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IS PLANNING

EVALUATION OF STRATEGIC INFORMATION SYSTEMS PLANNING (SISP): DRIVERS PERCEPTION

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Abstract

With the emerging evaluation of information systems (IS)/information technology (IT) as strategic enablers, this paper critically reviews the literature relating to the strategic drivers of IS. Understanding the importance of IS drivers can be critical in designing IS strategy within an organisation, even though most organisations are diverse in their environments and, likewise, diverse regarding which drivers are significant for decision makers. Thus, taxonomies of IS's strategic drivers will be produced from both the academic literature and published case studies. In this way, a classification of drivers as they relate to organisational strategic focus has been developed to help understand which drivers are needed for obtaining a specific focus. The result of this paper is taxonomy of strategic information systems planning (SISP) drivers regarding the strategic focus of IS, using X airlines as a case study. This categorisation can support the evaluation of SISP processes, which will, in turn, support decision makers throughout the planning process.

Keywords: *SISP, IS Strategic Drivers, Global Business, Case Study*

1 STRATEGIC INFORMATION SYSTEMS PLANNING, STRATEGIC DRIVERS, AND THE GLOBAL ENVIRONMENT

Developing strategies for business, or even for information systems (IS) as a part of business, is difficult. So managers look for ways to understand the nature of IS strategy planning, ways to evaluate the planning process in the current situation (Irani et al., 2008; Robson, 1997), and methods for planning as a continuous process (Philip, 2007). An IS strategic plan has two aims. First, it aims to obtain direction for IS by clearly identifying the way that IS should operate, which is linked closely to its information technology (IT) mission (Robson, 1997). This mission should be directed by efficiency, effectiveness, and competitiveness (Turban et al., 2005). Second, this way should contain a formalised set of benchmarks (Robson, 1997). Turban et al. (2005) suggested that an IT strategic plan has three objectives: aligning with the business strategic plan; enabling users, applications, and databases to be networked and integrated by providing IT architecture; and supporting IT projects so that they are completed on time, within budget, and with the required functionality by efficiently allocating the IS development resources of these IT projects. Thus, the planning process can be influenced by IS/IT roles.

Some have suggested that IS/IT should form part of firms' strategy, in accordance with IS/IT roles. These roles are administrative, operational, and competitive. The IS/IT automation of accounting and control functions is an example of its administrative role. This role requires the deployment of an efficient IS/IT platform for administration and control regarding the strategic management of the organisation. The operation role is as encompassing as the administrative. This role creates and deploys technology within the organisation, which, in turn, facilitates the automation of the business

processes of administrative activities. This role requires the deployment of IT infrastructure. This requirement also helps in determining a business strategy (Henderson & Venkatraman, 1999; Morgan, 2002). The competitive role focuses on efficiency. It increases the capability of IT/IS attributes to achieve new sources of competitive advantage in the market by deploying new IT/IS applications. This role has a significant impact on organisational transformation (Henderson & Venkatraman, 1999). It supports an organisation's ability to increase its IT/IS capability. Nevertheless, global organisations require a planning team that balances different issues, such as roles, drivers, systems, and approaches to strategy. So understanding global systems is necessary for global organisations in order to ease the exchange of information in a global environment.

An inter-organisational system (IOS) concerns the exchange of information between two or more organisations as the requirement for global business alliance for global firms. This system also connects organisations situated in more than one country and can be used by international organisations, multinational companies, and virtual global firms to complete business-to-business (B2B) or business-to-customer (B2C) operations through the Internet. Some important drivers behind the use of an IOS are reducing costs, increasing the effectiveness of business processes, and reducing the time needed for transactions. Some benefits are avoiding routine costs, reducing errors in information flow, saving time with business transactions, avoiding paper processing, and facilitating the use of information. Another important benefit of IOS is that it improves the relationships between customers and suppliers. It can also be built into private or public networks (Turban et al., 2005). A comprehensive framework proposed by Ives et al. (1993) also applies global business drivers, such as joint resources, risk reduction, global products, quality, suppliers, and customers to support the value obtained from the different scope and scale of global economics (Turban et al., 1997).

From this analysis, no comprehensive and general approach for IS strategic planning appears to exist, but a connection should exist between the elements of an organisation that allocates its important planning elements to its strategic level where the organisational vision and mission are stated. Therefore, organisations can create a model that supports their integration by building a good planning team. Stough et al. (2000) illustrated the importance of a team in the planning process by describing the 'virtual team' and showing how it can incorporate technology to support the team through the planning process. Consequently, keeping in mind the importance of the role of a planning team, this paper classifies the IS strategic drivers as a tool for the planning team. Table 1 shows the classification of IS strategic drivers with explanations.

These drivers are classified according to business, IS, and global business. The strategic level of planning, as a focus of this paper, leads the authors to consider vision statements in the classification. All the drivers should align with organisational capabilities as well as with organisational vision statements and goals.

Driver	Description
Users' politics	Users are important for success in any project according to how they accept or reject the implementation of such projects, especially in strategic projects related to business units. Therefore, their support and contributions are important (Galliers et al., 2003; Hartono et al., 2003; Robson, 1997).
Time	Time is an important driver for many reasons, such as the time to reach the market, time needed for planning, time for implementing the plan, and time to deliver services. All these factors can contribute to positioning an organisation as a leader in the market (Hartono et al., 2003; Robson, 1997).
Budget and cost	Budget and cost can be used as a measurement of the success or failure of the IS investment (Hartono et al., 1997; Robson, 1997; Ward et al., 2002; Weill et al., 2004).

IT architecture	The IT architecture is crucial in many ways, such as utility, dependence, and enabling. Additionally, technical issues play an important part with this driver (Ciborra et al., 2000; Luftman, 2000; Robson, 1997; Weill et al., 2004).
Business process (cost, time, and effectiveness)	Business processes are important for IOS success. They reduce cost, save time, and increase effectiveness (Galliers et al., 2003; Laudon et al., 2004; Pant & Hsu, 1999; Turban et al., 2005).
Executive skills and commitments	Executives lead important projects in an organisation by supporting and tailoring them. Their skills in management and analysis are important as well (Benson et al., 2004; Laudon et al., 2004; Pant & Hsu, 1999; Robson, 1997).
Global business and geography	The boundaries of a business should receive attention from the planning team to obtain realistic and successful planning and implementation with consideration of aspects such as legal, cultural, political, and religious issues and different geographical areas (Laudon et al., 2004; Newkrik et al., 2003; Shore, 2006).
Nature of the organisation	The nature of the organisation is a very important driver because it affects and relates to the importance of IS. Service organisations are different from production organisations. Types of industries are also different. Therefore, applying IS in different types of organisations and industries would be different, too (Newkrik et al., 2003; Robson, 1997).
Importance of IS	As mentioned in the nature of organisation drivers, the importance of IS depends on how much organisations rely on information. Therefore, it differs from one industry to another. Moreover, it differs at different times for the same organisation (Laudon et al., 2004; Robson, 1997).
Organisational situation	The organisational situation affects organisational reactions to changes and problems because the organisation faces changeable environments that differ at different times. This necessitates flexible control and creative planning (Newkrik et al., 2003; Robson, 1997; Ward et al., 2002).
Joint resources	This driver expresses to what extent a firm can create collaboration among its resources, such as employees, suppliers, and business units (Benson et al., 2004; Luftman, 2000; Turban et al., 1997).
Risk reduction	Risk reduction is a firm's ability to avoid and manage risk through obtaining information (Robson, 1997; Turban et al., 1997).
Global product/service	As mentioned with regard to global business, global products and services can be affected by many issues. Therefore, planners should differentiate between regions in terms of products/services issues, such as marketing, finance, and standards (Turban et al., 1997; Ward et al., 2002).
Quality	Quality supports control by developing standards, milestones, and processes for performance (Galliers et al., 2003; Turban et al., 1997; Weill et al., 2004).
Suppliers	This driver expresses the relationship between the organisation and its suppliers, as the latter can affect the former in many ways, such as relating to the cost of materials, systems integrations, creativity, and information (Laudon et al., 2004; Turban et al., 1997; Ward et al., 2002).
Corporate customers	The relationship between a firm and its customers is crucial in the planning process in terms of competitiveness, customer satisfaction, customer information, and customer services (Benson et al., 2004; Turban et al., 1997).

Table 1. The Drivers of the IS Planning Process and Their Description

As shown in the description section, most of these drivers influence each other. Therefore, they are connected, and they must be considered in the planning process. The business process driver, for example, influences the cost, time, and users factors. They have an important position in the evaluation of planning techniques. Table 2 presents the case studies of strategic information systems planning (SISP) drivers' validation. The 'V' means that the driver was considered by the case.

Case study	Reference	Drivers														
		Users' politics	Time	Budget and cost	IT architecture	Business process	Executive skills and commitments	Global business and geographical factors	Nature of the organisation	Importance of IS	Organisational situation	Joint resources	Risk reduction	Global products/services	Quality	Suppliers
Skandia Re-insurance	Earl (1996)			√	√		√					√	√			
A Insurance Company	Galliers (2003)	√	√		√		√		√	√	√					
Adidas	<i>Retail Technology Quarterly</i> (2005)	√	√		√	√	√	√	√	√	√		√			√
General Motors (GM)	Hoffman (2007)	√	√	√	√	√	√	√	√		√		√		√	
Piper Jaffray Companies	Darling (1996)	√			√		√	√	√		√				√	
International Chemical	Sledgianowski and Luftman (2005)	√		√	√	√	√	√	√	√	√	√	√	√	√	√

Table 2. The Drivers of SISP and Their Case Studies Validation

2 RESEARCH METHODOLOGY

IS/IT planning is a strategic issue, which means that it relates to business strategy. Many dimensions must be covered, such as strategic analysis, competitiveness, and aligning. Positive IS/IT planning requires justifying IT/IS strategic drivers. Thus, we must understand these drivers using “how” and “why” questions, as well as the dimensions that may affect such justification using “what” questions as expressed in the context, content, and process (CCP) framework for IS evaluation (Irani et al., 2008). Therefore, a case study strategy must be used. Case studies suggest that business and management research should result from both theoretical and practical issues. They distinguish between basic research (which is a more scientific approach) and applied research (which is a more practical approach in its purpose and context) (Saunders et al., 2003). A single case has been selected for studying and focusing on IS/IT strategic planning. X Airlines was chosen for this case study because its IS/IT is comprehensive in implementation and important for survival. The objective of this study is to investigate the justification for IS strategic planning drivers and techniques. This was accomplished by interviewing high-level managers and IT managers. The case study strategy was selected because it is the most practical for business and management research. It uses empirical investigation of a specific phenomenon in real life, in addition to multi-source methods of data collection. It helps to achieve greater understanding of the research context and process. It supports the “why,” “what,” and “how” questions because of its ability to use multi-methods, such as interviews, document analysis, and observation, to collect data (Yin, 2003).

There were seven interviewees. Three of these interviewees were from IT—namely, the vice chief of information systems for strategy (ISP), the system manager for IT network planning (ERP), and the system manager for systems integration (IP). Three managers were from business—namely, the vice president of corporate services, the senior manager for global projects (GNP), and the senior manager for communication systems (CIS). The seventh interviewee supported and coordinated the connection between the interviewer and the interviewees and collected some IT strategic documents. The interviews were conducted in a systematic way, starting with IS activity, in order to understand the available activities in it and how it works. All the interviews were semi-structured interviews because of the need for understanding the situation and for giving the interviewees direction to provide as much information possible. All of the interviews were recorded and transcribed for clarity. Then they were sent to the interviewees to be reviewed for validity. The maximum time for the interviews was 1.5 hours. All the data from the interviews and documents were linked together.

3 CASE STUDY FINDINGS AND SYNTHESIS

Regarding increasing competitiveness within the airline industry, the business has developed into a complex environment where planning should be comprehensive. X Airlines believes that comprehensive or integrated planning is needed to obtain and sustain a suitable position within the industry, especially with its focus on the global dimension. Therefore, engaging IS as strategic units within the strategic planning process for the organisation as a whole has become vital, as both Robson (1997) and Turban et al. (2005) expressed.

Accordingly, a challenge has come from the misunderstanding of top administrators and executives about the meaning of strategic planning and its value. Because they are in top management themselves, this presented a major challenge for them. Less than a year after the arrival of the new CEO at X Airlines, things began to change. He communicated a clear vision of strategic planning to the lowest level of management, and the significance of strategic planning was recognised, as suggested by Benson et al. (2004), Laudon et al. (2004), Robson (1997), and Pant and Hsu (1999). What was left were the tools—the translation of strategic planning into reality. Learning at other management levels and skills development for differentiation in implementation are needed.

Financial support and the IT budget constitute other challenges. Funding has been limited, especially in the past. Many strategies existed, but sufficient funding was not available to implement the necessary strategies. Therefore, both human resources and finance availability are extremely poor. This led to a lack of inter-organisational and intra-organisational collaborations as strategic communication. Nonetheless, planning strategically for global business without a decision-making requirement has caused the company to lose its competitiveness as a global company. Because sufficient data was not available for decision making, the benefits, requirements, and drivers have not been identified for the strategic planning of IS/IT in the company. This has led to a misuse of IS/IT. Consequently, the company has not been as competitive as it should be. As one interviewer said, *'The drivers, motivations, though, I don't believe that they are as strong as needed. Drivers are external – there are external factors'*. The following sections show the position of X airlines in analysing the IS strategic drivers.

3.1 IS Strategic Drivers in X Airlines

Table 3 reviews the SISP drivers from interviewees' insights (ISP, ERP, IP, CIS, and GNP) as the interview agenda was formulated. This framework for evaluation of the SISP techniques attempted to evaluate the assessment of SISP techniques from the views of different stakeholders. Table 4 shows the interviewees' insights regarding SISP drivers to assess SISP techniques. The authors considered the Miles and Huberman (1994) scales for its similarities as high importance (!), medium importance (%), and low importance (∇) because there are three levels of importance in describing the drivers of SISP within X Airlines; the empty cells indicate that the interviewees provided no information.

Driver	ISP	ERP	IP	CIS	GNP
Users' politics	%	!	%	!	!
Time	!	%	!	!	%
Budget and cost	!	%	!	!	!
IT architecture	!	!	%	!	!
Business process (cost, time, and effectiveness)	!	!	%	%	!
Executive skills and commitments	!	!	%	%	!
Global business and geographical factors	%	!	!	!	%
Nature of the organisation	%	%	!	!	%
Importance of IS	!	!	!	!	!
Organisation situation	%	%	!	!	!
Joint resources	%	%	%	!	%
Risk reduction	%	%	∇	%	!
Global products/services	!	%	!	!	%
Quality	!	%	%	!	!
Suppliers	!	%	∇	!	%
Corporate customers	!	!	∇	!	!
Other – skills	!				
Other – infrastructure	!				
Other – technology trends					!

Table 3. The SISP Drivers from Interviewees' Insights in X

Interviewees provided both similar and different insights, as has been shown in Table 3, but the shared similarities are fewer regarding SISP drivers. Most of these drivers are considered to be of high or medium importance within the X planning process. So far, the differences between the interviewees' insights relating to many drivers are not significant, such as time, users' politics, suppliers, and corporate customers. Time, for instance, has been identified by Hartono et al. (2003) and Robson (1997) as an important driver in strategic planning. Thus, when the IP was asked about the time, he said. *'Time is very*

important in the process of planning because we are in a struggle with time. Man dates business to move up to the highest levels in the state. We have a ceiling under which we move, and we do not have open time or a long time to use. The CEO has sent messages to all sectors of the company that we have to be a private company by the year 2010. This means that we've a very challenging time frame'. The GNP said the following about time: '[To] make a system, it takes time. To have a fully integrated system meeting the purpose you've not to speed up'.

Regarding risk reduction as a driver, the interviewees had different insights. The ISP, ERP, and CIS ranked it as medially important, whereas the GNP ranked it as highly important. The IP, on the other hand, ranked it with low importance. The IP explained his answer regarding risk reduction in the following way: 'Very risky, projects want to take risk. The trend is that they are becoming more risk takers. The risk is not high priority. To take risks is dangerous. It means complete change of the reservation system, complete change in aviation and labour system, complete change in human resources system and complete change in maintenance system at the same time. Yes, it is risky, but it is not in consideration'.

As mentioned in the Table 1, the importance of IS depends on how much organisations rely on information. All the interviewees agreed on the importance of IS as a driver of high importance. Other drivers, such as skills, infrastructure, and technology trends, were considered by interviewees as SISP process drivers, but these drivers have not been considered in the literature.

3.2 Drivers vs. Strategic Focus in X Airlines

Then the interviewees were required to evaluate the drivers of SISP, applying the strategic focus categories of criteria classified in the research methodology section. Table 4 shows that the interviewees' insights about SISP drivers with the same symbols mentioned in section 3.1.

Driver	Strategy Focus											
	Strategic analysis				Competitiveness				Aligning			
	ISP	IP	CIS	GNP	ISP	IP	CIS	GNP	ISP	IP	CIS	GNP
Users' politics	!	!	!			!				!	!	!
Time		!	!	!	!	!	!	!	!	!	!	!
Budget and cost	!		!	!	!	!		!	!	!		!
IT architecture	!	!	%	!	!		%	!	!		%	!
Business process (cost, time, and effectiveness)	!	!		!	!	!	!	!	!	!	!	!
Executive skills and commitments	!	!	!	!	!	!			!	!		!
Global business and geographical factors	!	!	!		!	!		!	!	!		
Nature of the organisation		!	!	!	!	!			!	!		!
Importance of IS		!	!	!	!	!	!	!	!	!	!	!
Organisational situation	!	!	!	!		!	!	!		!		!
Joint resources		!		!		!		!	!	!		!
Risk reduction	!	∇	!	!		!				!		!
Global products/services		!	!		!	!		!		!		
Quality	!	!	!	!	!	!		!	!	!		!
Suppliers	!	!	%	!	!	!		!	!			
Corporate customers	!	!	!	!	!	!		!	!	!		!

Table 4. X's SISP Drivers vs. Strategic Focus

While the connection between the strategic focus and the SISP drivers is one of the criteria for evaluating SISP techniques, at X, not all the interviewees were able to complete this task. All the interviewees completed the task of drivers vs. strategic focus, notwithstanding the ERP who redirected this task to ISP. So Table 4 demonstrates the connection between the strategic focus and SISP drivers of X as follows:

3.3 Strategic Analyses Focus vs. Drivers

Table 4 shows that there are some similarities and differences among the interviewees' insights. Most of these insights give a rank of high importance. Even though most of the interviewees' insights were different, they all ranked some drivers as being of high importance, such as executives' skills and commitment, organisational situation, quality, and corporate customers. Even so, the IP considered risk reduction as having a low importance ranking, whereas all other interviewees considered it to have a high importance ranking.

Competitiveness Focus vs. Drivers

Table 4 indicates some similarities and differences among the interviewees' insights. Most of these insights are ranked with high importance. Although most of the interviewees' insights were different, they all ranked some drivers as being of high importance, such as time, business process, and the importance of IS. Nevertheless, only the IP considered both user politics and risk reduction to have a high importance in this focus, whereas other interviewees did not consider them so. IT architecture as a driver was ranked by the CIS as having medium importance in this focus.

Aligning Focus vs. Drivers

Some similarities and differences exist among the interviewees' insights, as Table 4 shows. Most of these insights were ranked with high importance. Despite the fact that most of the interviewees' insights were similar in some drivers— they all ranked some drivers as being of high importance, such as time, business process, and the importance of IS—the IP, CIS, and GNP did not consider suppliers to be important, whereas the ISP considered them highly important. Additionally, both the CIS and GNP considered global business and geographical drivers unimportant, whereas the ISP and IP both ranked them as highly important. Nevertheless, the IP is the only one who considered the global products/services driver to be highly important.

4 CONCLUSIONS AND LESSONS LEARNED

This research has presented a critical review of the literature relating to the drivers of IS strategic planning at X Airlines. The research started with a discussion of the strategic planning of IS. This general discussion illustrated that certain drivers are important to the planning process. From the literature, the taxonomies of drivers developed, and to validate these taxonomies, published case studies were analysed.

After the IS strategic planning drivers were identified, they were connected to the investigation and evaluation of IS strategic planning at X Airlines (this paper's contribution). The main result of the case study shows a lack of attention to IS/IT as strategic business units. This has created an insufficient process for the justification of IS/IT strategic drivers to support the decision makers. These drivers have been identified as criteria for evaluating IS strategic planning techniques to support decision makers through the planning process. In other words, implementing such taxonomy may support successful practical implementation because it considers different stakeholders' points of view. Such stakeholders may be rich in knowledge and may have broad points of view regarding the improvement of IS drivers. Implementation should be structured and built in a systematic way with an understanding of the circumstances and environment.

This research was limited by the small number of cases. However, access to organisations and high-level managers is difficult in terms of confidentiality. So future research can consider this and apply the concept in different industries to develop a wider overview for SISP.

The lessons learned have been extracted from the application, analysis, and discussion of the case study. Thus, they come from real-life practice during the collection of the practical data of the case study for the evaluation of the IS strategic planning drivers. The lessons, which can help to improve the evaluation of the SISP by evaluating IS strategic drivers, are as follows:

- Justification for investing in IS and identifying the critical criteria for IS evaluation is important in evaluating IS. This can be done by understanding both the goals and the business of an organisation through IS activity to obtain and realise the involvement of IS activity at the strategic level.
- A team responsible for IS strategic planning should be developed after understanding that IS contribution can be a strategic activity. This supports allocation of responsibility and involvement of core business activities that benefit from IS contributions.
- One of the strategic planning team's responsibilities is to identify the IS strategic drivers.

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