. E. Leidner (eds.), *Strategic Information Management: Challenges and Strategies in Managing Information Systems* (3rd ed.), Oxford, England: Butterworth Heinemann, 2003, pp. 27-32.

Gemmell, M., and Panago, R. "A Post-Implementation Evaluation of a Student Information System in the UK Higher Education Sector," *Electronic Journal of Information Systems Evaluation* (6:2), 2003, pp. 95-106.

Kanungo, S., Sadavarti, S., and Srinivas, Y. "Relating IT Strategy and Organizational Culture: An Empirical Study of Public Sector Units in India," *Journal of Strategic Information System* (10), 2001, pp. pp. 29-57.

Karyda, M., Kiountouzis, E., and Kokolakis, S. "Information Systems Security Policies: A Contextual Perspective," *Computers and Security* (24), 2005, pp. 246-260.

Kim, R. M., and Kaplan, S. M. (2006), "Interpreting Socio-technical Co-evolution: Applying Complex Adaptive Systems to IS Engagement," *Information Technology & People* (19:1), 2006, pp. 35-54.

Koch, C. "BPR and ERP: Realizing a Vision of Process with IT," *Business Process Management Journal* (7:3), 2001, pp. 258-265.

Langley, A. "Strategies for Theorizing from Process Data," *Academy of Management Review* (24:4), 1999, pp. 691-710.

Latour, B. *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, MA: Harvard University Press, 1987.

Lee, A. S., and Baskerville, R. L. "Generalizing Generalizability in Information Systems Research," *Information Systems Research* (14:3), 2003, pp. 221-243.

Lee, J. C., and Myers, M. D. "Dominant Actors, Political Agendas, and Strategic Shifts Over Time: A Critical Ethnography of an Enterprise Systems Implementation," *Journal of Strategic Information Systems* (13:4), 2004, pp. 355-374.

Leider, D. E., and Kayworth, T. "*Review:* A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict," *MIS Quarterly* (30:2), June 2006, pp. 357-399.

Markoczy, L. "Consensus Formation During Strategic Change," *Strategic Management Journal* (22), 2001, pp. 1013-1031.

McLoughlin, I., and Badham, R. "Political Process Perspective on Organizational and Technological Change," *Human Relations* (58:7), 2005, pp. 827-843.

McLoughlin, I., Badham, R., and Couchman, P. "Rethinking Political Process in Technological Change: Socio-Technical Configuration and Frames," *Technology Analysis & Strategic Management* (12:1), 2000, pp. 17-37.

Myers, M. D. "Investigating Information Systems with Ethnographic Research," *Communications of AIS* (2:23), 1999.

Nandhakumar, J., Rossi, M., and Talvinen, J. "The Dynamics of Contextual Forces of ERP Implementation," *Journal of Strategic Information Systems* (14:2), 2005, pp. 221-242.

Pettigrew, A. M. "Context and Action in the Transformation of the Firm," *Journal of Management Studies* (24:6), 1987, pp. 649-670.

Pettigrew, A. M. "Longitudinal Field Research on Change: Theory and Practice," *Organization Science* (1:3), 1990, pp. 267-292.

Pollock, N. "The Virtual University as 'Timely and Accurate Information,'" *Information, Communication & Society* (3:3), 2000, pp. 349-365.

Richards, L., O'Shea, J., and Connolly, M. "Managing the Concept of Strategic Change Within a Higher Education Institution: The Role of Strategic and Scenario Planning Techniques," *Strategic Change* (13), 2004, pp. 345-359.

Sahay, S., and Robey, D. "Organizational Context, Social Interpretation, and the Implementation and Consequences of Geographic Information Systems," *Accounting, Management & Information Technology* (6:4), 1996, pp. 255-282.

Scott, S. V., and Wagner, E. L. "Networks, Negotiations, and New Times: The Implementation of Enterprise Resource Planning into an Academic Administration," *Information and Organization* (13), 2003, pp. 285-313.

Steen, J., Coopmans, C., and Whyte, J. "Structure and Agency? Actor Network Theory and Strategic Organization," *Strategic Organization* (4:3), 2006, pp. 303-312.

Vidgen, R., and McMaster, T. "Black Boxes, Non-Human Stakeholders and the Translation of IT through Mediation," in W. J. Orlikowski, G. Walsham, M. R. Jones, and J. I. DeGross (eds.), *Information technology and Changes in Organisational Work*, London: Chapman & Hall, 1996, pp. 250-271.

Walsham, G. "Actor-Network Theory and IS Research: Current Status and Future Prospects," A. S. (Lee, J. Liebenau, and J. I. DeGross (eds.), *Information Systems and Qualitative Research*, London: Chapman & Hall, 1997, pp. 466-480.

Walsham, G. *Interpreting Information Systems in Organisations*, Chichester, England: John Wiley & Sons, 1993.

Walsham, G., and Waema, T. "Information Systems Strategy and Implementation: A Case Study of a Building Society," *ACM Transactions on Information Systems* (2:2), 1994, pp. 150-173.

About the Authors

Tayfour A. Mohammed is currently a doctoral candidate and a graduate teaching assistant at the Informatics Research Institute, Salford Business School, Salford University. His research interests focus on call centers, CRM systems, and organizational aspects of IS implementation. He can be reached by e-mail at t.a.mohammed@pgt.salford.ac.uk.

Helen J. Richardson is a senior lecturer in Information Systems at Salford Business School. She can be reached by e-mail at h.richardson@salford.ac.uk.