The Status of Strategic Information Systems Planning Practices in Iran: An Organizational Perspective

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ABSTRACT

Despite the importance of strategic information systems planning, few studies have been conducted in Asia; particularly in Middle Eastern countries. This study examines SISP in the context of Iran from an organizational perspective. In this study, we introduced organizational IS capabilities needed for SISP success based on analyzing and synthesizing previous SISP literature. Using a quantitative method, data were gathered from 2000 medium-to-large Iranian firms. Totally, 167 usable questionnaires were collected. The demographics of the participant firms is presented along with their SISP status in terms of SISP approach, SISP stages and IT role. Furthermore, we analyzed the level of organizational IS capabilities among those firms and their level of SISP success in terms of objective fulfillment and planning improvement.

Key words: Strategic information system planning (SISP), environmental context, organizational context, IS context, Iran

INTRODUCTION

By definition, Strategic Information System Planning (SISP) is the identifying a group of IS/IT-based functions that will help a firm in accomplishing its business plans and recognizing its business goals (Bechor *et al.*, 2010). Recently, SISP has attracted many researchers' attention as firms heavily utilize information systems for performance improvement and competitive advantage purposes. However, unlike its importance and its possible benefits, the number of failed SISPs is shown to be high (Pita *et al.*, 2009). Reviewing the reason of these failures it reveals that little attention has been paid to the organizational aspects of SISP (Pita *et al.*, 2009; Lee and Bai, 2003). Nevertheless, research focus on organizational aspects of SISP is rather limited (Lee and Bai, 2003). Therefore, this study attempts to fulfill this need by reviewing and extending the literature by an empirical examination.

Moreover, although many studies have been conducted in SISP field (Basahel, 2009; Bechor *et al.*, 2010; Pita, 2007), few of them have studied SISP status in Asia particularly Middle Eastern countries. Most of the studies in U.S. and Europe have examined aspects such as problems of IS planning, SISP methodology, and planning success. Among those studies, research related to the status of SISP activities is rather scarce but can help researchers and practitioners to be familiar with overall status of SISP in certain contexts (Singapore: Pavri and Ang, 1995; Teo *et al.*, 1997; Australia: Falconer and Hodgett, 1996; Croatia: Spremic and Strugar, 2002; China: Kunnathur and Shi, 2001).

In this regard, this study reports a research of Strategic Information Systems Planning (SISP) in medium-to-large Iranian companies. The study's content is part of a larger study examining the SISP success from an organizational perspective and the factors studied in this research are results of classification of previous literature.

In particular, in this study, the research questions are: What is the role of IT in Iranian companies? What stage of SISP are Iranian companies in? What SISP approaches have been chosen by Iranian companies? What is the status of organizational attributes of SISP success (i.e., six organizational IS capabilities) among Iranian companies? What is the status of SISP success in terms of objective fulfillment and planning improvement in those companies? In essence, through this study we examined the SISP practices in medium-to-large Iranian companies in terms of SISP context (i.e., environmental, organizational and IS context), IT role, SISP stage and SISP approach.

LITERATURE REVIEW

Categorization of SISP success drivers: Examining the IS literature, there is little evidence on the status of SISP in Iran. Therefore, this study is focused on Iran, which is a large investor in IT/IS in the Middle East. Such large investment needs examining status of IS planning in such a context. In order to study SISP status in Iran, we examined previous SISP literature (Baker, 1995; Lederer and Salmela, 1996; Teo *et al.*, 1997; Basu *et al.*, 2002; Lee and Pai, 2003; Pita *et al.*, 2009; Abu Bakar *et al.*, 2009; Bechor *et al.*, 2010) and found more than hundred SISP success drivers (Appendix A). Using resource-based view of the firm theory (RBV), we synthesized those success drivers and established six categories (Appendix B) as organizational IS capabilities (i.e., IS external relationship capability, IS internal relationship capability, IS knowledge and skills capability, IS planning and change management capability, IS-business integration capability and IS infrastructure management capability). Those firm-wide IS capabilities and their definition are presented in Table 1.

Furthermore, we investigated other important variables in SISP literature and came out with (1) environmental context (i.e., turbulence, munificence, complexity), (2) organizational context (i.e., formalization, decentralization and top management support) and (3) IS context (IT role, SISP stage, SISP approach). In following sections each of those factors are explained.

Table 1: Typology and definition of IS capabilities relevant to SISP success

Organizational IS capabilities	Definition
IS external relationship capability	The capacity to manage the relationships between organization and suppliers, customers, and partner firms to deliver high value IS resources to the firm
IS internal relationship capability	The ability to make useful internal relationships between IS users and IS providers in the firm in order to promote rich dialogue and positive interactions among the groups
IS knowledge and skills capability	The ability to ensure that IS employees have, deploy, and manage complex, advanced, and inimitable knowledge and technical skills in supporting the technology plan of the firm
IS planning and change management capability	The ability to predict future growth and changes and its aim is to select appropriate platforms (i.e. software standards, hardware, and network) and policies.
IS-business integration capability	Producing a shared vision between IS and business
IS infrastructure management capability	The ability to set and maintain a flexible IT infrastructure for supporting current and future activities of the firm

Source: Morris (2006) and Wade and Hulland (2004)

Table 2: Analysis of "context factors" used in SISP research

Context	Main dimensions	Considerations / Source(s)
	Environmental turbulence	Refer to Fast changing environments (Wade and Hulland, 2004)
Environmental context	Environmental munificence	In the munificence environment, firms hope to gain more benefits from environment to achieve sustainable growth (Wade and Hulland, 2004)
	Environmental complexity	There is a clear heterogeneity and difference among industry and organization factors (Wade and Hulland, 2004)
	Top management support	Top management commitment, support and guidance (Kearns, 2006)
Organizational context	Formalization	Basically, this item has been divided into entrepreneurial (committed to innovation through dynamism) and formal (committed to formal policies and structure-oriented) (Morris, 2006)
	Decentralization	Decentralized and centralized firm structure (Sambamurthy and Zmud, 1999; Fielder *et al.*, 1995)
Internal IS context	IS importance or the information intensity	The importance or intensity of ISS in the organization (Bechor *et al.*,2010)

SISP context factors: According to the SISP literature, it can be concluded that generally, the SISP context is divided into three parts that are: (1) environmental context, (2) organizational context and (3) IS context (Lederer and Salmela, 1996; Lee and Pai, 2003; Wang and Tai, 2003; Chi *et al.*, 2005; Warr, 2006; Cohen, 2008; Bechor *et al.*, 2010; Newkirk and Lederer, 2010). Environmental context is relevant to influential factors outside the organization's borders that must be taken into consideration (Duncan, 1972). It refers to customers, suppliers and competitors that directly impact the day-to-day operations and also general environment that is social, economic, and demographic characteristics that has indirect and gradual influence on the firm (Bourgeois, 1980; Draft, 2001). Likewise, the organizational context refers to the firm attributes of SISP, and IS context is relevant to the IS characteristics of the organization (Lederer and Sethi, 1996; Cohen, 2008). Table 2 indicates an analysis of context factors used in SISP research.

Furthermore, SISP stage, SISP approach and IT role were shown to be important elements in studying SISP status and are discussed in coming titles.

SISP stage: According to the previous study of Grovera and Segars (2005), both planning process and planning evolution can provide valuable insights into planning evolvement and planning effectiveness and both are among those factors that need more attention. Generally, research indicates that (1) SISP has three stages, (2) different processes are required in each stage and (3) the firms have different contexts and outcomes in each stage (Grovera and Segars, 2005). In more detail, SISP adapts overtime and as firms become geographically or theoretically more complex, the planning activities become more important. In other words, as firms start to be more mature, they can be categorized in different SISP stages. Table 3 shows characteristics of each SISP stage.

According to the Table 3. it can be concluded that there are different processes and consequently different outcomes (based on their planning maturity and experience) and different contexts (higher uncertainty and diffusion level as SISP becomes more mature) in each stage.

SISP approach: Different firms view SISP from different perspectives. Studying those different views provides an opportunity for interpreting organization's approach to SISP. Research on SISP approach involves studying the distinction between different approaches to SISP and the effect of those SISP approaches on SISP success. SISP approach studies are categorized in Table 4.

Table 3: Characteristics of SISP stages

Preliminary stage	Evolving stage	Mature stage
Little planning experience among participants	Some IS planning experience among participants	Much experience and a long history in IS planning activities
New emerging policies and procedures	Formally developed planning	Well established procedures and policies for planning
	Planning process still being corrected	

Source: Grovera and Segars (2005)

Table 4: The main studies about "SISP approach"

Author	SISP approach classification	Consideration
Pybum (1983)	Low formality, high formality	Based on the extent of formalization
Earl (1993)	Organizational, business lead, technological, method driven administrative	Based on rationality and adaptability
Sabberwal and King (1995)	Planned, provincial, incremental, fluid, political	Attributes: analysis, planning, delay, politics, external, influence, internal influence, top management influence and IS influence
Segars and Grover (1999)	Based on rationality against adaptability, identified approaches were, design, planning, positioning, learning, and political	Dimension of rational adaptation were: consistency, participation, flow, focus formalization and comprehensiveness
Doherty et al. (1999)	Using cluster analysis, four distinct approaches were identified.	Based on the ten SISP process dimensions (i.e., comprehensiveness, focus, formalization, flow, participation, frequency, alignment, implementation, ownership and competitive focus) and seven SISP• success dimensions (i.e., alignment, satisfaction, contribution, analysis, implementation, capabilities and cooperation)
Warr (2006)	A combination of SISP philosophy, SISP behaviors, and SISP agenda	-
Bechor et al. (2010)	Strategy execution, technology potential, service level, competitive potential	Based on the dimension of corporate and business alignment

In one of the SISP approach studies, Segars and Grover (1999) conducted a research on SISP profiles/approaches. Based on a multivariate analysis of responses collected from 253 IS executives, they presented five distinct SISP profiles. Further analysis showed that those five SISP profiles could be related to the five strategic planning schools (i.e., design, planning, positioning, learning, and political schools).

Studies conducted on "SISP approach" provide sufficient evidence to support that SISP is not a one-dimensional technique, but is a multidimensional concept. Collectively, planning systems' approaches are ranged from thoroughly adaptive to thoroughly rational (Segars and Grover, 1999). Besides, reviewed studies provided strong evidence that as a multifaceted phenomenon, SISP must be interpreted in terms of adopted planning activities and its available alternatives. Therefore, following Segars and Grover (1999), this study will adopt their five SISP approaches to study the SISP status.

IT role in organization: IT might have different roles in different organizations. These IT roles are competitive, operational and administrative. The administrative role of IT focuses on an efficient platform for controlling organization's functions. The operational role deploys and creates technology within the firm and finally the competitive role of IT concentrates on efficiency in order to achieve competitive advantage through the firm's strategy (Basahel, 2009; Bechor *et al.*, 2010).

EXPERIMENTAL METHODS

The research instrument was a questionnaire developed from previous SISP studies contained items related to respondents' demographics, SISP success, organizational IS capabilities, IT role, SISP stage and SISP approach. Using previously validated items (Segars *et al.*, 1998; Morris, 2006; Bechor *et al.*, 2010; Grovera and Segars, 2005), a survey questionnaire was used to investigate the SISP status among Iranian medium to large organizations. Survey method provided the opportunity to gather required data and test the hypotheses. Since we translated the research tool from English to Persian, we investigated its validity and reliability. After pre-test and pilot-test, the survey questionnaire was sent to around 2000 CIOs of medium-to-large Iranian firms. We asked CIOs (or similar job titles) to respond to the questionnaire in order to make sure that responses are reflecting the firm's SISP perspective. The questionnaire was distributed through e-mail and responses were collected using a web-based application. All responses were collected in June and July, 2011 and totally 167 usable responses were collected. As will be seen in the result section, only 57% (1140 firms) of Iranian medium-to-large firms conduct formal or partially formal SISP. Therefore, the response rate was 14.6% (167/1140) that was comparable with similar studies (Bechor *et al.*, 2010) 90% (Newkirk *et al.*, 2008) 13.41% and (Pita, 2007) 13.05%. Meanwhile, this response rate could be related to the low response rate among CIOs (Bechor *et al.*, 2010) and also this fact that many organizations do not conduct SISP (Pita, 2007).

RESULTS

The demographic profile of participant firms is reviewed in Table 5 in terms of industry types, firm size, ownership status, IT role, SISP stage, and SISP approach.

Industry types: The study's analysis was based on 167 usable responses collected from different industry types. Table 5 shows the demographic profile of respondents. A majority of respondents were from manufacturing industries (26.3%). Other respondents were from technology and media (19.8%), education (15%), financial and insurance services (13.2%), government (10.2%), Transport and distribution services (8.4%) and Health (7.2%) firms. According to the Chi-square test, technology and media, finance and manufacturing firms (IT intensive firms), IT role was more important compare to other firms. In other words, IT in these firms was more engaged with firm strategy. Furthermore, ANOVA tests showed that technology and media firms and financial organizations had stronger IS capabilities and also more successful SISP (p<0.05).

Firm size: The medium-to-large organizations were selected as sample of this study. Those firms were divided into three parts: medium (59.3%), large (28%) and very large (24%). There was no difference between environmental context among medium and large organizations (Table 5). Similarly, only for organizational context, medium firms reported stronger top management support (p<0.05). Totally, medium size firms were more successful at their SISP in terms of objective fulfillment and capability improvement (p<0.05). Moreover, medium firms had stronger IS

Table 5: Demographics of respondent firms

Subject	Categories	Frequency	Percentage
Industry type	Government services	17	10.2
	Education	25	15.0
	Health	12	7.2
	Manufacturing	44	26.3
	Technology and media	33	19.8
	Transport and distribution services	14	8.4
	Financial and insurance services	22	13.2
Firm size	Medium	99	59.3
	Large	28	16.8
	Very large	40	24.0
Ownership status	State owned	91	54.5
	Private	76	45.5
IT role	IT Role 1 (administrative)	65	38.9
	IT Role 2 (operational)	30	18.0
	IT Role 3 (competitive)	72	43.1
SISP stage	Stage 1 (preliminary)	61	36.5
	Stage 2 (partially mature)	74	44.3
	Stage 3 (mature)	32	19.2
SISP approach	Approach 1 (design school)	51	30.5
(SISP adoption status)	Approach 2 (planning school)	39	23.4
	Approach 3 (positioning school)	15	9.0
	Approach 4 (learning school)	42	25.1
	Approach 5 (political school)	20	12.0

capabilities ($p<0.05$) except for IS external relationships and IS knowledge and skills capability that were the same for both firm sizes.

Ownership status: Firms' ownership status is summarized in Table 5. Totally, about 54.5% of respondents were state-owned and other 45.5% were private firms. Generally, private firms were more successful in achieving SISP objectives ($p<0.01$). Furthermore, private firms were stronger than state-owned firms ($p<0.05$) in terms of their capabilities except IS knowledge and skills capability. Chi-square test also showed that private firms were in higher SISP stages compare to state-owned firms ($p<0.05$).

Environmental context: We investigated environmental context in terms of turbulence, munificence and complexity. Based on the analysis, there was no difference between environmental context dimensions based on firm size. Therefore, it can be concluded that the perception of those IT managers of their external environment did not differ significantly.

Organizational context: For organizational context, we investigated formalization, decentralization and top management support. According to the findings, the only difference was that middle size firms had more top management support for their SISP ($p<0.01$). Consequently, as shown previously, the medium firms enjoyed more strong IS capabilities and more successful SISP.

IS context: Several factors have been used for identifying IS context of participant firms.

IT role: IT role in respondent firms was divided into three parts. Firstly, in 39.8% of respondent firms, IT supports operations and administrative function, but IS group is not related to the development of organizational strategy (administrative IT Role). Secondly, in about 18% of participant firms, IS group activity supports the organizational strategy, but is not involved in the business strategy development (operational IT Role). Finally, in majority of respondent organizations (43.1%), IT is integrated to the organizational strategy. Both IS group and corporate managers work together to develop IS application that can change firm's strategic position (competitive IT Role) (Table 5).

Based on data analysis, generally, participant firms reported more SISP success and also stronger IS capabilities according to the role that IT have had in them. In other words, the more the IT has role in firms, the stronger organizational IS capabilities and also possibility of SISP success (p<0.01).

SISP stage: SISP stage is related to stage of SISP that respondent firms were in. Overall, about 36.5% of the respondent firms were in the first stage in which the SISP participants have little planning experience and policies and procedures are recently developed. A majority of firms participated in study (44.3%) were in second stage in which there is some IS planning experience among SISP participants. Plans are formally developed, but planning process still is being corrected. Lastly, the remaining firms (19.2%) were in the third stage in which there is much experience and a long history in IS planning activities. Besides, there are well established procedures and policies for planning (Table 5).

SISP approach: SISP approach is related to different perspectives whereby different firms view SISP. In present study, five different SISP approaches were considered. In most of the participant firms (30.5%) SISP was assumed as a conceptual process that was done by senior management to capture success (Design Approach). In About 23.4% of the firms, SISP was considered a formal process, the IS strategy was determined through specific policies and methodologies (Planning Approach). Few firms assumed SISP approach as an analytical process in which strategy selection was based on calculation and using high-level planning tools (9.0%-Positioning Approach). Likewise, in 25.1% of firms, SISP was a learning and emergent process, thereby, previous experience in conducting SISP was important and SISP was adaptive to changing needs of organization (Learning Approach). Lastly, in remained firms (12.0%), SISP was a power process in which negotiating, power and politics play important role (Politic Approach).

According to the data analysis, the first approach was shown to be less successful than other approaches in terms of objective fulfillment and planning improvement (p<0.01). Likewise, organizational IS capabilities were weaker in this approach compare to other approaches (p<0.01). Furthermore, the second approach showed less SISP success and weak IS capabilities compare to the third and forth approach (p<0.01). The analyses did not show any significant difference between other approaches (Table 5).

SISP success and organizational IS capabilities: We conducted a t-test for the dimension of SISP success, organizational IS capabilities, environmental context, and organizational context factors. As shown in Table 6, almost all SISP success factors and organizational IS capabilities were above medium level (p<0.01) in seven point scale (i.e., = 4). Only environmental complexity was reported at medium level and decentralization was below medium (p<0.01).

Moreover, we examined the Pearson correlation test between SISP success dimensions and capability factors (Table 7).

Table 6: T-test of study's variables

Variables	Mean	t	SD	Sig. (2-tailed)
SISP objective fulfillment	4.3208	3.131	1.32422	0.002
SISP improvement	4.7340	6.236	1.52097	0.000
IS internal relationship capability	4.3208	2.700	1.53548	0.008
IS external relationship capability	4.5202	4.429	1.51776	0.000
IS knowledge and skills capability	4.8728	7.903	1.42708	0.000
IS planning and change management capability	4.6837	6.183	1.42891	0.000
IS-business integration capability	4.3278	2.648	1.59931	0.009
IS infrastructure capability	4.4618	3.892	1.53358	0.000
Uncertainty	4.4892	3.991	1.58428	0.000
Munificence	4.3999	2.808	1.84032	0.006
complexity	4.1680	1.288	1.68553	0.199
Top management support	4.3573	2.850	1.61999	0.005
Formalization	4.3901	3.414	1.47663	0.001
Decentralization	2.4810	-14.90	1.31680	0.000

Table 7: Pearson correlation test between SISP success dimensions and capability factors

Variables (organizational IS capabilities and SISP success)	Pearson correlation	Sig.	Strength of the relationship
IS external relationship capability and SISP objective fulfillment	0.70	0.000	Strong
IS internal relationship capability and SISP objective fulfillment	0.69	0.000	Strong
IS knowledge and skills capability and SISP objective fulfillment	0.61	0.000	Strong
IS planning and change management and SISP objective fulfillment	0.72	0.000	Strong
IS-business integration and SISP objective fulfillment	0.71	0.000	Strong
IS infrastructure capability and SISP objective fulfillment	0.54	0.000	Strong
IS external relationship capability and planning improvement	0.55	0.000	Strong
IS internal relationship capability and planning improvement	0.51	0.000	Strong
IS knowledge and skills capability and planning improvement	0.48	0.000	Medium
IS planning and change management and planning improvement	0.59	0.000	Strong
IS-business integration and planning improvement	0.59	0.000	Strong
IS infrastructure capability and planning improvement	0.42	0.000	Medium

The result of Pearson correlation test showed that almost all of the correlation coefficients between capabilities and success constructs were strong and significant at $p<0.01$. Therefore, as a marginal outcome, it provides initial support for the relationship between organizational IS capabilities and SISP success.

DISCUSSION

The findings of this study indicated that most of participant firms view SISP as formal process through specific policies or as a learning process that adapts to changing needs of firm. This information indicates that IS investments are (or tend to be) based on formal plans in 57.5% of Iranian medium-to-large firms. As an overriding conclusion, comparing SISP approaches and SISP stages, it can be concluded that most of Iranian firms are in a transition stage in which they have some IS planning experience and attempt to develop plans formally. Results also showed that most of the firms have realized the importance of strategic planning for information systems. Most of the firms declared that IT either supports their firm's strategy or is actively integrated to the firm's strategy. This was consistent with the stage that those firms were in (partially mature stage) and with the approach (positioning approach and learning approach) that they had chosen.

The findings also showed that medium firms had stronger firm-wide IS capabilities and more successful SISP compare to the large firms. This might reflect the possible core rigidity in large firms (Slotegraaf and Dickson, 2004). It can be concluded that larger firms might have further possibilities to have stronger IS capabilities but their structure or their complexity might prevent them to further nurture their capabilities.

Interestingly, the level of organizational IS capabilities and SISP success dimensions were higher than medium level but was not at a very high level. Also it worth highlighting that information intensive firms such as technology and media and financial firms had more strong organizational IS capabilities and also were more successful in their SISPs. As we expected, the private firms had stronger IS capabilities and were more successful at SISP compare to state-owned firms. Finally, we found strong support for the idea that organizational IS capabilities are highly correlated with SISP success. Further research is required to examine this relationship more exactly.

APPENDICES
Appendix A: The relation between the conceptual model and the major sources- SISP success predictors derived from previous literature

Author (s)	Agenda	Components (items)
Baker (1995)	SISP problems	• Managerial support (B1)
		• Reviewing plans (B2)
		• Linkage to firms 'plan (B3)
		• Resource allocation (B4)
Lederer and Sethi (1996)	SISP prescriptions	• Reduce resistance and identify resistance bases (L1)
		• Monitoring competitors' ISs (L2)
		• Data modeling by experts (L3)
		• Use outside consultants (L4)
		• Participate in business strategic planning (L5)
		• Bargain to set priorities (L6)
		• Use entity relationship models (L7)
		• Focus on fast payback projects (L8)
		• Use process and data-flow diagrams and process data matrices (L9)
		• External opportunities assessment (L10)
		• IT-educated top management (L11)
		• Senior management provides guidance, support and approval (L12)
		• Cost and risk evaluation (L13)
		• Team members' agreement fostering (L14)
		• Alternative futures considering (L15)
		• Utilizing computer-based tools (L16)
		• Training team members on SISP (L17)
		• Process and implementation review (L18)
		• Getting approximate needs (L19)
		• Conflict management (L20)
		• Resource identification for new tools (L21)
		• Identifying actions needed for plan adoption (L22)
		• Preparing migration plan (L23)
		• Provide organizational support (L24)

Appendix A: Continue

Author (s)	Agenda	Components (items)
		• Redefine business processes (L25)
		• Predict trends (L26)
		• Management style consideration (L27)
		• Finish study in reasonable time (L28)
		• Considering Cross-functional and functional needs (L29)
		• Business plan reviewing (L30)
		• Competitive IS utilization (L31)
		• Focus on educating IS personnel for critical issues (L32)
		• Progress monitoring (L33)
		• Sufficient resource allocation (L34)
		• Considering business change (L35)
		• Considering IT maturity (L36)
		• Flexible SISP process (L37)
		• Evaluate IS strengths and weaknesses (L38)
		• Meet business goals (L39)
		• Review organization's mission (L40)
		• Credible and competent SISP leaders and members (L41)
		• Well Prioritizing (L42)
		• Allow study revisions (L43)
		• Long term SISP initiation (L44)
Teo *et al.* (1997)	Critical success factors	• Top management support (T1)
		• A clear guideline for efforts (T2)
		• Good relationship between users and IS department (T3)
		• Having qualified personnel (T4)
		• Change anticipation (T5)
		• Well doing SISP process (T6)
		• Change commitment throughout organization (T7)
		• Pre understanding the plans and efforts (T8)
		• Appropriate planning horizon (T9)
		• Taking the SISP people into account (T10)
		• Taking the politic side into account (T11)
Basu *et al.* (2002)	Team involvement	• Choosing team members based on competence (A1)
		• Team members are informed about changes (A2)
		• Team members are educated about SISP and organizational issues and objectives (A3)
	Top management support	• Educated senior management (A4)
		• Determining key planning issues by senior
		• Management (A5)
		• Providing feedback and briefing by senior management (A6)
	Organizational commitment	• Resource allocation (A7)
		• Organizational support (A8)
		• Reasonable management expectations (A9)
		• High credibility of SISP leaders and sponsors (A10)
		• Presence of the key people from start to end (A11)
		• Resolve conflicts through close control (A12)
Lee and Pai (2003)	Intergroup behavior	• Communication effectiveness (P1)
		• Task coordination (P2)
		• Conflict management among stakeholders (P3)

Appendix A: Continue

Author (s)	Agenda	Components (items)
Pita *et al.* (2009)	The key SISP barriers	• Management involvement (C1) • IS-business alignment (C2) • Education and recruiting (C3) • Adequate plan quality (C4) • Appropriate horizon of plan (C5) • Intercommunication (C6) • Adequate risk analysis (C7) • Benefits measurement (C8)
Abu Bakar *et al.* (2009)	SISP success elements	• IS/business shared knowledge (K1) • Consultant expertise (K2) • CIO capability (K3) • CIO-senior management relationship (K4) • Organizational commitment (K5) • Inter-organizational cooperation (K6) • Task coordination (K7)
Bechor *et al.* (2010)	SISP key success	• Determining the necessity of planning (E1) factors • Pre defining objectives (E2) • Management participation, involvement and approval (E3) • Uniting stakeholders through a joint vision (E4) • Determining a planning team with all responsibilities (E5) • Appointing a leader for planning project (E6) • Various planning team members from different departments (E7) • Benefiting from external consultants (E8) • Controlling the planning process (E9) • Senior management involvement (E10) • Well defined position for planning team (E11) • Reviewing plans recommendations and implementations periodically (E12) • Allocating required resources to plan implementation (E13) • The planning team joins to the implementation phase (E14)

Appendix B: Proposed organizational IS capabilities derived from SISP success predictors

Organizational IS capabilities	Definition	Supportive literature (SISP success predictors)
IS external relationship management	The capacity to manage the relationships between organization and suppliers, customers and prtner firms to deliver high value IS resources to the firm	T11, E8, L2, L4, L10, K2, L31
IS internal relationship management	The ability to make useful internal relationships between IS users and IS providers in the firm in order to promote rich dialogue and positive interactions among the groups	T3, T10, E4, L14, C6, K4, K6, P1
IS technical skills and knowledge	The ability to ensure that IS employees have, deploy and manage complex, advanced and inimitable knowledge and technical skills in supporting the technology plan of the firm	Al, A3, A4, T4, L3, L9, L11, L17, L32, L41, C3

Appendix B: Continue

Organizational IS capabilities	Definition	Supportive literature (SISP success predictors)
IS planning and change management	The ability to predict future growth and changes and its aim is to select appropriate platforms (i.e., software standards, hardware and network) and policies	B2, A2, A12, T2, T5, T6, T7, T8, T9, E1, E2, E5, E6, E9, E11, E12, E14, L6, L1, L7, L8, L15,, L16, L18, L20, L22, L23, L25, L26, L27, L28, L33, L35, L36, L37, L38, L40, L42, L43, L44, C4, C5, C7, C8, P2, P3
IS-business strategic integration	The ability to produce a shared vision between IS and business	B3 , A8, A11, E7, L5, L24, L30, L39, C2, K5, K1
IS infrastructure management	the ability to set and maintain a flexible IT infrastructure for supporting current and future activities of the firm	B4, A7, E13, L19, L21, L29, L34

REFERENCES

Abu Bakar, F., M.A. Suhaimi and H. Hussain, 2009. Conceptualization of Strategic Information Systems Planning (SISP) success model in public sector: An absorptive capacity approach. Proceedings of the European and Mediterranean Conference on Information Systems, July 13-14, 2009, Turkey pp: 1-12.

Baker, B., 1995. The role of feedback in assessing information systems planning effectiveness. J. Strategic Inform. Syst., 4: 61-80.

Basahel, A.M., 2009. Evaluating the adoption of Strategic Information Systems Planning (SISP) in global organizations. Ph.D. Thesis, Brunel University.

Basu, V., E. Hartono, A.L. Lederer and V. Sethi, 2002. The impact of organizational commitment, senior management involvement and team involvement on strategic information systems planning. Inform. Manage., 39: 513-524.

Bechor, T., S. Neumann, M. Zuiran and C. Glezer, 2010. A contingency model for estimating success of strategic information systems planning. Inform. Manage., 47: 17-29.

Bourgeois, L.J., 1980. Strategy and environment: A conceptual integration. Acad. Manage. Rev., 5: 25-39.

Chi, L., K.G. Jones, A.L. Lederer, P. Li, H.E. Newkirk and V. Sethi, 2005. Environmental assessment in strategic information systems planning. Int. J. Inform. Manage., 25: 253-269.

Cohen, J.F., 2008. Contextual determinants and performance implications of information systems strategy planning within South African firms. Inform. Manage., 45: 547-555.

Doherty, N.F., C.G. Marples and A. Suhaimi, 1999. The relative success of alternative approaches to strategic information systems planning: An empirical analysis. J. Strategic Inform. Syst., 8: 263-283.

Draft, R., 2001. Organization Theory and Design. 7th Edn., South-Western College Publishing, USA.

Duncan, R.B., 1972. Characteristics of organizational environments and perceived environmental uncertainty. Administrative Sci. Q., 17: 313-327.

Earl, M.J., 1993. Experiences in strategic information systems planning. MIS Q., 17: 1-24.

Falconer, D.J. and R.A. Hodgett, 1996. A survey of strategic information systems planning in australian companies. Proceedings of the Information Systems Conference of New Zealand, October 30-31, 1996, Palmerston North, New Zealand, pp: 85-95.

Fielder, K.D., V. Grover and J.T.C. Teng, 1995. An empirical study of information technology enabled business process redesign and corporate competitive strategy. Eur. J. Inform. Syst., 4: 17-30.

Grovera, V. and A.H. Segars, 2005. An empirical evaluation of stages of strategic information systems planning: Patterns of process design and effectiveness. Inform. Manage., 42: 761-779.

Kearns, G.S., 2006. The effect of top management support of SISP on strategic IS management: Insights from the US electric power industry. Omega, 34: 236-253.

Kunnathur, A.S. and Z. Shi, 2001. An investigation of the strategic information systems planning success in Chinese publicly traded firms. Int. J. Inform. Manage., 214: 423-439.

Lederer, A.L. and H. Salmela, 1996. Toward a theory of strategic information systems planning. J. Strategic Inform. Syst., 5: 237-253.

Lederer, A.L. and V. Sethi, 1996. Key prescriptions for strategic information systems planning. J. Manage. Inform. Syst., 13: 35-62.

Lee, G.G. and J.C. Pai, 2003. Effects of organizational context and inter-group behaviour on the success of strategic information systems planning: An empirical study. Behav. Inform. Thechnol., 22: 263-280.

Lee, G.G. and R. Bai, 2003. Organizational mechanisms for successful is/it planning in the digital era. Manage. Decis., 41: 32-42.

Morris, R.F., 2006. The Effects Of Key Moderators on the Relationship Between Firm-Wide it Capability and Firm Performance: An Empirical Investigation of an Integrative Model of it Business Value. Auburn University, New York, ISBN: 9781109914535.

Newkirk, H.E. and A.L. Lederer, 2010. The impact of environmental dynamism on strategic information systems technical and personnel resources planning. Int. J. Inform. Technol. Manage., 9: 203-223.

Newkirk, H.E., A.L. Lederer and A.M. Johnson, 2008. Rapid business and IT change: Drivers for strategic information systems planning. Euro. J. Inform. Syst., 17: 198-218.

Pavri, F. and J. Ang, 1995. A study of the strategic planning practices in Singapore. Inform. Manage., 28: 33-47.

Pita, Z., 2007. Strategic Information Systems Planning (SISP) in Australia: Assessment and measurement. Ph.D. Thesis, School of Business Information Technology, RMIT University, Melbourne, Australia.

Pita, Z., F. Cheong and B. Corbitt, 2009. Major issues in SISP: Insights into the main reason of SISP failure. Proceedings of the 17th European Conference on Information Systems, June 8-10, 2009, Verona, Italy, pp: 1-12.

Pybum, P.J., 1983. Linking the MIS plan with corporate strategy: An exploratory study. MIS Q., 7: 1-14.

Sabberwal, R. and W. King, 1995. An empirical taxonomy of the management processes concerning strategic applications of information systems. J. Manage. Inform. Syst., 2: 240-259.

Sambamurthy, V. and R.W. Zmud, 1999. Arrangements for information technology governance: A theory of multiple contingencies. MIS Q., 23: 261-290.

Segars, A.H. and V. Grover, 1999. Profiles of strategic information system planning. Inform. Syst. Res., 10: 199-232.

Segars, A.H., V. Grover and T. Teng, 1998. Strategic information systems planning: Plannig system dimensions, internal coalignment and application for planning effectiveness. Decis. Sci., 29: 303-341.

Slotegraaf, R.J. and P.R. Dickson, 2004. The paradox of a marketing planning capability. J. Acad. Marketing Sci., 32: 371-385.

Spremic, M. and I. Strugar, 2002. Strategic IS planning practice in Croatia: Organizational and managerial challenges. Int. J. Accounting Inform. Syst., 3: 183-200.

Teo, T.S.H., J.S.K. Ang and F.N. Pavri, 1997. The state of strategic IS planning practices in Singapore. Inform. Manage., 33: 13-23.

Wade, M. and J. Hulland, 2004. Review: The resource-based view and information systems research: Review, extension and suggestions for future research. MIS Q., 28: 107-142.

Wang, E.T.G. and J.C.F. Tai, 2003. Factor affecting information systems planning effectiveness: Organizational contexts and planning systems dimensions. Inform. Manage., 40: 287-303.

Warr, A., 2006. Strategic IS Planning in UK Organisations: Current approaches and their relative success. Proceedings of the 14th European Conference on Information Systems, June 12-14, 2006, Goteborg, Sweden, pp: 972-983.