CONCEPTUALIZATION OF STRATEGIC INFORMATION SYSTEMS PLANNING (SISP) SUCCESS MODEL IN PUBLIC SECTOR: AN ABSORPTIVE CAPACITY APPROACH

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Abstract

The rapid changes in information technology (IT) and business environment have challenged the organizational capabilities in planning the appropriate information systems/information technology (IS/IT) strategies for organizations. With SISP consistently remains as one of the top managerial concerns, there is a need to find ways to improve SISP. Based on this scenario, the role of knowledge and knowledge based processes should be the central focus in SISP. Therefore, some studies have suggested that SISP process should be viewed as a learning process rather than a problem solving process. As a learning process, SISP success can be determined by how much impact the SISP practice has influenced on information system (IS) planners' thinking and actions. In this case, knowledge capacity absorbed from SISP experience reflects a certain level of organizational learning (OL) or capability is achieved which later influences the SISP success. However, SISP study from this perspective is lacking. Synthesizing from the literature, this paper proposes a conceptual framework based on absorptive capacity model for an SISP success model in the public sector.

Keywords: SISP, SISP success, absorptive capacity, public sector.

1 INTRODUCTION

Strategic Information System Planning (SISP) is generally defined as an ongoing activity that enables organizations to develop priorities for IS development (Segars & Grover, 1998; Ward & Peppard, 2002). To carry out SISP, an organization usually selects certain methodologies and then form committees of IS planners involving top management, IT and business managers represent middle management and user manager represent lower management (Mentzas, 1997), and carries out a procedure of several steps, which usually takes several months (Lederer & Sethi, 1998; Ward & Peppard, 2002). The organization-wide use of IS/IT and ever increasing cost of IT have led to a need for an executive level manager called Chief Information Officer (CIO) to assist senior executive to oversee overall information management of the organization (Pearlson & Saunders, 2006). The development of IS plan is important to manage overall effective use of all the IS/IT investments, alignment between business needs and IS/IT strategies, competitive advantage from business opportunities on strategic use of IS/IT, appropriate resources and competencies for successful IS/IT deployment (Ward & Peppard, 2002).

The advancement in IT and complexity of Internet technology have influenced the SISP to consider 'fitting' the IT and business strategies with the environment, culture, experience and skill of the organization (Doherty et al., 1999; Clark et al., 2000; Lee & Bai, 2003; Duhan, 2007). Due to the rapid changes in IT and business environment, the capabilities of the organizational resources in formulating the appropriate IS/IT strategies for their organizations are crucial (Dhillon, 2008; Newkirk et al., 2008). Interplay of the environmental conditions and organizational factors are esssential for sustained superior performance (Peppard & Ward, 2004; Luftman et al., 2006; Dhillon, 2008) Difficulties of adapting to these considerations explain why SISP remains among the topmost managerial concerns among practitioners (Teo & Ang, 2000; Scott, 2005; Luftman et al., 2006). Peppard & Ward (2004) suggested that organizations should acquire 'excellence' to find ways on the strategic use of IT. Studies have shown that knowledge (Droge et al., 2003) and organizational learning (Tippins & Sohi, 2003) contribute to organizational performance. Thus, the role of knowledge and knowledge based processes should be the central focus in SISP (Pearlson & Saunders, 2006; Dhillon, 2008).

In this context, some studies suggested organizations should view SISP as a learning process rather a problem solving process (Huysman et al., 1994; Reponen, 1998; Wang & Tai, 2003; Grover & Segars, 2005). As a learning process, SISP success is determined by how much impact the SISP practice has influenced on IS planners' thinking and actions. The extent of organizational knowledge acquired or SISP absorptive capacity from the SISP experience is vital for subsequent decision making (Huysman et al., 1994).

However, research on SISP, and particularly assessing success based on the impact of organizational learning (OL) is lacking (Lee & Bai, 2003; Peppard & Ward, 2004). The extent of OL can be determined based on the capacity of knowledge absorbed by an organization or in this case, SISP absorptive capacity. Most of the recent research on SISP success are related to the influence of environmental factors (Chi et al., 2005; Lee et al., 2005; Li et al., 2006; Newkirk & Lederer, 2006; Newkirk et al., 2008), managerial factors (Teo et al., 1997; Basu et al., 2002; Spremic & Strugar, 2002; Kearns, 2006) and organizational factors (Teo et al., 1997; Teo & Ang, 2001; Bai & Lee, 2003; Lee & Pai, 2003; Pai, 2006). With the recent IT outsourcing phenomena, researchers have made calls for more rigorous empirical study on influence of other factors related to SISP practice especially external knowledge from the consultants (Chi et al., 2005) and other organizations (Lin, 2006) as to what extent influence the SISP success. Moreover, literature analysis on SISP by Brown (2004) also concluded that SISP studies in public setting are also limited.

Drawing upon existing literature from SISP and OL studies, this paper proposes that 1) the level of SISP absorptive capacity is determined by the experience from SISP practice; 2) the level of SISP absorptive capacity is moderated by external and internal interventions; and 3) the level of SISP absorptive capacity is positively influence SISP success. This paper reports on the theoretical rationale behind the research, firstly with a literature review of SISP in public sector, OL in SISP, absorptive capacity approach and SISP success. Subsequently, the proposed research model and hypotheses are discussed. Finally, conclusions from the study are also mentioned.

2 LITERATURE REVIEW

2.1 SISP in public sector

SISP has been widely practiced by private organizations with emphasis of economic consideration (Lederer & Sethi, 1988). However, the complexity of current information age makes planning more critical and complicated (Clark et al., 2000). Thus, organizations from other sectors including the public sector acknowledged the importance of adopting a strategic approach towards IT. Seneviratne (1999) explained that the government services can be improved through the strategic use of IT. The

public expect a high level of service quality, comparable to their experiences with the private sector. Additionally, Bajjaly (1998) found that agencies that experience SISP were more oriented to the strategic use of IT and more supportive of the use of IT in United States government.

Most of the SISP studies in public sector focused on methodology development (Alias et al., 2001; Dufner et al., 2002; Dufner et al., 2005; Ishak & Alias, 2005) and SISP assessment (Byrd et. al., 1995; Bajjaly, 1998; Md Basir & Nordin, 2006; Ismail et al., 2007). However, the differences in terms of organizational objectives, planning horizon and stakeholders' involvement implies that SISP practice may not be similar for both private and public settings (Dufner et al., 2002). Thus, more studies need to be explored for better understanding on the SISP differences between both sectors.

2.2 OL in SISP

OL can be defined as the capacity or process within an organization to maintain or improve performance based on experience, better knowledge and understanding (Fiol & Lyles, 1985; Dibella et al., 1996). From his study, Earl (1993) found that Organizational Approach which emphasis on OL is regarded as the ideal SISP practice. His finding was later validated by Doherty et al. (1999). Recent study from Segars & Grover (1999) and Grover & Segars (2005) also supported SISP should be viewed as a learning system for better SISP outcomes. The organizational approach reflected IS/IT strategies that seemed to emerge from organizational activities, interactive manner and broad organizational participation (Earl, 1993).

Huysman et al. (1994) also argued that OL should be central of SISP process. As a learning process, the past experiences, knowledge, procedures and routines were referred by the organization for SISP decision making. IS plan should not be regarded as a 'final document' but as a guiding document, which should be used to draw up better document during subsequent planning session. From this perspective, Huysman et al (1994) and Baker (1995) regarded the intangible SISP outcomes from SISP activities are the impact on the various planners in SISP process, the organization of the process itself and the SISP success measurement. The combined effects of cognitive and behavioural mechanisms from the IS planners influence the effectiveness of the SISP process which then affects the SISP success (Feurer & Chaharbaghi, 1995).

2.3 Absorptive Capacity Approach

In their conceptual paper, Huysman et al. (1994) suggested the ideas on learning experiences can best be explained by the notion of organization's absorptive capacity. The term absorptive capacity was introduced by Cohen & Levinthal (1990) to label the capability of the organization to innovate and to be dynamic. It defines as the ability of the organization to identify and value, assimilate and exploit external information for commercial use (Cohen & Levinthal, 1990). Absorptive capacity depends on the knowledge source and prior knowledge and it influences the innovative performance of the organization.

Most of the absorptive capacity studies were related to knowledge transfer, OL, and innovation (Lane, Koka, & Pathak, 2002). As absorptive capacity has been applied in various fields, there were studies on re-conceptualization of the idea from Cohen & Levinthal (1990) such as Zahra & George (2002). According to Zahra & George (2002), the concept of absorptive capacity is a set of organizational routines and processes by which organizations acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability which reflected from Potential absorptive capacity (PACAP) and Realized absorptive capacity (RACAP). PACAP refers to the organization's ability to be receptive to external knowledge, meanwhile, RACAP reflects how the knowledge is utilized (Jantunen, 2005). By recognizing absorptive capacity as a dynamic capability, it enables researchers to explore its different antecedents and consequences that capture the rich theoretical arguments and multidimensionality of absorptive capacity constructs (Zahra & George, 2002). Activation triggers,

social integration mechanism and regimes of appropriability are the moderators that have potential influence on the level of absorptive capacity. Figure 1 illustrates the absorptive capacity model from Zahra & George (2002). Internal and external triggers induce the organization's effort to seek external knowledge. Meanwhile, the social integration mechanism is necessary in the organization as barriers to knowledge sharing exists which influence knowledge exploitation. Additionally, regime of appropriability refers to the institutional and industry dynamics that affect the organization's ability to protect the advantages of new services.

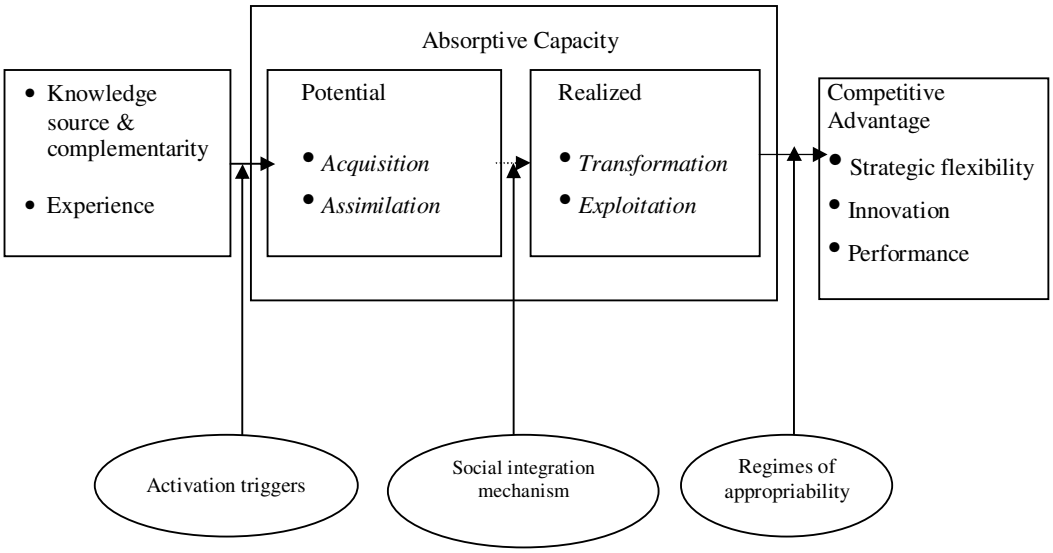

Figure 1: Absorptive capacity model from Zahra & George (2002)

2.4 SISP success

SISP activities require substantial resources in terms of managerial time and budget. Therefore, the complexity of SISP requires measuring its success or effectiveness multi-dimensionally (Lederer & Sethi, 1996; Segars & Grover, 1998; Segars et al., 1998; Grover & Segars, 2005). Most of the past studies on SISP success viewed that only goal-centered judgement and improvement judgement were relevant for measuring success (Venkatraman & Ramanujam, 1987; Ragunathan & Ragunathan, 1994; Segars & Grover, 1998). Segars & Grover (1998) rationalized that these perspective represent the 'end' (the output of the planning system) and 'means' (adaptability of the process) view for evaluating SISP benefits.

Most of the research on SISP success adapted SISP constructs introduced by Ragunathan & Ragunathan (1994) and Segars & Grover (1998). Ragunathan & Ragunathan (1994) identified two dimensions of SISP success namely 1) fulfilment of IS planning systems and 2) IS planning systems capability. (Premkumar & King, 1994), Wang & Tai (2003) and Warr (2005) were among the studies which examined the effects of organizational factors on SISP success based on Ragunathan & Ragunathan (1994). Meanwhile Segars & Grover (1998) conceptualized SISP success in terms of four interrelated dimensions namely 1) alignment, 2) analysis, 3) cooperation and 4) capability. The first three constructs represent 'goals' for SISP while the last construct represents 'improvement' in SISP over time. In addition, contribution to overall organizational performance was also regarded as SISP success (Segars & Grover, 1998). Few studies have highlighted other SISP success dimensions such as

the extent of the identified IS strategies being implemented (Earl, 1993) and level of satisfaction (Fitzgerald, 1993). Previous empirical studies (Segars et al., 1998; Doherty et al., 1999; Segars & Grover, 1999; Grover & Segars, 2005; Newkirk & Lederer, 2006) have demonstrated that these dimensions represented SISP success.

3 RESEARCH MODEL AND HYPOTHESES

The proposed research model and hypotheses are presented in Figure 2. The absorptive capacity model serves as possible explanations for the SISP in public organizations based on the absorptive capacity approach. Absorptive capacity theory when applied to the domain of SISP success, suggests the organization's ability to effectively carry out SISP is dependent on the development of a variety of SISP related knowledge and processes that bind together IT and business managers. From their study on degree of involvement among IS planners, Dufner et al. (2005) found that SISP in public sector relies on the middle IT and business managers unlike top management in private sector. The implications of SISP from absorptive capacity approach will impact the actors especially the IT and business manager in terms of shared IT/business knowledge and will also impact the SISP process itself in terms of SISP process effectiveness. Thus, the theoretical insights of absorptive capacity theory provide a strong basis to examine nature and importance of IT/business information exchanges, relationships and partnerships within the public organizations during SISP.

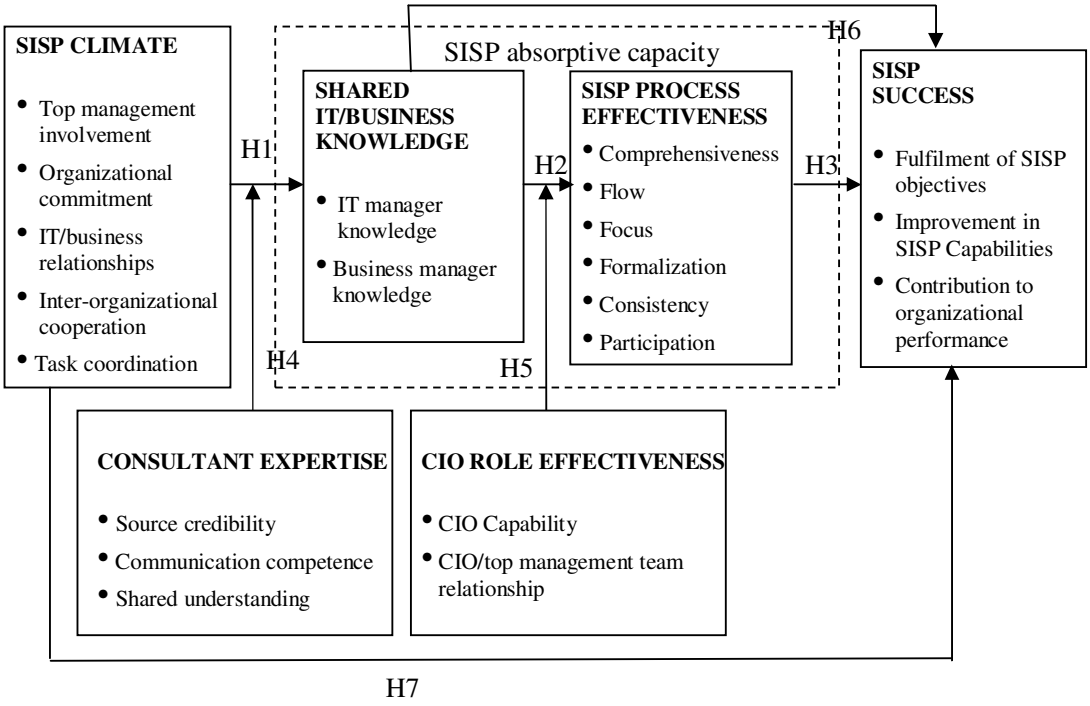

Figure 2: Research model and hypotheses

From Figure 2, an organizational SISP absorptive capacity is represented by two constructs, shared IT/business knowledge and SISP process effectiveness. Both constructs are seen as i) directly influencing SISP success as the third construct, ii) shared IT/business knowledge being directly influenced by SISP climate as the fourth construct, iii) the consultant expertise positively moderates

the influence of SISP climate on shared IT/business knowledge and iv) the CIO role effectiveness positively moderates the two constructs of organizational SISP absorptive capacity. Additionally, the shared IT/business knowledge influenced the SISP process effectiveness which differentiates the SISP absorptive capacity level.

3.1 SISP climate and shared IT/business knowledge

It is usually assumed that the quality of organizational climate affects the level of knowledge capacity absorbed which later influenced organizational performance (Mikkelsen & Grønhaug, 1999). Absorptive capacity model by Zahra & George (2002) suggested the prior knowledge sources and experiences significantly influence PACAP. Thus, in this study, SISP climate can be conceptualized as situation where relevant stakeholders including IT and business managers participate in information exchange and decision making activities (Boynton et al., 1994). Factors such as top management involvement and organizational committment encourage various stakeholders to participate (Basu et al., 2002). Task coordination leads to better teamwork among the SISP planners (Lee & Pai, 2003). A good business and IT relationships among the top management, IT and business managers and users also encourage free communication flow (Teo et al., 1997; Teo & Ang, 1999) for knowledge sharing (Pai, 2006). With the Internet era, communication flow has extended to business partners from other organizations. Therefore, it is necessary to seek the inter-organizational cooperation related to the IT and business for strategic advantage (Lin, 2006). The knowledge sharing atmosphere is important to obtain high level of internal and external knowledge for effective decision making process. Andrawina & Govindaraju (2008) found that absorptive capacity is the mediating factor between knowledge sharing capability and innovation. To this effect, an appropriate SISP climate induces both IT and business managers to embrace values and behaviors conducive to the development of shared IT/business knowledge. This leads to following hypothesis;

H1: Higher level of SISP climate will positively influence the shared IT/business knowledge

3.2 Shared IT/business knowledge and SISP process effectiveness

The absorptive capacity model theorized that the impact of social interaction between IT and business managers will enhance their shared knowledge and influence the quality of decision making during SISP process. Although there are many knowledge have been absorbed (PACAP), only selected or relevant knowledge is transform and exploited to reflect SISP process effectiveness (RACAP). The more potential knowledge gained, the better the contribution toward SISP process. Based on a study of 86 IT departments, Nelson & Cooprider (1996) found that the shared domain knowledge among IT and business managers have enhanced the IS performance. Study from Bassellier et al., (2003) and Bassellier et al. (2004) also highlighted the importance of both IT and business managers to have sufficient knowledge of each other's area for effective decision making. Thus, this leads to the hypothesis:

H2: Higher level of shared IT/business knowledge will positively influence the SISP process of effectiveness

3.3 SISP process effectiveness and SISP success

Based on the absorptive capability model, SISP process effectiveness is also known as RACAP; refers to the ability of both IT and business managers to transform and exploit their knowledge for improving the organization of SISP processes (Zahra & George, 2002). SISP process effectiveness is a common indicator of SISP success. SISP studies from Segars & Grover (1998), Kunnathur & Shi (2001), Lee & Pai (2003) concluded that SISP process effectiveness is vital to SISP success. SISP process is

considered effective based on the degree of rationality and adaptability adopted by the organizations. According to Segars & Grover (1998), organizations that employ high rationality in terms of comprehensiveness, focus, formalization and high adaptability in terms of participation and consistency lead to better SISP success, Thus we can hypothesized

H3: Higher level of SISP process effectiveness will positively influence the SISP success

3.4 Consultant expertise moderates the relationships of SISP climate and shared IT/business knowledge

From the absorptive capacity model, consultant expertise is the internal activation trigger which refers to the initiative by the organization to capture external knowledge in SISP process (Zahra & George, 2002). Organizations appoint external consultants due to the lack of internal capabilities in their activities. The role of consultants is actually to fill the gap between their own body of knowledge and of their clients. Therefore, consultancy requires specific skills and specific level of knowledge in order to help the client's problem (Kakabadse & Louchart, 2006). In the context of SISP, the organizations expect the consultants to possess expertise in subject matter, excellent communication skill and good credentials (Ko et al., 2005). Failure of the consultants to meet the organizational expectations of SISP can influence the knowledge flow, thus affect the knowledge acquisition. Although Nevo et al. (2007) confirmed that organizations see tangible benefits from employing external consultants, the benefits were moderated by the level of existing internal capabilities. Therefore, it can be hypothesized as

H4: The consultant expertise moderates the influence of SISP climate level towards shared IT/business knowledge

3.5 CIO role effectiveness moderates the relationships of shared IT/business knowledge and SISP process electiveness.

In absorptive capacity theory, knowledge exploitation requires the sharing of relevant knowledge among members of the organization in order to promote mutual understanding and comprehension (Zahra & George, 2002). Social integration mechanisms can facilitate the sharing or integration of knowledge and free flow information. It contributes to knowledge assimilation occurring either informally or formally. Studies have indicated the role of CIO is crucial to bridge the gap between IT and business managers in IS/IT initiatives (Smaltz et al., 2006). The capability of CIO in terms of IT and business knowledge increased trust and respect among the planning team (Sambamurthy & Agarwal, 2006; Smaltz et al., 2006). This atmosphere facilitates knowledge flow among the team members. Lee et al. (2005) found that a good relationship between CIO and the top management also positively affects the SISP alignment. Thus, we can hypothesized

H5: CIO role effectiveness moderates the influence of shared IT/business knowledge level toward SISP process effectiveness

3.6 SISP climate and SISP success

Literature analysis done by Brown (2004) found some support on the possibilities of direct relationship between internal environment (SISP climate) and planning outcome (SISP success). His argument is that this relationship is due to the fact that as IS plans are implemented, they result in improvements to the internal environment, which ultimately reflect in IS function and organizational performance. This demonstrates the cyclical and longitudinal nature of SISP, whereby the impacts of one planning cycle need to be assessed over time. Thus, it can be hypothesized as

H6: Higher level of SISP climate will positively influence the SISP success

3.7 Shared IT/business knowledge and SISP success

Based on the absorptive capacity model by Zahra & George (2002), the shared IT/business knowledge construct is the potential absorptive capacity (PACAP) where it is the ability of the organization's to acquire the new knowledge and assimilate to the organization's routine and processes that allow it to analyze, process, interpret and understand the information obtained from external source. Zahra & George (2002) model emphasis on the dynamic capability principle. They view that RACAP is the determinant for improving performance rather than PACAP which they view a high PACAP does not necessarily imply enhanced performance. Therefore, the direct relationship between PACAP and competitive advantage is not specified. However, they acknowledged PACAP provides the organization with the strategic flexibility to adapt and evolve in turbulence environment. Despite of that, study from SISP has proven that SISP can help knowledge creation to both business and IT managers through knowledge sharing (Kearns & Lederer, 2000, 2004). A study done by Reich & Benbasat (2000) concluded that only shared IT/business knowledge will influence SISP performance in terms of attaining long term alignment of IS and business objectives . Thus we can hypothesized

H7: Higher level of shared IT/business knowledge will positively influence the SISP success

4 CONCLUSION

This paper attempts to propose a theoretical framework for assessing SISP success in public sector based on the absorptive capacity approach. Applying the absorptive capacity model enables the assumption on the quality of SISP practice affects the level of SISP absorptive capacity which later influenced SISP success. The proposed model should be of interest to both SISP practitioner and academic community. For the practitioners, the model should enhance the understandings on i) how to evaluate SISP success in public sector, ii) how to improve organizational knowledge by looking at the contributing factors and iii) how to sustain strategic advantage. For the academic community, the proposed model provide research opportunity to further i) understand the influences of existing SISP practice, ii) explore SISP from other views besides problem solving based and iii) understand the characteristics between private and public SISP. This is an in progress research where the model will be tested empirically in future work.

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