2005

Linkage Between Effective Implementation of IS Strategy and IS Performance: Lessons from Indian Organizations

G. Kannabiran
National Institute of Technology, kb@nitt.edu

P. C. Narayan
Indian Institute of Management, Bangalore, pcn@iimb.ernet.in

P. Vijayaraghavan
Indian Institute of Technology, Chennai, pvr@iitm.ac.in

Follow this and additional works at: http://aisel.aisnet.org/amcis2005

Linkage between effective implementation of IS Strategy and IS performance: Lessons from Indian organizations

G. Kannabiran
Department of Management Studies
National Institute of Technology
Tiruchirappalli, India
kb@nitt.edu

P. C. Narayan
Indian Institute of Management
Bangalore
pcn@iimb.ernet.in

P. Vijayaraghavan
Department of Management Studies
Indian Institute of Technology, Chennai, India
pvr@iitm.ac.in

ABSTRACT

The overall outcome of IS planning efforts is determined by how effectively the planned strategies are implemented in order to realize the envisaged strategic benefits. This empirical work on IS plan implementation relates the effective implementation of IS plan with IS performance in the Indian context. Based on three case studies from diverse industry segments, we discuss the five important parameters of IS plan implementation- top management commitment, implementation responsibility, IS plan characteristics, user involvement, role of IS function that determine the implementation effectiveness and eventually the IS performance. Based on the analysis, we present a set of key learnings for developing countries, along with implications for future research.

Keywords

IS strategy implementation- IS performance- Indian organizations- IT in developing countries

INTRODUCTION

A key outcome of IS strategy planning is a portfolio of IS applications that will help an organization to execute its business strategy and eventually realize its business goals (Lederer & Sethi, 1998). In an intensely competitive environment, ensuring organizational IS capabilities coupled with IT infrastructure are needed to make significant contributions to the organization (Galliers, 1987). But, merely selecting portfolio of applications and articulating relevant changes, as part of the IS strategy, will be of less relevance to organizational competitiveness (Ciborra, 1994; Lederer & Salmela, 1996). The overall effectiveness of IS strategy is dependent on the successful implementation of the key IS initiatives identified (Sambamurthy et al, 1993; Gottschalk, 1999). Changes in the market place, technological environment, and internal environment also affect the implementation of planned strategies (Sambamurthy et al, 1993; Min et al, 1999; Gottschalk, 1999). Moreover, the level of resource commitment is increasing in developing countries like India (Sahay et al, 2003) and continued exploitation of IT is dependent on successful plan implementation.

The importance of effective implementation of strategic information system (IS) plans has been emphasized by many researchers (Earl, 1993; Lederer & Mendelow, 1993; Premkumar & King, 1994; Lederer & Sethi, 1996, Gottschalk, 2001; Newkirk et al, 2003). The extent to which the IS planning efforts meet the objectives can be determined initially by the level of implementation (Earl, 1993; Baker, 1995; Lederer & Sethi, 1996) and finally from the resulting benefits to the organization (Keen, 1993). Failure in implementing IS plans can lead to lost opportunities, duplicated efforts, incompatible systems and wasted resources (Lederer & Salmela, 1996) and thus negatively influence the priorities of future IS planning (Lederer & Mendelow, 1993; Premkumar & King, 1994;Galliers, 1994). In the long run, it will deter even the interest of the senior management towards IS planning (Galliers, 1994; Segars & Grover, 1998; Teo & Ang, 2001) and scope for improved capability of effective IS planning for organizational competitiveness (Raghunathan & Raghunathan, 1991; Mata et al 1995).

According to Gottschalk (1999), empirical research focusing specifically on the implementation of IS strategy is limited and it has only been included as one of the several issues of IS planning research. Therefore, the aim of our research is to identify

and evaluate the IS implementation parameters that determine the IS performance in the Indian context and to derive a set of key lessons, more specific to the developing countries. In order to achieve these objectives, we conducted a study of three Indian organizations. The paper is organized as follows: In the first section, we review relevant literature on this topic. Then, we present the three case studies and discuss the findings from these organizations. Based on our findings, we make our recommendations for effective implementation of the IS plan in a developing country context and present the implications for research.

LITERATURE REVIEW

The literature on IS strategy implementation, when compared to IS strategy planning, is limited. Though large organizations engage extensively on IS strategic planning (Kearney, 1990; Galliers, 1994; Finnegan et al, 1997; Falconer & Hodgett, 1997), the level of implementation has been low (Ward & Griffiths, 1996; Taylor, 1997; Lederer & Sethi, 1998; Gottschalk, 2001). The term, 'implementation' itself has acquired a variety of meanings in the literature (Montealegre, 1994; Klein & Sorra, 1996). Successful implementation of IS plan means that the either intended benefits are realized (Alavi & Joachimsthaier, 1992) or satisfaction with the system is achieved (Griffith & Northcraft, 1996). Other definitions of implementation such as 'innovations are accepted and used' (Bradley & Hauser, 1995), 'systems are installed and used' (Srinivasan & Davis, 1987), 'change is accepted' (Baronas & Louis, 1988) and 'control rests with users' are also accepted as successful implementations. The Success of IS implementation needs to be necessarily evaluated based on realization of intended business benefits as other interim measures do not guarantee desired level of business benefits.

Researchers (Lederer & Sethi, 1992; Premkumar & King, 1994; Lederer & Salmela, 1996; Segars & Grover, 1998; Gottschalk, 1999, 2001; Basu et al, 2002; Salmela & Spil, 2002;) have brought out several environmental, organizational and technological parameters that affect effectiveness of implementation. Of these parameters, researchers have repeatedly noted the importance of five parameters of successful IS plan implementation. These parameters are: top management commitment, IS plan characteristics, responsibility for implementation, user involvement and role of IS function. A review of earlier research on each of these parameters of implementation is presented in table 1.

Implementation parameter	References
Top management commitment	Lederer & Sethi, 1991, 1992, Flynn & Eva, 1994; McGolpin & Ward, 1997, Cerpa & Verner, 1998; Lederer & Sethi,1998; Wexeblat & Srinivasan, 1999; Gottschalk, 1999, Salmela et al, 2000; Aladwani, 2001; Teo& Ang, 2001; Hartono et al, 2003; Newkirk et al, 2003
IS plan characteristics	Ginzberg, 1981; Murray, 1983; Gupta & Raghunathan, 1989; Boyton et al, 1992; Gottschalk, 2001, Sabherwal & Chan, 2001; Luftman et al, 1999; Hirschheim & Sabherwal, 2001; Basu et al, 2002; Newkirk et al, 2003
Responsibility for implementation	Boynton & Zmud, 1990; Das et al, 1991; Earl, 1993; Byrd et al, 1995; Flynn & Arce, 1995; Lederer & Sethi, 1996; Shoval & Giladi, 1996; Lederer & Sethi, 1998; Gottschalk, 1999; Kanungo, 2001
User involvement	Baronas & Louis, 1988; Joshi, 1991; Boyton et al, 1992; Peppard & Ward, 1996; Mentzas, 1997; Gottschalk, 1999; Peppard et al, 2000; Aladwani, 2001; Newkirk et al, 2003; Gupta & Sanjay, 2004; Robinson& Brown, 2004
Role of IS function	Lederer & Sethi,1992; Thong et al, 1994; Ward & Peppard, 1996; Jain, 1997; Feeny & Willcocks, 1998; Enns & Huff, 1999; Hirschheim & Sabherwal, 2001; Heeks, 2002; Peters et al, 2002; Agarwal & Sambamurthy, 2002; Chan, 2002; Wang & Tai, 2003; Ranganathan & Kannabiran, 2004
IS performance	Gupta & Raghunathan, 1989; Carter & Nilakanta; 1990; Das et al, 1991; Lederer & Sethi, 1992; Kettinger et al, 1994; Brown & Magill, 1994; Chan et al, 1997; Lederer& Sethi, 1998; Segars & Grover, 1998; Ang & Quek, 1999; Gottschalk, 1999; Salmela et al, 2000; Teo& Ang, 2001; Hackney & McBride, 2002; Chan, 2002; Heo & Han, 2003;Newkirk et al, 2003
Table 1 Research studies related to IS strategy implementation	

RESEARCH METHOD

Given the very little empirical knowledge on IS plan implementation practices in Indian organizations, and the exploratory nature of our study, qualitative case-study approach was considered appropriate for our research. However, in order to ensure generalizability, we have considered examining firms in different industry segments. 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 parameters. All the three organizations we studied are leading players in their respective industry segments with sizeable market shares. Due to the nondisclosure understanding with these organizations, we are not in a position to disclose their identity and will, therefore, merely refer to them as sites-1, 2 and 3 without disclosing their identities.

The first case site (site-1) is a large automobile manufacturer involved in manufacturing and marketing of passenger cars. The company is located in central India and is a leading player and commands more than 60% market share in the passenger car segment in the country. The organization had deployed IS in all its internal operations across the value chain and has established on-line connectivity with the suppliers and distributors. The second case study site (site-2) is a leading publishing organization located in the southern part of India, which publishing dailies and weeklies, apart from several other miscellaneous publications at unspecified periodicity. The organization had deployed several interesting IS applications to take care of printing and remote-publishing as well as in managing its advertising segment that brings in considerable revenue. The organization has electronic links amongst its publishing centers at multiple locations as well as with several agencies that route advertisements for publications. The third case study site (site-3) is a large health-care provider in southern India, involved in providing comprehensive medical care as well as consultancy services in setting up hospital and related services. This company had also deployed IT in its core areas as well as established links with other business partners and suppliers.

We used open and semi-structured interviews with the senior IS executives to obtain data for our study. Apart from IS executives, we also interviewed key functional executives and the top management to obtain their views on the IS management function in their respective businesses. We also made several site-visits to each of the three companies to get a first-hand knowledge of IS applications as well as the IS management processes in these organizations. Wherever available, the interview data was supplemented with archival data such as IS plans, department manuals, process manuals, and other IS related documentation. Use of multiple-informants and use of archival data helped us crosscheck pertinent information and verify the reliability of data obtained.

ANALYSIS OF CASES

Based on the data obtained from the three organizations, we assess the significance of implementation parameters identified from our literature review.

TOP MANAGEMENT COMMITMENT

In site -1, the top management's appreciation of the strategic role of IS and their keen interest to exploit IT was evident from their efforts to establish a well integrated in-house application to manage their business functions. According to the CIO, CEO was well aware of IS implications on the business and therefore actively participated in the IS implementation. The CIO further recalled that there was no single occasion in which the IS budget was scrutinized for the purpose of pruning. IS was the only area, which was left untouched when cost cutting measures were taken up in all other functions of the company. The entire IS related decisions with regard to implementation were discussed in detail in the management committee meetings before they were finalized. According to the Head-Corporate planning, a separate IS division was formed to enable effective IS planning and implementation.

At site-2, the IS executive we interviewed indicated that their top management was reasonably well aware about the information systems, emerging technologies and their potential impacts on the media and publishing industry. The top management's direct involvement resulted in the company launching the on-line edition of the newspaper much ahead of competition, when other publications were struggling to even automate some of their routine operations. However, the top management's involvement in IS was sporadic and not sustained. In site–2, the top management was directly handling the IS with the CEO making all major IS decisions. While the senior management was passively involved in certain IS initiatives such as e-business as part of the plan, these initiatives did not receive as much support and attention during implementation. "Resource is one of the areas of concern while implementing key IS initiatives. There are projects such as Intranet applications, which we took up in the present planning period, and which have been moved to the next planning period," said

a senior IS executive. The executive further remarked that several potentially strategic IS projects never received adequate attention and priority from the top management, though they were part of the IS plan.

In site-3, top management's recognition of IS was also evident from their immediate approval of almost all key IS initiatives that were proposed as part of the IS plan. According to the Head of Human Resources function, the top management decided to form a separate profit centre for development and implementation of key IS solutions. "This profit centre was subsequently floated into a SBU of the group and all IS activities were outsourced to the new entity" he added. The general manager of finance remarked, "Our organization is dependent on IT to exploit strategic opportunities and we expect no issues of resource allocation to come as a constraint". Another senior executive indicated that information technology was given as much priority as the critical medical equipment and infrastructure. "Decision of the top management to approve projects which are innovative both in terms of technology and application, shows the commitment" said Director-IS. The company was assessed for its IS capabilities by an independent consulting company who rated their senior management's support for IS as very high.

IS plan characteristics

In site-1, the IS plan document clearly identified both the time and detail dimensions, which has guided the implementation. According to the CIO, most of the projects identified as part of the strategy were implemented. The steering committee also ensured that the plan was implemented within the period committed in the plan. "The decisions are taken as per the plans in all the major initiatives", said a senior IS manager. According to CIO and Head –corporate strategy, one of the main reasons for the successful implementation of the IS plan was that formal approaches were used both in the planning and implementation phases. This was achieved not only by documenting but also communicating the resulting IS plan document to the business functions before implementation.

In the case of site-2, according to the CEO, the time frame of the IS plan generally was two years with one year technology plan. Specific projects were not identified and only functional areas for IT applications were identified. According to a senior IS executive, there was a tendency to wait for the technologies to stabilize and therefore was not clearly identified as part of the IS plan. This eventually led to non- adherence to the time dimension of implementation. "Projects such as Intranet development, which we took up in the first planning period were shifted to the next planning period for want of resources," says a senior IS executive. It appears that the entire IS plan was formulated by the CEO with passive participation from rest of the top management. Our interviews with functional and IS managers revealed that the plan was not documented and was not communicated to the stakeholders. In site-3, the plan was evolved through a very formal process with help from an outside consultant, and major projects were identified. According to Director of IS, the duration for implementation was not clearly stated in the plan as the top management was not able to forecast external environment in terms of availability of technology and emerging legal environment for some Internet- based applications. It was learned that the projects were implemented as planned in most cases. "The details of the IS plan were not communicated to user groups due to uncertainty in technology and implementation approaches" said the Director-IS.

Responsibility for implementation

In site-1, the responsibility for implementation had moved from the IS function to top management. In the previous plan periods, the responsibility was rested with the CIO and IS function. "Increased dependence on IT and top management commitment led the steering committee to take up the responsibility for implementation" said the CIO. The steering committee included the key senior executives responsible for target business functions and the CIO. According to one of the IS department managers, the steering committee, which was involved in the IS strategy planning continued with the responsibility for implementation. The steering committee was vested with freedom to decide on aspects relating to implementation. "The steering committee took the responsibility to reorganize IS division by appointing functional managers from key business functions such as material & spares, marketing & sales and finance & accounting to head the departments within the IS division" said Head-corporate strategy.

In site-2, the responsibility for implementation was understandably with the CEO. "The CEO interacts with appropriate staff in the middle management level for implementation aspects" said a senior IS manager. The CEO consults other top management executives as and when necessary to sort out issues of implementation. Our interviews with senior executives revealed that implementation responsibilities were assigned to middle level executives and CEO along with the top management discussed only critical aspects. In site -3, the implementation of IS initiatives in the previous planning periods were with the IS department under the direct supervision of Head –Operations. However, implementation responsibility was vested with a team of executives headed by a newly appointed director of IS. The new IS director interacted directly with the head of the outsourcing company on a regular basis for proper implementation of projects.

User involvement

In site-1, user involvement was visibly high over two successive planning periods. According to the CIO, the organizational redesign carried out in the IS function by appointing functional managers to head the departments of the IS function had significant impact in user involvement. The organization has evolved into a stage where users were motivated to learn about new technologies and suggested some key IT solutions relevant to their business function. "Our users are now proactive by suggesting solutions and ways to implement the solutions" said Head-corporate strategy. "Exploiting IT for competitive benefits has become an organizational capability" summarized the CIO.

In site-2, user involvement was relatively low due to various reasons. According to a senior functional manager, users felt that the implementation was getting affected due to 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. In site-3, the user involvement during implementation grew significantly despite the fact that they were not informed of key decisions. "The organization is likely to have a world class business model and technology and users are happy about it", said Head –Operations. According to an IT executive, the integrated solution was implemented for the first time and positive user influence was the key to the success of implementation.

Role of IS function

In site-1, the role and reporting structure of the IS head changed to enable implementation. The CIO became a member of the top management committee and was directly reporting to the CEO. The IS function, which consisted of many functional managers, was happy with their contribution to business. "Reorganization of the IS function has really helped us in forming cross-functional teams and managing implementations better" said Head-corporate strategy. "The role of the IS function has changed from technology implementer to partners of change" concluded the CIO.

The role of IS function in site -2 during plan implementation was not up to the expectation of its members. According to a senior IS manager, the IS function had lost its motivation due to the poor state of implementation. The staff in the IS function were of the opinion that they were not able to do their best. In site-3, the role of IS function went through massive changes to facilitate plan implementation. The IS function was headed by a senior manager who was reporting to the Head of Operations. Appointment of a Director to head the IS function and decision to implement innovative applications changed the overall mood of the IS staff. "Role of the IS function was to coordinate between users and outsourced organization, which was carried out successfully" said Director-IS.

IS performance

IS performance in site-1 had many dimensions upon implementation of the IS strategy. According to the CIO, the top management was happy with the strategic benefits realized from the implementation. The new IS initiatives helped the organization to reduce inventory and cycle time, which led to improvement in its operational efficiency. The Internet based applications to link the dealers and suppliers offered strategic benefits to the organization both in terms of delivering value to customers and improving cost of operations. "We are proud about our company's status in using information technology in a big way, as it has given remarkable benefits to the company", said the CEO. A study, involving factors like understanding user requirements and on-time completion of projects, conducted by the IS function amongst users revealed high level of satisfaction about the applications. "We have also achieved excellence in managing technology to a greater extent that our organization is being used as a benchmark by other organizations within and outside our industry" said the head of materials.

In site-2, according to the CEO, the company was successful in terms of realizing the benefits in the areas of gaining efficiency in news collection and support to distributed printing of newspaper. However, 'these applications have very limited focus and were not really part of the envisaged IS plan" said a senior executive of IS. One of the top executives was of the opinion that the implementation could have been better given the competitive requirements. It is found that the user satisfaction level was low as they were using low end technologies and processes. In site-3, according to the Director of IS, there were two types of strategic benefits derived out of IS implementation. Firstly, the internal integration within the company achieved through IT applications led to improved operational efficiency. External integration with group hospitals, business partners and Telemedicine centers provided many competitive benefits. According to an IT executive, general discomfort amongst the users in relying on information systems was changed into proactive participation in the IT initiatives. The summary of analysis of IS strategy implementation is presented in Table 2.

	Site -1	Site-2	Site-3
Top management commitment			
Resource allocation	Allocated as required	Reduced Allocation	Additionally allocated
Level of guidance for implementation	High	Low	Medium
Responsibility for implementation			
Organizational level	Top management steering committee	No specific senior position for IS-CEO handles key IS decisions	IS Director and middle-level managers
Level of participation in project management	High	Low-medium	High
Level of participation in managing organizational change	High	Low	High
IS plan characteristics and its impact			
Time dimension of plan and its adherence	Present-adhered	Present-not adhered	Present-partly adhered
Detail dimension of plan and its adherence	Yes- adhered	No	Yes-partly adhered
Documentation and communication of IS plan	Documented and communicated	Not documented and not communicated	Documented and adequately communicated
User involvement			
Nature of involvement	Proactive	Reactive	Reactive-proactive
Level of acceptance in process changes	High	Low	High
Role of IS function			
Nature of role	Proactive	Reactive	Participative
Level of team development	High with users	Low	High with user and vendors
IS performance			
Role of IS	Transformational	Automate-informational	Informate - transformational
Top management satisfaction	High	Low-medium	High
User satisfaction	High	Low	High
Table 2: Summary of case analysis			

LESSONS FOR THE DEVELOPING COUNTRIES

Exploitation of IT for competitive benefits is increasingly evident from the classes of technologies embraced and the level of corporate IS spending in developing countries. This has necessitated formal approaches to IS planning and implementation, which are further faced with issues (Bhatnagar, 1992; Jain, 1997; Avgerou, 1998; Kanungo, 2001; Heeks, 2002, Gupta & Sanjay, 2004). The top management commitment for implementing IS strategies is reflected in the level of resource allocation, empowering the team responsible for implementation and recognizing the benefits derived (Aladwani, 2001). It is also evident from the experience of site-2, that if the entire top management is not involved in the IS planning, their commitment to implementation is likely to suffer (Lederer &Sethi, 1991). Our study reaffirms the importance of top management commitment   (Lederer & Sethi, 1998; Teo & Ang, 2001) for successful IS strategy implementation. Further, plan 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 implementation.

The content dimensions of the IS plan, 'time' and 'details' have direct significant impact on the plan implementation. The time dimension of the IS plan has direct linkage to the implementation as they not only ensure timely implementation of key projects in order to realize the envisaged benefits but also continued top management commitment in the periods that follow. The detail dimension helps to gain top management commitment for resource allocation and other organizational support necessary for implementation. It is proved from our analysis that these two dimensions have enormous impact in ensuring potential user involvement, direction to IS function and top management commitment (Gottschalk, 2001). One of the important process dimensions found to have enormous value in the IS implementation is formalization of IS planning process in terms of documenting IS plans (Kanungo, 2001). Formal process of IS planning, including the plan documentation is likely to result in top management commitment and direction to IS function during implementation. It is also found that the user involvement is high if the details of plan implementation are communicated to them.

It is evident from all the three cases that the implementation responsibility has moved from middle to top management of the organization due to increasing importance of IT. Top management is proactively participating in the implementation of specific initiatives as identified in the plan. From the case studies, we find user participation is also increasing in implementation. Another key learning is that the implementation effectiveness is likely to improve if the steering committee involved in formulating the IS plan is continued in implementation as well. However, it is learned from site-2, that the entire top management, not the CEO alone, should be responsible for implementation. The use of cross-functional teams involving members from across function and organizations (vendors) for implementing specific initiatives are found to be effective for managing change(Gottschalk, 2001, Basu et al, 2002). Therefore, the research confirms the previous findings of increasing top management interest, role of steering committees and improved user participation in the IS plan implementation.

User involvement in implementation is an important factor for success of IS (Aladwani, 2001). It is evident from site-1, that the success of the implementation was ensured and became more visible when user managers were brought into IS function. Whereas in site-2, the users are capable of understanding technology and applications to an extent that they are able to comment on the IS status of the company. In site -3, the mind set of users have changed as they could see initial benefits though they were not communicated about the implementation aspects. Users' responses to process changes have been positive, as outcomes of IT- enabled changes are inevitable in the competitive environment. The important lesson from our study is that user groups are increasingly aware and motivated to embrace emerging technologies. Therefore, user involvement is no longer a disobliging concern but a significant enabling factor for successful implementation.

Role of IS function with regard to IS implementation has many issues (Heeks, 2002; Peters et al, 2002). The responsibility of implementation has moved from the IS function to top management committee as a result of which core IS function derives added strength needed to implement the planned strategy (Jain, 1997). Moving user managers into the IS function provides further impetus to the IS function, as the task of user 'buy –in' to new IS initiatives is implicitly ensured. Users also feel more at home for sharing their concerns relating to implementation to the user-turned IS personnel (Ranganathan & Kannabiran, 2003). Further, such changes lead to downsize the IS function. Organizations in developing countries have started following the practice of IS outsourcing. Hence, the traditional role of IS function as a provider of technology solutions has transformed into a managerial role of facilitating among top management, users and vendors during implementation. These transformations in IS functions in organizations have indeed created an 'organizational capability' to exploit IT for competitive advantage.

CONCLUSION

We have attempted to provide a descriptive narration of IS plan implementation experiences of Indian organizations and also identify critical parameters that affect the ultimate performance of the IS. Examining the three case studies, we have

identified and discussed the importance of five important parameters that contribute to the IS implementation success. Firstly, we have contributed to the understanding of IS implementation practices in developing country settings, a relatively new area in IS research. Secondly, our study also revalidates some of the earlier researches on IS plan implementation that have largely been conducted in the developed country contexts. Thirdly, we have identified critical factors that are likely to contribute to the IS plan implementation 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. Secondly, we have used retrospective case studies, based on interviews after the events had occurred. Future researchers could employ longitudinal case research or action research to examine the issues as they happen. Thirdly, 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.

REFERENCES

1. Agarwal, R. and Sambamurthy, V. (2002) Principles and models for organizing the IT function, MIS Quarterly Executive, 1, 1, 1-16.

2. Aladwani, A.M. (2001) Online Banking: A field Study of drivers, Development challenges, and expectations, International Journal of Information Management.

3. Alavi, M. and Joachimsthaier, E.A. (1992) Revisiting DSS implementation research: a meta-analysis of the literature and suggestions for researchers. MIS Quarterly, 16, 1, 95-116.

4. Ang, J.S.K., Quek, S.A., Teo, T.S.H., Lui, B. (1999) Modeling IS planning benefits using ACE, Decision Sciences, 30, 2, 1999, 533 – 562

5. Avgerou, C. (1998) How can IT enable economic growth in developing countries?, Information Technology for Development, 8, 1.

6. Baker, B. (1995) The role of feedback in assessing Information Systems planning effectiveness. Journal of Strategic Information Systems, 4, 1, 61-80.

7. Baronas, A.M.K. and Louis, M.R. (1988) Restoring a sense of control during implementation: How user involvement leads to system acceptance, MIS Quarterly, 12, 1, 111-124.

8. Basu, V., Hartono, E., Lederer, A.L. and 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.

9. Bhatnagar, S.C. (1992) Information Technology Manpower: Key issues for developing countries, TATA McGraw-Hill, New Delhi, India.

10. Boynton, A.C., Jacobs, G.C., Zmud, R.W., (1992) Whose responsibility is IT management? Sloan Management Review Summer. 32 – 38.

11. Bradley, J.H. and Hauser, R.D. (1995) A framework for expert system implementation. Expert systems with applications, 8, 1, 157-167.

12. Brown, C.V., Magill, S.L., (1994) Alignment of the IS function with the enterprise: toward a model of antecedents, MIS Quarterly, 18, 4, 371 – 405

13. Bryson, J.M. and Bromiley, P. (1993) Critical factors affecting the planning and implementation of major projects. Strategic management journal, 14, 5, 319-337.

14. Byrd, T.A., Sambamurthy, V., and Zmud, R.W. (1995) An examination of IT planning in large, diversified public organizations. Decision Sciences, 26, 1, 49-73.

15. Carter, R.B., Nilakanta, S., Norris, D., (1990), Information systems planning: a case study, Journal of Systems Management, 41, 7, 10 – 20

16. Cerpa, N., Verner, J.N., (1998) Case study: the effect of is maturity on information systems strategic planning, Information & Management, 34, 4, 199 – 208

17. Chan, Y.E., Huff, S.L., Barclay, D.W., Copeland, D.G., (1997) Business strategic orientation, information systems strategic orientation, and strategic alignment, Information systems research , 8, 2, 125-150

18. Chan, Y.E. (2002) Why haven't we mastered alignment? The importance of the informal organizational structure, MIS Quarterly Executive, Vol1 No.2, 97-112.

19. Ciborra, C. (1994) Strategic Information Systems: A European Perspective. Chichester: Wiley.

20. Das, S.R., Zahra, S.A., Warkentin, M.E., (1991) Integrating the content and process of strategic MIS planning with competitive strategy. Decision Sciences, 22, 5, 953 – 984

21. Earl, M.J., (1993) Experiences in strategic information systems planning. MIS Quarterly 17, 1, 1-24.

22. Enns, H.G. and Huff, S.L., CIO Influence Behaviors: Antecedents, Consequences, and Moderators, SIGCPR'99, New Orleans, LA, USA, 194-199.

23. Falconer, D.J and Hodgett, R.A. (1997) Participation in Information Systems planning and development in Australian companies. In proceedings of the 5th European Conference on Information Systems, 19-21 June, Cork, Ireland, volume 1, 14-41.

24. Feeny, D.F., Wilcocks, L.P., (1998) Redesigning the IS function around core capabilities. Long range planning, 31, 3, 354-367.

25. Finnegan, P., Galliers, R. and Powell, P. (1997) Investigating inter-organizational information systems planning practices in Ireland and the UK. In proceedings of the 5th European Conference on Information Systems, 19-21 June, Cork, Ireland, 281-294.

26. Flynn, D., Arce, E.,M (1995) Theoretical and practical issues in the use of strategic information systems planning approaches to integrating business and information technology in organizations. International Journal of Computer Applications in Technology 8 (1/2), 61 – 68

27. Flynn, D.J., Eva, G., (1994) A survey of the use of strategic information systems planning approaches in UK organizations.

28. Galliers, R.D. (1987) Information Systems planning in the United Kingdom and Australia – A comparison of current practices, in; M. Earl (Ed), Oxford University Press, Oxford, 223 – 255

29. Galliers, R.D. (1994) Strategic information systems planning: myths, reality and guidelines for successful implementation. In: Galliers, R.D., Baker, B.S.H. (Eds.), Strategic Information Management, Butterworth Heinemann, Oxford, 129-147.

30. Ginzberg, M.J., (1981) Key recurrent issues in the MIS implementation process, MIS Quarterly, 47 – 59.

31. Gottschalk, P. (1999) Implementation predictors of strategic information systems plans, Information and Management 39, 77-91.

32. Gottschalk, P., (2001) Descriptions of responsibility for implementation: A content analysis of strategic information systems/ technology planning documents, Department of Technology Management, Norwegian School of Management, Box 580, 1301, Sandvika, Norway

33. Griffith, T.L. and Northcraft, G.B. (1996) Cognitive elements in the implementation of new technology: can less information provide more benefits? MIS Quarterly, 20, 1, 99-110.

34. Gupta, M.P. and Sanjay, (2004) Information Technology Usage: The Indian Experience, Vikalpa, 29, 1, 83-91.

35. Gupta, Y.P. and Raghunathan, T.S. (1989) Impact of Information Systems (IS) Steering Committees on IS planning. Decision Sciences, 20, 4, 777-793.

36. Hackney, R. and McBride, N. (2002) Non-implementation of an IS strategy within a UK Hospital: Observations from a longitudinal case analysis, Communications of AIS, Vol. 8, 130-140.

37. Hartono, E., Lederer, A.L., Sethi, V., Zhuang, Y. (2003) Key Predictors The Implementation of Information Systems Plan, The DATA BASE for Advances in Information Systems, Vol. 34, NO. 3, 41-53.

38. Heeks, R. (2002) Information Systems and developing countries: Failure, success and local improvisations, The Information Society, 18, 101-112.

39. Heo, J. and Han, I.(2002) Performance measure of information systems (IS) in evolving computing environments : an empirical investigation, Information & Management , Vol. 40, 243-256.

40. Hirschheim, R. and Sabherwal, R. (2001) Detours in the path toward strategic information systems alignment, California Management Review, 44-1, 87-108.

41. Jain, R. (1997) Key Constructs in Successful IS implementation: South-east Asian Experience source, Omega, 25, 3, 267-284.

42. Joshi, K. (1991) A model of user's perspective on change: the case of Information Systems technology implementation, MIS Quarterly, 15, 2, 229-242.

43. Kearney, A.T. (1990) Breaking the barriers-IT Effectiveness in Great Britain and Ireland. Report by AT Kearney for The Charted Institute of Management Accountants, AT Kearney Limited, London, UK.

44. Kettinger, W.J., Grover, V., Ghua, S., Segars, A.H., (1994) Strategic information systems revisited: a study in sustainability and performance, MIS Quarterly, 18, 1, 31 – 58

45. Klien, K.J and Sorra, J.S. (1996) The challenge of innovation implementation. Academy of management review, 21, 4, 1055-1088.

46. Lederer, A. and Sethi, V. (1998) The implementation of strategic information systems planning methodologies. MIS Quarterly, 12, 3, 445 – 461.

47. Lederer, A.L. and Mendelow, A.L. (1993) Information systems planning and the challenges of shifting priorities. Information and Management, 24, 319-328.

48. Lederer, A.L. And Salmela, H. (1996) Towa1, a theory of strategic information systems planning. Journal of Strategic Information Systems, 5, 3, 237 – 253

49. Lederer, A.L. and Sethi, V. (1992) Journal of Management Information Systems: JMIS V 9 No1 Summer, pp. 25 - 45

50. Lederer, A.L. and Sethi, V. (1996) Key prescriptions for strategic information systems planning. Journal of Management Information Systems, 13, 1, 35-62.

51. Lederer, A.L., Sethi, (1991) V., Critical dimensions of strategic information systems planning, Decision Sciences 22, 104 –119.

52. Luftman, J.N., Papp, R., Brier, T. (1999) Enablers and inhibitors of business –IT alignment, Communications of AIS, Vol 1, Article 11, 1-30.

53. Mata, F.J., Fuerst, W.M., Barney, J. (1995) Information Technology and sustained competitive advantage: A resource-based analysis. MIS Quarterly 19, 487-505.

54. McGolpin, P., Ward, J.M., (1997) Factors affecting the success of strategic information systems. In: Mingers, J., Stowell, F. (Eds), Information Systems: An Emerging Discipline? McGraw – Hill, London, 287 – 327.

55. Mentzas, G. (1997) Implementing an IS strategy-a team approach, Long Range Planning, 30, 1, 84-95.

56. Min, S.K., Suh, E.H., and Kim, S.Y., (1999) An Integrated approach toward strategic information systems planning. Journal of Strategic Information Systems, 8, 373-394.

57. Montealgre, R. (1994) Management's role in the implementation of information technology in a agro industrial organization of a less developed country. Unpublished Doctoral dissertation, Harvard University, USA.

58. Murray, J.P., (1983) MIS steering committees: Shifting burden of responsibility from managers to groups. Computerworld, 17, 24, 70 –71.

59. Newkirk, H.E., Lederer, A.L., and Srinivasan, C. (2003) Strategic Information Systems Planning: Too little or too much? Journal of Strategic Information Systems, 12, 201-228.

60. Peppard, J.W., Lambert, R., Edwards, C.E., (2000) Whose job is it anyway?: organizational information competencies for value creation. Information systems journal 10(4), 291 – 323

61. Peters, S.C.A., Heng, M.S.H, Vet, R. (2002) Formation of Information Systems Strategy in a global financial service company. Information and Organization, 12, 19-38.

62. Premkumar, G. and King, W.R. (1994) The Evaluation of Strategic Information Systems Planning. Information and Management 26, 327 – 340.

63. Raghunathan, B. and Raghunathan, T.S. (1991) Information Systems planning and effectiveness: An empirical analysis. Omega, 19, 2/3, 125-135.

64. Ranganathan, C. and Kannabiran, G. (2004) Effective management of information systems function: an exploratory study of Indian organizations, International Journal of Information Systems, 24, 247-266.

65. Robinson, P.J. and Brown, D.H (2004) Processual perspectives of IST strategic initiative development and implementation, Proceedings of the 10th Americas conference on Information Systems. 3669-3677.

66. Rockart, J.F., Earl, M.J., and Ross, J.W. (1996) Eight Imperatives for the new IT organization, Sloan Management Review, 38, 1, 43-55.

67. Sabherwal, R. and Chan, Y.E. (2001) Alignment between business and IS strategies: a study of prospectors, analyzers and defenders, Information Systems Research, 12(1), 11-33.

68. Salmela, H., Lederer, A.L., Reponen, T., (2000) Information systems planning in a turbulent environment, European Journal of Information Systems 9, 1, 3 – 15.

69. Salmela, H., Spil, T.A.M. (2002) Dynamic and emergent Information Systems Strategy formulation and implementation. International Journal of Information Management 22, 441-460.

70. Sambamurthy, V. and Venkatraman, S., Desanctics, G., (1993) The design of information technology planning systems for varying organizational context. European journal of information systems, 2, 1, 23-35.

71. Segars, A.H. Grover, V., Teng, .J.T.C., (1998) Strategic Information Systems planning: planning systems dimensions, internal co alignment, and implications for planning effectiveness, Decision Sciences 29, 2, 303 - 346

72. Shoval, P. and Gilladi, R. (1996) Determination of an Implementation order for IS projects. Information and Management, 31, 2, 67-74.

73. Srinivasan, A. and Davis, J.G. (1987) A reassessment of implementation process models. Interfaces, 17, 3, 64-71.

74. Taylor, B. (1997) The Return of Strategic planning-once more with feeling. Long Range Planning, 30, 3, 334-344.

75. Teo, T.S.H., Ang, J.S.K. (2001) An examination of major IS problems. International Journal of Information Management, 21, 457-470.

76. Thong, J.Y.L., Yap, C.S., and Raman K.S. (1994) Engagement of external enterprise in information system implementation, Journal of Management Information Systems, 11, 2, 209-231.

77. Wang, E.T.G., Tai, J.C.F. (2003) Factors affecting Information Systems planning effectiveness: Organizational context and planning Systems dimensions. Information Management, 40, 287-303.

78. Ward, J., Griffiths, P., (1996) Strategic planning for Information Systems, Wiley Series in Information Systems, Wiley, Chichester, UK.

79. Wexeblat, R.L. and Srinivasan, N. (1999) Planning for information technology in a federated organization, The Department of the Treasury, 1111 Constitution Ave., SW. Washington DC 20224, USA., Information and Management 35, 265- 282.