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A FRAMEWORK FOR INVESTIGATING THE IMPACT OF INFORMATION SYSTEMS CAPABILITY ON STRATEGIC INFORMATION SYSTEMS PLANNING OUTCOMES

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Abstract

The Strategic Information Systems Planning (SISP) process is critical for ensuring the effectiveness of the contribution of Information Technology (IT)/Information Systems (IS) to the organisation. A sophisticated SISP process can greatly increase the chances of positive planning outcomes. While effective IS capabilities are seen as crucial to an organisation's ability to generate IT-enabled competitive advantages, there exists a gap in the understanding of the IS competencies which contribute to the forming of an effective SISP capability. In light of these gaps, this study investigates how do IS competencies impact the SISP process, and its outcomes? To address this question, a model for investigating the impact of IS collaboration and IS personnel competencies on the SISP process is proposed. Further research is planned to undertake a survey of top Australian organisations in industries characterised by high IT innovation and competition, to test the proposed model and hypotheses.

Keywords: Strategic Information Systems Planning, IS Capability, SISP Contribution

1 INTRODUCTION

In the uncertain environments in which contemporary organisations operate in, organisational competencies are seen as the key to utilising Information Technology (IT) and Information Systems (IS) effectively to generate IT-enabled competitive advantages (Caldeira & Dhillon 2010; Dhillon 2008). Organisations are investing heavily into IT at the enterprise level (McDonald 2007), to generate dynamic capabilities by forming synergies between IS and business processes (El Sawy et al. 2010; Nevo & Wade 2010). However, large amounts of IT expenditure does not necessarily translate to strategic IT value (Kobelsky et al. 2008), with investments failing to result in improvements in performance or financial returns (Carr 2003). IS executives must decide on how to effectively and efficiently allocate resources and budgets, given the current and future constraints placed upon them (Ward 2002). Strategic information systems planning (SISP) is used to improve IT resource allocation by coordinating the IS strategy with the business strategy to support business goals and objectives.

SISP has consistently ranked as a top issue for IS executives over decades of the changing economic conditions (Luftman & Derksen 2012) and across numerous countries (Watson et al. 1997). This highlights the importance of SISP in enabling firms to generate strategic value from IT resources and capabilities. However, research has indicated that effective translation of IT investment into IT strategic value is affected by environmental, organisational and technological factors (Kobelsky et al. 2008). Therefore, organisations must adopt an approach to SISP that incorporates these factors into the planning process. The SISP context influences the success of the planning process (Warr 2005). External as well as internal organisational factors need to be taken into consideration when formulating the IS plan (Bechor et al. 2010; Chi et al. 2005; King 2009). Hence, contemporary SISP practices must incorporate strong planning capabilities that will manage the internal aspects of the organisation, while being flexible enough to effectively adapt IS requirements to changing external factors (Grover & Segars 2005; Otim et al. 2009).

IS strategy research has shifted its focus from strategic IS systems to IS capabilities (Peppard & Ward 2004), yet there are only a few studies which have examined SISP from the IS capability perspective (Duhan 2007; Khani et al. 2012; Yeh et al. 2012). There is a gap in understanding how SISP related IS group and personnel competencies contribute to the effectiveness of the SISP process. An effective SISP process contains aspects of both rationality and adaptability (Earl 1993; Segars et al. 1998), yet there exists a gap in the understanding of the IS competencies which contribute to the forming of such a process and its contribution to SISP success.

The dynamic nature of contemporary business environments places a greater emphasis on the development of organisations capabilities and IT-enabled competitive advantage. Calls have been made for a reframing of the SISP agenda, focusing specially on the synergies between IT, organisational capabilities, and organisational factors (Duhan 2007). More recently, attempts to investigate the impact of IS capabilities on SISP success provided mixed results (Khani et al. 2012). To address this gap this research proposes a model for the assessment of SISP from an IS capability based perspective, based on predictors from the SISP literature. The primary objective of this research is to empirically confirm the impact of IS competencies on the SISP process and its outcomes. A literature review is undertaken to examine key factors for successful SISP, all from the IS capability perspective. Hypotheses are generated and a research model is proposed. Finally, the research methodology and conclusion with further work is presented.

2 LITERATURE REVIEW

2.1 Strategic information systems planning: from methodologies to IS capability

SISP is the process of searching for IT based opportunities (Grover & Segars 2005) that can add value to the organisation by aligning with corporate objectives, as well as by creating competitive advantages (Doherty et al. 1999; Lederer & Sethi 1988). An effective SISP process needs to ensure the effective utilisation of resources, improvements in operational efficiency, and enable strategic IS

flexibility (King 2009; Otim et al. 2009; Philip 2007; Ward & Peppard 2002). SISP can be performed as comprehensive large-scale planning process or as a continual smaller-scale planning activity (Teo et al. 1997). Regardless of the planning scale, SISP is a complex process that needs to define objectives, participants, preconditions, products, and techniques (Newkirk & Lederer 2007). Previous research has examined SISP in terms of planning approaches (Earl 1993), specific tasks (Mentzas 1997), planning dimensions (Segars et al. 1998), and successful outcomes (Segars & Grover 1998; Venkatraman & Ramanujam 1987).

Contemporary views of SISP focus on the development of IS capabilities and not on planning methodologies (Peppard & Ward 2004). This view of SISP draws from the theory of the resource-based view (RBV) of the firm. The RBV proposes that organisational resources can create value by enabling the implementation of strategies that can generate sustainable competitive advantages (Barney 1991). This is dependent on the organisation's ability to deploy combinations of resources to achieve its strategic objectives and thus create unique capabilities (Teece et al. 1997). Drawing from this perspective, IS capabilities refer to the ability to mobilise and deploy IT-based resources in combination or co-present with other resources, at the organisational-level (Bharadwaj 2000; Peppard & Ward 2004). IT resources alone rarely offer competitive advantages; rather, their value lies in leveraging existing organisational capabilities (Kohli & Grover 2008; Mata et al. 1995; Piccoli & Ives 2005; Santhanam & Hartono 2003).

A strategic planning process capability that coordinates between multiple stakeholders, utilises diverse resources and can balance planning and learning processes during strategy formation, should result in higher contributions to organisational performance (Hart & Banbury 1994; Slater et al. 2006). Capabilities become dynamic when they enable the implementation of new strategies in response to environmental change, by reconfiguring existing resources and competencies (Teece et al. 1997). It is this proposition that drives this research in understanding how specific IS competencies can impact the SISP process, combining to form IS capability enabled performance advantages. Many studies have examined SISP from the process aspect, and a few from the capabilities view, but there is absence of a combined view of IS capability and SISP. Research incorporating both the SISP process and IS competencies will give a more complete picture of SISP in contemporary organisations.

2.2 **An IS capability view of SISP**

Peppard and Ward (2004) introduced an IS capability framework for the purpose of IS strategy implementation, stressing that IS capabilities impact performance at the organisational-level. Capabilities refer to the organisation's ability to exploit its competencies at the strategic level (Amit & Schoemaker 1993; Teece et al. 1997), where competencies are defined as the organisation's ability to utilise and mobilise its bundles of skills and technologies to create value (Hamel & Prahalad 1994). Therefore, for the purpose of this research, IS capability for SISP is defined as *the organisation's ability to utilise IT/IS resources and competencies that are needed for effective SISP*.

The input-process-output model of SISP (King 1988; Lederer & Salmela 1996) is used as the template for deriving an IS capability view of SISP, as there has been an abundant level of literature, defining numerous determinants and critical success factors (CSFs) for effective SISP. This process view of SISP focuses on the importance on the number of inputs into the SISP process and their quality (King 2009; Mentzas 1997; Premkumar & King 1991). An extensive review of the literature was performed to identify overlapping themes from past conceptualisations of SISP determinants, processes and outcomes. The resulting literature review identified IS competencies impacting SISP effectiveness, effective SISP process characteristics and important measures of SISP success. The rationale and definition behind each IS competency, SISP process characteristic and measure of the contribution of SISP is proposed and discussed in the following sections.

2.3 IS Competencies for effective SISP

2.3.1 SISP collaboration competency

The level of collaboration and participation of stakeholder groups is one of the key issues in SISP (Ruohonen 1991). SISP collaboration competency is defined as the effective utilisation and management of relevant stakeholder group inputs into the SISP process. The top issues relating to SISP collaboration include top management participation in the SISP process (Lederer & Sethi 1988; Philip 2007; Teo & Ang 2001), the level of internal stakeholder collaboration (Bai & Lee 2003; Basu et al. 2002; Segars & Grover 1999) and external collaboration (Lin 2006; Mirchandani & Lederer 2008; Spil & Salmela 2006). Effective collaboration during SISP can improve the effectiveness of the planning process (Ravichandran & Lertwongsatien 2005) and impact on the quality of the implementation efforts (Yeh et al. 2012). SISP requires the integration of IS/IT, business and strategic knowledge; therefore, knowledge sharing between stakeholders is necessary to ensure that SISP is performed effectively (Pai 2006).

Top management participation has consistently ranked as top predictor of SISP success and one of the main issues of investigation in SISP related research (Lederer & Sethi 1996; Teo & Ang 2001; Ward et al. 2014). SISP research has identified top management participation as a key problem area and a major barrier to SISP success (Cerpa & Verner 1998; Earl 1993; Lederer & Sethi 1988). Top management possess greater strategic knowledge of the organisation and are the most important stakeholders in contributing to the development of strategic plans (Ruohonen 1991). The ability to obtain top management support and participation is a key factor in both the initialisation and implementation phases of the SISP exercise (Gottschalk 1999b; Lederer & Sethi 1988; Mentzas 1997; Teo & Ang 1999). Knowledge sharing at the executive level can greatly improve the effectiveness of the SISP process and lead to positive outcomes such as strategic alignment and IT-enabled competitive advantages (Kearns 2006).

Internal collaboration is defined as the breadth of participation of internal stakeholders within the SISP process. The higher the breadth of participation, the more likely that valuable inputs from the functional and operational level will be incorporated (Segars & Grover 1999). Managing the relationships between participants in the SISP process is important, due to the issues that may arise between stakeholders within the planning team (Earl 1993; Ruohonen 1991). Broader planning methods increase the chances of success in the planning process (Premkumar & King 1991). Greater internal collaboration in the SISP process is often required in dynamic environments where uncertainty is high (Grover & Segars 2005; Sabherwal & King 1995).

The quality of IT partnerships both externally an internally are seen as important inputs into the SISP process that can impact on its effectiveness (Ravichandran & Lertwongsatien 2005). External collaboration consists of collaboration with important external stakeholders to the organisation. This may include managing external linkages throughout the SISP process such as suppliers, customers, partners and service providers (Bharadwaj et al. 1999). Effective external collaboration will lead to better monitoring of external IS threats and opportunities, and integration of important knowledge concerning the organisation's network and environment (Spil & Salmela 2006). SISP is an integrating capability (Wade & Hulland 2004) that can effectively utilise external stakeholder knowledge to develop greater environmental assessments which can contribute to positive SISP outcomes (Chi et al. 2005), particularly in environments of uncertainty (Mirchandani & Lederer 2012).

2.3.2 SISP personnel competency

The quality of stakeholder inputs into the SISP process is a major issue which can impact the effectiveness of the SISP process (Basu et al. 2002; Mentzas 1997; Premkumar & King 1991). Having unqualified personnel can be a major problem which can impact on the effectiveness of SISP (Teo & Ang 2001). SISP personnel competency is defined as the knowledge and skills set possessed by the SISP team. SISP requires the integration of IS/IT knowledge, business knowledge, organisation-specific and management competencies (Pai 2006). Therefore, this grouping of knowledge categories is the basis for the view of SISP personnel competency for this study. Consistent with existing

conceptualisations of personnel competencies in the literature, it is proposed that SISP personnel competency consists of IT technical expertise; business expertise; and, business management expertise, specific to the organisation (King 2009; Pai 2006). This view is consistent with results that have found a positive relationship between planner IS personnel capabilities and the quality of SISP implementation processes (Yeh et al. 2012).

SISP technical knowledge is a key process input (Mentzas 1997; Peppard & Ward 2004). It is defined as the knowledge of the existing IT/IS at the organisational-level concerning: the role of IS/IT; mission of the IS function; IS capabilities; IS, IT, and information architectures, applications portfolio, and IS/IT trends (King 1978, 2009). Strong SISP technical knowledge is required to plan for the future applications portfolio and is important regarding resources allocation decisions, such as whether to invest in new systems or maintain/upgrade existing ones.

Another key process input is SISP business knowledge (Mentzas 1997; Peppard & Ward 2004). It is defined as the knowledge of the organisation's existing business environment concerning: the strategy set, critical success factors, information, IS and IT requirements, core competencies, and the performance of the organisation as a whole (Basu et al. 2002; King 1978, 2009). SISP Business knowledge is important to the success of SISP, as planners must be able to understand the business environment in order to be able to propose IT initiatives that are aligned with the strategic direction of the business.

SISP managerial skills are required to coordinate the planning exercise and ensure effective SISP implementation (Pai 2006; Yeh et al. 2012). These skills include project management, change management, risk management, governance/decision-making processes, and general business practices (Chen & Wu 2011; Khani et al. 2012; Peppard & Ward 2004). SISP Managerial skills are required to effectively manage the SISP process from start to finish. The SISP excercise can fail due to issues in the implementation phase which can cause major problems such as carrying out the resulting strategic IS plan (Lederer & Sethi 1988). Effective SISP managerial skills can help overcome these issues and positively impact the quality of SISP implementation processes (Yeh et al. 2012).

2.4 SISP sophistication

SISP sophistication is the extent to which IS planning process helps create opportunities for information systems to make a strategic contribution in the organisation (Sabherwal 1999). A sophisticated SISP process leads to better requirements definition, and greater process effectiveness (King 1978; Lederer & Sethi 1988). According to the literature, the top ranking issues regarding the SISP process are formation of the process, i.e., comprehensiveness vs. limited planning (Doherty et al. 1999; Earl 1993; Segars & Grover 1999), organisational learning through SISP (Ang et al. 1995; Auer & Reponen 1997; Segars & Grover 1998), and process alignment/integration processes (Kearns & Lederer 2000; Teo et al. 1997; Teo & King 1997; Wang & Tai 2003). SISP processes characterised by higher levels of learning while also being comprehensive, achieve greater success in environments of uncertainty (Grover & Segars 2005; Otim et al. 2009). These attributes are consistent with past conceptualizations of SISP sophistication (Ravichandran & Lertwongsatien 2005; Sabherwal 1999) and therefore, are appropriate to analyse as measures of the effectiveness of the SISP process.

2.4.1 SISP comprehensiveness

Comprehensiveness is a process dimension of SISP that is defined as the extent to which an organisation attempts to be exhaustive in making and integrating decisions (Segars & Grover 1999; Segars et al. 1998). Comprehensiveness reflects the ability to manage the balance between being exhaustive in the formulation of the strategic IS plan, while at the same time not over investing in the time and resources required for SISP. In environments of uncertainty and change, a comprehensive SISP process yields greater positive outcomes (Newkirk & Lederer 2006; Newkirk et al. 2003).

2.4.2 Improvement in SISP capabilities

Improvement in SISP capabilities represents the short-term planning improvement benefits that can be achieved during or immediately after the plan formulation phase of the SISP process (Bechor et al. 2010). Improvement in planning capabilities is also a reflection of the level of organisational learning which occurs during SISP (Otim et al. 2009; Segars & Grover 1998). High levels of learning are a characteristic of a sophisticated and mature SISP process (Grover & Segars 2005).

2.4.3 SISP alignment

SISP alignment reflects the level of planning process integration between business and IS units (Teo & King 1996). Obtaining high levels of alignment is highly elusive in practice (Teo & King 1997), yet remains a key objective for performing SISP (Earl 1993). SISP Alignment is difficult to master in most SISP exercises (Chan 2002) and requires a high level of skill to achieve (Powell 1992). SISP alignment can contribute to positive outcomes for the organisation, such as IT-enabled competitive advantages (Kearns & Lederer 2000).

2.5 **SISP contribution**

SISP can be a potential source of competitive advantage if it can both enable strategic flexibility as well as strategic alignment (Baker et al. 2011). Studies have shown that organisations that closely align business and IS plans are more likely to effectively utilise IS for supporting the business in achieving competitive advantages over its rivals (Kearns 2006; Kearns & Sabherwal 2006/7). However, failure to implement the IS plan can be viewed as measure of failure for the whole SISP exercise (Teubner 2007). Given the dynamic nature of today's business environments, the need for balancing the tensions between innovation, efficiency and flexibility is critical to organisational performance and therefore, appropriate measures of the contribution of SISP (Baker et al. 2011; King 2009; Otim et al. 2009; Palanisamy 2005).

2.5.1 SISP implementation effectiveness

SISP implementation effectiveness is defined as the organisation's capability to ensure the strategic IS plan is implemented. The SISP implementation phase is the most critical phase of the planning process, particularly for organisations operating in environments of uncertainty (Mirchandani & Lederer 2012). The SISP literature often puts a greater focus on the formulation of the IS strategic plan, at times at the cost of ignoring its implementation (Gottschalk 1999a, 1999b). Proper implementation mechanisms are critical in order to achieve SISP success (Teo & King 1996; Wang & Tai 2003).

2.5.2 SISP flexibility

It has been proposed that a sophisticated SISP process will enable organisations to modify its existing strategic plan with less difficulty than those with an ineffective SISP process (Baker et al. 2011; Grover & Segars 2005). SISP flexibility is the capability to adjust the IS plan in response to the changes in the external environment concerning: suppliers and customers; competitors; IT; government regulations; and, in the economy (Gottschalk 1999b). Neglecting to adjust the IS plan to environmental change is a major problem which impacts SISP implementation (Teo & Ang 2001).

2.5.3 Use of IT for competitive advantage

Strategic IS plans provide a way in which competitive advantage can be sustained over time (Powell 1992). IT can be used for competitive advantage such as strategies for switching costs, lower products costs, create product differentiation, enable existing business strategies, and create new business strategies (Kearns & Lederer 2000). Studies have shown that organisations that closely align business and IS plans are more likely to effectively utilise IS for supporting the business in achieving competitive advantage (Kearns 2006; Kearns & Sabherwal 2006/7); and hence, receive a greater return on IT investment.

3 THE PROPOSED RESEARCH MODEL

This study proposes the research model as shown in Figure 1, identifying the relationships between SISP competencies, the SISP process and the contribution of SISP.

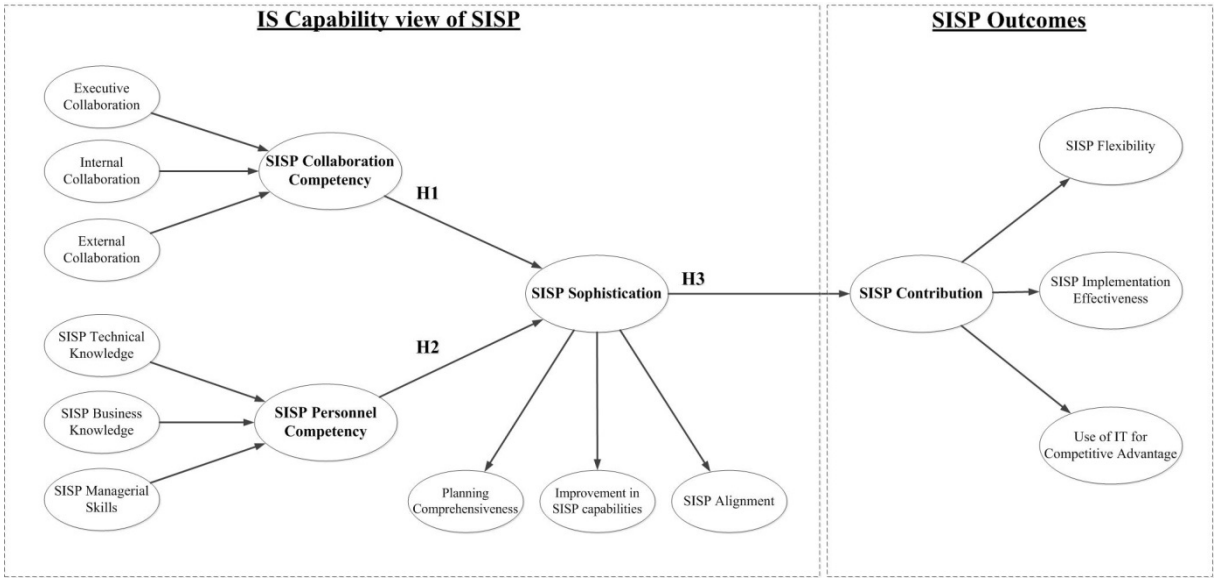

Figure 1. The conceptual framework for investigating the impact of IS capability on SISP outcomes.

Based on the literature review, this study has identified two important SISP related IS competencies that reflect the quantity and quality of stakeholder inputs into the planning process: IS collaboration competency and IS personnel competency. This supports Peppard and Ward's (2004) view of IS capability as consisting of IS competencies used in combination with organisational processes to achieve strategic business objectives. This in turn will result in higher levels of SISP contribution through the improved strategic flexibility, effective SISP implementation capability; and, increased IT-enabled competitive advantage.

From the conceptual framework above, the following hypotheses are proposed. Firstly, the quality of IS competencies is a key factor which can influence the level of SISP sophistication (Ravichandran & Lertwongsatien 2005) and can have a positive effect on SISP processes and outcomes (Khani et al. 2012; Yeh et al. 2012). Therefore, the following hypotheses are proposed:

Hypothesis 1 (H1): SISP collaboration competency will have a significant positive impact on SISP sophistication.

Hypothesis 2 (H2): SISP personnel competency will have a significant positive impact on SISP sophistication.

The literature supports the view that a sophisticated SISP process possesses aspects of both rationality and adaptability, while also not ignoring the importance of SISP implementation, will achieve greater SISP success (Doherty et al. 1999; Gottschalk 1999b; Grover & Segars 2005; Otim et al. 2009; Wang & Tai 2003). Based on this literature, it is proposed that:

Hypothesis 3 (H3): SISP sophistication will have a significant positive impact on SISP contribution.

The effects of hypothesised relationships will be controlled for by industry type, number of employees and turnover. This is consistent with past studies which have identified these characteristics as impacting on SISP outcomes (Chan & Reich 2007; Premkumar & King 1994).

4 METHODOLOGY

4.1 Construct operationalisation

SISP contribution is operationalised as a higher-order reflective construct, formed by the measures of SISP success identified in the literature review: SISP flexibility, SISP implementation effectiveness and the use of IT for competitive advantage. SISP sophistication is operationalised as a higher-order reflective construct, measured by the lower-order planning process constructs identified from the attributes of planning sophistication in the literature (Ravichandran & Lertwongsatien 2005; Sabherwal 1999): planning comprehensiveness, improvement in SISP capabilities and SISP alignment. SISP collaboration competency is operationalised as a reflective-formative higher-order construct which is formed by effectively combining the collaborative inputs of SISP stakeholder groups: externally, internally and at the executive level. Finally, SISP personnel competency is operationalised as a reflective-formative higher-order construct which is formed by the level of skills/knowledge that enables the SISP team to perform the planning process effectively by having strong technical knowledge, understanding of the business and managerial skills. The specification of the two IS competencies as formative constructs is consistent with the resource literature that views competencies as combinations of skills and knowledge (Hamel & Prahalad 1994; McGrath et al. 1995; Teece et al. 1997).

4.2 Sampling survey and administration

This study proposes the use of a pre-designed survey and use of statistical analysis to test the hypotheses, and to validate the conceptual framework. The survey companies will be selected from the online databases using industry data from the Australian Bureau of Statistics to select industries with high degrees of competition, innovativeness, IT use and business performance. The study will focus on organisation in the private sector as those in the public sector will have a completely different view of what constitutes SISP success. Therefore, consistent with past studies (Grover & Segars 2005), they will be excluded. Using a key informant approach (Bagozzi et al. 1991), the survey will target respondents at the senior IS executive level, as they are most likely to be informed about strategic issues pertaining to IT decisions and practices in their organisations.

The nature of this research is exploratory and involves the evaluation of relationships between a large number of latent variables and therefore the partial least squares (PLS) method is selected. PLS utilises a component-based estimation approach making it capable of measuring formative constructs, unlike the covariance-based structural equation modelling (CB-SEM) method. The PLS-method is used when formatively measured constructs are a part of the structural model, the structural model is complex, and when the goal of the research is to identify key predictors rather than theory confirmation (Hair et al. 2013). A preliminary analysis of the pilot data using SmartPLS (Ringle et al. 2005) returned positive results, with most factors above the recommended thresholds regarding internal consistency and indicator reliability (Cronbach 1951; Nunnally & Bernstein 1994). However, the survey instrument will be updated to reflect the input from pilot respondents, before proceeding with the main questionnaire.

5 CONCLUSION

This research seeks to address the gaps in knowledge regarding the impact of IS capability on SISP. The IS capability view of SISP is ideal for today's uncertain business environments, where planners are finding it increasingly difficult to commit large amounts of resources in order to plan for the future. Drawing from the IS/IT capabilities literature, this paper proposes an IS capability view of SISP. SISP success is dependent on the organisation's capability to effectively leverage IS competencies in combination with the SISP process to generate positive SISP outcomes. Effective utilisation of the IS capability outlined in the paper should result in higher levels of SISP contribution. Future research is planned to test the proposed model, which is recommended to be done via PLS-SEM analysis of survey data.

References

Amit, R., & Schoemaker, P.J.H. (1993). Strategic assets and organizational rent. Strategic Management Journal, 14, 33-46.

Ang, J., Shaw, N., & Pavri, F. (1995). Identifying strategic management information systems planning parameters using case studies. International Journal of Information Management, 15 (6), 463-474.

Auer, T., & Reponen, T. (1997). Information systems strategy formation embedded into a continuous organizational learning process. Information resources management journal, 10 (2), 32-43.

Bagozzi, R.P., Yi, Y., & Phillips, L.W. (1991). Assessing construct validity in organizational research. Administrative science quarterly, 36 (3), 421-458.

Bai, R.J., & Lee, G.G. (2003). Organizational factors influencing the quality of the IS/IT strategic planning process. Industrial management & data systems, 103 (8), 622-632.

Baker, J., Jones, D., Cao, Q., & Song, J. (2011). Conceptualizing the Dynamic Strategic Alignment Competency. Journal of the Association for Information Systems, 12 (4), 299-322.

Barney, J.B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17 (1), 99-120.

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 & Management, 39 (6), 513-524.

Bechor, T., Neumann, S., Zviran, M., & Glezer, C. (2010). A contingency model for estimating success of strategic information systems planning. Information & Management, 47 (1), 17-29.

Bharadwaj, A.S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. MIS quarterly, 24 (1), 169-196.

Bharadwaj, A.S., Sambamurthy, V., & Zmud, R.W. (1999). IT capabilities: theoretical perspectives and empirical operationalization. In Proceedings of the International Conference of Information Systems, p. 378-385, Charlotte, NC.

Caldeira, M., & Dhillon, G. (2010). Are we really competent?: Assessing organizational ability in delivering IT benefits. Business Process Management Journal, 16 (1), 5-28.

Carr, N.G. (2003). IT doesn't matter. Harvard Business Review, 81 (5), 5-12.

Cerpa, N., & Verner, J.M. (1998). Case study: The effect of IS maturity on information systems strategic planning. Information & Management, 34 (4), 199-208.

Chan, Y.E. (2002). Why haven't we mastered alignment? The importance of the informal organization structure. MIS Quarterly Executive, 1 (2), 97-112.

Chan, Y.E., & Reich, B.H. (2007). IT alignment: what have we learned? Journal of Information Technology, 22 (4), 297-315.

Chen, Y.C., & Wu, J.H. (2011). IT management capability and its impact on the performance of a CIO. Information and Management, 48 (4-5), 145-156.

Chi, L., Jones, K.G., Lederer, A.L., Li, P., Newkirk, H.E., & Sethi, V. (2005). Environmental assessment in strategic information systems planning. International Journal of Information Management, 25 (3), 253-269.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16 (3), 297-334.

Dhillon, G. (2008). Organizational competence for harnessing IT: A case study. Information & Management, 45 (5), 297-303.

Doherty, N., Marples, C., & Suhaimi, A. (1999). The relative success of alternative approaches to strategic information systems planning: an empirical analysis. The Journal of Strategic Information Systems, 8 (3), 263-283.

Duhan, S. (2007). A capabilities based toolkit for strategic information systems planning in SMEs. International Journal of Information Management, 27 (5), 352-367.

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

El Sawy, O.A., Malhotra, A., Park, Y.K., & Pavlou, P.A. (2010). Research Commentary---Seeking the Configurations of Digital Ecodynamics: It Takes Three to Tango. Information Systems Research, 21 (4), 835-848.

Gottschalk, P. (1999a). Implementation of formal plans: the case of information technology strategy. Long Range Planning, 32 (3), 362-372.
Gottschalk, P. (1999b). Implementation predictors of strategic information systems plans. Information & Management, 36 (2), 77-91.
Grover, V., & Segars, A.H. (2005). An empirical evaluation of stages of strategic information systems planning: patterns of process design and effectiveness. Information & Management, 42 (5), 761-779.
Hair, J.F., Jr., Hult, G.T.M., Ringle, C., & Sarstedt, M. (2013). A primer on partial least squares structural equation modeling (PLS-SEM). SAGE Publications, Inc., Thousand Oaks.
Hamel, G., & Prahalad, C.K. (1994). Competing for the Future. Harvard Business School Press, Boston, MA.
Hart, S., & Banbury, C. (1994). How strategy-making processes can make a difference. Strategic Management Journal, 15(4), 251-269.
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 (3), 236-253.
Kearns, G.S., & Lederer, A.L. (2000). The effect of strategic alignment on the use of IS-based resources for competitive advantage. The Journal of Strategic Information Systems, 9 (4), 265-293.
Kearns, G.S., & Sabherwal, R. (2006/7). Strategic alignment between business and information technology: a knowledge-based view of behaviors, outcome, and consequences. Journal of management information systems, 23 (3), 129-162.
Khani, N., Khalil, N.M., Mojgan, B.S., & Hossein, H. (2012). An Empirical Investigation of Capability Factors Affecting Strategic Information Systems Planning Success. International Journal of Strategic Information Technology, 3 (2), 1-17.
King, W.R. (1978). Strategic planning for management information systems. MIS quarterly, 2 (1), 27-37.
King, W.R. (1988). How effective is your information systems planning? Long Range Planning, 21 (5), 103-112.
King, W.R. (2009). Planning for Information Systems (King, W.R. Ed.), Planning for Information Systems, 14, p. 3-16. M.E. Sharpe, Armonk, NY.
Kobelsky, K.W., Richardson, V.J., Smith, R.E., & Zmud, R.W. (2008). Determinants and consequences of firm information technology budgets. The Accounting Review, 83 (4), 957-995.
Kohli, R., & Grover, V. (2008). Business value of IT: an essay on expanding research directions to keep up with the times. Journal of the Association for Information Systems, 9 (1), 23-39.
Lederer, A.L., & Salmela, H. (1996). Toward a theory of strategic information systems planning. The Journal of Strategic Information Systems, 5 (3), 237-253.
Lederer, A.L., & Sethi, V. (1988). The implementation of strategic information systems planning methodologies. MIS quarterly, 12 (3), 445-461.
Lederer, A.L., & Sethi, V. (1996). Key prescriptions for strategic information systems planning. Journal of management information systems, 13 (1), 35-62.
Lin, H.F. (2006). Interorganizational and organizational determinants of planning effectiveness for Internet-based interorganizational systems. Information & Management, 43 (4), 423-433.
Luftman, J., & Derksen, B. (2012). Key Issues for IT Executives 2012: Doing More with Less. MIS Quarterly Executive, 11 (4).
Mata, F.J., Fuerst, W.L., & Barney, J.B. (1995). Information technology and sustained competitive advantage: a resource-based analysis. MIS quarterly, 19 (4), 487-505.
McDonald, M.P. (2007). The Enterprise Capability Organization. MIS Quarterly Executive, 6 (3), 179-192.
McGrath, R.G., Macmillan, I.C., & Venkataraman, S. (1995). Defining and developing competence: A strategic process paradigm. Strategic Management Journal, 16(4), 251-275.
Mentzas, G. (1997). Implementing an IS strategy--A team approach. Long Range Planning, 30 (1), 84-95.
Mirchandani, D.A., & Lederer, A.L. (2008). The impact of autonomy on information systems planning effectiveness. Omega, 36 (5), 789-807.

Mirchandani, D.A., & Lederer, A.L. (2012). “Less is More:” Information Systems Planning in an Uncertain Environment. Information Systems Management, 29 (1), 13-25.
Nevo, S., & Wade, M.R. (2010). The Formation and Value of IT-Enabled Resources: Antecedents and Consequences. Management Information Systems Quarterly, 34 (1), 163-183.
Newkirk, H.E., & Lederer, A.L. (2006). The effectiveness of strategic information systems planning under environmental uncertainty. Information & Management, 43 (4), 481-501.
Newkirk, H.E., & Lederer, A.L. (2007). The Effectiveness of Strategic Information Systems Planning For Technical Resources, Personnel Resources, and Data Security in Environments of Heterogeneity and Hostility. The Journal of Computer Information Systems, 47 (3), 34-44.
Newkirk, H.E., Lederer, A.L., & Srinivasan, C. (2003). Strategic information systems planning: too little or too much? The Journal of Strategic Information Systems, 12 (3), 201-228.
Nunnally, J.C., & Bernstein, I.H. (1994). Psychometric Theory. 3rd Edition. McGraw Hill Book Company, New York.
Otim, S., Grover, V., & Segars, A.H. (2009). The Role of Organizational Learning in Strategic Information Systems Planning in Uncertain Environments (King, W.R. Ed.), Planning for Information Systems, 14, p. 223-256. M.E. Sharpe, Armonk, NY.
Pai, J.C. (2006). An empirical study of the relationship between knowledge sharing and IS/IT strategic planning (ISSP). Management decision, 44 (1), 105-122.
Palanisamy, R. (2005). Strategic information systems planning model for building flexibility and success. Industrial management & data systems, 105 (1), 63-81.
Peppard, J., & Ward, J. (2004). Beyond strategic information systems: towards an IS capability. The Journal of Strategic Information Systems, 13 (2), 167-194.
Philip, G. (2007). IS strategic planning for operational efficiency. Information Systems Management, 24(3), 247-264.
Piccoli, G., & Ives, B. (2005). Review: IT-dependent strategic initiatives and sustained competitive advantage: A review and synthesis of the literature. MIS quarterly, 29 (4), 747-776.
Powell, T.C. (1992). Organizational alignment as competitive advantage. Strategic Management Journal, 13 (2), 119-134.
Premkumar, G., & King, W.R. (1991). Assessing strategic information systems planning. Long Range Planning, 24 (5), 41-58.
Premkumar, G., & King, W.R. (1994). Organizational characteristics and information systems planning: an empirical study. Information Systems Research, 5(2), 75.
Ravichandran, T., & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance: A resource-based perspective. Journal of management information systems, 21 (4), 237-276.
Ringle, C.M., Wende, S., & Will, A. (2005). SmartPLS 2.0 (M3) Beta: www.smartpls.de. Hamburg.
Ruohonen, M. (1991). Stakeholders of strategic information systems planning: theoretical concepts and empirical examples. The Journal of Strategic Information Systems, 1 (1), 15-28.
Sabherwal, R. (1999). The Relationship Between Information System Planning Sophistication and Information System Success: An Empirical Assessment. Decision Sciences, 30 (1), 137-167.
Sabherwal, R., & King, W.R. (1995). An empirical taxonomy of the decision-making processes concerning strategic applications of information systems. Journal of management information systems, 11 (4), 177-214.
Santhanam, R., & Hartono, E. (2003). Issues in linking information technology capability to firm performance. MIS quarterly, 27 (1), 125-153.
Segars, A.H., & Grover, V. (1998). Strategic information systems planning success: an investigation of the construct and its measurement. MIS quarterly, 22 (2), 139-163.
Segars, A.H., & Grover, V. (1999). Profiles of strategic information systems planning. Information Systems Research, 10 (3), 199-232.
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.
Slater, S.F., Olson, E.M., & Hult, G.T.M. (2006). The moderating influence of strategic orientation on the strategy formation capability–performance relationship. Strategic Management Journal, 27 (12), 1221-1231.

Spil, T.A.M., & Salmela, H.T.T. (2006). Maintaining a new equilibrium with a dynamic political approach for SISP in organizational networks. In Proceedings of the 29th Information Systems Research Seminar In Scandinavia, p. 12–15, Denmark.

Teece, D.J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18 (7), 509-533.

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, 173-186.

Teo, T.S.H., & Ang, J.S.K. (2001). An examination of major IS planning problems. International Journal of Information Management, 21 (6), 457-470.

Teo, T.S.H., Ang, J.S.K., & Pavri, F.N. (1997). The state of strategic IS planning practices in Singapore. Information & Management, 33 (1), 13-23.

Teo, T.S.H., & King, W.R. (1996). Assessing the impact of integrating business planning and IS planning. Information & Management, 30 (6), 309-321.

Teubner, R. (2007). Strategic information systems planning: A case study from the financial services industry. The Journal of Strategic Information Systems, 16(1), 105-125.

Venkatraman, N., & Ramanujam, V. (1987). Planning system success: a conceptualization and an operational model. Management Science, 33 (6), 687-705.

Wade, M., & Hulland, J. (2004). Review: The resource-based view and information systems research: Review, extension, and suggestions for future research. MIS quarterly, 28 (1), 107-142.

Wang, E.T.G., & Tai, J.C.F. (2003). Factors affecting information systems planning effectiveness: organizational contexts and planning systems dimensions. Information & Management, 40 (4), 287-303.

Ward, J., & Peppard, J. (2002). Strategic planning for information systems (3rd ed. John Wiley & Sons, Inc., Guildford, UK.

Ward, J.M., Galliers, R.D., & Thorogood, A. (2014). Information systems strategy as practice: Micro strategy and strategizing for IS. The Journal of Strategic Information Systems, 23(1), 1-10.

Warr, A. (2005). A Study of the Relationships of Strategic IS Planning (SISP) Approaches, Objectives and Context with SISP Success in UK Organizations. In Proceedings of the European Conference on Information Systems (ECIS) 2005, paper 68, Regensburg, Germany.

Watson, R.T., Kelly, G.G., Galliers, R.D., & Brancheau, J.C. (1997). Key issues in information systems management: an international perspective. Journal of management information systems, 91-115.

Yeh, C., Lee, G.G., & Pai, J.C. (2012). How information System Capability affects E-Business Information Technology Strategy Implementation: An Empirical Study in Taiwan. Business Process Management Journal, 18 (2), 2-2.