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FIT, SIMPLICITY AND RISK: MULTIPLE PATHS TO STRATEGIC IT CHANGE

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Abstract

The dominant rational approach to IT-centered strategic change derives from the positioning literature in business strategy. It assumes a single best path to successful organizational transformation. Three cases are used to show that, in practice, there are multiple alternative paths. The strategic IT and business strategy literatures are critiqued in terms of the process of fit so as to explain why these alternative paths are successful. Two distinctive characteristics of the fit process — the search for simplicity and differential risk management profiles — are identified. Their roles in successful paths are discussed.

1. INTRODUCTION

Rational approaches dominate the normative literature on IT-centered strategic change (Scott Morton 1991; Henderson and Venkatraman 1992; Davenport 1993; Hammer and Champy 1993). Failure to plan where the organization is going and why is considered to invite failure. By contrast, there is evidence that successful strategic transformation involving IT has been achieved without adopting this approach (Ciborra 1991; Yetton, Johnston and Craig 1994). This paper has its genesis in three such cases and seeks to reconcile the apparent contradiction between these normative and descriptive worlds. In order to develop a theoretical basis for defining alternative paths to IT-centered strategic change which are robust and sustainable, it draws together three literatures that are not usually explicitly combined. One is the strategic IT literature, which states the conventional normative approach. Another is the dominant strategy literature. This explains the derivation of the IT strategy field's rational assumptions about strategy formation and implementation, as well as being a source of competing, but usually overlooked, views on these issues. Finally, the organization theory contingency literature on fit, which underpins the MIT 90s model (Scott Morton 1991), provides a framework for conceptualizing strategic transformation. That literature, and specifically the work of Miles and Snow (1984), is then extended to form the basis for generalizing from the case evidence.

Managers and researchers generally agree that aligning business strategy and information technology (IT) is the key IT management issue to be resolved (Keen 1991; Scott Morton

1991; Cash, McFarlan and McKenney 1992). Underpinning this emphasis, implicitly or explicitly, is the assumption that successful organizations have a fit among their strategy, structure, environment, management processes and technology (Chandler 1962; Lawrence and Lorsch 1967; Rumelt 1974; Miles and Snow 1978). Consequently, a crucial question for strategic transformation is how an organization moves into fit. One dominant path to fit is recommended: that strategy drives structure which in turn determines technology and management processes, as well as individual skills and roles (e.g., Miles and Snow 1984; Scott Morton 1991). Although the strategy and organization theory fields contain alternative, emergent models, the dominant rational view from those fields has been taken for granted in linking IT to business strategy (Lederer and Sethi, 1988; 1991; Ward, Griffiths and Whitmore 1990; Scott Morton 1991; Henderson and Venkatraman 1992; Kovacevic and Majluf 1993).

These two core ideas, that successful organizations are in fit and that there is an appropriate path to that state, are complementary. Miles and Snow's (1984, p. 11), definition of fit as "a process as well as a state — a dynamic search that seeks to *align* the organization with its environment and to *arrange* resources internally in support of that alignment" captures them together. However, while there is considerable empirical evidence that being in fit yields higher performance levels than being in misfit (Burns and Stalker 1961, Miles and Snow 1978, Lawrence and Lorsch 1967, Donaldson 1987), and that strategy often precedes structure as organizations move to product or geographic divisionalization (Chandler 1962; Channon 1973; Khandwalla

1977; Rumelt 1974; Suzuki 1980), there has been virtually no theoretical or empirical examination of the total path organizations take in moving into fit. Miles and Snow's (1984) seminal article focuses on characteristics of the state of fit, identifying four stages that constitute the causal dynamic by which tight fit contributes to sustained performance. But this "dynamic" model only articulates the properties that make tight fit a virtuous circle. It emphasizes the dynamics of the fit gestalt once it is established, rather than the dynamics of establishing the gestalt. The path from misfit or minimal fit to early or tight fit is not explored. This relative neglect of the dynamic path to fit in the organization theory and strategy fields is mirrored in the IT literature.

Here, we propose to take a first step toward redressing the comparative neglect of fit as a process in the strategic IT literature, using three case studies of successful IT-based transformation to develop an understanding of the properties that characterize successful paths to fit. The paper traces the dynamics of each change process, revisits the classic paper of Miles and Snow (1984), and extends their concept of fit as a process rather than simply a state. It analyses the different paths to strategic fit illustrated by each case. Elsewhere, one of these cases has been used to demonstrate one alternative to the dominant path to fit (Yetton, Johnston and Craig 1994). The two additional cases introduced here not only show that there are multiple dynamic paths to fit, but also call into question the dominant model's assumption that strategy both is and should always be the first step along the path to strategic change.

Together, the three cases provide the opportunity to examine the issue of what makes alternative paths to strategic IT-based change robust and sustainable. More specifically, they show how the potential for "simplicity," which for Miles and Snow (1984) is critical to sustaining the causal dynamic of tight fit, can either be the property of a single step in the dynamic path or of the path as a whole. In particular, simplicity needs to be achieved as part of the dynamic, and is a prerequisite for the gestalt's existence, rather than emerging after the fit gestalt has been established. They also demonstrate how fit as a process highlights the importance of technological and business risk both at different steps along and across the total path.

The brief case descriptions set out below provide a flavor of the unconventional nature of the change processes.¹ In two of the cases, IT change, rather than strategy formulation, was the starting point for a transformation from which the new business strategy emerged as an outcome. The third organization took a positioning approach, beginning with strategy, but the subsequent steps in its path to fit did not follow the conventional sequence. All three cases followed a dynamic path to fit that not only differed from the dominant conventional model, but also from the other two cases used here. The first two cases illustrate how IT can become an integral part of the organization design and strategic fit, while

the third illustrates how the effective management of IT may involve achieving fit via outsourcing. IT is not aligned but contracted out. Taken together, the three cases demonstrate the importance of Miles and Snow's (1984) assertion that "fit is a process as well as a state."

2. METHODOLOGY

Case studies were particularly appropriate for this type of theory building research. The focus on dynamics favors use of a case study methodology, with its emphasis on understanding the context and process of organizational change (George and McKeown, 1985; Pettigrew 1990; Galunic and Eisenhardt 1994). The formative state of the field of strategic IT management makes case study research useful because of the rich description achieved through capturing multiple data sources and perspectives (Benbasat, Goldstein and Mead 1987). Furthermore, case studies can reveal emergent patterns and trends which inform theory, making this method an especially useful tool for theory development (Eisenhardt 1989; Lee 1989; Yin 1994). The cases selected for presentation illustrate the theory derived from a broader case-based inductive research program, rather than being representative of a population of dynamic paths to change.

In each organization described below, between twenty and thirty hours of face to face, unstructured interviews were conducted jointly on site by a senior and junior researcher. Most interviews were tape recorded for later transcription and analysis. In all cases, relevant company documents and media reports were analyzed, and clients, suppliers or other organizational stakeholders were also interviewed in addition to senior managers. Interview transcripts and archival data were scanned for themes and consistent patterns using an open coding approach (Miles and Huberman 1994). Only patterns that were corroborated by unprompted utterance by at least two other sources are reported.

3. THE CASES

3.1 The Australian Stock Exchange (ASX)²

Prior to 1987, each Australian state had its own stock exchange. Trading was fragmented, settlement was slow, and the liquidity and volume of trading in many shares were low. Global financial deregulation generated concern that trade in the stocks of major companies would migrate offshore. By 1994, the securities trading industry in Australia had been transformed and integrated through IT innovation.

By 1985, the need for a single national market had been recognized. Developments in communications and computing technologies reduced the significance of problems of distance and time which had initially fostered the separate markets. An IT strategic planning team for a national market was formed in mid-

1986. A detailed IT strategic plan was presented to the new board immediately following the creation of ASX, and before it appointed a CEO and developed a business strategy. Immediate action was needed to cope with the complex web of obsolete and/or incompatible IT systems that the new exchange inherited. A simplified and integrated systems architecture, entailing radical redesign, was adopted. A single platform would replace hardware from different suppliers. A program for developing software for, and migrating to, the new platform was outlined. In contrast to the complex and inflexible heritage platform, the new platform was elegant, robust and simple (Figure 1).

This IT structure then formed the basis of the new organizational design. Restructuring occurred after the CEO's appointment. The architecture of the IT strategic plan became the architecture for the business. All equities were traded on computer screens in a single national market (the ASX), with integrated support functions and an electronic settlement system under development. Computer and communications systems accounted for almost 70% of ASX's fixed assets and 33% of its operational expenditure. ASX was considered as a market leader in the design and management of electronic markets. Quality, reliability, efficiency and flexibility all increased. Screen trading generated a 16% reduction in ASX staff in 1991, and 24-hour trading is now an option. The new automated settlement system (cost \$35m) can potentially eliminate \$20m per annum, and will significantly reduce delays and uncertainty in finalizing transactions.

Thus IT was both proactive and strategic in positioning the business. The initial intervention was at the level of technology, in response to the threat of unreliability, complexity and obsolescence. Since it is primarily an information business, the major IT changes at the ASX transformed the whole business.

3.2 Flower and Samios (F&S)³

In a five year period, Flower and Samios Pty. Ltd. was transformed from a small traditional architecture practice to one that used no drawing boards or pencils. Instead, all design work was undertaken on networked Macintoshes, using a range of integrated CAD and multi-media software packages. Their annual project portfolio had grown by 500% in spite of staff reductions. The technology platform had become integral to F&S's professional and business success, enabling lower-cost operations, and creating competitive advantage through providing high quality, timely, and unique customer service.

F&S's IT strategy evolved gradually over a period of five years. It was triggered when they lost a design competition. The winning entry was a computerized 3-D "walk-through" of the building design. In response, F&S leased two small Macintoshes, so they could compete on presentation. Within a few years their IT investment reached over \$20,000 per employee.

The transformation had three main elements. First, the principal partners agreed to learn the new systems, so as to avoid being "held to ransom" by a CAD operator. Second, it soon became clear that further investment in IT could deliver cost and productivity benefits by extending its use beyond presentations. Third, F&S decided to use only proven, "off-the-shelf" hardware and software systems that were relatively easy to learn and easy to use. Professional and business needs always dominated in decisions about technology. The emphasis was on being "computer-aided architects, not CAD operators."

The technology diffused project-by-project. The next person to learn was given a computer at the beginning of a new job and learned with help from others who had already mastered the systems. Spreading IT investment costs across projects avoided large, high risk bets for the small firm, and meant costs could be absorbed within the overhead for each project. As they grew more experienced, staff began to utilize the hardware and software capabilities more extensively and developed skills in integrating packages.

Thus the initial intervention was a limited tactical one at the level of technology in response to a perceived threat, followed by a transformation of individual skills and roles, changes in structure, and subsequent alignment and integration of management processes. The clarification of strategic intent and insights into the strategic drivers of this new configuration only occurred after the initial organizational "gestalt" was in place.

3.3 Department of Veterans' Affairs (DVA)⁴

In 1989, the survival of the fourth largest federal government department (DVA) as a separate department, and consequently the interests of its client group, were under threat. Given rationalization and decline in DVA's client population, war veterans and their dependants, it was likely to be downgraded to a division within another department such as Social Security. There was concern that this would jeopardize service to war veterans. Just five years later, DVA had averted this threat, reduced costs and increased the quality of their service by becoming the first department to outsource IT operations.

A routine IT management decision concerning hardware capacity stimulated a review of strategic options, with ramifications far beyond IT management. A major computer upgrade was required, but expenditures of that magnitude required a formal submission to the Department of Finance (DOF). DOF were expected to recommend that Social Security, which has similar data management and pension and service delivery operations, provide DVA's capacity. Outsourcing provided a means of pre-empting possible moves to integrate DVA's IT operations into Social Security's — a move that could lend weight to calls to incorporate all of DVA into that department.

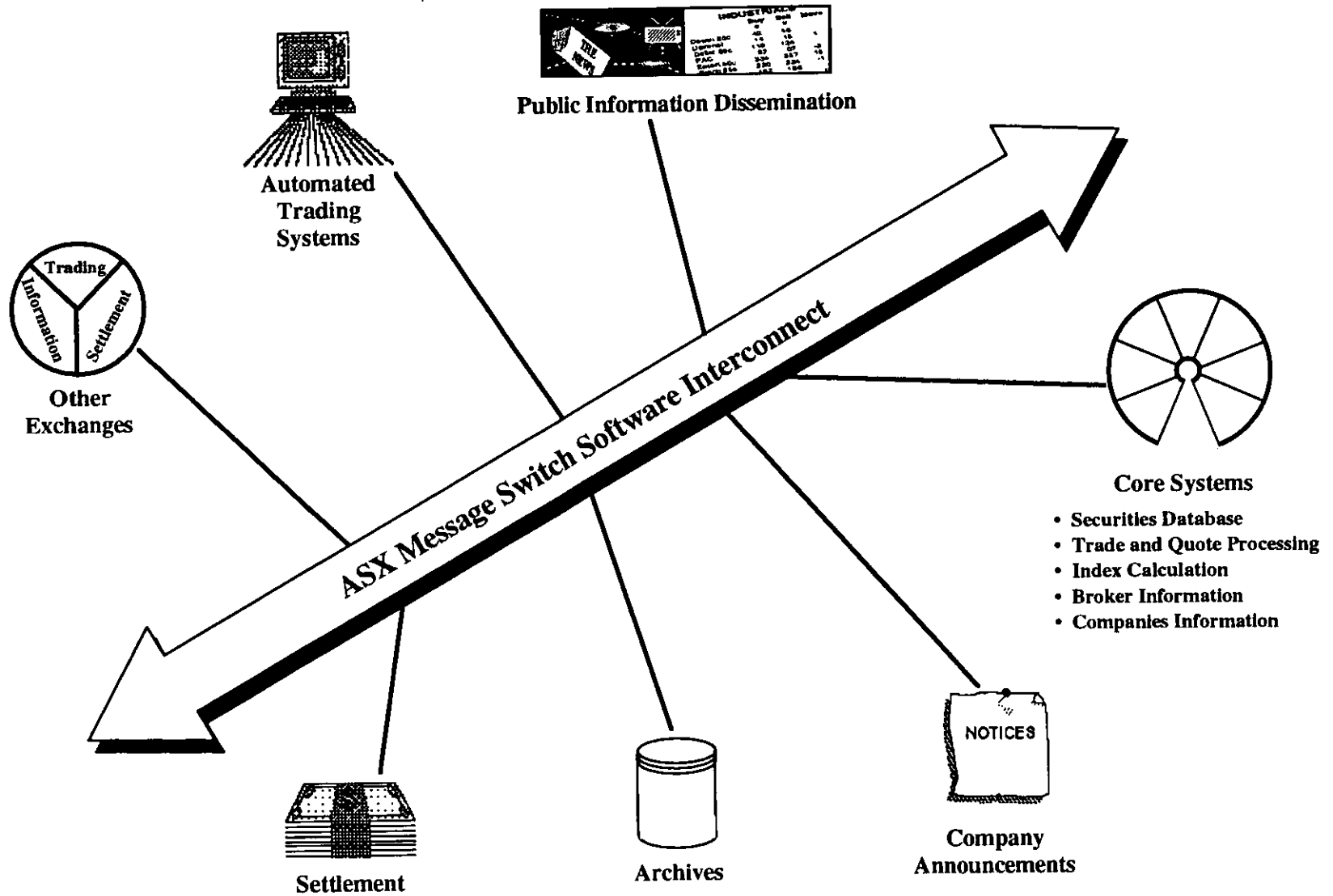


Figure 1. New ASX FT Architecture

Although the strategic decision to outsource was taken quite quickly, the implementation process stretched over two years because the decision was unique and precedent-setting for the Australian government. As a first step, a new role was created to manage the move to outsourcing. The individual appointed developed the skills that emerged as necessary as the role unfolded and expanded. Two new sets of management processes were also developed. The first related to tendering for and writing a contract to outsource major IT capacity. It involved negotiations with seven other agencies and took over two years. The second was for managing the outsourced capability and the relationship with the supplier. Finally, changes to the technology and structure followed.

The dynamics of the change process here initially resemble the conventional model of change, with a strategic decision affecting the other elements of the model in turn. However, this more simplified strategic fit for the organization was achieved by contracting out IT operations to a commercial firm, rather than by more closely aligning IT within the organization. IT was not a core business process. Outsourcing contributed to organizational fit by simplifying management processes and allowing greater focus on core strategic issues.

4. DISCUSSION

As the preceding descriptions indicate, in all three cases, managing strategic IT-based change is at the heart of developing a new fit for the organization. The discussion that follows introduces the notion of fit as a process, which reveals that the cases demonstrate multiple paths to fit. This finding, and the framework of fit as a process, then form the basis for examining the characteristics shared by all three cases that make their unusual and apparently diverse paths to transformation sustainable. These include the search for simplicity and the management of risk.

4.1 Fit as a Process

Most of the organization theory literature on fit examines cross-sectional data and analyses states of fit. A notable exception is Miles and Snow, who describe fit as “a dynamic search that seeks to align the organization with its environment and to arrange resources internally in support of that alignment” (1984, p. 11). Further, they suggest that “*early fit – the discovery and articulation of a new organization form – can lead to sustained excellence over considerable periods of time and thus a place in some mythical Hall of Fame*” (1984, p. 17; emphasis in original). Their core argument describes the causal dynamics of tight fit (1984, p. 15):

First, the discovery of the basic structure and management processes necessary to support a chosen strategy create a *gestalt* that becomes so obvious and

compelling that complex organizational demands appear to be simple.

Second, *simplicity* leads to widespread understanding which reinforces and sustains fit. Organization structure and key management processes such as reward and control systems “teach” managers and employees the appropriate attitudes and behaviors for maintaining focus on strategic requirements.

Third, *simplicity reduces the need for elaborate coordinating mechanisms*, thereby creating slack resources that can be reallocated elsewhere in the system.

Fourth, as outstanding performance is achieved and sustained, its *association* with the process by which it is attained is reinforced, and this serves to further simplify the basic fit among strategy, structure, and process.

Here, we extend their concept of fit to include the discovery of the initial *gestalt*. In effect, we distinguish two phases in the dynamic path of fit. The first is the process of establishing the *gestalt*. The second is the process that relates to sustaining the *gestalt*. Miles and Snow’s four steps primarily describe the latter phase, which follows after the basic fit or *gestalt* has been established. Their four steps take the first of these two phases for granted. The following analysis examines how these three organizations experienced the first phase and, in doing so, created a new *gestalt* involving significant IT changes.

4.2 Multiple Dynamic Paths

In order to explore this first phase of creating fit, we conceptualize the process of strategic change as achieving a new fit, and focus attention explicitly on the steps that comprise paths to fit, utilizing an adaptation of the MIT’90s model (Yetton, Johnston, and Craig 1994), shown below in Figure 2. The change dynamic is represented as a path through the MIT’90s fit model. Within this schema, each of the change dynamics in the cases described above, as well as the conventional normative model, can be represented as a different path. These four paths, which are presented in Figure 3 and summarized in Table 1, form the basis of our analysis and discussion.

An initial analysis of F&S (Yetton, Johnston, and Craig 1994) yielded the finding that there is at least one alternative to the conventional path to fit, in which strategy drives structure and, in turn, IT, management processes and individual skills and roles. The additional evidence from the ASX and DVA cases confirms that earlier finding and extends it to the more general one of multiple dynamic paths to fit. Since a range of competitive strategies have been articulated (e.g., Porter’s [1980] generic strategies; Miles and Snow’s [1978] configurations) it would retrospectively be surprising if any single path to fit were universally the optimal or even always a viable path.

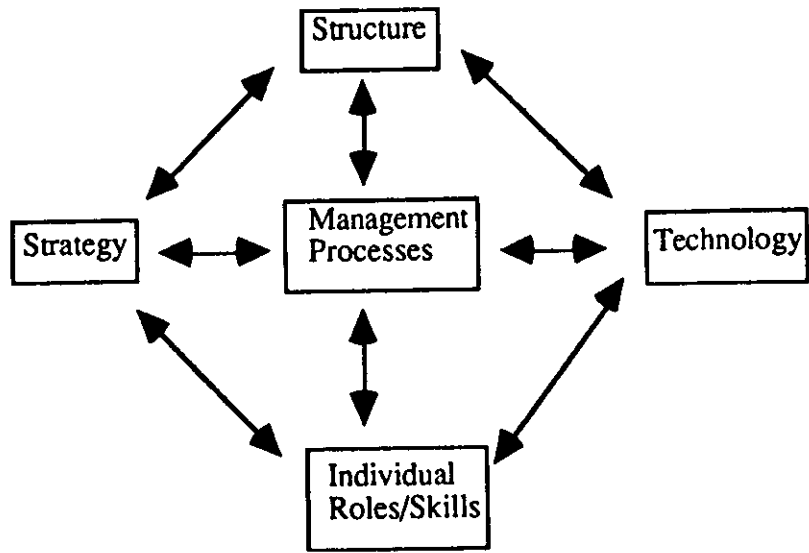


Figure 2. A Model of the State of Fit
(Adapted from Scott Morton 1991)

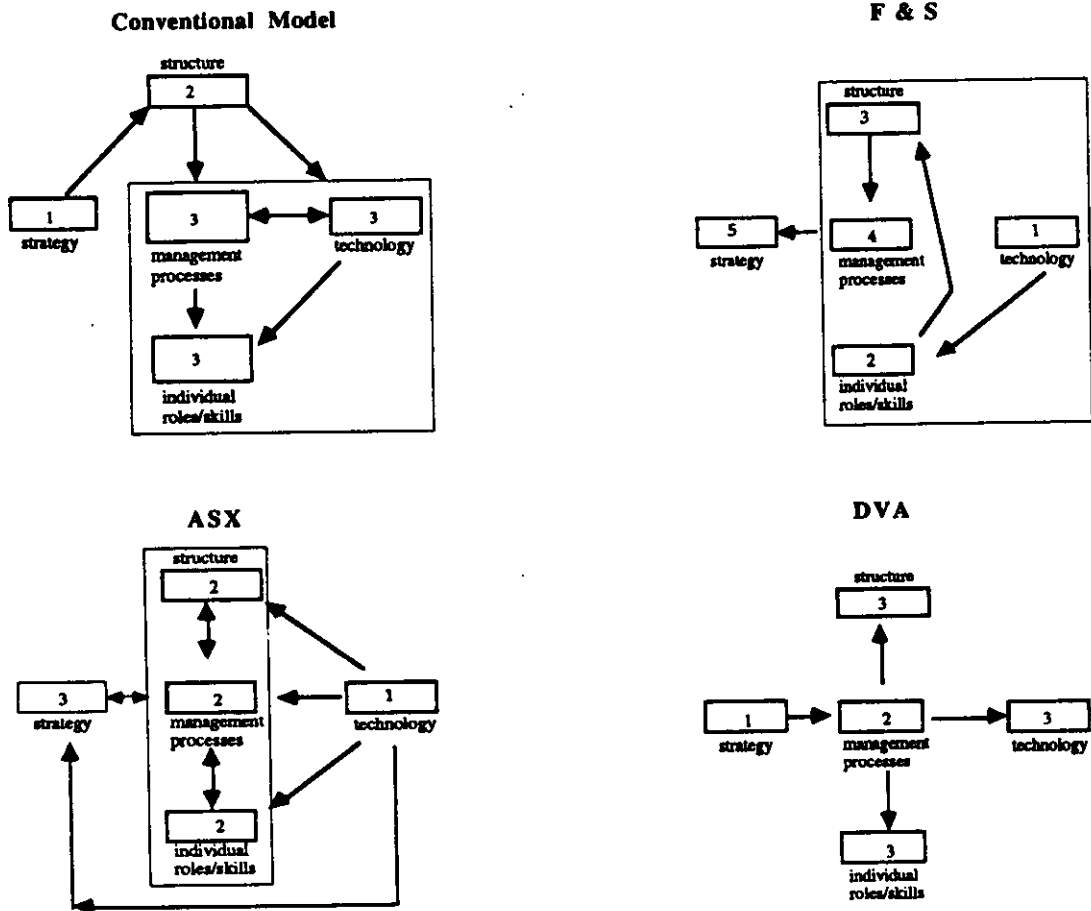


Figure 3. Four Paths to Fit

Table 1. Comparative Dynamic Paths to Strategic Fit

	Step 1	Step 2	Step 3	Step 4	Step 5
Conventional	• Strategy	• Structure	• Technology • Skills and roles • Management processes		
Flower	• Technology	• Skills and roles	• Structure	• Management processes	• Strategy
ASX	• Technology	• Structure • Skills and roles • Management processes	• Strategy		
DVA	• Strategy	• Skills and roles • Management processes	• Structure • Technology		
Miles and Snow	• Strategy	• Structure • Management processes			

The case evidence also calls into question the primacy of strategy in the sequence. The conventional path, which is the one strongly endorsed in the strategic IT literature, begins with strategy, and is premised on the assumption that a new or altered market position can only be achieved if the repositioning is designed and its implementation planned. As well as being intuitively appealing, this approach is consistent with the conventional prescriptive views that predominate in the strategy literature. These are essentially positioning⁵ approaches (e.g., Porter 1980), which argue for a rational approach to the change process (e.g., Ansoff 1991). Design is a deliberate activity, and design and implementation are treated as separate and sequential steps. By implication, deciding the strategy is thus the first step. This typically involves a process of analysis to identify a range of strategic options and select the best one. This orientation, coupled with Chandler's (1962) finding that structure followed strategy in major US corporations, then leads naturally to the conclusion that the single best path begins with strategy.

Almost all the literature on strategic IT management adopts this conventional view of strategy formation as a rational, planned process of organizational positioning in attempting to link IT to business strategy (Ward, Griffiths and Whitmore 1990; Scott Morton 1991; Henderson and Venkatraman 1992; Kovacevic and Majluf 1993). It underpins much of the work on SISP, which is itself a rational positioning approach to operationalizing the

strategic contribution of IT — both in its emphasis on aligning IT with business strategy and the claim that IT can expand the range of strategic possibilities (Vitale, Ives and Beath 1986). Lederer and Sethi (1988, 1991) provide a detailed review of this literature and identify the problems routinely involved in SISP approaches.

However, the strategy and organization change literatures also encompass emergent models (Lindblom 1959; Quinn 1980; Weick 1987; March 1988; Mintzberg 1991) as competing alternatives to this dominant positioning mindset. These are spelled out in detail in Yetton, Johnston, and Craig and essentially describe strategy as an emergent process of incremental adoption and learning. They provide closer explanations of the dynamics at F&S and some of the more widely recognized examples of IT-based strategic change (Ciborra 1991). Earl's (1993) recent survey of strategic information systems planning practices also reveals some firms using a less structured, formal (and more successful) approach, which he terms "Organizational," and which he notes is consistent with some emergent models.

While these alternative views from the strategy and organization theory fields raise the possibility of different dynamic paths to IT-based strategic fit, few studies of the process of strategic change have deliberately examined this issue (Yetton, Johnston, and

Craig 1994; Ciborra 1991). The case evidence presented here makes this possible. Specifically, it suggests that strategy, which comes first in the positioning world, may be the last step in the emergent context. Further, Table 1 suggests that roles and skills may be the only element that consistently occupies a particular step in the path to change — falling into the second place. Moving quickly into developing new skills would be consistent with a need to be driven by business requirements and produce deliverables early on in a change activity.

The tendency in the dominant conventional positioning approaches has been to imply, or state, that without a rational process there are no mechanisms for control of the change effort — that it becomes simply a process of trial and error, an existential learning activity that is most likely to cost the organization dearly in terms of misdirected energy and effort (Ansoff 1991). However, the three cases described above all exhibit purposeful behavior driven by current demands. Whereas the positioning world defines the new gestalt at the beginning of the change process, the alternative approach yields new gestalts, but ones that are arrived at by a different path and with some different assumptions. Thus these cases provide a preliminary basis for identifying the ways in which emergent change processes, for which there is considerable empirical evidence, can be sustainable and may, in some circumstances, be preferable.

4.3 Search for Simplicity

While the three cases follow different paths, they share a characteristic that we label the search for simplicity. The statement in the first of Miles and Snow's (1984) four steps, that "complex organizational and managerial demands appear to be simple," is central to the virtuous circle they articulate. Simplicity, or at least the subjective experience of simplicity, is critical to the process that sustains the gestalt of tight fit. Managerial demands do appear to be more simple after the change than before for both ASX and DVA. At F&S, which already had "simplicity" because it started in fit, the technology and other changes did not increase the level of subjective complexity as the firm developed new core competencies.

In all three cases presented here, IT was the key device for providing simplification, although in a different fashion in each instance. In DVA's case, simplicity was gained by strategically reducing the level of requisite complexity (Miller 1993) for the organization — an activity was outsourced. At ASX, the IT architecture made it possible to take account of all the requisite complexity involved in operating a physically dispersed, centralized trading exchange in real time with high transaction reliability. The data gathering and processing capability of IT allowed a high degree of complexity to be made tractable in a way that can simultaneously appear to be managerially and organizationally simple. Finally, IT provided F&S with the organizational and managerial capability to expand the level of

requisite complexity in the environment that it could address. Importantly, none of these subjective simplifications sacrificed requisite complexity (Miller 1993). In that sense, IT, which we loosely label technology here, appeared to offer more potential to simplify such high levels of requisite complexity than any of the other elements in the MIT'90s model.

Just as each of the organizations studied took a different sequence of steps in the path of discovering the gestalt, the point at which simplicity was delivered also varied, being achieved either at one step in the dynamic path to fit or constituting a property of the path itself. Thus, for ASX, the potential for simplicity was embedded in the strategic architecture presented in Figure 1 and was therefore located in the first step along its dynamic path. In contrast, the potential for simplicity in DVA was a property of the path rather than any one step, and only realized when the organization restructured as it outsourced its IT operations. Finally, F&S maintained its high level of simplicity or internal fit at each step along the path. Technology was introduced in simple, discrete, independent steps. Each step had a coherence, rather than being simply the next step along an arbitrarily subdivided path. Thus, in all three cases, simplicity, or the prospect of making complex managerial demands appear simple, was a crucial element in the dynamic path to a new fit. Simplicity preceded the gestalt and, we suggest, was essential to its establishment.

4.4 Management of Risk

Not only did the three cases search for simplicity along different paths but their paths resulted in very different risk management profiles. At first sight, ASX appears to be a classic case of business process redesign (e.g., Davenport 1993; Hammer and Champy 1993). It undertook a radical transformation that was high risk because it involved a total redesign of the computer platform and architecture underlying its core business operations and a subsequent restructuring and change in individual competencies and management processes. However, while the ASX accepted a high technological risk in building the switch for the electronic market in step one, the subsequent steps were low risk. The new CEO saw them as just requiring "good basic management practices in an organization that had few." Once the technology bet was successfully solved, the business risk for the rest of the path was low. This stands in sharp contrast to the high risk of the total path typical of a business process reengineering project.

Unlike ASX, DVA's exposure was to a business rather than a technological risk, and it carried that high business risk for the duration of the path. At any stage the strategy could have been blocked. Furthermore, the cost of carrying the business risk for so long was high. This risk was resolved only in the last step when DVA signed the contract, restructured and outsourced its IT. Finally, F&S enjoyed a low level of both technological and

business risk at each step. The implementation and embedding of IT in the architecture firm involved a series of low risk, incremental steps. The same mechanisms, described above, that maintained a high level of fit throughout the change process guaranteed a low level of risk. Furthermore, F&S provides an example of radical improvement via incremental change, which conventional BPR explicitly rejects as impossible. Figure 4 illustrates these different balances of business and technological risk.

Technology risk	High	ASX	BPR as advocated
	Low	F&S	DVA
		Low	High
		Business risk	

Figure 4. Comparative Technological and Business Risk Profiles

The above analysis distinguishes between the risk associated with a specific step along the dynamic path and the exposure associated with the path as a whole, where path risk is the probability that, if all the steps in the path are completed, the change program will deliver the expected benefits. This recognizes that there can be uncertainties both about the outcomes of the program and the future state of the environment. Thus, ASX is high step risk and low path risk; DVA is low step risk and high path risk, and F&S is low step risk and low path risk. This two by two model is presented in Figure 5 and completed with the classic BPR program as an example of a change strategy with both high step and path risk.

Path risk	High	DVA	BPR as advocated
	Low	F&S	ASX
		Low	High
		Step risk	

Figure 5. Step versus Path Risk

5. CONCLUSION

Taken together, the three cases provide evidence that strategic IT change can occur by different means than the conventional model recommends. In particular, we argue that the three case studies have in common the search for simplicity, but are characterized by different technological and business risks, which may be located in a step or a property of the path. This has implications for both practice and research.

For firms, it provides some guidance about the critical dimensions that require active management. In the emergent world, the change process is grounded in a current success, and occurs incrementally with frequent useable feedback. Thus the firm continuously redevelops its core competencies and extends them, as occurred with F&S, through a series of independent steps, simultaneously maintaining fit and minimizing risk. Sustaining simplicity is the key issue, and is not problematic when driven in this way by a learning world. Problems occur when the changes cease to be driven by feedback and customers. With a positioning approach, it first has to be very clear from the business intent or vision where the potential simplicity lies. In addition, clarity about the nature of the risk and its location is required. Consequently, minimizing the risk, both in design and implementation, which are characteristic of the positioning approach, assumes importance. The critical issue becomes how to manage the business and technical risks and ownership of them. The choice of the planning procedures or methodologies thus are dependent on the goals of the risk management. So, a focus on the business is important in both cases, although it fulfills different roles in each. In the one, it provides the device that ensures the firm incrementally remains in touch with its strategic fit. In the other, it anchors the change in a clear view of the future and acts as a reality check on the validity of the milestone set for implementation.

For research, there are three implications. First, we have identified three additional dynamic paths to fit in addition to the dominant conventional one. That raises the question of whether there are any more, which would require establishing a process that exhaustively searches for other paths, either by reanalyzing the existing literature or by theoretically deriving sequences. Second, given multiple paths, which contingencies both descriptively and normatively result in choice among potential paths? In turn, the different ways the search for simplicity and risk are managed or need to be managed would be driven by those contingencies. One obvious contingency is positioning versus emergent approaches. Finally, it may be possible to resolve the problems routinely encountered in SISP (Lederer and Sethi 1988, 1991) and accommodate Earl's recent finding by identifying the varying roles of SISP in different paths. If its traditional role is to link technology and strategy, a more complex path structure may provide a contingent framework for determining the appropriate form of, and goals for, different SISP methodologies.

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7. ENDNOTES

1. In order to focus on theory development, only highly abbreviated case descriptions are provided here. More complete case and methodology descriptions are available from the authors.
2. Based on over twenty-five hours of interviews with both business and IT managers in the ASX, past and present Board members, and brokers.
3. Based on over twenty hours of interviews covering not only many of the staff but also past customers and current suppliers. See Yetton, Johnston and Craig (1994) for a more extensive description and analysis of this case.
4. Based on over thirty hours of interviews with department officers, the outsourcing contractor and other stakeholders.
5. Mintzberg's (1991) definition.