Measurement of Determinants for Enhancing Strategic Information Systems Planning (SISP) Success and Dynamic Capabilities in South Korea

Jungho Yang
School of Business IT and Logistics
RMIT University
Melbourne, Victoria, Australia
Email: Jungho.yang@rmit.edu.au

Zijad Pita
School of Business IT and Logistics
RMIT University
Melbourne, Victoria, Australia
Email: Zijad.pita@rmit.edu.au

Mohini Singh
School of Business IT and Logistics
RMIT University
Melbourne, Victoria, Australia
Email: Mohini.singh@rmit.edu.au

Abstract

In the current dynamic and increasingly globalized environments, Strategic Information Systems Planning (SISP) has been regarded as one of the most important tasks for better management and supporting strategic use of IS/IT. To facilitate organisational performance and sustain competitive advantage, it is necessary for organisations to recognize the importance of considering various determinants to achieve SISP success, and understand how SISP success affects improving dynamic capabilities as the outcome of its success. A model to show the relationship among six determinants, SISP success and its outcomes is proposed. A sample of 250 from large companies in Korea is collected and structural equation modelling (SEM) is used to validate the proposed model. The result suggests that the determinants positively affect SISP success and the SISP success influences improving the outcome of SISP success. Besides, there is a positive relationship among the determinants, SISP success and the outcome of its success. Key findings and implications are discussed.

Keywords

Determinants, Strategic Information Systems Planning (SISP), SISP success, Dynamic Capabilities

INTRODUCTION

In today's dynamic environments, the world is increasingly interconnected, multi-faceted and unpredictable with a dynamic reality of customers, stakeholders, the public and all of the external forces impacting upon businesses due to e-business, globalization, virtualization and collaboration (Grant et al. 2010; Rainey 2010). To deal with the environments, organisations are transforming into more sophisticated and integrated business enterprises that are more cost-effective, flexible (or agile), performance-oriented, competitive, profitable and sustainable to adapt to the demands of constant change by strategic use of IS/IT (Bechor et al., 2010; Lutchman 2012; Verity 2012). Since IS/IT is increasingly incorporated into all perspectives of business operations and plays a strategic role in today's highly dynamic business world, the need for strategic information systems planning (SISP) is of vital importance in achieving success with IS/IT (Lientz 2010; McNurlin et al. 2009; Piccoli 2008; Wallace 2013).

However, a number of organisations are still struggling to maintain market positions, financial performance and continuing success (Grant et al. 2010; Rainey 2010). Although organisations need to focus on the complexities and challenges of current social, economic and environmental realities, they have been geared toward sustaining the status quo, not fundamental change that threatens careers because of a fear on the change (Lutchman 2012). Thus, considering possible determinants for successful SISP process will more likely help to realize business goals and strategies; enhance organisational performance and secure competitive advantage (Piccoli and Ives 2005; Zwass 2009). Although prior literature sources discussed one or a few important determinants individually to date (Basu et al. 2002; Chi et al. 2005; Stemberger et al. 2011), there has been little study addressing various

determinants for a more extensive understanding of SISP. Prior studies have also been lack investigation about relationship between various determinants and dynamic capabilities as the outcome of SISP success. Therefore, investigating the importance of various determinants; analysing the relationship between the determinants and SISP success, and dynamic capabilities are the primary motivation of this study. As a contribution, this study is able to provide a theoretical and practical importance regarding the extensive approach of vital determinants that play a critical role in achieving successful SISP process and the relationship among the determinants, SISP success and dynamic capabilities as the outcome of its success. The main objective of this study is to empirically find out the answer for the research question: What are the relationship among determinants vital to undertake SISP process, SISP success and the outcome of SISP success in organisations?

This paper, first review the theoretical perspectives of SISP. Then, it examines various determinants which are essential for undertaking SISP successfully; discuss what SISP success is; and the outcome of SISP success. Next, it proposes a conceptual framework to describe the relationship among the determinants, SISP success and the outcome of its success with the research hypothesis. Then, a research methodology with data collection and data analysis is presented. Finally, the result of the analysis of the survey data and the discussion regarding the outcome and conclusion with further works is provided.

LITERATURE REVIEW

In the current highly dynamic business environments, organisations could no longer afford to depend upon the static strategic management constructs of the past (Verity 2012). Dominant drivers, including globalization, virtualization, innovation and collaboration lead to shape organisational changes and make organisations being more opportunistic and specialized in their market to create competitive advantage and sustain a high level of performance (Lutchman 2012; Rainey 2010). The term 'dynamic' can be defined as the capacity to renew resource positions to achieve congruence with changing environmental conditions (Pettus 2001).

SISP has been defined as "the process of identifying a portfolio of computer-based applications that will assist an organisation in executing its business plans and consequently realizing its business goals", whilst it comprises "searching for applications with a high impact and with the ability to create an advantage over competitors" (Lederer and Sethi 1988). SISP was recently defined as the process of strategic thinking that identifies the most desirable IS on which the firm could implement and enforce its long-term IT activities and policies (Bechor et al. 2010). Thus, SISP process is recognized as an exercise to improve an organisation's strategic alignment with business-IT objectives; to meet short-term and long-term organisational needs; and to provide the ability of creating impact on a competitive advantage. The goals of SISP are now including improving systems' architecture; infrastructure capability and reliability from IS/IT investments; managing information resources effectively; and securing user satisfaction (Grant et al. 2010; Lientz 2010).

SISP is a key management issue since the 1990s, and it is still ranked as a critical issue in IS/IT management (Bechor et al. 2010; Grover and Segars 2005; Luftman and Derksen 2012; Teo 2009). Although there are various approaches for SISP, there is no universal way of carrying out SISP and there is no distinct consensus of the dimensions of SISP planning process (McNurlin et al. 2009). SISP process needs to encompass a broad set of characteristics and elements necessary for undertaking it. Organisations need to have a long-term strategic view for their organisational processes and structures based on enhanced communication and coordination, and improved decision-making (Grant et al. 2010; Rainey 2010). Thus, SISP process to deal with the current dynamic environment needs to take multiple or comprehensive planning perspectives at addressing interactions of different cultures, political, structural and technological features and issues that originate inside or outside the organisation at the same time to realize its sustainable success (Bechor et al. 2010; King 2009; Wallace 2013).

KEY DETERMINANTS OF SISP

There are many necessary determinants of the SISP that need to be considered to underpin its effective undertaking, thus the SISP success is a function of many variables (Rainey 2010). It is also important for organisations to understand the factors in order to recognise SISP challenges and related issues (Wallace 2013). If the determinants of SISP are better managed, chances of improving satisfaction and optimizing IS/IT-related investment and implementation of organisations are likely to be greater. From the literature, seven essential factors that positively affect SISP successful undertaking are identified and proposed for research in this study.

Top Management Participation and Support (TMPS)

It has long been noted that top management participation and support is a significant driver for organisations to lead successful SISP process (Basu et al 2002; Stemberger et al. 2011). Without their participation and support, the process could result in problems in the analysis, design and development of the selected IS/IT system and the business-IT gap may be presented continuously in the organisation (Salmela et al. 2000). In order to make out

organisational-wide framework or process for sustainable long-term success in the current dynamic environment, top management needs to be a good communicator or consultant congruent with the organisation's objectives and principles based on the extensive mindset and interactions between members in the organisation (Kemp et al. 2013; Grant et al. 2010; Wallace 2013).

Active Communication and Knowledge-Sharing Between Business and IT Sectors (ACKS)

SISP requires discussion, clarification, negotiation and the realization of a mutual understanding and could help knowledge creation in both business sector and IT one (McNurlin et al. 2009; Piccoli 2008). Also, the success of strategic management is typically dependent upon extensive communication and knowledge-sharing, leading by various members' participation to build awareness and understanding, and encourage desired behaviours. It is one of the most important perspectives to achieve a successful strategic business and IT planning for strategic management (Heath and Heath 2008). However, employees work in business sector and IT sector normally find it difficult to communicate and share their knowledge because of the culture gap and the predisposition of individualism, so that there is a gap existed between business requirements and the ability of IT personnel to understand the requirements (Kovacic 2004). Therefore, active communication and knowledge-sharing between business and IT sector is necessary for undertaking successful SISP process and realizing IS/IT implementation to deal with today's dynamic environment effectively (Lutchman 2012; Wallace 2013; Yeh et al. 2011).

Consideration of Internal and External Business-IT Environments (CIEE)

The internal and external business-IT environments greatly affect both the direction and pace of SISP process for strategic use of IS/IT (Bechor et al. 2010; Chi et al. 2005). Organisational framework for strategic management needs to be built to react swiftly and effectively to changing business drivers with flexibility and resilience by appropriate understanding internal and external threats, such as corporate, assets and customer risks (Lutchman 2012). However, many organisations still have a difficulty in considering and maintaining various internal and external factors at the same time (Newell and David 2006). Thus, organisations need to recognise the importance of internal and external environments in which undertaking SISP process is operating (King 2009).

Appropriate Resource Allocation for Undertaking SISP Process (ARA)

Decision-making during SISP process mainly includes business-IT goals, investments and strategies by aligning business-IT plans (Wallace 2013). Resource allocation for SISP and IS/IT is anticipated to maintain and support the organisation's objectives and activities for IS/IT. In order to attain the success of strategic management based on IS/IT, it is also vital to arrange the appropriate resource allocation or investment to fix effectively key change issues and operationalize the change idea. In the past 10 years or more, attention has focused on investigating the success factors of SISP process, but SISP success has been hindered in budget limitation or resource allocation issues. If the organisation lacks the necessary resources, it can make the progress of strategic tasks delayed or slow (Lientz 2010). Effective SISP with appropriate resource allocation, including HR and financial resources, and investment including learning or training for the process can result in sustained competitive advantage and organizational performance in today's dynamic environments (Bechor et al. 2010; Wallace 2013).

Performing Organisational Learning (POL)

The SISP and IS/IT implementation is typically accompanied by substantial investment in formal organisational learning or training programs. Most organisations in today's dynamic environments are concerned with learning about complex systems to enhance effective decision-making, and find out ways to understand behaviour of the complex systems (Sterman 2000). Organisational learning enables an organisation to undertake new tasks, do existing tasks faster and increase its quality of work by providing the vital knowledge for efficient execution of tasks within the newly deployed IS/IT (Sharma and Yetton 2007). Organisational learning contributes to organisational performance by improving the effects of IS/IT capabilities and competences, and IS capabilities and competences are an outcome of organisational learning (Grant et al. 2010; Lin and Hsu 2010; Peppard and Ward 2004). In the current increasingly dynamic contexts, organisational learning is crucial to undertake successful SISP, as SISP is viewed as a learning process rather a problem solving process (Grover and Segars 2005; Wang and Tai 2003).

Active Partnership with Members of an Organisation and External Vendors (APMEV)

In today's dynamic business-IT environment such as e-business and globalization, many organisations normally outsource or work together with business and IT specialists from outside vendors to undertake IT-related projects due to the lack of internal capabilities (Grant et al. 2010; Rainey 2010). SISP is also the work that is closely related to a collaborative discussion, clarification, negotiation and understanding of various parties such as top management, business-IT managers and external stakeholders (McNurlin, et al. 2009; Piccoli 2008). With

the recent IT outsourcing phenomena, some authors have made calls for more rigorous empirical study on influence of SISP practice by mainly external knowledge from the vendor (Chi et al. 2005) and other organizations (Lin 2006) and as to what extent that influence the SISP success. Therefore, in today's dynamic business-IT contexts, the partnership and relationship between members of the organisation and the consultants might play a key part in the success of SISP process and IS/IT implementation (Piccoli 2008; Ward and Peppard 2002; Wallace 2013).

SISP SUCCESS

SISP success is based on the improvement of planning effectiveness (ISPE) (Grover and Segars 2005; Otim et al. 2009; Tallon 2009; Wang and Tai 2003). Some scholars argued that the effectiveness or success of SISP process needs to be measured from multi-dimensional and multi-stakeholder perspectives by a combination of internal and external factors, including comprehensive, formalization, focus, flow, participation and consistency. Besides, in today's dynamic environmental conditions, the planning characteristics need to be well aligned and moved together to achieve planning success. It is due to SISP is more than just a collection of independent planning characteristics and its success is not only about an organisation's goal to align its business-IT strategies, but also about its ability to learn and adapt to changing circumstances (Otim et al. 2009). The main goal of SISP process is typically business-IT strategic alignment (BITSA). Its effective undertaking and overall success of IT implementation for sustaining a long-term organisational performance and competitive advantage in a dynamic environment can also be measured by ensuring business-IT strategic alignment (Lientz 2010; Teo 2009; Wallace 2013). Therefore, in order to achieve SISP success, organisations need to address a wide set of factors positively affecting SISP undertaking and align the chosen factors for promoting planning effectiveness with IS/IT in accordance with their business-IT objectives and strategies.

IMPROVING DYNAMIC CAPABILITIES (DYCAP) AS THE OUTCOME OF SISP SUCCESS

SISP process enables organisations to facilitate business value and competitive position through a measurable improvement of key business processes. SISP also enables them to sustain organisational performance by the improvement of IS/IT systems and resources (Lientz 2010; Wallace 2013). In order to realize a success in the current dynamic environment, organisations might require the reconfiguration of existing resources and/or the acquisition of new resources. It means organisations competing in the environments need to identify and deploy relevant dynamic capabilities to seek organisational performance and competitive advantage (Grant et al. 2010).

Dynamic capabilities refer to 'the ability of the firm to reconfigure its internal and external capabilities in response to a dynamic environment' (Teece et al. 1997). These capabilities involve organisational skills, resources, and functional capabilities to match the requirements of a changing environment. Dynamic capabilities enable an organisation to reconfigure and recombine existing knowledge to be able to respond to the challenge of changing environments. Wang and Shi (2007) also proposed the three key sources of dynamic capabilities for e-business, such as market sensing; organisational learning; and coordination. Therefore, having a clear understanding of dynamic capabilities is important for successful SISP and the dynamic capabilities should be achieved as the outcome of SISP successful undertaking.

RESEARCH MODEL, HYPOTHESIS AND METHODOLOGY

Based on the above arguments, this research proposes a research model to show the relationship among the determinants, SISP success and dynamic capabilities as the outcome of its success as shown in Figure 1. The following six hypotheses are also proposed to test the relationship.

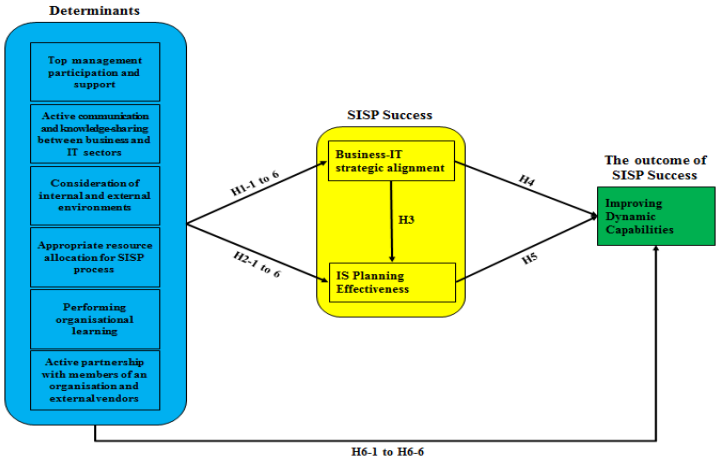

Figure 1 The Conceptual Framework for the Study

Fulfilment of the examined determinants is likely to enable organisations to undertake SISP process successfully. The more organisations attempt to consider potential determinants, the more they are likely to realise its success by achieving business-IT strategic alignment and IS planning effectiveness. By the argument, the two hypotheses are proposed:

H1: The higher consideration of the determinants *positively affects improving business-IT strategic alignment.*

H2: The higher consideration of the determinants *positively affects improving IS planning effectiveness.*

The primary objective of SISP process typically includes business-IT strategic alignment and it is regarded as one of the primary aspects while undertaking SISP. SISP success is measured by a greater business-IT strategic alignment (Teo 2009). Thus, business-IT strategic alignment is a critical factor leads to conduct successful SISP and improve IS planning effectiveness as a vital factor for SISP success. Based on the argument, the following hypothesis is proposed:

H3: Business-IT strategic alignment positively affects improving IS planning effectiveness for SISP success.

Organisations are more likely to experience SISP success when they maximize achieving business-IT strategic alignment and IS planning effectiveness through the consideration of possible facilitators. If they undertake it successfully, they can have higher opportunities to attain sustainable organisational performance and competitive advantage. It means that the outcome of SISP success is closely related to the advancement of organisational performance and competitive advantage by realizing dynamic capabilities. Based on the argument, the following two hypotheses are proposed:

H4: Business-IT strategic alignment positively affects improving dynamic capabilities.

H5: IS planning effectiveness positively affects improving dynamic capabilities.

The determinants are more likely to support organisations to undertake SISP process effectively and successfully. The determinants enable them to realize dynamic capabilities through improving business-IT strategic alignment and IS planning effectiveness. The following hypothesis is proposed by the argument:

H6: Determinants *vital to undertake SISP positively affects improving dynamic capabilities.*

RESEARCH METHODOLOGY AND DESIGN

This research leads to a positivist quantitative study with pre-designed survey and statistical analysis to answer research question; test the hypotheses and validate the conceptual framework. There are two reasons to adopt the quantitative approach. Firstly, a quantitative approach can test the relationship between variables and explaining the relationships between the variables in the proposed theory with the use of numeric data. Also, the approach could allow collecting data from a large number of respondents and thus generalizing the results of testing the proposed theories to a larger population (Creswell 2009). SEM is regarded as a family of statistical techniques allowing researchers to test multivariate models by the analysis of covariance structures (Anderson and Gerbing 1988) and it will be utilised to analyse the survey data. SEM is suitable in this study for data analysis due to several reasons. First, it allows users to hypothesize a model with a series of causal relationships among multiple variables, and validate such relationships simultaneously. Second, SEM is capable of estimating the relationship between the latent variables that are available in the theoretical model. Based on the SEM, the relationships among determinants, SISP success and dynamic capabilities as its outcome will be analysed.

The survey instrument designed to collect data comprises of business managers and IT-related ones who have an experience in involving SISP undertaking from top 1,000 large organisations of South Korea will be selected for the survey. It was proposed to utilize the list of ‘top 1000 company ranking’ in Korea based on the total sales and the total assets from the database of KORCHAMBIZ as the target population. The database is managed by the Korea Chamber of Commerce and Industry (KCCI) and the KCCI is the nation's largest private economic organisation. These measurement items are also selected from research instruments used in previous literature to measure similar constructs. A five-point Likert-type scale is used. As only large organisations are considered, this is a limitation of the study as different result may be gained for small and medium size organisations.

Prior to the distribution of the questionnaire, a pilot study is carried out. A total of 13 managers from different fields of Korean organisations joined the pilot study. Then, Cronbach’s Alpha was used to test of internal consistency of the measuring instrument. The alpha between 0.8 and 0.9 is commonly considered as a high level of reliability (Hair et al. 2010) and 0.6 was a cut off accepted by researchers. The alpha of all constructs was more than 0.8, so that the internal reliability of the questionnaire was acceptable and reliable for undertaking the main survey and further statistical analysis. Based on the feedback received on the clarity and appropriateness of the questions from the pilot study, the questionnaire for the main survey was slightly revised (i.e., minor changes to wording of several questions) to progress the main survey more favourably. The translated questionnaire was

then printed and sent by email or post among 700 large organisations in South Korea. A total of 258 respondents (118 business managers and 132 IT managers, 8 missing and deleted) responded to the survey with a response rate of about 35.7%. More than fifty percent of the respondents' industry was in the manufacturing (55.4%) and then followed banking, finance and insurance (8.8%), construction (7.2%), cargo, logistics, and transport (5.6), electricity, electronics, IT and telecommunications (8.4%), services (7.6%) and wholesale and retail trade (8%).

THE RESULT OF DATA ANALYSIS AND DISCUSSION

The SEM analysis (using AMOS 21.0) is normally conducted in two steps namely developing and validating a measurement model, and testing and validating a structural model (Hair et al. 2010). SEM uses confirmatory factor analysis (CFA) for assessing the measurement model. Assessing the measurement model through using CFA investigates how well the measurement variable used to measure the theoretical constructs represents the theoretical construct (Hair et al. 2010). Factor analysis for the research construct was carried out and all research constructs were satisfied with the applicability criteria to progress the CFA (for example, Barlett's (sig.) was 0; KMO was more than 0.50; and Eigenvalues was more than 1).

The overall fitness of the measurement model is then assessed by using goodness-of-fit (GOF) indices. In this research, the Normed Chi-Square (χ^2/df), the Goodness of Fit Index (GFI), the Comparative fit index (CFI), the Tucker-Lewis Index (TLI), the Root mean square error of approximation (RMSEA) and the Standardized RMR (SRMR) are used for assessing the fitness of the model followed by the recommendation of Hair et al. (2010).

To improve the fitness of the full measurement model, one factor congeneric models were re-examined and re-specified for improving their fitness. Re-specifying the congeneric measurement model for improving their fitness is done by considering the standard factor loading (SFL) of each item of the measurement variables and standard residuals (Hair et al. 2010). Following this criterion a few measurement items were deleted from the congeneric measurement models. The constructs of the full measurement model were modified to reflect the modifications done in those congeneric measurement models. Moreover, to assess the validity of the constructs, discriminant validity for determining the distinction of the constructs from each other was examined (Hair et al. 2010). The discriminant validity between two constructs could be determined by comparing squared correlation between the constructs with the average variance extracted (AVE). The AVE of the constructs should be higher than the squared correlation for adequate discriminant validity. A summary of the discriminant validity of the constructs in the final measurement is shown in Table 1.

Table 1 Discriminant validity of the constructs in the final measurement model (*: AVE value)

	TMPS	**ACKS**	**CIEE**	**ARA**	**POL**	**APMEV**	**BITSA**	**ISPE**	**Dycap**
TMPS	**0.687***								
ACKS	0.316	**0.742***							
CIEE	0.285	0.338	**0.780***						
ARA	0.342	0.453	0.507	**0.662***					
POL	0.358	0.417	0.436	0.604	**0.793***				
APMEV	0.160	0.207	0.342	0.229	0.266	**0.811***			
BITSA	0.181	0.246	0.231	0.190	0.205	0.088	**0.661***		
ISPE	0.205	0.373	0.304	0.306	0.356	0.098	0.659	**0.735***	
Dycap	0.200	0.327	0.151	0.237	0.206	0.085	0.465	0.573	**0.689***

The convergent validity is then utilized to determine the degree to which the indicators of a construct converge. Three estimates namely the standardized factor loading (SFL), AVE (introduced in Table 3 as bold), and the construct reliability (CR) are used in this research to assess the convergent validity of the constructs (Hair et al. 2010). A SFL of 0.6 or higher of an item indicates that the item converges on the construct. The SFL value of all items was over 0.67 so that they are considered as having the convergent validity (Hair et al. 2010). According to a rule of thumb, AVE of a construct should be at 0.5 or higher to have a higher convergence (Hair et al. 2010). The convergent validity measures for the final constructs measured using CRs and AVEs as shown in Table 2. The Cronbach's Alpha for the constructs was also over 0.7 so that the reliability of the instrument is adequate.

Table 2 Convergent validity of the constructs of the final measurement model

Construct	**C.R.**	**AVE**	**No of items**	**Left Items**	**Cronbach's Alpha**
TMPS	0.916	0.687	6	5	0.884
ACKS	0.920	0.742	7	4	0.865
CIEE	0.934	0.780	4	4	0.910
ARA	0.939	0.793	4	4	0.901
POL	0.886	0.662	5	4	0.818
APMEV	0.945	0.811	6	4	0.933
BITSA	0.886	0.661	5	4	0.783
ISPE	0.917	0.735	6		0.835
Dycap	0.898	0.689	7	4	0.812

The Table 3 notes most one factor congeneric model of constructs, the resulted values are within the acceptable ranges for GOF indices, except for χ^2/df and RMSEA in CIEE and ARA (shown in italic). The χ^2 is the most basic GOF index. However, the Chi-Square statistic is in essence a statistical significance test it is sensitive to sample size which means that the Chi-Square statistic nearly always rejects the model when large samples are used (Hair et al. 2010). Besides, the value of RMSEA was increased and GOF value wasn't assessed when the researcher try to eliminate one of the items in the construct (both CIEE and ARA have 4 items). Although the issue, rest of GOF results was more than the acceptable range so that the two constructs would be stayed to analyse without any modification.

Table 3 Goodness-of-fit results for the initial and final measurement models

Construct	χ^2/df	GFI	CFI	TLI	RMSEA	SRMR
TMPS	1.231	0.991	0.998	0.996	0.030	0.017
ACKS	0.071	1.000	1.000	1.012.	0.000	0.003
CIEE	*5.710*	1.000	1.000	1.008	*0.138*	0.021
ARA	*3.800*	1.000	1.000	1.010	*0.106*	0.016
POL	1.235	0.995	0.999	0.996	0.031	0.015
APMEV	2.083	0.992	0.997	0.992	0.066	0.009
BITSA	0.144	0.999	1.000	1.020	0.000	0.006
ISPE	0.230	0.999	1.000	1.013	0.000	0.006
Dycap	0.006	1.000	1.000	1.019	0.000	0.001
Full measurement model	1.371	0.863	0.965	0.960	0.039	0.039
Recommended value	<3.00	>0.9	>0.9	>0.9	<0.08	<0.08

Through assessing the measurement model and obtaining an appropriate fitness of the measurement model, the structural model was developed and assessed to test the proposed research hypothesis. The structural model is utilized to reveal whether the dependence relationships specified in the conceptual model between constructs are valid (Hair et al. 2010).

It is useful to determine the extent to which each specified relationship is supported by examining their statistical significance. As shown in Table 4, the evaluation of the structural model reveals that H1-1 to 1-3; H2-2, H2-4 and H2-6; H3; H4; H5; H6-2 to 6-4 (shown in Bold) was supported. In particular, H6-1 and 6-3 (shown in italic) were a bit out of the recommended acceptable range, but they were supported in p<0.1 level. However, rest of hypothesis was not supported.

Table 4 The result of hypothesis testing in the structural model

Hypothesis	Estimate	P-value	Support	Hypothesis	Estimate	P-value	Support
H1-1	0.156	**0.014***	**Y**	**H3**	**0.616**	*******	**Y**
H1-2	0.221	*******	**Y**	**H4**	**-1.751**	*******	**Y**
H1-3	0.185	*******	**Y**	**H5**	**0.546**	**0.002****	**Y**
H1-4	-0.038	0.587	N	*H6-1*	0.093	*0.069*$^{\#}$	*Y in p<0.1*
H1-5	0.086	0.114	N	**H6-2**	0.142	**0.018***	**Y**
H1-6	-0.024	0.579	N	**H6-3**	-0.127	**0.003****	**Y**
H2-1	-0.023	0.619	N	**H6-4**	0.17	**0.004****	**Y**
H2-2	**0.161**	**0.002****	**Y**	*H6-5*	-0.091	*0.075*$^{\#}$	*Y in p<0.1*
H2-3	0.05	0.192	N	H6-6	0.039	0.266	N
H2-4	**0.163**	*******	**Y**	*** indicates p<0.001			
H2-5	0.036	0.487	N	** indicates p<0.01			
H2-6	**0.062**	**0.044***	**Y**	* indicates p<0.05			

H1-2 (ACKS), H1-3 (CIEE) and H1-1 (TMPS) of determinants was influenced BITSA with path coefficients of 0.221 (p<0.001), 0.185 (p<0.001) and 0.156 (p<0.05) respectively. Three hypothesis – H2-2 (ACKS) (p<0.01), H2-4 (ARA) (p<0.001) and H2-6 (APMEV) (p<0.05) of determinants was also necessary to achieve ISPE. The relationship of BITSA → ISPE was strongly exemplified by the coefficient values of 0.616. Both two constructs of SISP success also had a positive influence on improving dynamic capabilities with path coefficients of -1.751 (p<0.001) and 0.616 (p<0.001). Furthermore, 3 determinants H6-2 to H6-4 directly affected improving dynamic capabilities (Dycap) with path coefficients of 0.142 (p<0.05), -0.127 (p<0.01) and 0.17 (p<0.01) respectively. Figure 2 shows the relationship among determinants, SISP success and the outcome of its success.

Based on the analysis above, this study found that TMPS, ACKS and CIEE are essential determinants to achieve business-IT strategic alignment. It means that BITSA depends on how internal members within the organisation actively join in the process with a high interest and well understand the organisation's goals and strategies with their current external environments (Heath and Heath 2008; Otim et al. 2009; Wallace 2013).

Organisations need to firstly consider the three factors before they intend to undertake SISP. ACKS, ARA and APMEV positively affected improving IS planning effectiveness. It indicates improving overall ISPE in an organisation is related to how necessary resources (internal and external ones) to undertake SISP are well

allocated with appropriate communication and knowledge-sharing between business and IT sector (Lientz 2010; Lutchman 2012; Piccoli 2008). Also, BITSA had a strong effect on improving ISPE. In other words, the better BITSA is achieved, the higher planning effectiveness the organisation can be realised and overall success in SISP process can be higher. It is due to the planning characteristics need to be well aligned and moved together to improve effectiveness in planning (Lientz 2010; Otim et al. 2009).

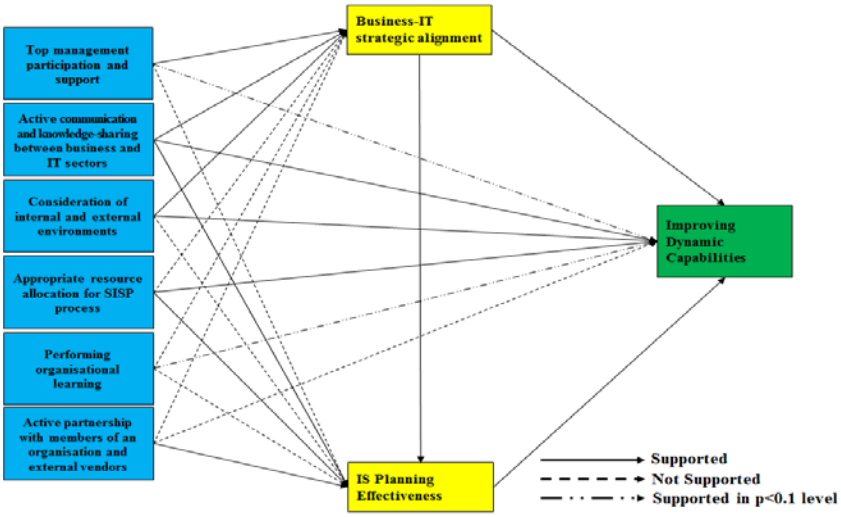

Figure 2 The Result of the Hypothesized Structural Model

In case of the outcome by achieving SISP success, both BITSA and ISPE had a positive effect on improving dynamic capabilities (Grover and Segars 2005; Tallon 2009; Wallace 2013). In particular, ISPE had a strongly positive influence on improving Dycap as its outcome rather than BITSA. It shows that in order to improve dynamic capabilities, organisations need to more consider achieving BITSA although the two constructs have a direct impact on dynamic capabilities. It is because BITSA is the factor that directly leads to improving ISPE.

The determinants in this study proved to be the factors enable organisations to improving dynamic capabilities. Furthermore, most of the determinants had a direct effect on improving business-IT strategic alignment and IS planning effectiveness. Therefore, this study suggests that various determinants could affect SISP success, SISP success influenced the outcome of its success and the determinants were the factors that need to be considered to overall level of SISP success and its outcome.

CONCLUSION

This study investigated the relationship among determinants essential to undertake SISP success, SISP success and the outcome of SISP success. There are three major implications of this study. This study shows that considering various determinants are necessary to achieve better quality of SISP process. BITSA is the vital factor to improve SISP success as the determinant and to directly promote the level of IS planning effectiveness because attaining BITSA is closely related to considering as many factors as possible inside and outside the organisation. Second, there have been little studies that show how SISP success can impact on improving overall level of dynamic capabilities. This research explains that there is a direct relationship between SISP success and dynamic capabilities. That is, organisational performance and competitive advantage in the organisation could be obtained through attaining a high quality of BITSA and ISPE. Finally, this study shows the relationship among determinants, SISP success and the outcome of SISP success and suggests there is a relationship among the determinants, SISP success and the outcome of its success.

This study contributes to the existing literature from both a theoretical viewpoint and a practical viewpoint. Most prior literature has discussed a relationship between a necessary factor(s) and SISP success. However, except for prior literature, this study observed the relationship between SISP success (business-IT strategic alignment and IS planning effectiveness) and dynamic capabilities as the outcome of SISP success, and the relationship various determinants and dynamic capabilities. Thus, this study can theoretically suggest the importance of considering determinants, SISP success and dynamic capabilities as well as their relationship so as to undertake SISP process more effectively. From a practical perspective, the findings of this study can imply that there are various factors that lead to improve SISP success as well as the importance of achieving BITSA and ISPE to improve dynamic capabilities. Therefore, organisations need to recognize that in order to improve the quality of BITSA and ISPE, organisations need to consider as many determinants as possible, and then organisations would be able to expect higher quality of its outcome from the successful undertaking of SISP.

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