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Rethinking Information Systems Planning in Strategic Business Networks

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Abstract

As business grow more and more interconnected and hence increasingly reliant on information technology (IT), there is the temptation to argue that careful planning of the information systems (IS) and IT resources in an organisation becomes even more imperative. However, an alternative view might suggest that in rapidly changing and turbulent environments, planning becomes somewhat of an anachronism, and that if flexibility is to be maintained ponderous planning activity should be avoided at all cost. The authors concur that formal, rationalistic, bureaucratic planning is probably in no-one's best interests, but also argue that no planning is not necessarily an appropriate way forward. Instead they propose a new framework to support IS/IT planning in such interconnected environments or strategic business networks (SBNs). This framework seeks to avoid heavy, bureaucratic processes but argues that IS/IT adopts a role of such central importance, that instead, planning must become part of day-to-day thinking and acting with respect to the business and its use of IT. This thinking and acting must not only take place within the confines of a single organisation, but must as well, embrace the IS/IT inheritance and infrastructure of all organisations in the SBN. This is not simply a technological issue, but must include consideration of a range of organisational, cultural, and political issues. The framework must support the creation of shared vision and values, and an understanding of the use of IT for both self and mutual advantage.

Introduction

As the use of computer and telecommunications has changed over time, so too have the approaches to planning such utilisation. The portfolios of information systems suitable to an era of inward-focussed automation of basic activities are unlikely to be suited to an age where more emphasis is placed on systems that connect the organisation externally to other organisations in the business environment, and also directly to its end consumer. Thus, the business and IS/IT planning approaches that were appropriate in the era of hierarchical, integrated organisations of the 70s and 80s are unlikely to be as appropriate for planning requirements in the interconnected business environments composed of interdependent firms which characterise current business reality. Arguably, current IT usage in the form of interorganisational systems (IOS) together with business realities and philosophies concerning extended enterprises with important alliances and linkages to suppliers and business partners imply that new forms of business and IS/IT planning should be being forged. Since research in this area seems to be lagging business practice and business thinking in general, it seems appropriate to begin the process of developing a new framework for supporting the IS/IT planning process in organisations. While there has been some work done on planning IOS (Finnegan et al., 1998; Finnegan et al.. 1999), no overall approach to IS/IT planning has been developed for enterprises with no clear boundaries and many vital interconnections among an ecology of interdependent organisations.

## Evolution of Information Systems Planning in Organisations

For the purposes of this paper, the authors adopt the view that ISP involves planning to achieve the optimal impact from information, IS and IT in an organisation. The authors concur with the opinion of Wilson (1989) who writes that "*an IS strategy brings together the business aims of the company, an understanding of the information needed to support those aims, and the implementation of computer systems to provide that information. It is a plan for the development of systems towards some future vision of the role of IS in the organisation.*"

Planning the IS/IT resource in organisations has a history that parallels the use of computer technology in organisations. Initially, this process of automation took place function by function, and thus notions of planning were primarily based on a project-by-project basis (Ward and Griffiths,1996), with systems being developed based on economic criteria with little regard to other related systems (Somogyi and Galliers, 1994). Thus developed fragmented pockets of automation, with subsequent planning efforts directed towards developing interfaces between these disparate systems (Ward and Griffiths, 1996). With increasing proliferation and sophistication of IS/IT in organisations, IS/IT planning focussing more on developing a portfolio of information systems that supported and facilitated management decision making and the effective monitoring and control of employee

activities, as well as continuing the task of business process automation. These early efforts at planning were, however, primarily internally orientated (Remenyi, 1991).

With the subsequent emergence of more strategically oriented IS/IT, the emphasis in planning thus shifts to understanding customer requirements and the business environment, with efforts directed to aligning IT efforts with the articulated business strategy. Thus over the years there has been a shift in ISP from essentially planning basic support services using IT, to recognising the potential of IT to offer competitive advantage and relying on ISP as a key enabling factor in the achievement of business strategy (Premkumar and King, 1992; Tozer, 1996). By the mid-1990s, it was arguably reasonably well established that some sort of formalised ISP was an appropriate undertaking for most organisations. ISP was to be closely allied to the organisation's business planning activity. In Figure 1 below, there is an example of one of the frameworks that was developed for ISP during the 1990s.

Figure 1 A Framework for ISP
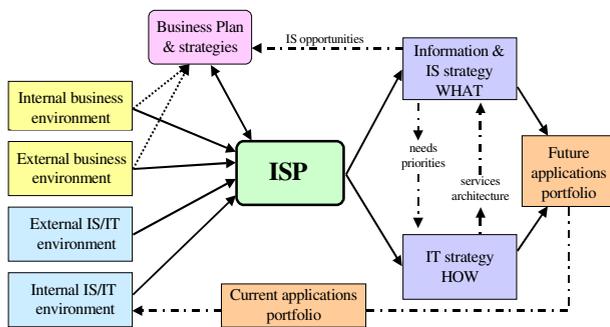
(Ward and Griffiths, 1996)

In simple and succinct terms, this ISP framework suggests the following:

- that a business plan, setting the general future direction for an enterprise, is an important source of input to the ISP effort (or is, at least, concurrently developed)
- that the ISP should consider the external business environment of the organisation. The external business environment provides an assessment of a range of forces (competitive, economic, social and political, for example) impacting on the organisation, thus encouraging debate on specifically how IS/IT can be deployed to act as a buffer, neutralise, or indeed in some cases, capitalise on the effects of these forces, depending on the competitive situation of the organisation involved. A consideration of how IS/IT may reduce or minimise threats to the organisation and how IS/IT may help the organisation avail itself of opportunities are thus important components of ISP

- that the ISP should consider the internal business environment of the organisation, to understand the strengths and weaknesses, skills and competencies, and so on, with emphasis on understanding if, and how, IS/IT can build on and support the strengths while reducing or eliminating the weaknesses.
- that an understanding of the external IS/IT environment considering technological advances, the use (and the degree of success of that use) of IS/IT by relevant outsiders, and so on, is also a vital ingredient in the ISP process
- that an understanding of the internal IS/IT environment, including issues such as how well existing IS/IT currently serve the institution, existing skills and competencies, and inventory and evaluation of existing IS/IT assets and resources, is also an essential component of an ISP
- that out of the ISP process would be derived both an IS strategy (articulating needs and requirements for information and information systems now and into the future to best support the achievement of organisational goals and objectives), and an IT strategy (the technological and infrastructure requirements to provide the required information and information systems)
- that the ISP articulates a future applications portfolio, closely aligned to the business strategy, and designed so as to maximize the potential and impact of IS/IT to have positive outcomes on the achievement of business goals and objectives.

Fundamental to this framework is the iterative and on-going nature of ISP. Thus over time, the future applications portfolio will become the current portfolio, and hence scrutinised as part of the internal IS/IT environment in subsequent ISP efforts. Furthermore there is a distinct sense in which ISP should not be regarded as a one-off (or a once a year) activity, but should manifest itself as much in everyday thinking and reflection about the use of IS/IT in the business as in any formalised planning process (Masifern and Vila, 1998). This point is important, and is assumed in much of the subsequent discussion about ISP.

The framework basically suggests that organisational members (members of the ISP team) should look out into their external business and IS/IT environments, take note of trends, threats, opportunities, and so on, and then basically plan internally their own information, IS and IT requirements. The plan should be devised such that perceived opportunities could be exploited and perceived threats averted or destroyed through an appropriate investment in and use of IS/IT. But the ISP activity (and the resultant IS and IT strategies and priorities for IS/IT investments) was largely an internal one. To suggest that Ward and Griffiths (1996), in developing this framework, did not envisage linking the organisation to suppliers and buyers in the external environment would be unfair, but

this framework does primarily present the organisation as an 'island', operating independently within its business environment, while acknowledging the impacts of the external business and IS/IT environments. While outside views and information may be sought and used as input to the ISP process, ISP is primarily seen as an internal, and somewhat independent activity. In the section which follows, it will be considered whether these assumptions are still appropriate given the changes in contemporary business environments.

Planning in Contemporary Business Environments

In this section, the aim is to consider the changing realities of the business environments in which many organisations now operate, and from this, to question the appropriateness of the ISP framework to support and inform ISP activities in strategic business networks (SBNs). So what are the key characteristics of contemporary business environments?

Globalization, the breaking down and dissolution of barriers between countries, organisations and individuals, seems an important trend. Driven by a number of important political, economic and technological trends and factors, operating on a global stage offers organisations a much larger marketplace, and hence opportunities to specialise, to further develop and enhance excellence in their core competencies (Masifern and Vila, 1998). However, it also creates much more competition, as traditionally local markets become the playing ground of global operators, who, in encroaching, experience fewer barriers (Kotter, 1996). These factors, coupled with an increasing rate of change, and sudden, unpredictable changes or turbulence, mean that most organisations face a beguiling mix of increasing opportunities coupled with increasing challenges, increasing complexity and increasing uncertainty in their business environments.

One response to the increasing pace of change and the concomitant need to reposition organisations in an increasingly interconnected and dynamic business environment, is to move from a formal and methodologically based strategic and IS/IT planning to a more flexible, lighter and less bureaucratic mode of strategic thinking. This move also includes a move from rigour and analysis in strategic planning towards a softer, more creative, intelligently-opportunistic and more collaborative strategic thinking mode that emphasizes values and culture along with business goals, objectives and directions (Liedtka, 1998).

It is argued that another response to the complexity and challenges of modern business environments lies in forming alliances and the like with other organisations, forming virtual organisations, extended enterprises or strategic business networks as a deliberate strategy of managing environmental uncertainty, of improving one's competitive positioning, and of jointly being better placed to withstand environmental pressures (Finnegan et al., 1998). Indeed it is argued that organisations will have no option but to focus on core competencies, and share expertise, resources and risks with business partners in order to survive and prosper into the future (Li and Williams, 1999).

Thus, it is asserted that the formation of a variety of business alliances, partnerships and collaborations is both an important and increasing trend for many organisations (Volkoff et al., 1999), and it is also a strategic device for catering with an increasing rate of change, increasing complexity, increasing competition, while retaining flexibility and adaptability (Kelly, 1997). Furthermore, an overt purpose in entering into such collaborative relationships may be to ultimately create added value for customers (Brandenburger and Nalebuff, 1996) by each of the partners contributing a unique, but complementary set of skills, resources and competencies not available to the other partners on their own, but which are jointly valued by the end consumer (Marshall et al., 1999). Thus, while the mutual benefit of improved customer satisfaction may be an important facet of the formation of the business relationship, additional value to the collaborators stems from the potential for a stream of opportunities to be realised together over a period of time (Kanter, 1994). Interorganisational collaborations can thus provide opportunities for greater stability in business relationships and can build switching costs for all parties concerned, perhaps an attractive proposition in turbulent times. However, it needs to be noted that this increased stability may not always be desirable as it somewhat mitigates against the need and desire for flexibility and adaptability (Li and Williams, 1999).

Most pundits would argue that IT plays an important role in supporting, facilitating and indeed, enabling these strategic alliances (Nixon et al., 1998; Kraut et al., 1998). Telecommunications technologies and interorganisational systems (IOS) thus become an important component of the strategic business network. Such systems are argued to offer the positive impacts of reducing costs and improving efficiency of transactions (Swatman and Swatman, 1992), of facilitating communication, information quality and information provision (Scala and McGrath, 1993; Li and Williams, 1999), and of improving the competitive positioning of the collaborating partners (Marshall et al., 1999). To an extent, therefore, it must be concluded that skill, foresight and excellence in exploiting the capabilities of IT must be an ingredient in successfully forging strategic business networks.

Thus it can be concluded that the business environment that is rapidly developing (if it is not already

a reality), is one in which distinct boundaries between organisations diminish and dissolve as organisations enter into a variety of possible relationships of varying degrees of strength and commitment with their suppliers, their business customers, their business partners, their end consumers, and even their business competitors (Wigand et al., 1997). The respective fates of collaborating enterprises become increasingly intermingled and interdependent (Marshall et al., 1999), giving rise to business environments being described as an "interconnected ecology of firms" (Moore, 1996), or "symbiotic networks" (Volkoff et al., 1999). This is offered in contradistinction to the organisation as an 'island' notion that was argued to be assumed by the ISP framework previously described. The question that can thus fairly be posed at this stage is whether the ISP framework of the mid-1990s offers an appropriate model for the strategic business networks of the next century.

Towards a Revised Framework for ISP in SBNs

While the ISP literature written during the 1980s and early 1990s did emphasis the external focus of strategic IS (Callon, 1996; Galliers and Sutherland, 1991), there was a definite sense in which SISP remained primarily an internal activity of organisations acting largely in isolation. Various methods, tools and techniques used to guide ISP processes involved members of an organisation scanning their external business environment (for opportunities and threats), in developing an understanding of their customers' needs and values (with the view to developing systems to provide real benefits to customers), to considering their business strategies (with a view to using IT to help achieve desired objectives and goals), and so on (see Remenyi, 1991, for example). Thus, ISP activity acknowledged the external business & IT environment (Ward and Griffiths, 1996) and hence became more outward looking, without too much consideration of the potential of various characteristics of the virtual organisation (flexible, temporary structures, heavy reliance on outsourcing of various functions and activities, and interorganisational business processes, for example) to make fundamental changes to the IS/IT requirements of a network of associated organisations.

There has been no real sense in which SISP has been viewed or presented as an *interorganisational* activity, where SISP is taking place simultaneously in a number of organisations whose operations have become highly interdependent and interconnected. With the virtual organisation concept, there seems to be a distinct sense in which ISP cannot sensibly be undertaken in one part of the 'organism' or 'ecosystem' (Moore, 1996) without also being conducted in other parts of the organism at much the same time. Admittedly some 'big' players still use market dominance to stretch their systems outwards into

other, smaller players in an industry, simply through enforcing their adoption and compliance, but electronic commerce networks and marketplaces of interconnected small and medium enterprises imply that these might be the exception rather than the norm. Figure 2 is an attempt to represent this notion.

Figure 2 Interconnected Ecologies of Firms
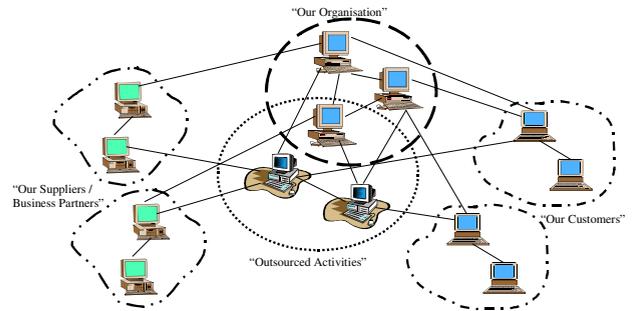
If, as some suggest, (Metes et al., 1998, for example), the model of the virtual organisation, or the strategic business network becomes more prevalent, then there are important ramifications for ISP. Notions of organisational boundaries blur, implying that notions of corporate ownership of particular databases may need to be reconsidered, as must the concept of corporate data as an important resource. So too must concepts of business processes change. If organisational boundaries become more 'rubbery' and porous than previously was the case, concepts of internal and external processes, and hence ownership of and responsibility for business processes change. If simultaneously both loose and tight linkages are sought to suppliers and business partners, to satellite entities to whom former activities have been outsourced, and to customers, and if we also rely heavily on IT to communicate, coordinate and control activities in this organic structure, then it seems totally inappropriate to continue to regard ISP as something done within a single organisation for reasons of efficiency, effectiveness and competitive advantage, even if this is accomplished through peeping outwards into the external environment.

Let us imagine a number of collaborating enterprises. They have recognised the mutual benefits of collaborating in some way, acknowledging the contribution that each can make, have formally entered into some sort of deal or contractual arrangement, and are now in the process of making the collaboration work and of realising the benefits of that partnership. This process must involve discovering differences, of negotiating and creating mechanisms to resolve differences, requiring internal changes to be made to the three collaborators.

Figure 3 Business & IT Environments of SBNs
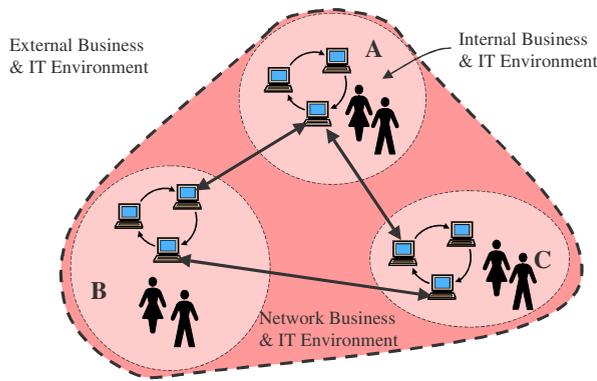
Each bring to the relationship not only a set of complementary skills, assets, resources and competencies, but also, three discrete internal business environments, including notions such as visions, goals and objectives, decision making styles and processes, patterns of communication and interaction, business processes and approaches to 'doing business', corporate cultures, learning styles, attitudes to risk and planning, and so on. As they strive to work together at some level for some purpose, as they strive to reconcile different objectives and approaches, arguably there is created a network business environment in which each collaborate. Participating in the collaboration, however, and hence becoming part of the network business environment, is likely to cause changes to the individual internal business environments. Each individual organisation's interaction with the external business environment is thus now mediated through the network business environment, at least as far as the extent of their collaboration is concerned. Individually, these organisations may in other circumstances interact directly with the external business environment, but at least in terms of the strategic business network formed through their collaboration, this is tempered by the emergent network business environment.

As the strategic business network develops and matures, collaboration will arguably develop on at least three levels. At a strategic level, arguably an important task will be to articulate a shared vision and purpose for the collaboration, and to develop shared goals and objectives. This is argued to be an on-going activity throughout the life of the strategic business network. At a more tactical level, collaboration and planning for specific projects or ventures needs to occur, and strategies for knowledge management and transfer put in place to appropriately service the life of the project. And at a much more operational level, mechanisms need to be in place to ensure that people have the information resources and support required to accomplish these tasks (Kanter, 1994). If this collection of activities was going on within the confines of a single organisation, or business unit, they would typically nowadays be well supported by

information, IS and IT, and would thus come under consideration during an ISP exercise, during which an inventory and evaluation of existing IS/IT assets as well as a prioritized statement of future information, IS and IT needs would be articulated. If the strategic business network created through organisational collaboration is to be anything more than transient and totally opportunistic, then it seem reasonable to assert that an ISP activity (including the notion of everyday thinking and reflection about IS/IT) to support the ever-maturing strategic business network over time is important. Furthermore, it is asserted that in current climes, IS/IT may itself be the enabling mechanism by which collaboration at a strategic, tactical and operational level is made possible. Arguably therefore, ISP for strategic business networks is an important activity.

When considering the ISP required for strategic business networks, internal and external IT environments must also be considered. Thus, it is asserted that organisations each individually possess an IS/IT maturity and legacy which they bring to the strategic business network. Out of these emerges a network IT environment, which in turn, will have implications for the internal IT environments of the individual members. Issues to do with the compatibility of the respective IT environments, and compatibility of management attitudes to IS/IT need to be addressed here. So too does the use of and reliance on consultants, as individually, the organisations may have very different histories in this regard.

Thus, a revised framework for ISP is offered in Figure 4 below, taking into account the particular nature and requirements of strategic business networks.

Figure 4 A Revised Framework for ISP in SBNs
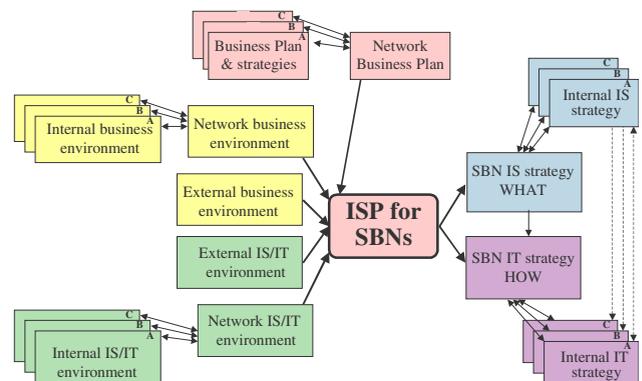
Conclusion

The motivation for this paper stemmed from concerns about the adequacy of existing frameworks of ISP, given the trend towards networks of cooperating and interdependent entities. Arguments have been put

forward to support these concerns and to highlight the limitations of existing frameworks. From this discussion emerged a new framework to support ISP in SBNs, designed in an attempt to embrace new organisational realities.

However the framework proffered here may be tempered by a number of different factors. The relative size and power of the collaborating partners may be significant, for example. Other researchers suggest that the history of the collaborators with respect to establishing routine, transaction-based interorganisational systems may be important in facilitating their migration to more strategic-type IOS (Li and Williams, 1999), and hence it could be argued, to ISP for SBNs. Li and Williams (1999) suggest that the learning involved in establishing operational level IOSs is an important precursor to a willingness to establish more strategic level connections. Thus it might be expected that a successful history amongst the collaborators in the planning and development of a specific system may be necessary before there is a willingness to engage in any truly interorganisational ISP.

Arguably conceptual models of ISP need to change as well. Too often it seems that ISP is regarded as a formal, finite activity, done to produce a specific document (the IS plan), and then is no longer done for some time. This view is completely at odds with the view of the authors who see planning in turbulent and uncertain times as a vital and increasing activity, such that it permeates everyday thinking about IS/IT. Accompanying this notion there is clearly a need for new techniques that emphasize strategic thinking and positioning as distinct from formal bureaucratic planning and that focus on the nature and richness of partnerships and alliances with suppliers, customers and business partners are needed to enhance ISP for SBNs.

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