

Contrasting Approaches to Preparedness: A Reflection on Two Case Studies

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ABSTRACT

This chapter reflects on ongoing research in SMEs in the manufacturing and service sectors. It contrasts different approaches to the issue of preparedness from an organisational and social perspective, in two cases where new enterprise-wide business processes were implemented and integrated in different settings. In both cases, the emergence of new systems presented a huge challenge to companies hard-pressed to marshal the resources to mount effective change and implementation projects on this scale. The cases presented enable a comparison of different strategies used, one firm responding to organic growth, and the other to rapid industry-driven change. The chapter focuses not on the implementations per se, but instead on the issue of preparedness for change. The chapter concludes by drawing out general lessons concerning how to support and maintain organisational preparedness for enterprise wide change in different industry settings. [Article copies are available for purchase from InfoSci-on-Demand.com]

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INTRODUCTION

A few years ago, I worked with a small manufacturing company in the UK horticultural industry that was experiencing the need for improved communication and control across the enterprise as growth took place (Warren, 2002, 2003, ab). Parts of the business responsible for different product lines wanted to talk to each other, more efficient financial management systems were essential to meet increased orders, and further, there was a need to develop more

internet-oriented customer management and marketing systems. This situation resulted in a two-year project with the local university under the (then) Teaching Company Scheme (which has now evolved into the Knowledge Transfer Partnership programme) which employed a graduate under university supervision to analyse and redesign the company's management and information systems in an enterprise-wide endeavour. During the scheme, through an extensive consultancy, development and training programme, we introduced Beer's Viable

System Model (VSM) (Beer, 1981, 1985) as a learning vehicle to support the development of a conceptual design for integration that at the time, in itself, met the company's needs. Later on, this turned out to be a stepping stone on the road to a technological implementation of the design. The project was deemed successful, with the organisational learning that took place through using a simplified version of the VSM during the analysis and design phase being seen as essential to success. Through a variety of participative fora, staff across the enterprise developed insight into the need for change and made input into how the new systems would work. Over the period of the project, a sense of 'preparedness' for change emerged among all sections of the workforce.

Based on this experience, presented in the first case below, I went on to develop successfully this *modus operandi* for developing new business systems (in terms of preparedness for implementation) with other small companies, both service and manufacturing, public and private sector (Ragsdell and Warren, 1999; Warren, 2003c). It was only when I encountered a different kind of company that seemed to be operating and growing in a new way, that I realised I was seeing a different kind of preparedness. At this point, my research took a new direction. Thus, the second case I present examines a 'rapid response' to industry change from a service company in the airline industry. In this case, competitive advantage (and indeed survival) is linked to the rapid embedding of new systems in short time frames as new business models emerge across a whole industry. This chapter therefore examines, in reflective mode, the two projects that proved to be landmarks in my understanding of how small organisations organise for enterprise-wide change.

BACKGROUND

The first cluster of SMEs I worked with, although they were quite different in location and purpose, all had one thing in common: they were all relatively localised firms, experiencing fairly

linear growth patterns, in relatively predictable sectors, that were yes, subject to change and competition, but by and large, the basic business models held true for quite long periods of time. What they seemed to be experiencing was growth in line with classical stage model theory, and as predicted by Greiner (1972), at a certain point, they were coming up against a 'crisis of control'. Classical 'stage models' of growth for small firms, whilst they differ in their detail, identify a series of phases through which growing businesses progress, each presenting different managerial challenges. Stage models suggest that an appropriate response from the owner-manager (OM) is required if the firm is to grow effectively, or indeed to survive (Greiner 1972; Churchill & Lewis 1983; Scott & Bruce 1987).

Although stage models have been criticised widely for their owner-centric, deterministic, linear perspective, it is notable that they all predict that problems may arise as existing management and information systems become unable to meet the needs of expanding firms, either in terms of coping with increased throughput, or providing the flexibility to meet the opportunities and challenges in the business environment. Greiner's model, for example, points to a phase of delegation, where OMs appoint others to deal with functional aspects of the business organisation that they once dealt with themselves. This can be followed by a 'crisis of control', if the result of delegation is poor communication between different parts of the organisation. It is suggested by the model that a phase of co-ordination should then follow, where management and information systems are reviewed and developed to improve communication and effect better reporting and monitoring procedures. Notwithstanding the critique of stage models, this does seem to reflect the experience of many small firms in conditions of organic growth. At this point, many OMs consider technological integration across the enterprise (Waring & Wainwright, 2000), the point where I was called in to oversee the project at the firm at the heart of the first case, APCO.

The situation at the second company, FD, was quite different from the above, where the enterprise-wide change appears manageable through quite rational management planning processes (albeit with a strong interpretive dimension as we shall see below). FD was established by two founders in 1984 to provide brokerage services in the air travel industry. This industry has certainly presented far more volatile conditions over the last twenty years than those experienced by the firms identified above. Airline service companies have had to survive an environment completely transformed by successive rounds of deregulation, the reshaping of the travel industry through new patterns of consumer behaviour, and the impact of new technology at every level of operation. The airline industry is distinctive in that it is international and truly global, yet it has a degree of uniformity imposed by safety and security considerations. It is also highly regulated in terms of who can participate and how – through what systems, both technological and regulatory bodies. FD has little power or influence over supra-national events that have the potential to threaten the survival of the firm unless decisive managerial action is taken, typically over relatively short timescales, and at the level of the enterprise. For example, the effects of terrorist action on the demand for travel, the continued opening of trading regulations, direct internet bookings and air-crashes are all features of the landscape outside the control of the firm. FD is remarkable in that it has survived for 24 years, having employed up to 100 people prior 9/11, in an industry which has been through huge political, economic, social and technical change on a global scale. Growth had occurred through what the OM described as ‘enforced agility’, where disruptive industry events had led to the rapid-fire development of new business models that operated as distinctive and separate business units within the firm. Nonetheless, there was still a need for the underlying system architecture of the firm to have a degree of interoperability that still allowed for the anticipation of speedily implemented change. The ongoing research carried at FD is being undertaken not to instigate

phases of planned integration, but instead to gain better understanding of how such ‘anticipatory systems management’ contributes to the agility and sustainability of firms operating in volatile environments.

In the next section, the two case studies are presented, followed by a reflective conclusion that draws out contrasts concerning the idea of ‘preparedness’ for system-wide process change. In the first case, we see that preparedness is something that needs to be worked at and developed as step change approaches. In the second we see that preparedness is quite different, it is a ‘way of being’ in anticipation of constant and unpredictable change. These differences have consequences for the nature of enterprise design.

Case Studies and Eeflection

1. APCO: Developing Preparedness

APCO are a small family company with a £2M turnover, producing and supplying a range of building and garden products to civil engineering contractors, large home improvement/garden centre companies, and directly to the end consumer. Starting out 70 years ago as a concrete products manufacturing company supplying to the building industry, the company had undergone a typical diversification of its customer and product base, into four departments, organised around the key product ranges: flood defence products, aggregates, concrete slabs and decorative garden products, all acting to some extent as separate production units, but drawing on the same operative and support staff pool. That ‘mix’ was seen as important in coping with seasonal and market fluctuations across the different sectors addressed. The firm was controlled by the Managing Director (OM) with the aid of his father, ex-OM, semi-retired and operating as Chairman. Alongside a four-person management team and a small administrative staff, 22 full-time production operatives were employed by the company, some in a supervisory capacity. Over time, the company had adopted a rather tall (though not

inflexible) hierarchical structure, built around 5 levels of operations and management that were not functioning well in terms of information flows and needed a complete redesign, even to support current levels of activity. Further, the company was seeking to expand, while achieving economies of scale through automation of certain sections of the manufacturing operation. This brought further challenges to the management and information systems of the company, as in the need to develop and integrate new inventory control systems and new marketing systems to cope with increased orders and recognise the growing importance of the internet.

It was clear that the time had come to initiate a project to support the planned expansion and deal with an accumulated problem set at root and branch level (Waring & Wainwright, 2000). However, previous change initiatives had had mixed results, not due to a lack of top level support, but a lack of enthusiasm from middle managers as they became side-tracked by pressing production issues. This loss of enthusiasm had soon spread to the shop floor, where momentum rapidly dissolved. This past history of failed initiatives, and also a real fear of redundancy as rumours of the automation project circulated added up not only a lack of preparedness for systems integration, but resistance to change altogether.

This lack of enthusiasm did not come as a surprise. At the time of the project, a literature concerning success factors for enterprise systems integration had begun to emerge (Holland et al., 1999; Chen, 2001; Al-Mudimigh et al., 2001; Nah et al., 2001; Waring & Wainwright, 2000), which highlighted a range of organisational issues in addition to technically dominated concerns. This was in some part a backlash against the enthusiasm of software companies to sell 'off the shelf' integration packages to companies in the 90s, whether they were suitable or not. There was a consensus that the pre-implementation phase was crucial to the success of the eventual endeavour, with the need to:

- Establish the need for the project in line with the strategic objectives of the business
- Understand, simplify and perhaps re-engineer key business processes
- Establish appropriate change management procedures.

Yet achieving the above is not straightforward and raises complex issues, with a number of authors highlighting cases where poor conceptualisation and a lack of meaningful engagement of system users in the early stages had compromised success overall (Waring & Wainwright, 2000; Markus & Tanis, 2000; Van Stijn & Wensley, 2001). These general organisational complexities can take on a particular character in the small firm environment. (Fuller & Lewis, 2003), drawing on a 2-year qualitative study of 38 small firms, note the powerful influence of OMs in 'managing meaning' around technological projects (supporting stakeholder relationships in the supply chain in this study). This influence may be particularly powerful where no dedicated IS/IT professionals are employed, commonly the case in small firms.

Not surprisingly then, in light of the prevailing zeitgeist at the time, we took an interpretive approach to the pre-project phase which encouraged user ownership of solutions and prioritised learning about the organisational situation over a technologically-driven push towards a predetermined and poorly conceptualised notion of integration (or Fuller & Lewis, 2003's 'orderliness'). We also sought throughout to maintain an ethical stance towards the workforce, by trying to follow the tenets of Critical Systems Thinking (Jackson, 1991, 2000) a journey chronicled in (Warren, 2003a). This consisted of full workplace meetings, one-to-one meetings, and the formation of project workgroups, to address issues of data modelling, systems integration, organisational design and user engagement. Of course, this path, which lasted for the full two years of the project, is never smooth and there was some evidence in the early stages of our involvement that the academic input into project design was not welcome in all quarters, with comments such as:

What do those boffins know about a concrete company? Nothing! They're just here to put us out of a job!

You want to put us out of work and you don't have the guts to do it yourself, and you've brought that lot in, and their bits of paper, to do it for you.

If you want to sack me, just do it, I can't be bothered with all this.

I appreciate what you're trying to do, but me gathering all these facts and figures will just put me out of a job. That pretty picture [VSM schema] you're waving around is just a map to the [social welfare office] as far as I'm concerned.

Why do we need boffins from the university to tell you what's wrong, I've been telling you for years!

Yet in spite of this early suspicion and many wobbles along the way, the project was a success: automation of production took place, and notwithstanding an investment in plant of £200K, there was a corresponding increase in profit, without loss of any staff. This expansion is supported by effective management and information systems, which have addressed a range of immediate operational and tactical communication problems, in addition to supporting broader strategic objectives concerning better marketing and better relationships with customers and suppliers. At the time, this was a *conceptual* integration, to build an enterprise-wide system architecture, not a software implementation. Better business process and communication systems could be managed with existing software, and it was seen as more important to get people working effectively in new working patterns in a new organisational design. Of course, over time, as networking and the internet have become increasingly important, new hardware and software have been purchased, but the initial design held fast for

many years, a testament to the rigorous values of the project.

One of the key elements in this success was the use of Beer's VSM (1981, 1985) to support the design of the new integrated management systems; this part of the journey is chronicled in (Warren, 2003b). In very simplified terms, Beer sees any organisation as being made up of five systems connected through communication and control channels, in contrast to traditional organisation charts:

- System 5: Policy (policy formulation)
- System 4: Development (intelligence gathering and reporting)
- System 3: Control (day to day running of the organization)
- System 2: Coordination (of System 1)
- System 1: Implementation (directly concerned with the task of the organization)

Derived from cybernetic principles as a means of 'engineering' organisations with hard-wired communication channels, later applications of the VSM have drawn on more socially oriented thinking; Espejo et al. (1996) characterise the model as a hermeneutic enabler of organisational learning where systems of communication and control can be developed in interactive settings.

Of course the VSM in its 'raw' form is intimidating to new users. Yet without developing shared understanding of the principles of the model by a significant number of the project management team, the analysis and design phases would have been compromised. By building up from general discussions of accessible ideas such as strategic, tactical and operational information, varying depths of understanding concerning the VSM were shared. Many members of the workforce were happy with the general concept of a five-layer information architecture model and began to use the vocabulary of the five layers of the VSM directly in their contributions to design meetings, and further, to different extents, in implementation discussions with colleagues from across the whole workplace. It was clear

that the model was being used in the hermeneutic sense (Espejo et al., 1996), not as a 'recipe' or 'cookbook' formula to produce a predetermined 'hardwired' structure. The vocabulary of the model led to explication, clarification and definition of existing procedures, which in many areas were rather vague and ad hoc. It could be argued that a Community of Practice (CoP) had grown up around the VSM, where learning took place and innovative ways of managing information were developed 'on the ground' using a new shared vocabulary. Like Lave and Wenger (1991, p. 56), masters (academic and associate), young masters (OM and team) and apprentices (those who were drawn into the project team from the periphery) could be identified at different times in the project. The 'meaning' of the VSM application was therefore ambiguous, dynamic and reflexively mediated by negotiation in practice. In conclusion, what has taken place here is that knowledge transfer could be equated with the establishment of a CoP around the VSM within the project context. Through the CoP, a spirit of preparedness for change came about.

2. FD: Gaining Insight into Preparedness

Like APCO, FD had diversified into different business areas over the years. However, unlike APCO, which had experienced largely linear growth, for FD, the pattern of expansion had been far more discontinuous, driven by both opportunities and shocks in the airline industry. In 1984, the business started with three people brokering between airlines and holiday tour operators. By 1992, four separate business units were operating, in various areas of brokerage. However, in 1993, deregulation removed the need for this type of brokerage role and FD downsized to two business divisions concentrating instead on niche brokerage activity between small airlines and large airports in the UK. Over the next few years, FD expanded again, and in 2001, pre 9/11, the company boasted over 100 employees, a brokerage division, a ticketing call centre and a branded charter service with

two 737 aircraft. Post 9/11, the charter service was in liquidation and the call centre survived only at the 11th hour. Up to 2007, the business has continued in a highly dynamic and competitive environment, with around one hundred staff providing general sales agency (GSA, a development of the niche brokerage activity) and an overspill ticketing call centre.

During its existence, FD has had to innovate to remain 'fit' within the business environment, by repeatedly restructuring and rapidly establishing new corporate ventures in response to industry change. Each venture has remained under the FD umbrella: all the employees work in the same building and there is flexibility across operations as the workforce respond to different demand at different times. Yet while there is an overarching veneer of systems integration for basic functions such as payroll and marketing, the underlying architectures of the different divisions remain largely distinct, and dependent on dedicated industry systems. Unlike APCO then, there is no desire for consolidation and co-ordination to support expansion, rather the need is for a fast and flexible response that enables new divisions to be bolted on to the FD structure – and at the same time, such structures can be very quickly jettisoned if they become unprofitable.

Both authors have worked with FD for many years, researching into the sustainability of small entrepreneurial businesses in such volatile settings. Our latest study focussed on the emergence of yet another new business model in FD, this time for a 'long-tail' web-based internet onward-flight regional airline booking system, A-A.com, which is intended to cater for a niche market not covered by the large travel companies such as expedia or ebookers. Unlike the APCO case, the development of this potential new business up until almost the implementation point, was driven almost entirely from the top, by two members of the senior management team, P (the Managing Director) and J (the Technical Director and owner of a large shareholding in the firm). The full account of this journey is summarised in Warren et al, (2008).

The pre-launch phase of the development of A-A.com commenced in 2004. The idea was first articulated by P and J during a meeting in a Moscow hotel foyer, while waiting for a client who was late for an appointment. This conversation was part of ongoing discussions regarding the 'fitness' of FD, updating the GSA business' web presence and looking for higher growth opportunities to supplement the over-spill call centre, which was being challenged by competition from India. Initially, A-A.com was expected to grow out of, and supplement the newly web-focussed GSA division. J then began to work on the feasibility of the idea with his commitment really crystallising when he attended a Travel Distribution Summit in Philadelphia in May 2005, where he developed a new "sense of urgency" about "missing this bandwagon". Early in 2006, J began to seriously discuss online booking with system providers. Meanwhile, the GSA system continued its full migration to the web.

At this point, the idea underwent a major shift in its trajectory. Because both P and J were becoming increasingly convinced over time of the likelihood of A-A.com becoming highly profitable, a strategic decision was taken to fully exploit the idea by moving out of the model based on the GSA business (a relatively small airline base) to a GDS (dedicated travel industry Geographical Distribution System) system. Effectively this made FD a travel agency, for which IATA (International Air Transport Agency) approval would be required. This approval was achieved in July 2006. Going down this route brought with it the capability to fulfil bookings for hundreds of other airlines in IATA, not just the GSA base. The first booking was on 29 September through GSA, prior the launch of A-A.com as a separate entity in January 2007. Since then, A-A.com has operated as a separate arm within FD, with ongoing effort (through the appointment of new staff) being directed into the building of technological infrastructure, web presence, markets, and increasing the participating airline base. The underpinning architecture of the GSA and the GDS are linked, but A-A.com has a separate character.

During our research period with FD, our studies have shown that unlike APCO, senior figures in FD spend their time in constant state of preparedness for organisational change, a form of 'anticipatory systems management', where temporary, ephemeral, unstable organisational structures appear and develop ontological status over time. Some go on to 'become' part of the firm and others are discarded either before, or soon after, implementation. Elsewhere, we have used and developed understandings of emergence rooted in complexity theory to explore this situation in more detail (Fuller et al., 2007 a,b). In FD, preparedness manifests as repeating patterns of behaviour. (Fuller et al., 2004, 2006) and (Fuller et al., 2007 a,b) have characterised these 4 inter-related behaviour patterns, as 'processes of emergence', patterns that lead to the emergence of novelty in entrepreneurial settings: new services, new products, new careers, or in this case, new business models. These processes of emergence, set out in Table 1, have been characterised as the 'EROS' model – Experiments, Reflexivity, Organising, Sensitivity.

The processes in Table 1 should be seen as interconnected, not separate, and we argue that it is the multi-dimensional concentration on these patterns of behaviour that is at the heart of entrepreneurial competence through effective strategising over time to produce a *sustainable* business. The four EROS processes interact to produce new emergent structures over time. Each process inter-relates with the other through multi-layers of cognition, language, performance and relationships with others, albeit strongly influenced by the entrepreneur. For FD's directors, preparedness is a state of mind, a way of being, not a sit-down session at 2pm on a Tuesday afternoon. In brief:

Experiments

At FD, new things were constantly being tried out, often in very informal ways. There is a sense in which social interactions were used to search for and examine possibilities for new activities which might be formalised as

Table 1. EROS Processes of emergence

Process	Behaviour
Experimenting	Diverse exploratory behaviours that might (or might not) become part of the firm over time; new things tried out in often very informal ways, small scale; often developed through exploration of social interactions; shared experiential learning across project teams and stakeholders; 'what works'
Reflexivity	Continuous reflection on the identity of the firm and the self-identity of its owner(s) through the discourses within the business and with stakeholders; vision setting through narratives of self and firm; 'who we are'
Organising	Organising around a dominant logic (or project); patterns established through negotiated practice; pattern-making and pattern-breaking; 'what needs to be done now'
Sensitivity	Interpretation of shifts in industry landscape; detection of difference; weak signals; triggers and thresholds for change; 'what we might do'

experimental projects if judged to hold promise. If these worked, they were built upon. If they didn't work they were changed or dropped. The projects or reorganising of activities were relatively small scale and were talked about in terms of seeing what would work. Experiments could be as tenuous as conversations, mental models, thought experiments, or interactions with casual contacts, or, they could involve more significant discussions with suppliers or new partners. The character of the firm is to repeatedly experiment with new initiatives and projects, sometimes in the most tenuous of informal ways. A-A.com is a typical example of FD's tradition of doing things in this way. It began with the casual conversation in Moscow, which P remembers as significant, but J has a much more vague recall of the genesis of the idea. This was the start of a new discourse that might – or might not – persist over time. In this case, it did. Over time, the experiment, in the form of new identities, new products, new services and new stakeholders acquired precedence over the old order through the sensing of a changing business environment. This growing sense of project identity was something that P fostered, an example of this being the production of an internal newsletter, the Altimeter, that focussed

on the project alone, not FD in its entirety. A key element of this experimental behaviour is that major resources are not committed till quite late on in the project, when there is a need for rapid embedding of systems. During the 2 years from conception to implementation (around the same period of time as the APCO project), the vision of A-A.com changed significantly on at least two occasions, prior to the rapid implementation stage at the end.

Reflexive Construction of Identity

The significance of identity for self, the firm and the industry, in which were constituted motivations, roles, daily practice and behavioural imperatives, was paramount in FD, particularly for P. Reflexivity describes the process by which the individual constantly assesses the relationship between 'knowledge' and the "ways of doing knowledge" (Calás & Smircich 1992). Reflexivity links the cognitive domain of the individual to their experienced environment which for the entrepreneur, includes the everyday practices of doing business with others. P, as shaper and decision maker influences the emergent structures of the firm and the context (Fuller & Lewis, 2003). A continuous reflection

on the identity of the firm and the self-identity of its owner(s) through the discourses within the business and with stakeholders was central to the direction and identity of the firm, as well as the entrepreneur. For Stacey (2003), strategy is the evolving patterns of an organisation's identity. Thus, an inability to reshape organisational identity puts the future at risk for the firm. This does not mean that the FD was in a state of drift. Two constant themes in FD's history have been P's overwhelming self of 'being something' in the airline industry, and the sense of the company having a unique selling point developed from very specialist expertise in the industry. For A-A.com to work for P and FD, it had to have the distinctive qualities as a niche provider linking to the lesser known reaches of the airline industry. This is strongly bound in the ongoing intertwined life narrative of P and FD, the desire to be independent and the deep desire to be embedded in the specialist regions (geographically and conceptually) of the airline industry. It is also strongly bound in the relationship with J who realises the vision through continuous grasp of an industry that has seen enormous systems development and change since the first joined the firm. P trusts J to enable anticipation and response to change that has enabled the gradual development of a unique core competence around industry knowledge over time. Thus A-A.com becomes a realistic possibility, triggered by a sense of industry change yet rooted in the existing identity of the firm.

Organising Domains

An organising domain is a space where activities are organised around a dominant logic. Lichtenstein links activity domains, which "guide organizational activity and also prescribe limits to the system's capacity to get the work done" with "organizing domains," which in his studies of successful young businesses emerged rapidly in a self-organizing process, e.g. "*Once agreement for a new mission had been reached, a new set of organizing domains rapidly emerged to implement that goal*" (Lichtenstein, 2000).

In volatile or high velocity landscapes in particular, the speed at which new regularised practices can be put into place contributes to the sustainability of the enterprise. The tension between innovative (pattern breaking) practices and recurrent practices (maintaining patterns) requires managerial judgement, and for A-A.com, occurs quite late on in the project. Yet the business cannot just 'act' overnight. A-A.com is shaped – both constrained and enabled by the regulatory requirement and the technical infrastructure, i.e. IATA registration and the GDS; these require anticipatory management and system building, a partial commitment of resource, even though at this stage, there is still a sense that the project may not necessarily come to fruition. The most significant resources are only committed at a very late stage, once the first order has been realised through the GSA system.

Sensitivity to Conditions

The evidence from FD suggests that the management were highly aware of changes in the external environment and also of the potential cash-flow and profitability produced by the business model. The main issue for this business seemed to be mainly one of when to enact new patterns, and more particularly when to break existing ones. The key trigger points for A-A.com were firstly, J's trip to the Philadelphia Conference when he realised with a sense of urgency that if FD did not act soon they would be beaten to the market by someone else. The second trigger point was the decision to move out of the GSA-driven model for A-A.com and purchase the GDS/IATA registration and (with reference to the point made earlier) adopt a slightly extended identity for the firm, in terms of the travel agency.

Taken in totality, these four areas of process provide an entrepreneurial mechanism that has proved significant in the sustainability of FD over a prolonged period of time demonstrating the ability to perform and survive in an industry which is increasingly dominated by dedicated travel industry systems that are deeply

intertwined with advanced web analytics. This industry context is fast-moving and an excellent example of the need to strategise and anticipate on a contingent and agile basis. The conception and development of alternative-airlines.com is deeply embedded in this intricate context and decisions taken impact across the whole business; it is not a simple standalone project that can be picked up or put down on an *ad hoc* basis. There is evidence that the EROS processes are at the heart of FD entrepreneurial culture. Yet EROS is not simply a cultural model, a vague cultural soup which allows good things to somehow happen. It is based on the language and understandings of complexity theory and in part therefore explains how certain essential sets of activities result in the emergence of new systems, though the outcomes are not predetermined.

CONCLUSION

Unlike the APCO project, which was a step change redesign to provide an enterprise-wide platform for the future, A-A.com is another example in FD's long history of a business unit which is nurtured separately in isolation then rapidly embedded in the FD structure on a just-in-time basis, when it is sensed that the industry pressure to do so is becoming critical, if a competitive edge is to be obtained. Resources of money, people and time are only committed at the last moment and shifts in the trajectory of systems projects are to be expected. It cannot be said that the FD exemplified Pathfinding (Turner & Crawford, 1994) competences in its everyday approach to business. It did not routinely or explicitly undertake formal foresight activities, such as scenario planning, it was not able to assess the "total impact of any particular change" that strategic awareness assumes (Gibb & Scott, 1985). Nor was there evidence of the "highly visible vision of the future" that Hamel and Prahalad (1994) associate with Strategic Intent. Instead, the firm exists in a constant state of preparedness that results in the partial construction of new systems

against the potential existence of developing projects that may or may not be realised. This means that full enterprise-wide integration to effect communication and control, which was an important need for APCO, is less significant for FD, where integration is not an issue in itself. It may be necessary for two underlying system architectures to be connected (as in the GSA and A-A.com projects), but it may not: in which case, separate development is the order of the day, as any given project may need to be jettisoned at a later stage.

This mindset, developed to cope with the exigencies of a volatile industry environment, is in complete contrast to the situation at APCO, where the need is to establish a robust platform that integrates and supports the needs of the company over the coming years in what is expected to be a relatively stable environment. Reflecting the stability of the past, in a firm that has existed in a rural environment for over 60 years, there is a need to develop a sense of preparedness in the workforce from the bottom-up. This took considerable time, effort and sensitivity, in context carefully informed by the principles of participative intervention.

In summary, the issue of preparedness is one that is often taken for granted in the literature. At one time, the concern was limited to technical matters related to data collection and user/system requirements. In the early 00s, the emphasis shifted to the social concerns of the pre-project phase. What these contrasting case studies show is that for some companies, the whole notion of systems integration is a moveable feast at best and may even be undesirable in certain types of industry/firm, where more flexible or readily disposable arrangements might be needed. The recent world financial crisis certainly tells us how volatile the business environment can be. We will be carrying out further research into the normative implications of our work.

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