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Consumers' perception of control over online information disclosure. an electronic focus group study

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CONTINGENT DYNAMICS OF IS ALIGNMENT IN SMES

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Abstract

Performance is a function of the alignment between information systems (IS) strategy and other business domains, including business strategy and organization structure. However, research has focused on the outcomes of that process, rather than the processes by which that alignment is developed. Using multiple case data, this paper investigates alignment in SMEs, explaining why different SMEs follow different paths to alignment. Four paths are identified, with the path chosen contingent on an SME's market position. The four paths vary from simple, when the focus of the IS investment is on improving control, to complex, when the intent is to reposition the SME. The implications of these findings for management and research are explored.

Keywords: Alignment, small firms, paths, fit, SMEs.

1 INTRODUCTION

Information systems (IS) can automate to reduce costs and improve operational efficiency or IS may be adopted to informate and add value. Most small and medium-sized enterprises (SMEs) begin by automating, with some then seeking differentiation and using IS to add value. To achieve the latter, SMEs need an IS strategy that is aligned to their business strategy. However, for many firms, and particularly for SMEs, IS strategy is reactive to business pressures and the potential advantages of using IS strategically are often not considered.

While there is general agreement about the benefits of alignment, the process of aligning IS strategy with business strategy is problematic for many organizations (Avison et al 2004). In part, this is because little is known about the change processes in large organizations that lead to alignment (Sabherwal and Chan 2001, Smaczny 2001) and even less is known about the equivalent change processes for SMEs. Instead, research has focused on the characteristics of alignment, rather than on the process of aligning. In contrast, this paper investigates the different paths to alignment followed by SMEs. The paper begins by integrating the MIT90s model and the Focus-Dominance model (Levy and Powell 1997). The analysis shows that the alignment paths followed by SMEs are context-contingent.

The data analysis reports both qualitative and quantitative findings. Case descriptions illustrate the different paths to alignment in each of the four quadrants of the Focus-Dominance model. Quantitative analysis shows that the frequency with which those different paths are followed is context-contingent. The paths vary from simple, limited to a relationship between technology and management processes, to complex, involving changes in all five components of the MIT90s model. The reasons for adopting the different paths are discussed. The paper concludes with the implications for management and research.

2 LITERATURE REVIEW

Alignment is the process of developing fit among the key internal activities within an organization and between that internal fit and the external context and it enables firms to be competitive (Porter, 1987; Ciborra, 1997). Alignment, also termed fit, integration, bridge, harmony, fusion and linkage, enables IT investment returns to be maximised. The importance of strategic alignment has been discussed for the last 20 years (Earl, 1996). Yet, it remains a key concern (Luftman et al, 1996) and is consistently ranked among the most important issues faced by IT executives (Papp 2001, Tallon and Kraemer, 2003). A number of models of strategic alignment have been proposed. The two that have attracted most attention from researchers are the MIT90s model (Scott Morton, 1991) and the Strategic Alignment Model (Henderson and Venkatraman 1989). The MIT90s model argues that a successful organization has a high fit among its strategy, structure, roles and skills, management processes and technology, and between that configuration and its business environment.

More specifically, alignment in the MIT90s model is achieving synergy between strategy, structure, management processes, technology, and roles and skills, in order to sustain the quality of 'interdependence' and thus to achieve competitive advantage (Avison et al 2004, Hsiao and Ormerod 1998). Initially, it was assumed, at least implicitly, that there is only one transition path from one state of alignment to another. This is the 'classic' route of a change in strategy, followed by changes to structure, to which management processes, roles and skills, and technology are then aligned (Scott Morton 1991).

There is limited research on the process of aligning IS strategy and other business domains, including business strategy and structure. To examine this process or path to alignment, consider the following two studies. One analyses the experience of Flower and Samios, a small architecture firm (Yetton et al. 1994). The other analyses four cases in large organisations (Hsiao and Ormond 1998). Both use the

MIT 90s model to define the different paths to alignment. Together, they identify five different paths. The different paths start with different elements of the MIT90s model and move through the other four elements via a variety of routes. For example, Hsiao and Ormerod (1998) find two planned paths emphasizing the centrality of strategy – structural reconfiguration and process engineering, while the other two emergent paths – human renewal and IT transformation - lead with individuals and technology respectively. Yetton et al (1994) demonstrate three paths through the alignment elements. The first, technological determinism, commences with a change in technology that forces change in the other four elements. The lead-lag model involves change in strategy, technology and structure but leaves processes and individuals and roles untouched. The firm of architects transformed their business by adopting computer-aided design tools. Their path was to develop individuals, then change the management structure. The strategic vision evolved dynamically and grew out of the changes made.

The presence of different paths suggests that the choice of a path is context contingent. Consistent with this conclusion, Levy et al. (2001) show that the choices among different IS applications by SMEs are a function of their location in the Focus-Dominance model. Inspecting the different IS applications, some are adopted to implement a new strategy, some could not be implemented within the existing functional structures and some would require different competences to leverage them effectively.

The potential existence of multiple paths to alignment motivated the general question guiding this research: *Are paths to alignment for SMEs context-contingent?* This research begins to address the general observation that the process of alignment needs to be better understood (Sabherwal and Chan 2001, Smaczny 2001). Indeed, Cragg et al. (2002) report that many SMEs *‘have developed a high degree of alignment but we don’t know how that was achieved.’*

Successful SMEs plan their growth and the systems required to support that growth (Salmeron and Bueno 2006, Street and Meister 2004). This planning is particularly important for mature SMEs, with owner-manager interest and enthusiasm being the prime driver of both the IS investment and its adoption (Premkumar and Roberts (1994). Whatever the motivation, SMEs invest incrementally in IS due to resource constraints (Levy and Powell 2005). Importantly, this incremental nature of IS investment allows mapping of the paths SMEs follow as a sequence of steps through the MIT90s model to implement that investment. Framed in this way, a path defines the sequence in which components in the MIT90s model are re-aligned. In the extreme, a new desktop environment might be purchased without any other changes. Assuming an SME is in alignment before the change, it would be in alignment after that change. This raises the interesting possibility of sub-paths to alignment in the MIT90s model, with the complexity of paths varying from simple (one or two components) to complex (all components) being re-aligned. The literature on alignment has implicitly, if not explicitly, focused on complex re-alignment. This paper shows that this assumption is inappropriate for the analysis of SMEs.

The Focus-Dominance model, in which two dimensions - the strategic focus on cost or value-add, and the level of customer dominance - defines an SME’s strategic market position, creating four scenarios in Figure 1 for IS investment: *Control, Co-ordination, Collaboration* and *Positioning* (Brown and Lockett 2004, Levy et al 2001, 2002, 2003).

Customer Dominance	Low	Co-ordination	Positioning
	High	Control	Collaboration
		Cost	Value-Added

Strategic Focus

Figure 1. Focus-Dominance Model for SMEs (Adapted from Levy et al. 2001)

Control: The focus of IS use in this quadrant is control. IS investment is treated as a cost of doing business, specifically, controlling the internal processes. These are operations-focused organisations in which IS has limited business value (Tallon et al 2000). Typically, their IS includes word-processing and accounting spreadsheets to control business expenses and revenues. Changes in structure are not required to achieve alignment because the new systems are implemented within the existing functional structure. In addition, the absence of any link to strategy is consistent with their internal operational focus (Tallon et al 2000). This behaviour is appropriate for SMEs, whose owners are not interested in growth and, instead, are specifically concerned with retaining control. The IS are simple, stand-alone and user-friendly. Thus, there is no requirement for changes in roles and skills, with the alignment process limited to changes in IS to support the new management processes (Quadrant 1 of Figure 2).

Co-ordination: IS investment is used to support communication and customer relationships. Owners are frequently interested in growth. They invest in IS to manage their customer base, when the number of customers exceeds the capacity of their manual systems. The new customer databases are typically supported by a local area network (LAN). Similar to the *Control* quadrant, the focus is still internal with no link to, or change in, the SME's strategy. In addition, no changes to the individual roles and skills component are required. There are two reasons for this. One is that the systems adopted are not technically demanding (Levy et al. 2001). The other is that the IS knowledge of the owner, rather than the employees' skills, is the driver of IS adoption (Premkumar and Roberts 1994). Thus, the dominant path is likely to be from management processes to technology to structure. To follow this path requires only limited restructuring to realise the benefits, with structural change supporting IS management (Bergeron et al 2001). This restricted path is presented in Quadrant 2 of Figure 2.

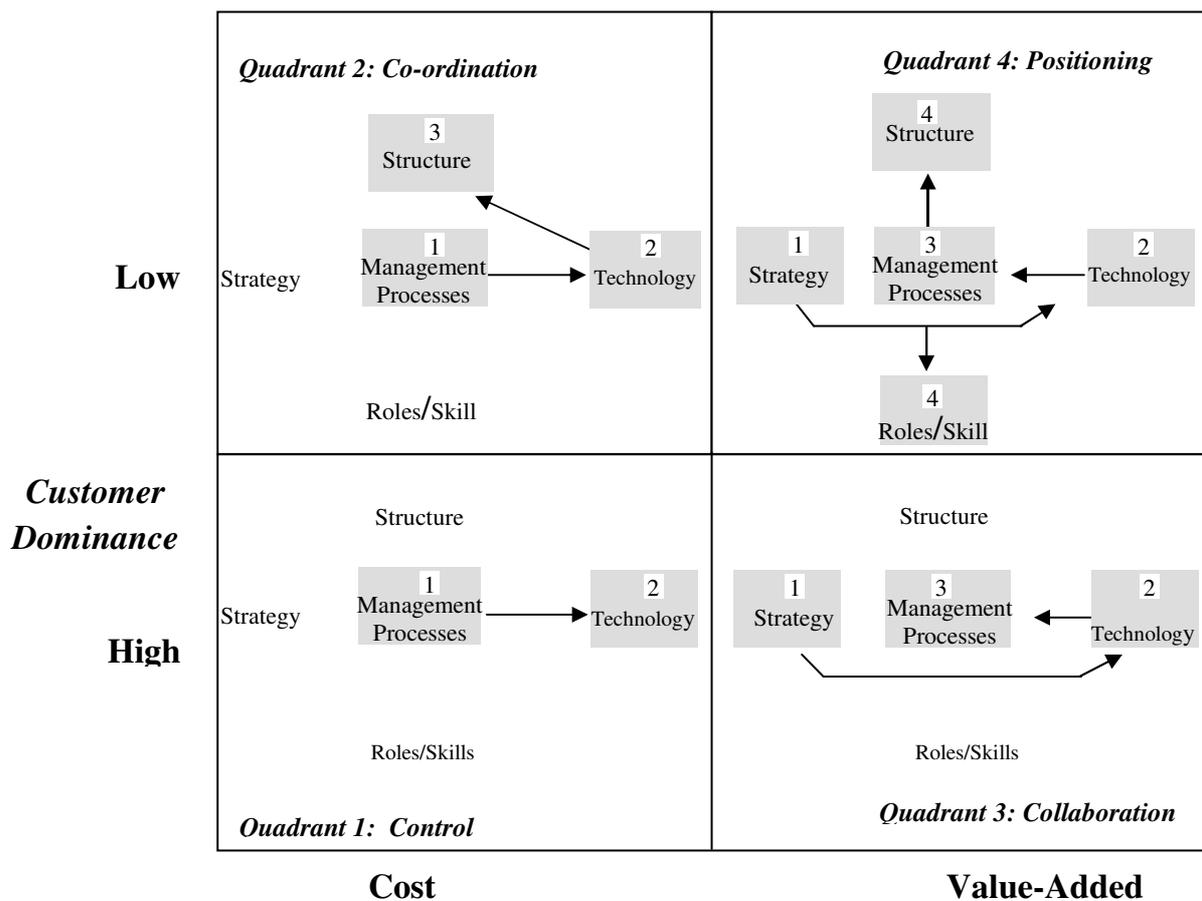


Figure 2. Focus-Dominance Model and Contingent Paths to Alignment

Collaboration : SMEs exchange real-time information with a small number of large customers. There is extensive use of EDI, with the SMEs often part of a customer's Extranet (Levy et al. 2001). Customers are frequently the driving force behind the introduction of new IS. The proposed path to alignment is shown in Figure 2 with strategy driving technology, followed by management processes to support inter-organizational collaboration. This aligns an SME's strategic information system, defined as the alignment between strategy, management processes and IS (Chatfield and Yetton 2000), with its customer's strategic IS. The investment is managed within the existing structure and implemented without changes to roles and skills.

Positioning: SMEs integrate their IS and business strategies taking a dual internal and external perspective for the business (Tallon et al 2000). The owners are aware of IS-based opportunities for changes in business processes. The challenges here are the potential cost of the IS investment and the need for flexibility to support on-going change. Owners, who are both knowledgeable about IS and able to integrate it with the business strategy, are rare. These 'dual focused' SMEs focus simultaneously on operational efficiency and strategic positioning to improve performance through new market creation (Tallon et al 2000). Essentially, the path is strategy-led and enabled by new technologies (Croteau and Bergeron 2001). Bergeron et al. (2001) report a high correlation between strategic orientation and strategic IS. This relationship is supported by new management processes, to which roles and skills, and structure are aligned to position or re-position the SME. The suggested alignment path in this quadrant (Quadrant 4 of Figure 2) is more complex than in the other quadrants.

The above discussion examines paths to strategic alignment through the MIT'90s model, which are contingent on SMEs' positions in the Focus-Dominance model. With different IS applications typically adopted in each quadrant of Figure 1 (Levy et al. 2001), the subject of this research is the different paths by which those applications are implemented and become embedded in SMEs. Formally, integrating the four paths identified in Figure 2:

Hypothesis 1: When investing in IS, the paths to alignment followed by SMEs are contingent on their strategic positioning in the Focus-Dominance model.

3 METHOD

This research reports both qualitative and quantitative analysis. The qualitative analysis investigates the paths to alignment followed by 27 SMEs. The quantitative analysis formally tests Hypothesis 1. As Lee (1991) argues, an integrated framework that includes interpretive and positivist approaches can provide robust understanding of phenomena. Lee proposes that observation of a situation can lead to an initial understanding that is then interpreted by the researcher based on their knowledge of the field. Finally, the research creates formal propositions that can be tested using positivist constructs. The outcomes from the propositions should then be reviewed in the empirical situation (Lee 1991).

Case studies are a powerful methodology for conducting the type of exploratory research proposed here. In particular, case research is effective when theory is relatively underdeveloped (Eisenhardt 1989). In general, this is true for research on the dynamics of alignment. Further, when the boundaries of the research are not clear, there is a need to investigate the issue within a real life context, collecting views from different sources (Yin 1994). However, while cases can be used to investigate a situation, generalisations based on one or two case studies are subject to a potential external validity threat. The multiple cases collected here ensure that common patterns are identified rather than risking generalisation from chance occurrences based on a single case (Eisenhardt 1989), with formal modelling to validate the patterns (Lee 1991).

Each case study was conducted over a one week period by a team of researchers and postgraduates, following the protocols developed by Levy et al. (2000, 2001, 2002). The organizations were not selected by industry, as there is little difference in SMEs' strategic IS adoption across industries (Levy and Powell 2000). During the survey period, the SME owner, the senior management team and other employees took part in a series of standardized, semi-structured interviews, each lasting 1-2 hours.

The interviews cover the history of IS developments, business backgrounds, markets, and future plans for IS adoption. Pertinent issues are reported back to participants to allow them to correct misunderstandings, validate the findings and stimulate further discussion. The interview data identifying the choice of strategy, together with the number and importance of customers, classifies each SME's strategic focus as cost reduction or value adding, and its customer dominance as high or low. Based on this data, each SME is classified within the Focus-Dominance model. The numbers of SMEs in each quadrant is shown in Table 1.

Focus Dominance Quadrant	Number of SMES
Control	11
Coordination	8
Collaboration	5
Positioning	3
Total	27

Table 1. Numbers of case studies in each quadrant of the Focus-Dominance Model

Having located each SME in the Focus-Dominance model, the next step identifies the alignment path. The changes the owners had put in place to implement each IS investment are used to map the paths taken. The interviews identify the nature of the IS, and changes in both the management processes, and IS-based training and recruitment. Changes in organizational structures are identified from organization charts, and the owners' and senior managers' descriptions of, and reasons for, structural change. Finally, a case description of each SME is written. Two of the authors inspected the sequence of steps defining the alignment paths followed by the SMEs. Based on that data, they independently coded the path followed by each SME. The two coders agreed on the classification of each SME's path, demonstrating high inter-rater reliability.

The final step in the data analysis is what Lee (1991) calls third level understanding, where positivist, formal propositions are tested. To test Hypothesis 1, the frequency of agreement between the observed and expected paths to alignment for each SME is compared to the expected frequency under the null hypothesis that paths to alignment are not context contingent. If the four paths identified in Figure 2 are assumed to be both exhaustive (i.e. there are no other paths) and equally likely, then the critical value for the frequency of agreement, θ , would be $\theta_c = 0.25$. This would be a conservative test, given that there are many different potential paths through the MIT90s model. For example, there are 120 different potential five-step paths (Yetton et al. 1994).

In addition, the data in Table 1 suggests that the distribution of SMEs is not random across the four quadrants. Inspecting Table 1, the null hypothesis would be supported for 11/27 cases, when investing in IS, if the expected, non-contingent, path for all SMEs was specified as the path to alignment presented in the *Control* quadrant of Figure 4. So, $\theta_c = 11/27$, where that is the frequency of the most commonly adopted path, namely, management processes followed by technology, is adopted as the critical value to test Hypothesis 1 in the Results section below. This is a very conservative and demanding criterion – the probability that an SME adopts the path to alignment shown in Figure 2 for its location in the Focus-Dominance model must be greater than 40.7%.

4 RESULTS

The expected alignment path for each quadrant in the Focus-Dominance model is presented in Figure 2. The SMEs in the *Control* quadrant are characterised by a dominant path from management processes to technology adoption. This pattern accounts for 10 of the 11 cases here. The exception is Bird Designs, which needed to upgrade its staff skills to leverage its use of the new IS-based accounting systems. Therefore, its path included a link from management processes to roles and skills.

Chemical Analysis Co. illustrates the path to alignment followed in the *Control* quadrant. It followed the simple alignment path of management processes to technology. A small, family-run firm that

analyses soil samples for local authorities and utility industries, it was established by the owner in 1983, and grew steadily for 10 years. Growth then declined and it entered a steady state. The market is highly competitive. The owner invested in IS to reduce demands on senior management time, implementing a spreadsheet package for financial analysis, supported by a stand-alone accounting package. A specialist package was added to develop chemical analysis reports. The adoption of technology was reactive, focused on improving control over individual functions.

The dominant path in the *Co-ordination* quadrant in Figure 2 is management processes to technology, followed by changes in organization structure. This pattern explains seven of the eight cases in this quadrant. The exception is Regional Travel in which there is no link to structure: Its path is consistent with the dominant path in the *Control* quadrant in Figure 2. Regional Travel had not recognized the benefits from restructuring its informal approach to managing the organization.

Queensway Photographic Designers illustrates the path to alignment followed in the *Co-ordination* quadrant. It specializes in the development of large-scale photography for window and conference displays. The CEO owns the firm and is supported by a small management team. The firm works in a specialist niche, large-scale photographic printing, although it provides a wide range of photographic services. He has invested in technology to support that market niche, including a small administrative network, deploying accounting, word processing and order processing systems. For example, job costing was automated, using prior experience to quote prices. Job tracking was also implemented, with the system providing job progress information for customers. The owner is only planning sufficient growth to facilitate the sale of the business when he retires.

The complexity of or number of steps in the alignment path in the *Collaboration* quadrant is the same as for *Co-ordination*, but the path takes a different form. All cases here follow the dominant path, led by strategy, and followed by changes first in technology and then in management processes. Critical drivers include changes in major customers' procurement, production and quality control systems.

Car Sign Design Co. (CSD) illustrates the path followed in the *Collaboration* quadrant. The owner established CSD in 1990 to produce graphic design liveries and signs, specializing in the automotive market. The firm employs 15 staff, with a plan to increase turnover 25% in 5 years. While only 10% of customers are in the automotive sector, they account for 80% of turnover. CSD works closely with major customers to ensure that orders are maintained in this highly competitive industry. The firm competes on quality and design innovation to develop and maintain the relationships. To do that, it has invested heavily in design and production technologies. CSD recognized early the value of the Internet to improve its competitive advantage by developing customer relationship management, particularly for the exchange of design information. New management processes were then developed to integrate order processing, accounts, design, production and delivery. CSD is now able to turn around design information quickly, with the new business processes supporting on-time order delivery.

Finally, the *Positioning* quadrant in Figure 2 identifies the need to align all five components of the MIT90s framework. In the three cases here, owner knowledge about opportunities from IS and the potential to exploit them is the key driver of strategic alignment. All three SMEs adopted the same path, beginning with their strategic objectives influencing their IS technology adoption, followed by changes in management processes and, finally, changes in roles and skills, and structure.

Mobile Phone Surveyors illustrates this path. The owner and CEO recognized early the potential growth in the mobile phone market. He positioned his firm to survey sites for the major mobile providers, developing a niche market that involves both negotiating with local authorities and recognising the public's concerns over mobile phone masts. He and his team of surveyors have developed a specialised body of knowledge about the acceptability and viability of phone mast locations in the UK and overseas. His decision to adopt a knowledge management system to provide a repository for the surveyors' knowledge was explicitly designed to support growth. Management processes were then implemented to co-ordinate and exploit that knowledge management resource. This was followed by changes to the organizational structure to support staff working as a team rather

than as individuals. At the same time, the owner recognized that he needed to train or recruit staff to use the new systems.

Aggregating across the four quadrants, 25 SMEs adopted the alignment path specified in Figure 2 for an SME in their strategic market position. Only two SMEs followed other paths. Hypothesis 1, *when investing in IS, the paths to alignment followed by SMEs are contingent on their strategic market positioning in the Focus-Dominance model*, is strongly supported. Table 2 reports that the probability of adopting the expected contingent paths, $\theta = 0.92$ or 92%, is significantly higher than expected under the null hypothesis that the alignment path is non-contingent, $\theta_c = 0.41$, ($\theta > \theta_c$, $p \leq 0.01$).

Quadrant	Agreement with Contingent Path	Non-agreement with Contingent Path	Path Complexity (number of steps)
Positioning	3	0	4.0
Collaboration	5	0	3.0
Co-ordination	7	1	2.9
Control	10	1	2.1

Table 2. Alignment Paths and Strategic Market Position

5 DISCUSSION

This discussion is organised under four headings. First, the findings are summarized. The relationships among the four alignment paths presented in Figure 2 can be illustrated by overlaying the Focus-Dominance classification upon the MIT90s model. Figure 3 highlights how the different paths to alignment involve different sub-parts of the MIT90s model. This supports Hypothesis 1 that the dynamics of IS alignment are contingent on an SME's strategic market positioning. Second, the validity threats to the findings reported above are then examined. Third, the implications for research are explored, integrating the extant literature within the contingent model developed here. Finally, the implications of those findings for practice are reviewed.

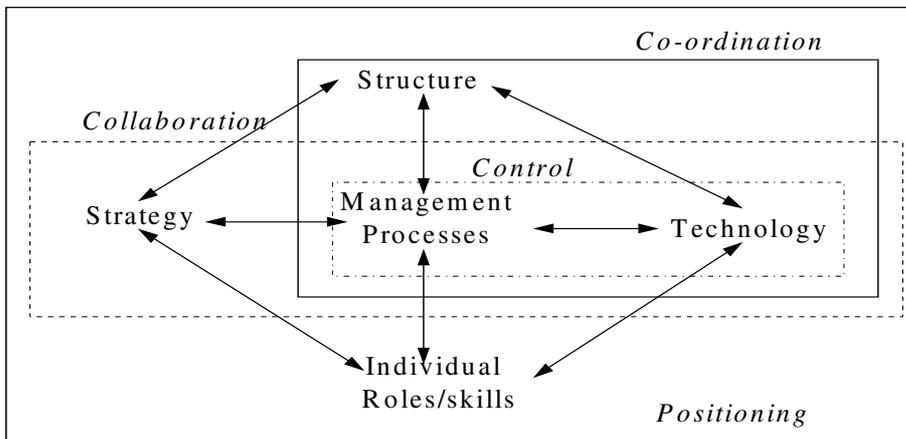


Figure 3. Understanding SME Classification through the MIT90s Model

5.1 Findings

Figure 3 shows how the four paths relate both to each other and to the MIT 90s model. At the centre of the model is the basic relationship between management processes and technology to embed the IS investment in the SME. This is a control sub-model within the MIT 90s model. To also capture the benefits from increased co-ordination requires a more complex response by SMEs. Specifically, structural readjustment is required to manage the increased complexity.

Collaboration raises a different challenge. Here, there is a change from a cost- to a value add-based strategy. The control sub-model is developed into a strategic information systems sub-model, in which changes in strategy drive changes in both technology and management processes, and in the relationship between them. Finally, positioning requires changes in all the components of the MIT 90s model. The three sub-models are integrated with up-graded roles and skills. To implement alignment, the existing core competences of the SME would need to be significantly enhanced and new ones developed. This would be a major and high risk strategic change, for which many SMEs and their CEOs would not have the necessary skills and resources.

5.2 Validity Threats

The results are subject to four validity threats. The first threat concerns the representativeness of this sample of SMEs. The sample is not random. Potentially, it over-samples SMEs that are successful, and whose owners are engaged and knowledgeable managers, willing to be involved in a university-based research programme. This bias could affect both the relative numbers of observations across the four quadrants in Table 2 and the frequency with which SMEs select specific paths to alignment.

While a bias in the relative frequency of observations between quadrants is not a threat to the findings supporting Hypothesis 1, a bias in the frequencies with which paths are selected within a quadrant is a potential validity threat. It is reasonable to assume that the SMEs here are both more sophisticated and successful than randomly selected SMEs. In that case, the dominant paths identified above may be less frequently adopted by the typical SME and the findings may be subject to a potential validity threat.

The second validity threat concerns the scoring protocols for identifying the paths to alignment. Two of the authors coded the paths with 100% agreement. A potential validity threat exists as they were aware of the theory being tested, could have been aware of an SME's location and, therefore, coded that SME's path to be consistent with the theory. Against this potential threat, first, recall that the authors were coding the paths based on written case reports developed by teams involving others during a 1 week field study of an SME, including interviews with all its senior managers. There is substantial direct information on changes in components and, hence, the paths to re-alignment. Second, issues such as the timing of a restructure or of the acquisition of new technology are not typically subject to interpretation. Similarly, changes in management processes are well documented. However, managers' descriptions of the timing of changes in roles and skills, and strategy may be open to interpretation.

The third threat is a potential internal validity threat, involving an alternative interpretation of Figure 3. Avison et al. (2004) show that a single large organization followed different paths to alignment for the different IS projects it implemented. Here, this suggests a more complex interpretation of Figure 3.

SMEs in the Positioning quadrant could also follow a Co-ordination quadrant path to alignment when investing in IS to manage their customers more effectively. However, SMEs in the Co-ordination quadrant would not invest in Positioning interventions unless they moved to the Positioning quadrant. Similarly, SMEs in the Co-ordination and Collaboration quadrants could follow a Control quadrant path to alignment when investing in IS to improve their internal controls. Essentially, Figure 3 could be interpreted as presenting a hierarchy of paths to alignment, with SMEs in the Positioning quadrant able to follow the other paths as required, and SMEs in the Collaboration and Co-ordination quadrants able to also follow the path in the Control quadrant. This should be the subject of future research.

Finally, the paths identified in Figure 2 are not exhaustive. They do not include the path followed by Flower and Samios (Yetton et al. 1994). That path is technology, followed by roles and skills, structure, management processes and, finally, strategy. This was an emergent, rather than a formally designed path, and maybe infrequently used. Its potential existence does not invalidate the basic hypothesis tested here that the path adopted is contingent on an SME's position in the Focus-Dominance model. Instead, it implies that an SME's location in a quadrant does not uniquely define

the path adopted in that quadrant. However, there may only be an emergent and a formal path within the Positioning quadrant, with the paths in the other three uniquely determined.

5.3 Implications for Theory and Practice

Integrating this paper and earlier studies extends understanding of the contingent nature of an SME's investment in and use of IS, and of the effect of its market position on its management of IS. It also provides guidelines for managers by describing the dominant path to alignment in each quadrant.

In terms of theory, the contingent model developed here allows re-interpretation and integration of the following three sets of findings, which initially appear to be inconsistent. First, benefit realisation depends on alignment between IS and business strategies (Hussin et al 2002). Second, IS investment is frequently limited to supporting operations and transactions (Foong 1999). Third, organizations with more sophisticated IS tend to perform less successfully than those with less complex systems (Naylor and Williams 1994); the greatest alignment and highest performance are reported for systems to improve efficiency (King et al. 2000); and those that adopt a low-cost approach are unlikely to use IS strategically (Lesjak and Lynn 2000).

Twenty five of the 27 SMEs follow the expected paths to alignment in their quadrants and, therefore, potentially capture the benefits of alignment. However, for SMEs in the Control and Co-ordination quadrants, alignment between IS and business strategy is independent of their paths to alignment in Figures 2 and 3. These null relationships are not included in the typical models (Hussin et al 2002, Spanos et al 2002) described in the SME literature.

Consistent with the literature (Foong 1999), IS investment is limited to operations and transactions for the 19 SMEs in the Control and Co-ordination quadrants. Also, these SMEs adopt a low-cost strategy, with the relationships between their IS and business strategies unchanged (Lesjak and Lynn. 2000). Finally, given that the complexity of the paths to alignment increases substantially from the Control to the Positioning quadrant, the greatest alignment and highest performance is likely to be achieved by SMEs in the former rather than the latter quadrant. So, findings, which appear on first inspection to be inconsistent, are consistent when integrated within the contingent model developed here.

The patterns in Figures 2 and 3 may also explain Cragg et al.'s (2002) finding that alignment is achieved by many SMEs but is not well understood. It is not well understood because SMEs do not follow the classic path to alignment. Instead, they frequently follow the much less complex paths to alignment in the Control and Co-ordination quadrants. These require only limited change management skills. For those SMEs, the path to alignment is not problematic and, therefore, is frequently realised but not recognised in the literature.

The different paths identify different levels of interventions to achieve re-alignment. It follows that SMEs in different quadrants require different levels of skill in change management to realise the benefits from completing their paths to alignment. However, only in the positioning quadrant is the path to re-alignment likely to prove a challenge to SME management. So, many SMEs are in alignment and capture the related benefits.

In contrast, the literature on large organizations' IS use focuses on value-adding strategies and the repositioning challenge in the positioning quadrant. This raises the question of whether research on large organizations is limited in scope, and whether it should be extended to investigate organizations investing in IS to support existing management processes rather than focusing almost exclusively on the problems of strategic repositioning.

Turning to practice, Figure 3 documents the path to alignment for each quadrant. The appropriate intervention in the Control quadrant is shallow (See table 2), requiring limited changes in technology and management processes. In contrast, the intervention in the Positioning quadrant is deep, requiring significant change management skills and influencing all factors in the MIT90s model. Therefore, the risk to organization performance is low in the former and high in the latter quadrant.

Finally, few SMEs have the motivation and/or capacity to introduce the integrated systems needed to support IS-based innovation, even though strategic use of IS has become more important in flexible and dynamic markets. Improvisation is one way to respond to challenges in which the innovative use of resources, including IS, is critical (Ciborra 1997). However, while SMEs are typically assumed to be flexible and innovative, their use of IS is relatively inflexible (Levy and Powell 1997), with IS typically used as a means of support. Consistent with this, the dominant use of IS, in 19 of the 27 SME cases, is to support existing management processes.

6 CONCLUSIONS

While it is generally accepted that alignment is a critical enabler of organization performance, there is limited research into the actions or paths by which alignment is achieved. The research that does exist relates almost exclusively to large organizations. This paper adds to the limited literature on SMEs and their paths to alignment and, specifically, it maps the paths to alignment of 27 SMEs. It is hypothesized that the dominant path to alignment is a function of an SME's market position in the Focus-Dominance model. Nineteen of the SMEs follow paths that are restricted to links among management processes, technology and structure in the MIT90s model. Five of the SMEs work closely with their major customers, whose IS systems strongly influence the SMEs' IS options. Finally, only three SMEs follow paths to strategic repositioning, the focus of much of the IS alignment research in large organizations. This last finding suggests that either IS strategic choices have more limited impacts on SMEs than on large organizations, or that research on alignment in large organizations should consider other alignment mechanisms, including the less complex interventions identified in Figure 2 for the *Control*, *Co-ordination* and *Collaboration* quadrants versus the *Positioning* quadrant.

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