

July 2008

INFORMATION SYSTEMS PLANNING IN THE COMPETITIVE ERA: RELATIONSHIP BETWEEN PLANNING PARAMETERS AND IS PERFORMANCE IN INDIAN ORGANIZATIONS

Ganesan Kannabiran

National Institute of Technology, Tiruchirappalli, India, kb@nitt.edu

Sherif Kamel

American University in Cairo, Egypt, skamel@aucegypt.edu

Purushothaman Vijayaraghavan

Indian Institute of Technology, pvr@iitm.ac.in

Follow this and additional works at: <http://aisel.aisnet.org/pacis2008>

Recommended Citation

Kannabiran, Ganesan; Kamel, Sherif; and Vijayaraghavan, Purushothaman, "INFORMATION SYSTEMS PLANNING IN THE COMPETITIVE ERA: RELATIONSHIP BETWEEN PLANNING PARAMETERS AND IS PERFORMANCE IN INDIAN ORGANIZATIONS" (2008). *PACIS 2008 Proceedings*. 165.

<http://aisel.aisnet.org/pacis2008/165>

This material is brought to you by the Pacific Asia Conference on Information Systems (PACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in PACIS 2008 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

INFORMATION SYSTEMS PLANNING IN THE COMPETITIVE ERA: RELATIONSHIP BETWEEN PLANNING PARAMETERS AND IS PERFORMANCE IN INDIAN ORGANIZATIONS

Kannabiran, Ganesan, National Institute of Technology, Tiruchirappalli, India, kb@nitt.edu

Sherif Kamel, School of Business, American University in Cairo, Egypt, skamel@aucegypt.edu

Vijayaraghavan, Purushothaman, Indian Institute of Technology, Madras, India, pvr@iitm.ac.in

Abstract

Growing competition and increasing Information Technology (IT) competence have led organizations in India to leverage IT as a strategic resource for creating competitiveness. The emerging role of IT has major implications on Strategic IS Planning (SISP) in the competitive era. The objective of the paper is to investigate the relationship between information systems planning parameters and IS performance in Indian organizations. Based on longitudinal case studies of three Indian organizations from diverse industries, we investigate five key planning parameters- BP-ISP (Business Planning - Information System Planning) alignment, formalization, implementation plan, user involvement and role of IS function and relate them to the IS performance of the organizations. Our research reveals that organizations in India are able to achieve strategic advantage through IT by integrating IS planning with business planning, including implementation plan as part of the strategy and better management of user involvement. Based on the analysis, we present a set of lessons for effective IS strategy planning in developing countries, along with directions for further research.

Key words: IS strategic planning- parameters- IS performance- developing countries- India

1. INTRODUCTION

Information systems strategy planning is the process through which organizations identify a portfolio of IT applications to achieve their business objectives (Lederer & Sethi, 1998; Teo & Aug, 1997; Wexelbat & Srinivasan, 1999). It starts from identifying IT applications and underlying technologies for the present and future needs of the business. In a competitive business environment, effective information system planning is important because it shapes and changes the way a company does its business (Ang et al, 1995, Salmela & Spil, 2002). The essence of IS strategy not only encompasses issues concerning technology management but also involves a broad range of organizational and human factors (Raghunathan & Raghunathan, 1994; Bowman & Kakabads, 1997; Salmela & Spil, 2002; Wang & Tai, 2003; Barnes et al, 2003). IS research in developing countries such as India has largely focused on social and developmental issues (Bhatnagar & Odedra, 1992; Madon, 1992). Existing literature focuses on the weaknesses in national setting and the contextual factors, including state of expertise, availability of technology and infrastructure, lack of financial and human capital, and constraints imposed by social contexts (Bhatnagar & Bjorn-Andersen, 1990). It is found that IS planning practices in developing countries are wrought with challenges (Jain, 1997; Avgerou, 1998; Kanungo et al, 2001; Heeks, 2002, Gupta & Sanjay, 2004). In India, the focus of IT applications in terms of its value to business has transformed from efficiency to effectiveness benefits to competitive advantage in a short period of time (Dasgupta et al, 1999; Gupta & Sanjay, 2004).

Successful IT exploitations have been found literature (Banerjee, 2001; Sahay & Mohan, 2003; Rahman, 2004; Jharkharia & Shankar, 2005). Research examining the IS planning in the developing country context is limited, despite the recognized need for understanding the issues of IS management (Montealegre, 1999;

Aladwani, 2001). The objective of our research is to investigate the relationship between information systems planning parameters- BP-ISP alignment, formalization, implementation plan, user involvement and role of IS function and IS performance in Indian organizations. In order to achieve this, we conducted exploratory case studies of three Indian organizations. These three case studies revealed a number of aspects that can be used to evolve appropriate IS planning approaches in the developing countries. In the first section of the paper, we review relevant literature on this topic. Then, we present the three cases and discuss the relationship between planning parameters and IS performance. Based on our findings, we present a set of implications for IS strategic planning in developing country context and present implications for research and practice.

2. PREVIOUS RESEARCH

Organizations look for applications of strategic significance, which will help them to face the competitive pressures (Segars & Grover, 1998; Choe et al. 1998; Stratopoulos & Dehning, 2003). Accordingly, organizations deploy better approaches for Strategic Information Systems Planning (SISP) to maximize the value of IT. SISP has consistently been one of the critical issues facing senior executives as organizations are increasingly dependent on IS planners to help them improve profitability in highly competitive markets (Tang & Tang, 1996; Lederer & Sethi, 1988). Therefore, it is understood that SISP is a rational and socio-technical process, which is influenced by several parameters (Das et al, 1991; Earl, 1993; Gottschalk, 1999; Kanungo et al, 2001; Basu et al, 2002; Wang & Tai, 2003). We find that some of the parameters have been repeatedly stressed for their importance in effective IS planning in organizations. They are: Business Planning (BP) - Information System Planning (ISP) alignment, formalization, implementation plan, user involvement and role of IS function. Previous research studies relating to these parameters are presented in Table 1.

Parameter	Key research findings	References
BP-ISP alignment	Meaning of alignment	Das et al 1991; Reich & Benbasat, 1996; Tea & Ang, 1999
	Need for alignment	Luftman, 1998; Henderson & Venkatraman, 1999; Partridge et al, 2000; Sabherwal & Chan, 2001, Newkirk et al, 2003
	Benefit of alignment	Teo & King, 1996, Lederer & Mendelow 1986; Kearns & Lederer, 2000; Hirschheim & Sabherwal, 2001
	Alignment mechanisms	Lederer & Mendelow, 1989; King & Zmud, 1981; Chan et al, 1997; Das et al, 1991; Brown & Magill, 1994; Basu et al, 2002; King & Teo, 1994; Teo & King, 1999
	Roles involved	Armstrong & Sambamurthy, 1999; Gottschalk, 2001, Basu et al, 2002
Formalization	Meaning of formalization	Gupta & Raghunathan, 1989; Lederer & Sethi, 1992, Segars, 1994; Teo & Ang, 2001
	Importance of formalization	Ball, 1982; Lederer & Mendelow, 1989; Sabherwal, 1999
	Dissemination of IS plans	Reich, 1992; Coakley et al. 1995; Papp & Luftman, 1995
Implementation planning	Need for implementation planning	Adriaans, 1993; Lederer & Mendelow, 1993; Lederer & Sethi, 1988, Lederer & Salmela, 1996; Gottschalk, 1999
	Implementation responsibility	Gottschalk, 1999; Segars & Grover, 1998; Min et al, 1999
	Time dimension of implementation	Ciborra 1994; Min et al., 1999; Lee & Pai, 2003; Flynn & Arce, 1995, Earl, 1993; Ward et al 1996; Lederer & Sethi, 1998; Gottschalk, 1999
	Detail dimension of implementation	Hartono et al, 2003; Ward & Peppard 1996; Lederer & Sethi, 1996, 1998; Hackney & McBride, 2002; Basu et al, 2002

User involvement	Importance of user involvement	Salmela et al, 2000
	Increasing user involvement	Segars & Grover, 1998; Peppard & Ward, 1999, Hartono et al. 2003
	Issues in user involvement	Segars & Grover, 1998; Gottschalk, 2001
Role of IS function	Changing role of IS function	Das et al, 1991; Raymond, 1995; Henderson & Venkatraman, 1999
	Need for leadership	Stephens et al, 1992; Enns & Huff, 1999; Gottschalk, 1999
IS performance	Strategic role of IT	Ang & Quek, 1999; Kettinger et al, 1994; Heo & Han, 2003
	Attainment of IS objectives	Boynton et al, 1992; Lederer & Sethi, 1996; Segars & Grover, 1996; Hackney & McBride, 2002; Chan, 2002; Heo & Han, 2003; Newkirk et al, 2003

Table 1-Previous research studies relating to IS strategic planning

3. RESEARCH OBJECTIVES AND METHOD

The primary objective of our research is to assess planning parameters and relate them to IS performance in Indian organizations. Given the little empirical knowledge on IS planning practices in Indian organizations, and the exploratory nature of the study, qualitative case-study approach was considered appropriate for our research (Orlikowski & Baroudi, 1991; Yin 1994). Case research, as part of qualitative methodologies, is an appropriate approach to study IS and business strategy (Li & Chang, 2004; Jeyaraj & Janson, 2003). Further, a qualitative case study is more useful to communicate the practical usefulness of the research, as IS practitioners welcome qualitative case-oriented studies (Benbasat & Zmud, 1999). In order to ensure a fairly generalizable set of results, we have considered examining firms in three different segments of industry. Therefore, three firms operating in manufacturing, media & publishing and healthcare sectors were chosen for our study. These three organizations were selected on the basis of their business as well as IT performance. All the three organizations we studied were leading players in their respective industries with sizeable market shares. Moreover, they had made significant investments in information technologies and systems as cited by Indian business media. These organizations from three different industry segments were facing tumultuous changes in the business environment, especially with reference to competition arising out of globalized economy. Further, these organizations were responding to the challenges through a variety of strategies, including strategic use of IT. Due to nondisclosure agreement with these organizations, their identities are not disclosed and are referred as sites-1, 2 and 3.

The research spanned almost over three years during which a planning exercise was carried out. We used open and semi-structured interviews with the CIOs and IS managers to obtain data for our longitudinal study. In the case of CIOs and IS managers, the interview protocol included questions relating to context of SISP, processes and roles involved in planning, time horizon, key applications identified, resources planning and implementation planning, level of attainment of IS objectives, and challenges faced in management change. The interviews with senior executives covered aspects relating to the strategic role of IT, specific instances of participation in planning, review and control mechanisms, key challenges faced and guidance by the top management. Functional managers were interviewed to understand the aspects relating to user participation in planning, IS benefits to their functions and end-user satisfaction. These interviews were conducted through site-visits by the first author to each of the three companies. Interview sessions typically lasted for 45 to 60 minutes. Five sessions of interviews with each CIO and four interviews with senior management and functional managers were conducted in each organization. Wherever available, data obtained through 'key informants' were supplemented with archival data such as annual reports, IS strategic plans, and other related documentation. Use of multiple-informants and use of archival data helped us crosscheck pertinent information and verify the reliability of data obtained. The analysis is carried out for each planning parameter using triangulation of data obtained through interviews and documents.

4. ANALYSIS OF CASES

The first case site (site-1) is a large automobile company involved in manufacturing and marketing of passenger cars located in central India. After the economic liberalization program was introduced in the country in the early '90s, the government realized the high growth potential for passenger cars. As a result, major auto manufacturers from Japan, Korea, and United States were encouraged to set up manufacturing and marketing operations in India. Thus, the organization started facing a stiff competition in the later part of the '90s and this led to a set of strategies to maintain its leadership and improve profitability. The business strategies were reoriented with the twin objectives of being closer to the market and continuous improvement operational efficiency. The first objective led to strategies to understand customer preferences and the exact translation of those strategies into volumes of sales volumes. Regarding the second objective, clear targets were set to improve productivity, which not only benefited the customers and business partners but also improved the return to the stakeholders. The company also diversified into related businesses with a view to offer the customers an end-to-end service.

The second case site (site-2) is a leading publishing organization located in southern part of India, which publishes dailies and weeklies, apart from other miscellaneous publications. In the liberalized economy, the company had to face many challenges. Reforms led to increased level of business activities across the sectors of economy and thereby increasing the scope for advertising revenues. Dominant players from other parts of the country have entered into the captive market in the late 90's through launch of editions with focus on southern India to capture advertising revenues. Further, from a single government-run television channel, the number of channels grew in many folds. These changes in the market dynamics coupled with emergence of on-line news providers have led the organization to question its strategies. The need for market-oriented strategies and continuous improvement of operational efficiency has led to significant usage of IT for higher levels of benefits. Government was also considering opening up to international competition. The organization had deployed several high-end IS applications to support printing and remote-publishing as well as to manage its advertising revenues. The organization has electronic links among its publishing centers at multiple locations as well as with several agencies that bring in advertisements for publications.

The third case site (site-3) is a large health-care provider in India, involved in providing comprehensive medical care and consultancy in setting up hospital and related services. As the economy opened up, several players with adequate financial strength and technical collaboration with leading healthcare providers from developed countries have entered the industry. Further due to encouraging policy initiatives of the government mid-sized hospitals scaled up their operation in cities where the company had operations due to encouraging policy initiatives of the government. The company was looking at enlarging its operations by setting up hospitals in mid-sized towns with the aim of serving larger market bases and also sharing key resources. The company used Telemedicine as a business strategy to enter into rural markets, which are normally, disconnected locations from cities and towns. The company also exploited the overseas business opportunities either by establishing hospitals in other countries or by attracting the customers to India. This new approach to attract customers to India led to a new business called 'medical tourism'. This company has deployed IT in core internal functions as well as established links with other business partners. The key business and IT characteristics of the three case sites are presented in Table 2. Based on the data obtained from the three organizations we analyze the planning parameters in the following sections.

Characteristics	Site-1	Site-2	Site-3
Industry segment	Manufacturing/Automobile	Media and publishing	Healthcare
Type of ownership	Japanese auto major/Indian government	Family-owned	Public Limited

Market leadership	Market leader with highest market share	Market leader at regional level with sizeable market share	Pioneer and market leader in corporate healthcare
Impact of competition	Reducing market share and need for diversification to other businesses, need to improve operational efficiency	Possibility of reducing market share and need to explore new markets, exploring new areas of opportunities	Emerging competition, need for exploring new markets and new offering through external integration
Key IT application areas	Internet-based supplier portal, dealer portal, corporate Intranet, component tracking systems, ERP based internal integration, decision support systems, Knowledge management	News collection, computer assisted page-making, decentralized printing, linkages with advertising companies, circulation management	IT enabled internal integration, integration with business partners, Telemedicine centers

Table 2- Key business and IT characteristics of case sites

4.1 BP-ISP alignment

In the case of site- 1, top management’s appreciation of the strategic role of IS and their keen interest in IS was evident in one of their annual reports that stated: “A sound foundation in systems and computerization is a progress to efficient operations; be it in production, sales, service or financial management. “We would continue to strengthen our capability in this area in the future to take care of the increasing complexity of our operation as we diversify our products and markets” quoted by the CEO. According to the CIO, while formulating business strategy, major IT opportunities for achieving business goals were considered. A broader set of IS objectives were derived for the planning period. Management Committee (MC), the top management body formulated the IS strategy and therefore there was a complete BP-ISP alignment in site-1, which was established through SISP objectives. The IS strategy was formulated by the steering committee, which included the CIO. At site-2, our interviews indicated that their top management had reasonable awareness about information systems, and the emerging technologies and their potential impact on the media and publishing industry. “Being contemporary in using IT is our IS objective”, said the CEO. The CEO was part of the board of directors and this board was responsible for reviewing and endorsing all the major strategic business decisions. The CEO used the business plan to derive the IS strategy for a given planning period. Hence, business planning was feeding to major IS decisions, which led to BP feeding to ISP. In the case of site-3, the organization chose IT to turnaround the business. “Major IS planning exercises happen in the boardroom and the organization is proud to initiate IT leveraged businesses” said the IS - Director. The top management, namely the Board of Directors (BOD), with help from one of the leading international consulting organizations, had evolved its business plan for the entire group of organizations. A broad set of new business opportunities were drawn by the board of the company, which were predominantly leveraged through IT. Complete BP-ISP alignment was evident in site-3 as business planning is dominated by IT contemplation.

4.2 Formalization

With increased usage and impacts of IS, the company started following a formal, systematic approach to defining, identifying and executing its IS projects in site-1. The CIO said “the steering committee met periodically and ensured the appropriateness of the initiatives”. The outcome of these efforts was a detailed IS objective and IS strategy documents that were approved by the top management committee. These two documents were circulated among the key departments across the organization. One IS senior manager said “we have placed the two documents along with the vision and mission statements of the organization”. In

the case of site 2, the organization, being a privately held one, was very selective in disseminating information within as well as outside the firm. Even the IS-related deliberations were not disseminated to organizational members at large. Further, since formal business planning system was not in place, IS strategy too was not formalized in terms of process and documentation. However, according to a senior IS executive, the very nature of ownership of the organization is the reason for the less formal planning systems. There was no formal steering committee or any other type of top management involvement that was found. According to a senior functional manager, both IS and functional managers were only made aware of the less formal IS strategy of the organization. In site-3, the planning process went through a major change. “Unlike in the past, formal process was deployed to evolve the IS strategy in the recent planning periods” said the IS of Director. A consulting firm was used as part of the business and IS planning. Though IS strategy process was formalized, IS strategy was less communicated to various functions of organizations. This was primarily due to the fact that top management wanted to try a suitable approach for implementation of IS strategy and kept the lower level IS and functional managers less informed.

4.3 Implementation plan

As part of the IS strategy in site -1, the organization had included the responsibility for implementation along with detail and time dimensions. The implementation responsibility was rested with the steering committee unlike the previous periods during which IS function was responsible. Specific application areas along with appropriate technologies were identified along with approaches for implementation for the first time. “Although we had not done detailed project plan, the strategy was to be implemented in 3 years,” said the CIO. The implementation responsibility in the case of site-2 was with the CEO for the first time. As part of the strategy the IS function was reorganized by dividing the IS function with each having clear focus. In site-2, according to the CEO, the time frame for the plan is two years with a technology plan for one year. Specific technologies or approaches towards implementation were not part of the strategy. In site-3, the implementation responsibility was with the steering committee headed by the director of IS. Implementation plan contained a time frame of three years and applications were defined as part of the strategy. “The changed focus of IT to leverage new business opportunities led the organization to cover the key aspects of the plan implementation”, said the IS Director. As part of the implementation plan the company decided to outsource key development and implementation projects to another company from the group.

4.4 User involvement

In site-1, there was a positive change in user involvement when compared to previous planning periods. According to the CIO, the organizational redesign carried out by appointing functional managers as heads of departments of the IS function had significant impact in user involvement. “Coming from business functions, department managers in the IS function are able to understand both technology and business perspective” said an IS manager. Further, users from respective business functions were able to communicate better with their own colleague who was in-charge of IS. “Our users are proactive and they suggest areas for IT exploitation and suggest approaches for implementation” said the CIO. In site-2, not all were actively engaged in planning due to absence of formal approaches. According to a senior functional manager, users felt that the implementation was getting affected due to the rigid business models of the company and that a higher level of exploitation of IT was possible only if the entire top management participated. “Users were not informed of the key projects identified as part of the strategy,” said a senior executive of a business function. The user involvement seemed to have weakened due to mismatch of expectations and offerings as well the overall IT response to business. In site-3, users were earlier experiencing low quality support systems and technology in the previous planning periods. “Use of cross functional teams and communication of expected benefits of the applications led to increased participation of users” said the Director-IS. Due to increased focus of IT, users were consulted while formulating the strategy as well during implementation. Formal and progressive approaches to leverage IT for business

benefits led to high level of participation and satisfactions from users. As outsourcing as an approach to manage application development and support evolved, users experienced better value through service level agreements. “The organization has a world class business model and technology and therefore our users are happy about it”, said GM-OP.

4.5 Role of IS function

In site-1, as part of the IS strategy, managers from key business functions were brought into the IS division to head each of its sub-units. Presence of functional managers in the IS function brought good functional knowledge as well as necessary rapport with personnel in their respective functional units. This approach to design the IS function helped the organization to leverage IT for competitive benefits. “This structural change in the IT division brought an organizational IS capability”, said the General Manger of corporate planning. Therefore, the performance track of IS function and infusion of functional capability into IS function led to high-level of maturity of IS function which eventually contributed for its proactive role in SISP. Entry of functional managers into IS function, According to the CIO, moving functional personnel into IT Division also helped the organization not to loose IS personnel to external opportunities. At site-2, the importance of IT towards business excellence led to high level diffusion of IT skills throughout the organization. According to CEO, evolving a very formal structure was both difficult and less desirable. Therefore, the IS function, with personnel who had both IT and domain expertise, was organized into two groups. The IS organization was reorganized due to the changing business requirements of IT and the CEO took over the overall IS management. In site-3, the scenario changed when the top management decided to shift the focus towards an outsourced-mode to reduce cost of IT and to manage high turnover of IS personnel. As a result, the focus of the department was to shift from systems-development to systems management, with considerable reduction in the number of IS personnel. According to the IS Director, outsourcing of IS activities, both development and implementation, eliminated the inefficiencies and helped in the much needed change in managing IS function.

4.6 IS Performance

In site- 1, the business value of IT had significantly improved in many facets. “The focus of IT changed from improving operational efficiency to providing strategic advantage for managing competition,” said the CIO. The role of IS had been strategic, and the significant benefits realized ranged from cost reduction through better inventory management to supporting the new business initiatives (such as car insurance, car finance etc) of the organization. The major benefit to business is to achieve seamless integration of supply chain and exploit the same for enabling new businesses” said the CIO. According to a senior marketing executive, the contributions of IS to the organization were not only evident directly from the improved revenues and reduction in cost but also in providing supporting systems for quality decision making in the dynamic market conditions. According to General Manager of corporate planning, the value of IS to business has been tremendous, which provided avenues to the IS division to offer IT consulting to manufacturing units of the parent company located in other countries. In site-2, the value created by IS has been largely in the areas of defining better business and improving operational efficiencies. According to a senior functional executive, larger benefit at the strategic level had not been realized due to inadequate specification of projects, time schedules as well as resource commitment. “Rigid business models and top management’s risk averse attitude led to low level exploitation of IT for strategic benefits” said a senior IS executive. Even in terms of user satisfaction, the performance of IS function has been rather low. From our interviews, the users in general did not seem to be satisfied with the value of IT. The extent to which the IS benefits were realized were rather low, resulting in low levels of user satisfaction. The low satisfaction was also evident in a critical remark made by a senior finance executive “Only at the time of implementation were we informed about the new application”. Therefore, the level of IS performance both in terms of business benefits and user satisfaction has been low.

In site-3, the benefits derived from IS were apparent. According to the head of operations, major decisions to implement a new solution for internal integration as part of the plan gave real fillip to the organization. This resulted in emergence of a good and stable platform for launching supply chain and Internet-based applications. The organization was turned around by exploiting IS for creating totally new businesses, such as telemedicine, healthcare-insurance, IT-enabled inter-organizational alliances etc. “Launch of Telemedicine centres gave us not only the first mover advantage in terms of business benefits but also the image of a tech-savvy organization” said the Director of IS. New approach to IS governance, i.e. outsourcing, as part of the IS strategy, had paid off and the company had set an example in the industry. The IS director we interviewed also expressed happiness about the increased levels of user satisfaction in the organization. The role of IS in the case site-3, shifted from ‘automation’ of operations to ‘transformation’ of business. Summary of our analysis relating to planning parameters and IS performance is presented in Table-3.

Parameters	Site-1	Site-2	Site-3
BP-ISP alignment			
Type of linkage business strategy	Integrated BP-ISP	BP feeding to ISP	Integrated BP-ISP
Participants of IS planning	Top Management	CEO	Top Management
Formalization			
Presence of documentation	High	Low	High
Level of dissemination	High	Low	Moderate
Implementation plan			
Implementation responsibility	Steering committee	CEO	Steering committee
Coverage of detail dimension	High	Low	High
Coverage time dimension	High	Low	Medium
User Involvement			
Presence of formal structures	High	Medium	High
Nature of involvement	Proactive	Reactive	Participative
Role of IS function			
Focus of IS function	Managerial	Technological	Managerial
Structure of IS function	More user managers	Divided IS function	Outsourced
IS performance			
Strategic use of IS	High	Medium	High
Attainment of IS objectives	High	Medium	High

Table 3- Summary of analysis

5. DISCUSSION

Business organizations in developing countries are experiencing volatile markets, shortened product life cycles and increasing customer pressure for tailored products/services and competition. Until mid-1990s, many Indian organizations had operated under a protected economic regime, limited competition, and a regulated environment. This had resulted in limited focus on process efficiencies, adequate control structures, formalized business settings and lack of better business practices. However, economic reforms like liberalization and globalization of the last decade have led to tremendous changes, in the profiles of the markets and consequently the way businesses are managed. Our research has brought out many useful findings for SISP. At the outset, in line with the finding of the previous researchers (Dasgupta et al, 1999; Gupta & Sanjay, 2004), we found that the focus of IT applications in terms of its value to business has transformed from efficiency to effectiveness benefits to competitive advantage in the recent years. We have

found simultaneous change in the strategic focus of IT and increased level of attainment of objectives. A detailed discussion on the management of IS planning parameters is presented in the following section.

From our case studies, it is found that IS planning is one of the key factors of concern for corporate planners in the emerging competitive business environments of the developing countries. As noted by several researchers (Teo & Ang, 2001; Newkirk et al, 2003) BP-ISP alignment has been one of the determinants of IS planning success in the developing countries. It is learnt from sites 1 & 3 that the BP-ISP alignment achieved by integrating IS planning with business planning is effective. These organizations are able to propose formal plans covering key aspects like implementation and leverage high-level of IS performance. However, the nature of informal business planning, as in site-2, leads to less formal IS planning and it eventually affects the IS performance. IS planners of organizations in developing countries like India, have to emphasize the emerging role of IT and educate their top management so that integration of business and IS planning can be achieved. It is evident from all the three sites that the IS strategy formulation has moved to the top management from IS function. Particularly in the case of site-1, steering committee responsible for planning continued with implementation, which ensured success of SISP. Our findings from sites 1 & 3 show that steering committees or collective participation of top management executives play vital roles in effective IS planning. We argue that structures such as steering committees are critical in order to gain top management confidence needed for higher level of exploitation of IT in developing countries.

Apart from structures such as steering committees, other formal approaches also help the IS planning process to be effective (Gottschalk, 2001; Teo & Ang, 2001). For example, in site-1, the output of the IS strategy process in terms of IS objectives and IS strategy are well documented. The resulting IS strategy containing details of key initiatives, specific technologies, was circulated to user groups and business partners. This has helped in the assimilation of planned activities, thus making the implementation possible. For example, in site-3, the top management was willing to take the help of external consultants to devise IT intensive business strategies. However, lack of formal documents and desired extent of dissemination to the rest of the organization resulted in less successful IS planning efforts as experienced in site-2. It is observed from site-2, that formal approach for planning and dissemination of key decisions to user functions is yet to be adopted by family-owned businesses in India. Therefore, organizations in developing countries have become transparent to internal stakeholders and external agencies in their approaches to IS planning.

As found in previous research (Gottschalk, 1999; Min et al, 1999), planning for implementation as part of the IS strategy is very important in developing countries where both competitive requirements of IT and choices of technology are fast changing. In case of sites 1&2, specific class of technologies were identified as part of the strategy, which resulted in continued commitment of the top management and the eventual successful IS performance. It is found organizations are increasingly identifying roles and responsibilities as part of the implementation plan. Another important factor of implementation plan is project planning in which specific time periods and approaches for deploying key initiatives are detailed. Such implementation details as part of the IS plan have helped organizations to guide resource allocation and readiness to accommodate organization-wide changes resulting out of implementation. Further, planning for implementations in developing countries are likely to have larger issues in terms of technology availability, resource commitment and user participation. Therefore, IS managers of organizations in the developing countries need to ensure that the top management is not only committed during development of the plan but also during the implementation.

The top management's willingness to venture into exploitation of IT for strategic benefits is also dependent upon leadership of the IS function. Organizations with mature IS functions are able to recognize the benefits over successive planning periods and thereby create the confidence required for formal IS planning effort. As learnt from site-3, organizations which do not have such mature IS functions are prepared to outsource the entire application development and deployment to a specialized organization. Competitive pressures and

absence of mature IS functions for leveraging IT for strategic benefits have forced the companies to outsource the entire effort to external organizations. Therefore, maturity of the IS function is an important factor for successful IS planning in developing countries. Stability, both in terms of structure and size, is another important aspect of IS function in developing countries. The bountiful opportunities in the IT industries in countries such as India is able to attract the IS capability available in other sectors.

6. CONCLUSION

We have attempted to provide a descriptive account of IS strategic planning experiences of Indian organizations and also to evaluate the critical parameters that affect the ultimate performance of the IS. Examining the three case studies, we have identified and discussed the importance of the five important IS planning parameters that contribute to the IS implementation success in the developing country context. The research reveals many aspects of SISP in the Indian context, which is influenced by the changing economic environment. Our analysis reveal that management of IS planning parameters has undergone major changes in developing counties like India. The changes witness high degree of linkage of IS planning with business planning, increased top management's participation in planning process, evidence of formal processes for documentation and dissemination, redesigning IS governance structures and specifying details for plan for implementation. Organizations in developing countries have to realize the need for linking the IS plans with business plans. Changing the mindset of the top management to realize the role of IT for achieving competitive advantage will lead to the participation of the top management in the IS planning process. Formal structures for SISP and dissemination of plans to key stakeholders would guide in achieving the organizational readiness for implementation. Many organizations have problems in evolving matured IS function due to several economic and organizational factors. Transforming the nature and role of IS function from a technical to managerial focus through suitable tactical approaches would lead to successful SISP.

Our research has many implications for theatrical development. Firstly, we have contributed to the understanding of IS planning practices in developing country settings, a relatively new area in IS research. Secondly, our study also revalidates some of the earlier researches on IS planning that have largely been conducted in the developed country contexts. Thirdly, we have identified critical factors that are likely to contribute to effective IS planning in Indian organizations. Though we have studied three Indian organizations that are typical of developing country businesses, our findings may not be extended to other firms. Future research could examine findings using field surveys in developing country settings. Further, we have used retrospective case studies, based on interviews after the events had occurred. Future researchers could employ action research to examine the issues as they happen. Moreover, our cases are all based in a single country context and additional research will be required to examine if the findings could be extended to firms in other developing countries.

References¹

- Aladwani, A.M., (2001). IT planning effectiveness in a developing country, *Journal of Global Information Technology Management*, 4(3), 51-65.
- Barnes, D., Mieczkowska, S. & Hinton, M. (2003). Integrating operations and Information strategy in e-business, *European Management Journal*, 21(5), 626-634.
- Basu, V., Hartono, E., Lederer, A.L., Sethi, V. (2002). The impact of organizational commitment, senior management involvement, and team involvement on strategic information systems planning, *Information and Management*, 39(6), 513-524.
- Bowman, C., & Kakabadse, A. (1997). Top management ownership of the strategy problem, *Long Range Planning*, Vol. 30, N0.2, 197-208.

¹ Partial list is provided. Complete list of references may be obtained from the corresponding author

- Chan, Y.E. (2002). Why haven't we mastered alignment? The importance of the IT informal organization structure, *MIS Quarterly Executive*, 1(2), 97-112.
- Choe, J.M., Lee, Y.H., & Park, K.C. (1998). The relationship model between the influence factors and the strategic applications of information systems, *European Journal of Information Systems*, 7(2), 137-149.
- Enns, H.G., & Huff, S.L. (1999). CIO Influence Behaviors: Antecedents, Consequences, and Moderators, 194-199.
- Gottschalk, P. (1999). Strategic Management of IS/IT functions: the role of the CIO in Norwegian organizations, *International Journal of Information Management*, 19, 389-399.
- Gottschalk, P. (2001). Descriptions of responsibility for implementation: A content analysis of strategic information systems/ technology planning documents, *Technological Forecasting & Social Change*, (68) 207-221.
- Gupta, M.P. (2004). & Sanjay, Information Technology Usage: The Indian Experience, *Vikalpa*, 29, 1, 83-91.
- Hackney, R., & McBride, N. (2002). Non-implementation of an IS strategy within a UK hospital: observations from a longitudinal case analysis, *Communication of the Association for Information Systems*, Vol. 8, 130-140.
- Heeks, R. (2002). Information systems and developing countries: Failure, success and local improvisations, *The Information Society*, 18, 101-112.
- Heo, J., & Han, I. (2003). Performance measure of information systems (IS) in evolving computing environments: an empirical investigation, *Information & Management*, 40, 243-256.
- Hirschheim, R., & Sabherwal, R. (2001). Detours in the Path toward Strategic Information Systems Alignment, *California Management Review*, Vol. 44, No. 1.
- Jharkharia, S., & Shankar, R. (2005). IT-enablement of supply chains: understanding the barriers, *The Journal of Enterprise Information Management*, Vol. 18, No. 1, 11-27.
- Kanungo, S., Sadavarti, S., & Srinivas, Y. (2001). Relating IT strategy and organizational culture: An empirical study of public sector units in India, *The Journal of Strategic Information Systems*, 10(1), 29-57.
- Kearns, G.S., & Lederer, A.L. (2000). The effect of strategic alignment on the use of IS-based resources for competitive advantage, *Journal of Strategic Information Systems*, 9, 265-293.
- Lederer, A.L., & Sethi, V. (1996). Key prescriptions for strategic information systems planning, *Journal of Management Information Systems*, Vol. 13, No. 1, 35-62.
- Li, P. P. & Chang, S. T. (2004). A Holistic Framework of E-Business Strategy: The Case of Haier in China, *Journal of Global Information Management*, (12) 44-62.
- Newkirk, H.E., Lederer, A.L., & Srinivasan, C. (2003). Strategic information systems planning: too little or too much?, *Journal of Strategic Information Systems*, 12, 201-228.
- Partridge, J.E.L., Teo, T.S.H., Lim, V.K.G. (2000). Information technology management: the case of the Port of Singapore Authority, *Journal of Strategic Information Systems*, 9, 85-99.
- Rahman, Z. (2004). Use of Internet in supply chain management: a study of Indian companies, *Industrial Management & Data Systems*, Vol. 104, NO. 1, 31-41.
- Sabherwal, R., & Chan, Y. (2001). Alignment Between Business and IS Strategies: A Configurational Approach, *Information Systems Research*, Vol.12, No.1, 11-33.
- Salmela, H., Lederer, A. L., & Reponen, T. (2000). Information systems planning in a turbulent environment, *European Journal of Information Systems*, 9(1), 3-15.
- Sahay, B.S., & Mohan, R. (2003). Supply chain management practices in Indian industry, *International Journal of Physical Distribution & Logistics Management*, Vol. 33, No. 7, 582-606.
- Segars, A.H., & Grover, V. (1998). Strategic Information Systems Planning success: An Investigation of the Construct and its Measurement," *MIS Quarterly*, Vol. 22, No. 2, 134-163.
- Segars, A.H., Grover, V., & Teng, J.T.C. (1998). Strategic information systems planning: planning system dimensions, internal coalignment, and implications for planning effectiveness, *Decision Sciences*, 29(2), 303-346.

- Stratopoulos, T. and Dehning, B. (2003). Determinants of a sustainable competitive advantage due to an IT-enabled strategy, *Journal of Strategic Information Systems*, 12(1), 7-28.
- Tang, J.E., & Tang, M.T. (1996). A study of information systems planning and its effectiveness in Taiwan, *International Journal of Information Management*, Vol. 16, No. 6, 429-436.
- Teo, T.S.H., Ang, J.S.K. (1999). Critical success factors in the alignment of IS plans with business plans, *International Journal of Information Management*, 19, 173-185.
- Teo, T.S.H., & King, W.R. (1996). Assessing the impact of integrating business planning and IS planning, *Information and Management*, 30, 309-321.
- Teo, T.S.H., & King, W.R. (1999). An empirical study of the impacts of integrating business planning and information systems planning, *European Journal of Information Systems*, 8, 200-210.
- Wang, E.T.G., & Tai, J.C.F. (2003). Factors affecting information systems planning effectiveness: organizational contexts and planning systems dimensions, *Information & Management*, 40, 287-303.
- Ward, J., & Peppard, J. (1996). Reconciling the IT/business relationship: a troubled marriage in need of guidance, *Journal of Strategic Information Systems*, 5, 37-65.
- Yin, R. K. (1994). *Case study research: design and methods*, SAGE Publications, Thousand Oaks, CA.