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Evaluating Information Technology Strategic Planning Process: Lesson Learnt from Bruneian Small Businesses

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Abstract

The chapter investigates the 85 small and medium organizations in Brunei Darussalam within the context of information technology (IT) strategic planning process. The study results reveal that although the surveyed Bruneian SMEs are familiar with IT strategy basic methods, however, the use of any of the basic IT strategic development process is at the grassroots level. The results further found that only three methods have indirect influence on IT strategy development such as critical success factors, transaction cost, and balanced scorecard. Conclusion from these findings further suggests that no statistical difference exists among SMEs on the basis of organization size and industry sector. These findings are useful for both the researchers and practitioners. For researchers, it helps in building a theoretical foundation in developing the repository of organizational use of IT strategy basic methods and for practitioners to gauge the performance of SMEs in relation with developing IT strategy basic methods in designing the relevant policies.

Keywords: IT strategy, strategic planning methods, small and medium enterprises, Brunei Darussalam

1. Introduction

The adoption of Information Technology among business organizations have entered the maturity stage especially with the advent of Web-based developments, new opportunities have been brought into the organizational functions and business processes that has enabled them to meet the market demands and to sustain their capacity building. However these latest trends and changes in technology have brought several challenges to the businesses especially to the SMEs who are overloaded with global competition, economic downturn, and fierce competition in changing customers' demands that has pushed these SMEs to reengineer their business processes. Such challenges demand effective capabilities and competitive solutions. The business organizations started using information technology as a tool to get strategic and competitive advantages. The organizations started using their resources strategically so as to reduce the cost and gain more profit and become productive in customer relationship. To achieve these strategic options, organizations started deploying various strategic planning processes. While the benefits of

adopting strategy as a tool to get the business gains among the big businesses became viable, the SMEs started adopting the similar practices coupled with the Internet technologies, new business approaches like e-business and e-commerce soon became familiar and being widely used across the globe. Information Systems are linked with business strategy, management skills, and decision-making to enhance the competitive advantage to achieve the overall organizational success [1]. Researchers have focused on the process of strategic information systems planning (SISP) since the 1970s [1, 2]. SISP further help business to innovate, create new products, reduce cost, and enhance relationship with customers [3, 4]. Unfortunately, majority of SMEs could not be successful in their business endeavors, mainly due to the reasons that these small businesses are not exploiting their full resources mainly due to lack of strategic planning process. This situation continues to exist in almost all the economies especially in the developing countries. A right choice for SMEs to meet these market-driven forces is to increase using ICT to significantly improve their competitive capabilities [5].

In their study, Bhagwat and Sharma [5] stated that IT has a vital role in an organization's sustainability and growth. This further supports the study that found impact of IT usage on organizational performance is positively related [6]. Azyabi [7] studied IT/IS strategy development among Australian SMEs and that has provided the basic motivation to conduct the study in Brunei. Secondly, up to our knowledge, no prior research was undertaken in Brunei focusing SMEs from IT strategic development point of view. On these rationales, this pioneering study was conducted to investigate the main strategic issues of Bruneian SMEs with two basic objectives:

1. To find out the extent to which the SMEs are using or familiar with IT strategy development methods
2. To investigate the difference in the use of basic strategy development method on the basis of organization size (small or medium) and industry sector (manufacturing and non-manufacturing).

1.1 Role of the SMEs for nation's economy and importance of IT strategy to SMEs

The SMEs are considered as a major backbone for the national economy especially in the developing nations. It is true to the Bruneian business environments as well. The first report on Bruneian SMEs [8] has recommended the enhanced use of information technology to gear up a task of improving SME functionality for the overall economic development. The report has highlighted the slow diffusion of technology and has further recommended the strategic directions in adopting new technology. In their study, they not only considered the adoption of new technologies as a strategic issue but also rated the adoption of new technologies as number 9th critical success factor out of 11 that would be contributing toward the success of SMEs.

In the past, most of the researchers [9–11] have suggested that SMEs have the following characteristics: small management team, strong owner influence, centralized power and control, lack of specialist staff, multifunctional management, lack of control over business environment, limited market share, short-term strategic planning, low employee turnover, and reluctance to take risks. Some other studies [11–13] suggested that most SMEs avoid sophisticated software and applications, lack necessary expertise to fully utilize the benefits of technological innovations, and associate their ongoing success with vendor support and vendor expertise.

While discussing the strategic planning among SMEs, we should consider both the dimensions of strategic planning process: (1) strategic planning process to gauge

and monitor the performance of SMEs and (2) strategic information technology planning (SITP) process that includes the planning process for the IT resources. However, in its own context, the term is interrelated as some organizations consider it as one process, whereas other SMEs deploy strategic planning process at the outset and then continue it with SITP. The strategic planning on the performance of SMEs has been discussed extensively in theory and in literature [14–16]. Strategic planning is concerned with the establishment of long-term organizational objectives and the development and implementation of plans to achieve them to further improve the organizational performance [16]. In other words, SMEs not only make long-term planning but also systematically plan at operational level to evaluate both internal (within organization) and external (competitive environments) factors [17].

The focus of this study is not to examine overall strategic planning practices in SMEs but from the Information Technology Strategic Planning (ITSP) process, in particular. Thus examining and evaluating ITSP not only lead to the firms' performance but to find an answer as how the capacity building of the firm in the competitive environment is sustained. Literature provides the full support that most importantly SMEs engage in strategic planning process is less likely to fail [16, 18, 19]. In addition to the above discussion, we should consider the changing business dynamics with the advent of the Internet and Web services including the m-services. These emerging trends have imposed new challenges and change the strategic planning process henceforth.

1.1.1 The Bruneian context

The study focus solely on SMEs located in Brunei Darussalam—small island in South China Sea located at the equator between Singapore and Malaysia with a small population of 0.4 million¹. About 57% of the population is aged from 20 to 54 years old. The country is ruled by 29th Sultan of Brunei His Majesty Sultan Hassan-ul Bolkiah—the most visionary leader. The country is economically rich with main industry of petroleum and petrochemical based with total GDP of 11,96 billion USD in 2016 with per capita GDP of \$76,700 in 2017. The unemployment rate remained 6.9% in 2017 (http://www.theodora.com/wfbcurrent/brunei/brunei_economy.html). The government has been encouraging economic diversification mainly into business service, financial service, hospitality and tourism, transport and logistics, and manufacturing primary resources. The diversification is aimed to provide business opportunities for SMEs. Brunei is made up of microenterprises, small and medium enterprises at the percentage of 52, 44, and 3%, respectively, of the registered business. Majority of SMEs are in wholesale and trading businesses with the inclusion of service-based SMEs. The primary resources sector, Islamic financial market, and halal market have been identified as key growth area for local SMEs. The government provides various forms of assistance such as financing entrepreneurial development, investment incentive, technology transfer, infrastructure, and various other facilities. The SMEs development plans are in accordance with the national long-term plan at the Principles of Asia-Pacific Economic Council (APEC). APEC identified five major priority accesses for the development of SMEs: human resource development, information access, technology and technology sharing, and financing and market access.

In Brunei, only 8% of total private sector business establishments fall in the category of large businesses including foreign banks, shipping and insurance companies and Brunei Shell Petroleum, and its various subsidiaries. The remaining 92% covers the SMEs that also fulfill the 74% of nation's employment needs (www.

¹ All the statistical data about Brunei was extracted from <http://www.heritage.org/index/country/brunei>

bsmenet.com). The Bruneian SMEs are facing the same problems of not doing their business strategically in order to get the competitive advantage [20].

Because of the relative importance of the SMEs within the context of Bruneian business, it is very important to agree on the definition of SMEs, as contribution of SMEs may be estimated only on the basis of what definition for SMEs is accepted in a country. For simplicity, we stick to the definition of Yap et al. [13] for this study. Accordingly, they defined small organizations having 50 or less employees and medium-sized organizations having employees size from 51 to 250.

1.1.2 Strategic planning process among SMEs

While discussing the strategic planning among SMEs, we should consider both dimensions of strategic planning such as (1) strategic planning on the performance of SMEs and SISP among SMEs. However, both are interrelated; if the SMEs deploy strategic planning process at the outset then, there is a strong possibility that these SMEs will use the SISP. The strategic planning on the performance of SMEs has been extensively discussed in the theory and prior literature [13–16]. Strategic planning is concerned with the establishment of long-term organizational objectives and the development and implementation of plan to achieve them in order to improve the performance of an organization and to set up the directions by developing policy measures [15]. In other words, SMEs must have long-term plans as well operational plans to evaluate both external and internal factors [18, 19]. Since the focus of this study is to highlight the SISP in SMEs so that we can find an answer by doing this, how capacity building of these firms in the competitive environments can further be achieved?

Within the context of SMEs, we need to discuss the different views for the strategy; it can be acknowledged that it is difficult to come up with one single definition for the strategy concept. There are various definitions such as Seth and Thomas [21] who defined strategy as a plan that aligns the enterprise aims, process, and policies toward achieving better allocation for organizational resources. Andrews [22] provided another definition: “Strategy is a plan for the control and utilization of organizational resources to achieve desired corporate goals (e.g. gain market share, image) and gain advantage over competitors.” Similarly, Gibcus and Kemp [23] defined strategy as a “coordinated plan that gives the outlines for decisions and activities of a firm and is focused on the application of the resources that a company has, and the disposal of these resources thus enabling the firm to achieve its own goals.” For this research, the term strategy is defined as follows: a plan that is intended to provide the organization with better resources’ control and utilization and competitive advantage. Finally, the terms IT and IS are two separate terms but are often used interchangeably. For the purpose of this study, we use the term “IT” to represent both IT and IS and IT strategy as “a plan for controlling, using, and utilizing IT/IS resources to gain competitive advantage over rivals.”

IT can help organizations in leveraging competence and increasing the competitive advantage. It assists organizations in achieving their strategic and operational goals [24], and thus IT/IS is considered to be a significant factor for SMEs’ success. However, IT/IS needs to be managed effectively to achieve these benefits. According to Earl [25], IT strategy provides organizations with the most important systems that contribute to competitive advantage. These systems could be internal systems which aim to improve efficiency and effectiveness of business operations or external systems. Earl [25] summarizes the objectives and importance of IT strategy in these benefits: facilitating alignment of IT investments with organization objectives, managing IT resources in an efficient and effective way, and establishing IT architectures and policies in the organization. Bili and Raymond [6] point out that those SMEs have to look for long-term advantage from information systems and they should recognize

the significance of the right investment decisions. They link the strategic planning for information systems with an organization's survival. They also consider the rapid change in technology as a motivator for having effective strategic planning for IT.

Some studies [26–28] found that about 75, 76, and 80% organizations engage in strategic IT planning, but strategic IT plans were not implemented extensively. Lederer and Sethi [29] found that only 24% of the projects in the strategic IT plans had been initiated more than 2 years into the implementation stage. Gottschalk [30] in his study of four Norwegian organizations found that 42% of the projects in the formal IT strategy had been implemented after 5 years. Ward and Griffiths [31] found that despite a belief in its importance in the past decade, many organizations have developed perfectly sound IT strategies that had been left to gather dust. Similarly, Falconer and Hodgett [32] in their Australian survey found that proportion claiming to undertake strategic IT planning ranged from 58% in large organizations to 29% in medium-sized organizations and only 19% in small organizations.

Based on the above discussion, it can be shown that SMEs are a significant factor for a country's economy that can be safely be marked as an engine of growth for the nation's economic development. However, SMEs are facing many competitive and environmental problems. One of the creative and effective solutions for these problems is using IT in an appropriate way. However, formulating IT strategy, which is driven by business strategy and objectives, could provide a smart and efficient use of IT resources in SMEs. Recognizing this, it appears that formal approaches to developing IT strategy would benefit SMEs. In the next section, we review the previous literature to establish a link with this study.

2. Review of literature

Literature is full of studies that has not only highlighted the various IT strategies that are applied and used among SMEs [25, 31, 32, 39, 40] but also included studies that highlighted the benefits of having IT strategic methods [7, 25] and studies focusing on the barriers to IT strategy development [7, 51]. At the outset, review of the literature was examined from more general studies focusing on the impact of the strategic IT processes on the organizations to the specific studies that has provided a base for this study.

The past several studies were conducted to find out the strategic role of information systems and the impact it brought to the businesses. Pyburn [33] conducted an exploratory study that involved IS managers and top management. He noted that following factors are very critical in influencing the success or failure of SISP, namely, (1) perceived success of the IS manager, (2) volatility of the business, (3) complexity of the IS environment, (4) IS managers' and top management personality, and (5) physical proximity of the IS manager to the senior managers. Pyburn's work was basically focusing on top management as a determining factor for SISP success, but he ignored several important aspects such as techniques, processes, and implementation issues. Sexton and Van Auken [34] found in their longitudinal analysis that survival rates of SMEs which apply formal strategic planning process are higher. Several other researchers emphasized the success of SISP among SMEs is related to the managers [15, 35]. Some others studies [36, 37] focused solely on managers' characteristics and their impact on strategy development. However, the generalization of these studies is limited to owners/managers' characteristics. Similarly, King and Teo [38] suggested various factors that need to be understood such as management commitment and impact on firm performance, return of investment, and increased market share. Researchers like Peppard et al. [39] and Maharaj and Brown [40] suggested supporting organizations in

determining potential opportunities to deploy Information Systems (IS) with great competitiveness. The organizations such as SMEs should deploy IS in certain phase such as strategic awareness, situation analysis, and strategic conception to strategic formularization to strategy implementation leading toward change management action plan to finally evaluating the strategic plan.

The trend in SISP got its first turn with the first version of the Nolan stages that appeared in 1979 [41] and explained the dynamics of increasingly vital production factor called the information technology. His theory provided a widespread framework of development of IT in organization. Jackson [42] studied several strategy concepts to find out the best practice and how companies are best organized for competitive advantages through IT. In addition to it, several approaches were considered such as suggested Earl's five approaches [43, 44] and Segars's [44] rational adoption of the strategic IS planning process with the SISP success. Earl [43] classified SISP experience with five categories if SISP approaches: (1) business led, (2) method driven, (3) administrative, (4) technological, and (5) organizational. His findings suggest that each of the five distinct approaches have a different likelihood of success with the "organizational" approach being the most effective and "method driven" the least effective approach. Segars [44] conducted an empirical study of over 250 top IS executives to investigate the issue of design dimensions of planning systems and the influence of internal (within system) and external (system and context) coalignment on SISP. The findings suggested that SISP is multidimensional concepts and strategic planning systems that exhibits high level of comprehensiveness, high level of formalization, control focus, top-down planning flow, and high level of participation and consistency that are directly associated with SISP success and termed this approach as rational adoption.

Miller and Cardinal [45] claim that strategic planning provides better results than non-planning. Ward and Peppard [46] stressed on the reconciliation of the IT and business to improve competitive advantage. Bergeron et al. [47] studied two well-known planning methodologies: Porter's [48] value chain and Wiseman's [49] strategic thrust for identifying IT opportunities from a competitive advantage perspective. The result indicated that while there were overall similarities between the two methodologies, however, Wiseman strategic thrust framework is more applicable for organization in unstable environments. Gottschalk [50] stressed on the need for improved implementation of IT, failure to do could lead to lost opportunities, non-fulfillment of the objectives, and problems in future planning. He suggested understanding the link between strategic plan and implementation within the organization. Jantan and Srinivasaraghavan [51] studied the IT deployment process and competitive advantages among 81 Malaysian business organizations and confirmed that strategic deployment of IT does affect the level of competitive advantage among the organization. Factors such as good technology management, innovation culture, and strategic planning and training were found to influence on the organizational competitiveness.

Gordon and Gordon [52] conducted a pilot study of eight Fortune 500 manufacturing companies to find out the interaction between IT and business units as a key to success. Bergeron et al. [53] studied 110 small enterprises and suggested a contingency model based on the notion of "fit" between the organization's management of IT, its environment, strategy, and structure that has brought a significant difference. Allen and Helms [54] suggested linking strategic practices and organizational performance to Porter's [55] generic strategy. He provided a list of critical strategic practices that are significantly associated with the organizational performance for each of Porter's generic strategies: differentiation, focus differentiation, cost leadership, and focus cost. In addition, a number of other studies like Ghobadian and O' Regan [35] and Gunther and Menzel [37] focused on specific industry sectors. They concluded that SISP practices are influenced by the industry types.

Whereas some studies like Sharma [56] and Adendorff et al. [57] are limited to a single-case study. There is no surprise that several studies in strategic planning were conducted in developed world like UK-based study of Ghobadian and O' Regan [35] and Pemberton and Stonehouse [58]. Gunther and Menzel [37] studied in Germany and Polatoglu [59] studied in Turkey. However, the results of these studies are not related to the developing countries because of various economics, social, and cultural differences. Majama et al. [60] conducted a study among Botswana's SMEs and found that strategic planning efforts do exist within SMEs, but most of these firms engage in strategic planning activities to a limited extent. The study focused on barriers of not doing the SISP in form of owners/managers' limited knowledge of strategic planning. Results show that some of these SMEs do not plan because of the size of the business. Some of these SMEs admitted of not having any final business decision-making process leading toward poor or no planning at all.

We now examine the specific studies that have provided a framework for this study. Earl [25] provided a classification for IT strategy models which he called "framework of frameworks." It includes three main categories of frameworks: (1) Awareness frameworks which include three subsets of frameworks: refocusing frameworks, impact models, and scoping models (2) Opportunity frameworks which include four subsets of frameworks: systems analysis frameworks, application search methods, technology fit frameworks, and business strategy frameworks (3) Positioning frameworks which include three subsets of frameworks: scaling frameworks, spatial frameworks, and temporal frameworks Earl [25] provided examples for each subset. These examples were investigated by Levy et al. [61] in the UK context to find out their applicability to SMEs. The results of that study are as follows: The awareness frameworks are of value for SMEs because they enable them to understand their environment. This will help SMEs to set their business goals effectively and to decide the changes required to achieve these goals. Examples for this category are the strategic opportunities framework, Porter's generic strategies, and information intensity matrix. In the opportunity frameworks, the systems analysis frameworks and business strategy frameworks are very useful for SMEs. On the other hand, application search methods and technology fit frameworks are less useful for SMEs because they depend on extracting information from business strategy which may not always exist. The example given of a business strategy framework is Porter's five competitive forces model; the example of a systems analysis framework is Porter's value chain; and the example of application search methods is customer resource life cycle. The positioning frameworks are the least applicable frameworks for SMEs, except scaling frameworks which help to identify the role of information systems in SMEs. The examples given for scaling frameworks are the Strategic Information Systems Grid, sector information management grid, and stages of growth models.

In addition to these studies, Blili and Raymond [6] proposed two main approaches for the IT strategic planning: top-down and bottom-up. They stated that the first approach is more suitable for SMEs because it reflects the importance of IT in the view of top management. They developed information systems strategy (ISS) model for IT strategy, and this model consists of various IT basic methods. In their proposed model, they suggested that Critical Success Factors (CSFs) method to be used to analyze the priority and significance of the business activities which lead SMEs to the high performance. They recommended that CSFs should be combined with Porter's value chain and transaction cost method.

Similarly, Levy and Powell [62] built on the ISS model of Blili and Raymond [6] in SMEs. The new model consists of three stages: business context, business process, and strategic content. Each stage includes objectives to be achieved through some basic methods. The business context analysis helps a business to define three main aspects: the business strategy and objectives, the business environment, and

the competitive environment. These three analyses can be performed by some basic methods such as CSFs, PESTEL, balanced scorecard, and information intensity matrix. The business process analysis is concerned with three aspects: determining the processes that add value for the business, reviewing if the organization is using the appropriate IT to perform the core processes, and finally, analyzing the organization's current IT tools and functions. These analyses are to be accomplished through some basic methods such as value chain method, Strategic Information Systems Grid, and soft systems methodology (SSM). The strategic content analysis aims to provide recognition for the required IT that can satisfy the organization's objectives. They suggested such techniques as MIT'90 and the 3D model of information systems success for this purpose.

Salas et al. [63] within the Australian context provided an approach to IT strategy development that was based on the Bili and Raymond's [6] work. The model consists of two complementary views: top-down which is done by top management to identify the business objectives and environment and bottom-up which is done by operational managers to analyze the major processes. Both views are targeted to specify the required IT to fulfill the business objectives. They adapted the Strategic Options Development and Analysis (SODA) model to perform the top-down view and business process analysis and modeling to perform the bottom-up tasks. **Table 1** list IT strategy basic development methods that have been used to form the models discussed.

Azyabi [7] conducted a study of 34 SMEs in the Victorian State of Australia that used IT strategic development methods, perceived benefits, and encountered barriers, as pointed out in the previous section and motivated to conduct this study

No.	Basic IT strategy methods	Literature sources
1	Strategic opportunities framework	Levy et al. [61], Benjamin et al. [63]
2	Porter's generic strategies	Levy et al. [61]
3	Information intensity matrix	Levy et al. [61], Levy and Powell [62]
4	Porter's value chain	Bili and Raymond [6], Levy et al. [61], Levy and Powell [62]
5	Customer resource life cycle	Levy et al. [61]
6	Porter's five competitive forces model	Levy et al. [61]
7	Sector information management grid	Levy et al. [61]
8	Strategic information systems grid	Levy et al. [61], Levy and Powell [62]
9	stages of growth models	Levy et al. [61]
10	Balanced scorecard	Levy and Powell [62]
11	Transaction cost	Bili and Raymond [6]
12	PESTEL	Levy and Powell [62]
13	Strategic Options Development and Analysis (SODA)	Salas et al. [63]
14	Soft systems methodology	Levy and Powell [62]
15	3D model of IS success	Levy and Powell [62]
16	Critical success factors (2000)	Bili and Raymond [6], Levy and Powell [62]
17	MIT'90	Levy and Powell [62]

Table 1.
IT strategy basic development methods.

in Brunei, and found that only three methods are found to have indirect influence on IT strategy development: critical success factors, transaction cost, and balanced scorecard. The major benefits include achievement of organizational efficiency, facilitating alignment between business and IT strategies, and improving organizational performance. The most significant barriers to develop IT strategy are financial and human resources limitation and lack of time and focus on day-to-day operations. The results further reveal that small-sized enterprises are less familiar with critical success factors and transaction cost than the medium-sized enterprises. However, there is no difference among manufacturing and service organizations in facilitating alignment between business and IT and obtaining competitive advantages. Small-sized enterprises experience bottleneck and barriers through lack of relevant IT experience and lack of time and focus on day-to-day operation than medium-sized organizations.

Azyabi [7] research has some weaknesses in the form of small sample size and generalizability; however, it is unique in the Asia-Pacific region and has further provided a source of motivation to conduct a similar study within the context of Southeast Asia. In fact from the review of the literature, it was found that researchers have conducted the studies from various dimensions, and no consistent pattern could therefore be applied leading toward a big research gap in the literature. As mentioned, most of these studies were conducted in the Western worlds, and the findings might or might not be applicable to this part of the globe. Up to our knowledge, no such study has focused on the multidimensional aspect of the strategic IT development process, benefits of using, and barriers of not using the strategic development process within Southeast Asian perspective. There is another gap that exists within Southeast Asian perspective, and the present study could fill in the research gap. Although the business environment and business volume among Bruneian SMEs are very different than their Australian counterparts, however by conducting this study, we would be able to find empirical evidence as how one of the Southeast Asian economies and strategic business development approach is different. The findings may further be utilized to generalize among other Southeast Asian context.

3. Methodology

3.1 The instrument

The purpose of this study was purely descriptive in nature. Creswell [64] suggested that descriptive research is to collect data about an existing situation or issue. Yin [65] suggested that survey is an appropriate method for descriptive research. In the light of the above cited discussion, a questionnaire adapted after an Australian study [7] was used for this study. The questionnaire consists of two parts, starting with Section A that collects information on the demographical data about the respondents, organizations, and IT functions. Section B collects information about the IT strategy development methods. Section B is further divided into four parts: collecting information about awareness framework, opportunity frameworks, positioning frameworks, and other frameworks. The data is collected on five-point Likert scale starting with 1 as “fully used,” 2 as “partially used,” 3 as “familiar and has indirect influence,” 4 as “familiar but not used,” and finally, 5 as “unfamiliar.” So their final mean values of less than 3.00 mean either fully or partially used, and mean values around 3.00 indicate familiar but indirect effect, and finally, mean values of above 4 indicate either not used or unfamiliar with the strategic development.

3.2 Instrument validity and instrument reliability

There are several types of validity measures such as face validity and construct validity. Campbell and Fiske [66] propose two types of validity: convergent and discriminating validity. Convergent validity is measured by average variance extracted for each construct during the reliability analysis that should be 0.5 (50%) or better. **Table 2** shows the reliability values for the various constructs with variance extracted, and all the values are above 50%, thus providing a sufficient evidence of convergent validity. Similarly, Cronbach’s α [67] for the constructs ranging from 0.80 to 0.90 further indicate a sufficient level of reliability. In general results show that both validity and reliability requirements are met.

3.3 The sample

A questionnaire was sent to 129 SMEs according to a random sampling plan. The SMEs were selected from a key business directory of Brunei (www.goldpages.com). Out of these 127 organizations, 70 organizations responded, and responses from 67 organizations were retained as they were filled by the top management; three were dropped because of the fact that it was not filled as per instructions. This makes the response rate of 52% sufficient for the survey of SMEs especially in a small market of Brunei Darussalam.

4. Data analysis and results

Data obtained from the survey were analyzed for descriptive, frequency, and student’s t-statistics by using SPSS version 19, a well-known statistical package.

4.1 Profile of respondents

The first question in this section asked for some basic demographic information about the respondent’s job title, gender, and years of experience with the organization. The summary of the responses are given in **Table 3**. Interestingly, 63% of the respondents with responsibility for IT function were male compared to 37% of the females. Similarly, 43% of the respondents were IT/IS or MIS managers compared to 51% as directors, and only 6% were general managers. As presented, 40% of the respondents have 1–5 years of experience with their organizations, with 37% were having 6–10 years of experience, and roughly around 22% have more than 10 years of experience with their organizations.

Constructs	No of items	Mean	Cronbach alpha (α)	Variance extracted
Awareness frameworks	3	3.63	0.88	0.81
Opportunity frameworks	3	3.53	0.80	0.74
Positioning frameworks	3	3.68	0.87	0.80
Other frameworks	8	3.67	0.84	0.60

Table 2.
Reliability and validity.

Organization characteristics	Frequency	Percentage
Job title		
IT/IS manager	29	43
Director	34	51
General manager	4	6
Gender		
Male	42	63
Female	25	37
Years of experience		
1–5	27	40
6–10	25	37
More than 10	22	22

Table 3.
Profile of respondents.

4.2 Profile of organizations

The second question gathered information about the profile of the respondent’s organization such as the years of operation, sector, and the number of employees. This section discusses the survey findings about these aspects and a summary is shown in **Table 4**. Interestingly, 24% of the participating organizations have between 5 and 10 years of operation. Very few (4%) have less than a year of operation. The participating organizations with more than 10 years of operation represent about 44% of the surveyed SMEs. Unfortunately, the share of participating companies from the manufacturing sector was only 12%. Others are mostly from service industry (31.0%). Few are from construction and retail sectors (3 and 6%, respectively). However, the good response rate of 30% was from information and commutation technology (ICT). About 55% of the respondent organizations have between 10 and 50 employees, and 45% of the organizations have between 51 and 250 employees. The SMEs with approximate sales between B\$ 100,000 and B\$ 250,000 cover the highest response of 28%, and about 22% of the participating organizations did not disclose their sales’ figure.

4.3 Profile of the IT function

Question 3 asked the respondents if they have a group of people dedicated to the IT function. The findings, as shown in **Table 5**, reveals that a large majority (82%) of the respondents have people who are dedicated for the IT function, while 18% do not have such people.

4.4 IT strategy basic development methods

The survey questioned the participants about their level of use and familiarity with IT strategy basic development methods. They were asked to respond to this question by encircling a number on a five-point scale where 1 means fully used, 2 means partly used, 3 means familiar and has indirect influence, 4 means familiar but not used, and 5 means unfamiliar. A summary of how the surveyed SMEs are

Organization characteristics	Frequency	Percent
Years of operation		
Less than a year	4	6.0
–5 years	18	27.0
5–10 years	16	24.0
Over 10 years	29	43.7
Industry segment		
Manufacturing	8	12.0
Service	21	31.3
Construction	2	3.0
Retail	4	6.0
ICT	20	30.0
Other	12	18.0
Number of employees		
Less than 10	14	21.0
11–50	23	34.0
51–250	30	45.0
Approximate sales		
< \$100,000	9	13.4
\$100 K to < \$250 K	19	28.3
\$250 K to < \$500 K	18	12.0
\$500 K to < \$ 1 million	7	10.4
More than 1 million	9	13.4
No answer	15	22.0

Table 4.
Profile of organizations.

	Frequency	Percentage
People responsible for IT function		
No	12	18.0
1–5	23	34.0
6–10	18	27.0
More than 10	14	21.0
People responsible for IT decision-making process		
None	32	48.0
1–5	22	33.0
6–10	7	10.0
More than 10	6	9.0

Table 5.
Profile of IT function.

using and are familiar with the IT strategy basic development methods is shown in **Table 6**. From the table data, it is evident that none of the IT strategy basic development methods are fully or partially used by the participating SMEs. Only three IT strategy basic development methods have indirect influence on SMEs: critical success factors (mean score: 3.10), transaction cost (mean score: 3.13), and balanced scorecard (mean score: 3.28). SMEs are generally familiar with many IT strategy basic methods (e.g., customer resource life cycle, strategic opportunities framework, stages of growth models, 3D model of IS success, Porter's value chain, Porter's five competitive forces, soft systems methodology, Porter's generic strategies, Strategic Information Systems Grid, information intensity matrix, and sector information management grid); however, these methods have no effect on their IT strategy development, and finally SMEs are not familiar at all with such methods as Strategic Options Development and Analysis (SODA), MIT'90, and PESTEL. The mean of these development methods is above 4.00 but less than 4.50, which further indicate the marginal familiarization of these methods.

In order to find any difference between basic strategy development methods and organization size, statistical t-test was conducted and the results are presented in **Table 7**. The results further indicate that none of the IT strategy basic development method is used by the Bruneian SMEs either fully or partially even though the SMEs are familiar with these methods. A comparison was also made with the Australian study and results reveal that two of the basic strategy development methods such as critical success method and transaction cost are significant rather than the balanced scorecard.

IT strategy development basic methods	Mean rating	Ranking	Australian study*
Critical success factors	3.10	1	3.00
Transaction cost	3.13	2	3.00
Balanced scorecard	3.28	3	3.39
Customer resource life cycle	3.34	4	3.85
Strategic opportunities framework	3.39	5	3.88
Stages of growth models	3.61	7	3.94
3D model of IS success	3.84	12	4.06
Porter's value chain	3.68	10	4.09
Porter's five competitive forces	3.60	6	4.15
Soft systems methodology	3.79	11	4.15
Porter's generic strategies	3.67	9	4.24
Strategic information systems grid	3.66	8	4.27
Information intensity matrix	3.85	13	4.27
Sector information management grid	3.81	14	4.27
Strategic Options Development and Analysis (SODA)	4.22	15	4.59
MIT'90	4.33	17	4.69
PESTEL	4.25	16	4.72

*Azyabi [7].

Table 6.
Results of IT strategy development basic methods.

T-test for equality of means								
IT strategy basic development methods	Organization size	Means	F	T	df	Sig. (2 tailed)	Remark	Australian study
Transaction cost	50	3.11 3.16	1.862	-.169	65	0.867	Non-sig	Significant
Critical success factors	50	3.14 3.06	0.993	0.242	65	0.809	Non-sig	Significant
Balanced scorecard	50	3.47 3.06	4.65	1.456	65	0.150	Non-sig	Non-sig

**Significant at 95% confidence level.*

Table 7.
T-test results of the use of the IT strategy basic methods based on organization size.

T-test for equality of means							
IT strategy basic development methods	Industry sector	Means	F	T	df	Sig. (2 tailed)	Remark
Transaction cost	Manuf Non-manuf	3.25 3.23	3.39	-0.197	65	0.845	Non-sig
Critical success factors	Manuf Non-manuf	3.75 3.06	0.603	-1.071	65	0.288	Non-sig
Balanced scorecard	Manuf Non-manuf	3.25 3.75	0.435	-0.833	65	0.408	Non-sig

**Significant at 95% confidence level.*
Manuf: Manufacturing; Non-manuf: Non-manufacturing.

Table 8.
T-test results of the use of the IT strategy basic methods based on industry sector.

Another comparison was made to explore the differences between industry sectors regarding the same three IT/IS strategy methods. The responding SMEs were divided into two main industry sectors: manufacturing and non-manufacturing. The results (presented in **Table 8**) reveal that there are no significant differences between these two industry sectors regarding the use of three IT/IS strategy basic methods.

5. Discussion

The findings indicate that none of the IT strategy basic development methods are used by the Bruneian SMEs either fully or partially, even though they are familiar with most of these methods. One qualitative question asked respondents to add any further comments about IT strategy development in SMEs. Some of them mentioned that these methods are well recognized in academic field but are not known in the SME context under these terms and names. Furthermore, some respondents reported that these methods could be more applicable for large organizations rather

than SMEs. These reasons may help explain to some extent the absence of the use of these methods among the surveyed SMEs. The results support the study of Majama et al. [60] who found that strategic planning efforts among SMEs in Botswana do exist but to a limited extent. The comparison with Australian study was made to find out the difference between the two categories of organization size regarding the three methods which have indirect influence on SMEs' IT strategy development (i.e., critical success factors, transaction cost, and balanced scorecard). The results of student t-test (in **Table 7**) indicate that small organizations (with less than 50 employees) are less influenced by and are less familiar with the transaction cost and critical success factors than medium-sized organizations (with more than 50 employees). On the other hand, no such significant difference can be observed between these two groups of SMEs toward balanced scorecard. The results partially support Bili and Raymond [6], Boynton and Zmud [68], and Levy and Powell [62]. As far as the use of the IT/IS strategy basic development methods are concerned, our results are consistent with the Australian study [7] that further indicated that none of the IT/IS strategy basic development methods are fully or partially used by the participating SMEs. However, on the basis of industry sector and organization size (**Table 8**), our findings are in contrast with the study (ibid) as on these bases IT/IS strategy basic development methods remained insignificant. This might be due to the business dynamics and business practices of the Bruneian business environment which is less competitive, in practice, and/or lack of top management initiative. In addition, Bruneian SMEs are not struggling for their survival solely on IT [69] and are less influenced by the basic strategy development methods compared to Australian counterpart. However, no such difference is significant between Bruneian and Australian SMEs on the basis of industry sector.

6. Lesson learnt

This pioneering study conducted among Bruneian SMEs has met both of its objectives. As mentioned in the introduction, the main objectives of this study were to investigate the extent to which Bruneian SMEs use or are familiar with the basic IT strategy basic development methods. Regarding the first objective on the use of the IT strategy development methods, it was found that none of the provided basic IT strategy development methods is used by these surveyed SMEs either fully or partially; only three methods have indirect influence on IT strategy development in these SMEs: critical success factors, transaction cost, and balanced scorecard. Nevertheless, these surveyed SMEs are not familiar with SODA, MIT'90, and PESTEL, and surveyed SMEs are familiar with other strategy development methods, but these methods had no effect on their IT strategic development. Moreover, no statistical difference was found with the familiarization with the basic IT strategy development methods on the basis of organization size and industry sector that conclude our second objective. In the practice side, this research assists SMEs in recognizing the importance of IT strategy for SMEs, and it therefore provides an insight of IT strategy development in SMEs. The study further found some similarities in the use of basic IT strategy development methods with Australian SMEs on the basis of industry sector; however, on the basis of organization size, the results are in contrast, and it is because of the more developed business practices of Australian SMEs.

The study findings further provide insight in building up an empirical foundation for understanding the organizational use of IT strategy basic methods, among Bruneian SMEs within the Southeast Asian context. The basic question that needs an immediate attention is from the policy planners that are to find out the reasons why these SMEs are not utilizing the basic IT strategy development methods

especially when they are aware of the benefits of the strategic process. The plausible reason is that Bruneian business environments do not demand the competitive advantage. This was also supported by one of the studies on e-commerce adoption among Bruneian SMEs and had further concluded that Bruneian businesses need to develop a business culture where competitive advantage could be achieved through e-commerce adoption [19]. To deal with the severity of this problem, the CEO of these SMEs along with the policy makers of Bruneian Small and Medium Business Development Authority (SMBDA), with the help of the Ministry of Industry and Primary Resources (MIPR), should address this issue accordingly. We believe that there are some success stories among small businesses, and the planning agencies could further organize a forum where other small businesses can learn from the best practices. We also believe that until or unless the stated barriers were not curtailed or reduced, these SMEs would not be gaining.

As mentioned, one of the biggest constraints faced by these SMEs with regard to the SISP emerged from lack of owner's awareness, their reactive behavior, and lack of formal employees' participation in business decisions. This can further be improved by either educating the owners' IT skills and abilities or by employing a formal manager-IT support. This can be possibly implemented by the intervening e-government initiative by e-Government National Centre (EGNC). Once the owners are educated and started developing SISP, these SMEs would increase competitiveness, reduce cost, and share knowledge with the members and stakeholders; the overall business processes would finally be improved to get the business, otherwise outside competitive forces will reshape the local business SMEs.

Like every research this study is not free from its weaknesses and limitations. Properly addressing these limitations in the forthcoming researches could improve the findings. Firstly, the small sample size has been a major impediment especially generalizing the results across the region. Secondly, the small contribution of the manufacturing sector among these surveyed SMEs because of the absence of very large share of this sector in Bruneian business has made the sample size bias in nature which is apparently beyond the control of the researchers. Thirdly, the study needs to include barriers of not doing the SISP to highlight the various reasons that need to be addressed by the relevant authorities. Finally, most of the items in the questionnaire are self-reported and would further induce response bias, and we did not do any precautions to address this issue. So caution should be used in generalizing the results. We therefore recommend that future studies would address this issue accordingly.

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