



The roles of top management and users in strategic IS planning: a perspective of SMEs

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Abstract:

Research on the strategic Information Systems (IS) planning is typically concentrated on large firms. However, the outcomes of this research may not be sufficient to adequately apply to Small and Medium Enterprises (SMEs). Responding to the limited body of work in SMEs with respect to strategic IS planning, this research aims to fill the gap in the body of literature. Having limited resources available, financially and technically, strategic IS planning is getting more crucial for SMEs. Prior work suggests that a high level of internal competencies such as IT leadership by the owner or the top management of the firm are important for progressive IT development to take place in SMEs. Having said that IS is getting paramount for firm's survival to optimize IS effectively, it is incumbent to investigate the factors influencing strategic IS planning amongst the SMEs. This study contributes to research and practice by providing in-depth insights into the IS planning processes in SMEs with a particular focus on the roles of top management and users. Researchers can use these results, which are somewhat different from larger organizations, to revise IS planning phases.

Keywords:

strategic IS planning; top management commitment; user participation; SMEs.

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1. Introduction

Over the last decades we have seen a growing deployment of information systems (IS) to support the operations of organizations. The deployment of IS enables provision of both financial and non-financial information for decision support. The deployment of appropriate IS facilitates firms in extending their information-processing capabilities that provide firms with the right information at the right time. The availability of relevant and accurate information in a timely manner could enable firms to reduce operating costs, to effectively utilize available resources, to execute strategic plans and ultimately to improve their overall productivity. However, the deployment of IS in an organization will be successful only if the IS investment is aligned with the organization's strategic objective. In other words, firms gain value out of the IT/IS-related investment such as greater competitive advantage [1]. This can be achieved by establishing strategic information systems planning (IS planning). The failure of strategic IS planning can result both in loss of opportunities and waste of expensive IS resources.

The assessment of IS planning success has a long research tradition (e.g., [2]). Research on the IS planning success is typically concentrated on factors influencing IS planning practices and IS planning success. These factors include firm size [3], management style [3],[4], changes in the external environment [5], and inputs contributed by employees and top management in the IS planning process [3],[6],[7]. The participation of employees and commitment of management are widely studied variables as they are deemed very crucial and a lack of these can lead to an unimplemented strategic IS plan [6].

Despite the substantial body of research on strategic IS planning success, prior research focuses mainly on large firms. There is a lack of study on small and medium-sized enterprises (SMEs) [8]. One reason for the lack of SMEs-focused study is said to be that SMEs put less emphasize on IS-related investment [9]. Another reason might be that the IS in SMEs is considered to only support the administrative functions of these firms instead of supporting their strategic objectives [10],[11]. Hence, optimizing IS values is not seen as important or significant. However, in response to a more pressing business environment, firms are putting more reliance on the support of various IS as potential mechanisms to extend their business efficiency [11]. Due to the importance of IS in SMEs nowadays, calls have been made to understand how SMEs could successfully plan their IS to facilitate better firm performance [12]. Responding to the limited body of work in SMEs with respect to strategic IS planning, this research attempts to fill the gap in the body of literature and heeding the calls for undertaking research in the area of IS planning in SMEs.

This effort is crucial because a research framework applied in large firms may not be perfectly applicable in the context of SMEs [10]. Although SMEs and larger firms are facing similar issues while incorporating IS into their operations, they often have unique approaches in dealing with such issues [13]. On top of that, the unique nature of the organization structure and operations of SMEs further attests to the distinct practices of IS/IT amongst SMEs [14]. In contrast to their larger counterparts, SMEs are inherently known to suffer from having limited resources regardless of whether they are financial resources or IS technical expertise [15]. A lack of available resources obviously influences how firms perceive and response to IS potentials. For example, inherent financial resources are a major barrier for the strategic use of IS in most SMEs [16]. As such, firm primarily consider IS/IT for extending operational efficiencies rather than for having a clear strategic focus [11]. Specifically, IS deployment being more widespread for finance, accounting, and inventory management [17]. Meanwhile, due to the scarce of employees who are IT competent, some firms opt to outsource the IS-related projects [18]. Ashurst et al. [19] also suggest that an elevated level of internal competencies such as IT leadership by an owner or the top management of the firm are particularly important for progressive IT development to take place in SMEs.

In response to the increased importance of IS in business and hurdles facing SMEs to effectively utilize IS, a crucial need exists to explore strategic IS planning as practiced by SMEs. Considering the dominant roles of top management in most SMEs decision making, their active involvement in IS-related projects promotes a better planning process, which ultimately ensures the successful use of IS. The characteristics and values of the dominant actors or decision makers of a firm will determine the firm's commitment toward IT/IS deployment [20]. In a similar vein, the need to ensure IS corresponds well to user's requirements, their involvement in any IS planning activities have considerable

impact on successful IS-planning processes [21]. In line with the above concern, this study aims at understanding how top management and user participation facilitate IS planning processes amongst SMEs.

For that purpose, an empirical qualitative study among experienced SMEs located in the northern region of Malaysia has been conducted. Through a series of open-ended interviews, the top management or owners and the IS users of the SMEs were asked about their roles in the IS-planning processes and factors influencing their commitment and involvement. To strengthen the credibility of the collected data, a triangulation strategy was applied [22]. Such a strategy requires that at least two independent researchers carry out the analysis and that their results are later compared. This process helps to counter any possible discrepancy in the interpretation of the collected data.

This study contributes to the domain of IS planning by reporting details and descriptions of the roles of top management support and user involvement in the IS planning practiced within the SMEs. Owing to the growing importance of IT to today's business and therefore increases in its complexity, IS planning is getting more paramount [23]. Unfortunately, IS planning has been reported as considerably limited amongst the SMEs [24]. If there are, the focus is somewhat restricted to the short-term or operational focus instead of more strategically oriented [25]. Firms that are successfully managing the IT in a more strategic manner are capable to ensure successful IT deployment [26] and ultimately lead to better firm performance. Having said that, it is essential for the SMEs to establish proper IS planning that view IT potentials in more strategic manner. More importantly, it is a good move to understand how IS planning has taken place in SMEs and later to propose the best approach of IS planning that fit well with this business sector [25]. Therefore, this study attempts to provide insight on the IS planning practice amongst the SMEs. Having varying characteristics in various aspects, particularly on the uncertainty of the IT potentials and firm's competitiveness, the limited resources availability as well as operational-oriented focus on IT deployment [27] SMEs become a unique context of research to explore. Moreover, due to its resources constraints, the role of top management and users are expected to be somewhat different from their larger counterparts. This study, therefore, helps researchers to ascertain applicability of the IS planning framework as initially developed for larger organizations, into the SMEs context. Researchers may benefit from the results of this study, that are somewhat different in relative to larger organizations, to revise IS planning phases as Newkirk et al. [28] initially proposed by incorporating the different roles of top management and users. Practitioners in SMEs could gain insights for understanding the role of top management and user involvement in strategic IS-planning activities. They might rethink their way of empowering their employees (i.e., the IS users) in the decision-making process related to investment in IS.

This paper is divided into five major sections. The next section provides the theoretical background of strategic IS planning and IS practices in SMEs. The third section describes the research methodology employed by explaining the design of the research processes (i.e., data gathering and data analysis). Section four presents and discusses the research findings, authenticated with quotes from the interviews. The final section then concludes this paper with implications, limitations and future research.

2. Theoretical Background

2.1 Information systems (IS) planning

The concept of strategic IS planning involves the process of identifying a collection of computer-based applications that correspond to an organization's business plan for ensuring that the organizations achieve their intended business objectives [11]. Strategic IS plan theory that was initially developed by Lederer and Salmela [29] posits that a strategic IS plan may be illustrated as input-process-output model. The model comprises seven interrelated constructs, namely, (i) internal environment, (ii) external environment, (iii) planning resources, (iv) planning process, (v) information plan, (vi) plan implementation, and (vii) alignment between the internal environment and the organizations' strategic goals. The complete model is illustrated in Figure 1.

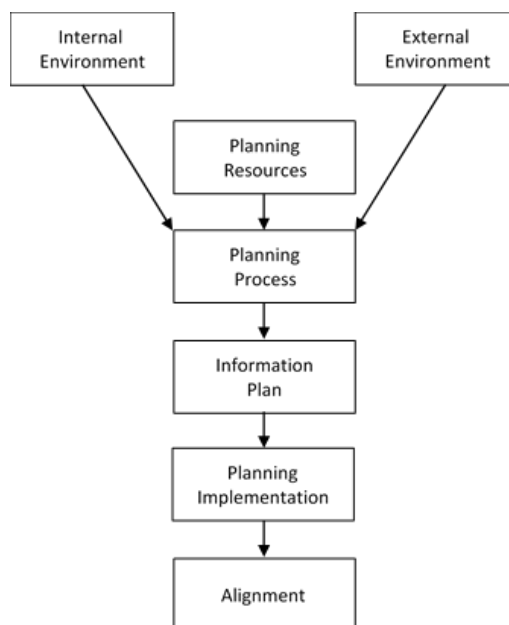


Figure 1: Theory of strategic IS plan (adapted from Lederer & Salmela [29])

Several researchers have suggested that the internal environment influences the planning process. For example, the size of an organization influences the strategic IS-planning process because, in large organizations a formal approach to strategic IS planning may be more appropriate when compared to small organizations [3]. The planning resources comprise the effort and inputs from all levels of employees, including top management in the planning process that enables the execution of the planning process. A lack of resources can reduce the scope of planning [6]. The role of participation and commitment by employees at different levels is very critical and has been highlighted in several studies, including those by Earl [3] and Smits et al. [7]. A more recent mixed method study was conducted by Raja Mohd Ali [30] to investigate the effect of culture on the strategic IS planning success particularly with respect to top management commitment and user participation. Initially, data were collected from 108 medium and large IT organizations in Malaysia and New Zealand. The results suggested that both top management commitment and user participation affected the strategic IS-planning success dimensions relating to communication and technology. Then, interview sessions were conducted to gain further understanding on the relationships between the two factors studied (top management commitment and user participation) and the strategic IS planning. This study focused on the effect of top management commitment and user participation on strategic IS planning success in medium and large organization but does not account for small-sized organizations that are known to be endowed with unique characteristics. This is the gap that this current study explores further.

Various sets of phases for developing strategic IS planning have been suggested from previous studies. Mentzas [31] suggested five phases, namely, strategic awareness, situation analysis, strategy conception, strategy formulation and strategy implementation planning. Cassidy [32] suggested another set of phases, which included the visioning phase, the analysis phase, the direction phase and the recommendation phase. Newkirk et al. [28], in their quantitative study, however, identified five main phases which are (i) the planning process, (ii) analyzing the current environment, (iii) conceiving strategy alternatives, (iv) a selecting strategy, and (v) a planning strategy implementation. The planning process stage focuses on determining the key planning issues such as the steering committee, defining the objectives and obtaining top management commitment. The analyzing current environment stage emphasizes analyzing the current business systems and technology, both internally and externally. The conceiving strategy alternative examines the main

technology objectives and finding opportunities to improve should improvement is needed. Strategy selection involves processes to identify new business processes or technology and how to prioritize among the listed projects. More recently, Parviainen et al. [33] suggested four steps, which include gap identification between current situation and organization's objectives, actions need to be taken to reduce or close the gap, conducting feasibility study and prioritization, and developing the roadmap. Implementation of such planning focusing on the evaluation of executing the projects agreed in the plan. The implementation might either reducing IT costs or improving organization's use of information in terms of information sharing and information integration [34].

2.2 *IS practices amongst small and medium-sized enterprises (SMEs)*

SMEs contribute substantially to the economic and social growth of most countries. This sector plays substantial roles in promoting higher Gross Domestic Product (GDP), greater export activities, and employment opportunities [35]. As they are generally domestic-oriented business, their trading activities would have direct impacts on a nation's economy [36]. Considering the vital roles of SMEs in both developed and developing economies, many international agencies such as the United Nation (UN), the World Intellectual Property Organisation (WIPO), and the Organisation for Economic Co-operation and development (OECD) have sought to facilitate such firms in playing a meaningful role in the economic system worldwide.

SMEs also play greater roles in ensuring competitiveness of most developing and transitional economies. In the Asia Pacific region, more than 95% of businesses are SMEs with more than 70% in micro-firm category [37]. Of the 49 million SMEs in this region, about half of them are currently operating in China and Indonesia. Thus, their activities could be an important indicator of the entrepreneurial health and competitiveness of a particular country. Owing to the salient role of SMEs for the economies of most nations, governments have initiated various strategies and incentives to extend their efficiency and productivity. The deployment of appropriate IT/IS is one possible strategy for such a purpose [38]. Nowadays, IT/IS has made its presence felt in all kinds of businesses of all sizes and has a significant role in extending business productivity. Ideally, a firm would receive considerable benefits from deploying IT/IS. This deployment could facilitate firms in managing administrative tasks, enhancing production activities, expanding their product/service market [39] and supplying information needed in a timely manner [14]. It further enables rapid innovation activities and levels the playing field with their larger counterparts [15]. In other respects, IT/IS deployment can facilitate cost cutting in business operations while extending customer services and more effective product distribution [40].

Due to the overwhelming claims of IT/IS potentials, SMEs have been the subject of many studies over the years. Previous works have concentrated on several aspects of IS practices. Earlier works are primarily concerned with drivers/inhibitors of IS adoption [18], [40], [41] and intensity of IS deployment [17]. Several other works have examined IS sophistication [37] and IT/IS success factors [13]. However, a handful of these studies have investigated IS strategic-related issues. For example, Levy and Powell [25] explored the current state of IS alignment in the SME sector and reported that a lack of alignment leads to the failure of firms to benefit from IS investment. Similarly, Cragg et al. [43] suggested that appropriate IS alignment with SMEs business strategies ensures greater IS success and firm performance. Meanwhile, Ismail and King [44] reaffirmed the essence of IS alignment within a specific business function (accounting information systems) to the successful deployment of IS. Chao and Chandra [45], who adapted Resource-based view, confirmed the impact of owner IT knowledge on business and IT strategic alignment and ultimately IT use.

2.3 *Strategic IS planning practices among SMEs*

Extensive works have been conducted that investigate strategic IS planning in large organizations; however, studies amongst SMEs are relatively limited. Levy and Powell [47] asserted that there is a lack of strategic planning in SMEs. One of the reasons may be due to IS strategy was seen as one of the least significant concerns of SMEs [48]. Nevertheless, due to growing strategic importance of IT and considerable cost incurred on such investment, there are an

urgent need for SMEs to put serious consideration on setting up proper IS planning. This is even crucial despite the fact that most SMEs are yet to have formally documented strategic plan for their business [46].

Studies conducted in relation to strategic IS planning and SMEs suggested that in view of unique nature of the SMEs, firms may not fully consider phases (as described in section 2.1 above) and approaches of IS planning as recommended in large organizations especially in the situational analysis phase [49]. The situational analysis on current business environment includes organizational systems, information systems, and internal and external IT environment allows the organization to identify problems and solutions opportunities. However, the difficulties in various resources aspect, such as financial issues, lack of technology expertise, and limited capabilities in managerial and operational level somewhat restrain the SMEs ability to survive in the uncertain environment. Lacking of alignment between business and IS strategy and lacking of strategic decision making and sharing information are the two important aspects of the survivor issues in SMEs [50]. The inability to survive in an uncertainty environment may give a negative influence to the SMEs business [51]. Thus, this study was conducted to fill the gap by understanding the top management commitment in giving business direction and user participation in sharing information in the SMEs strategic IS planning practices.

Further, many SMEs focus more on short-term profitability rather than long-term sustainability as practiced by large organizations [51]. Due to the short-term focused, strategic decision made have emphasized more on reaction which response to issues arise rather than future anticipation [27]. In addition, as compared to large organization, SMEs owners' strategic thinking is based more on intuition, where owners intuitively understand their business domain, but not analyzing on the IS opportunities [52].

3. Methodology

One primary concern of this study is to understand the roles played by the top management of a firm as well as the degree of user involvement in the various stages of IS planning activities as Newkirk et al. [28] outlined; (i) the planning process, (ii) analyzing the current environment, (iii) conceiving strategy alternatives, (iv) selecting strategy, and (v) planning strategy implementation. This study adapts the model into the SMEs context for in-depth investigation of the role of top management and users in strategic IS planning using a qualitative perspective.

The study adopts a qualitative research strategy based on a multiple cases study. A screen assessment was carried out to ensure that the selected firms had employed certain types of IS/IT-related applications. This was the prerequisite for the firms to be considered for an interview. This study defines SMEs based on the guidelines of Malaysia's National SME Development Council. As per the guidelines, manufacturing-based SMEs refer to firms with less than a RM50 million annual turnover with the number of employees not exceeding 200. Meanwhile, for the service-based sector, the SMEs are firms with an annual turnover of less than RM20 million or firms with less than 75 employees. Due to financial resource constraints, the potential firms involved in this study were restricted to those located in northern region of Malaysia. After a series of phone calls to the selected firms in northern region which was listed in the SME info list, only three firms agreed to take part in the study, namely, Company A, Company B, and Company C. The data was collected for a period between June and August 2016.

Data for analysis were obtained via a semi-structured themed interview with the owner/manager of each firm. Where appropriate, researchers arranged for an interview session with representative system users to cross check the information reported by the owner/manager. In total, three owners or managers and four executives took part in the interview sessions. A standardized open-ended interview method was utilized because it does not predetermine the answers and allows room for the participants to respond in their own terms [53]. The interview sessions were carried out at the respective firms. Each interview session from each company took between 90 and 130 minutes. The interview questions were presented to all participants in English, but some of the interviewees requested to respond in Malay language. A description of the respondents who took part in the study and duration of the interviews are reported in Table 1.

Table 1. Details of interview session

Company	Interviewees	Duration of interview (minutes)
A	Owner / Managing director	90
	Account executive	20
	Administration executive	20
B	Information System manager	60
	Human Resource manager	15
	Quality System Engineer (QS Engineer)	15
C	Account/administrative executive	120

Table 2 below presents the profile of the participating companies. As seen from Table 2, the companies involved in distinct types of business, ranging from manufacturing to service. All companies had a similar business maturity, which was around 20 years. However, these companies were varied in terms of the number of employees. Company B was still considered to be a SME because most of the employees were operators suggesting that they were part-time employees.

Table 2. General profiles of the companies

	Company A	Company B	Company C
Nature of business	Manufacturing (paddy processing) and supplying (rice mills)	Printing and supplies services	Food (chicken rice) and beverages
Year of establishment	1995	1996	1995
No. of employee	50 full-time employees	350 full-time and part-time employees	25 full-time employees

Based on the Table 2 above, Company B was considered as a medium-sized company and the other two companies were considered as small-sized.

With regards to the technology/application adoption as presented in Table 3, only Company B had a sophisticated application with an Enterprise Resource Planning (ERP) and a web-based system, which is considered reasonable when looking at the budget allocated for systems and technology. This is due to the fact that Company B was a medium-sized company as compared to the other two companies. More budgets were allocated for more sophisticated IT/IS. For Company C, less budget were allocated for a specific IT/IS may be due to financial constraint.

With regards to IS planning, all companies do not seem to have a formal strategic IS planning. But, these companies had their own expectations and objectives about how IS could assist them in their business operations. However, Company B has a rigour objective as compared to Company A and C. As expected, the top management championed the IS planning process in all three participating companies. However, the position of the top management is different between these three companies.

The interview led researchers to the primary thematic focus of the study, namely, (i) a description of top management roles in IS planning activities, (ii) identifying the roles of IS users on IS planning, and (iii) identifying the factors affecting top management commitment and user involvement. The researchers personally conducted the interview sessions, which were digitally recorded. The researchers listened to the recordings and then transcribed them. The

analysis of qualitative data was processed based on Erlandson et al. [22]. The data were divided into units so that each unit corresponded to an individual concept. Then, the researcher assigned meaningful codes to data units one by one.

Table 3. IS adoption profile of the companies

	Company A	Company B	Company C
Technology/Information Systems adopted	Computerised accounting system	ERP, call centre system, web-based ordering and receiving order	Computerised accounting system
IS Budget	Not specified	Less than RM100,000	Less than RM10,000
Objective of IS Planning	Depend on the criticality of the business process	Compete on the online market	Need of the business to prepare a full set of accounts and to fulfil the Goods and Services Tax (GST) requirements as enforced by the Government, apart from limited functions available in earlier accounting system
IS Planning champion	Owner	IT/IS manager	Directors

4. Findings and Discussion

The interview session provided ample opportunities for the researchers to gather detailed descriptions with respect to the roles of top management and the involvement of users in IS-planning activities. In addition, further inquiries revealed factors leading to the roles of top management and users in IS-planning activities of the respective firms. This section elaborates in greater detail the roles played by top management and users as well as factors affecting their commitment or involvement as obtained from the series of interviews conducted on all the case firms identified in this study.

4.1 Roles of top management

As the interview results revealed, the role of top management was not limited only to that of a decision maker, but also as a researcher when strategic IS-planning activities are concerned. All decisions with regards to the organization were made by the top management [53]. This includes the decision for acquiring the technology, as one respondent noted:

“The most important is (that) I’m the one who makes the decision... Of course, I get the help from the account’s executives. We discussed. I need to use a system to prepare a budget. I don’t know (how to do it). So, they need to assist me. I do not know how to prepare the paperwork. I only have ideas.” (Owner, Male, 51 years old, Company A, Manufacturing Industry).

The respondent from Company C added that directors did not simply take the words of the employee. One director consulted with the company’s auditor on which system they should invest in. Additionally, he also asked the opinions of his business friends. He wanted to make sure that the new accounting system was easy, simple, and, most importantly, received first-hand support from supplier. An account executive from Company C talked about the process. She said:

“However, the directors will not decide immediately. He contacted his auditor first, then his business friends in the same industry. He wanted to get second and third opinions. After that, he investigated the suppliers. What important is the system is easy, simple, and has support service. Meaning that, there is direct support team from the supplier whenever we encounter problems with the system. I can see that the directors are very committed in this process. What I can conclude is that, we analyzed the current system, surveyed what was

available in the market, identified one that is suitable with the nature of the business and can handle GST, obtained others' opinions and investigated the suppliers." (Account Executive, Female, 36 years old, Company C, Food and Beverage).

While Company A top management only sought advice from employees to prepare the working paper [53], Company C's directors sought the opinions of the expert users such as the supervisor, the account executive, the company's auditor and users from other companies when it comes to issues related to acquiring new IS. A respondent from Company C remarked that:

"It is impossible for the director to make his own decision on acquiring new accounting system. He did not use the system, so he does not know what is needed. I am the heavy user of the system, and I know what is best for the business." (Account Executive, Female, 36 years old, Company C, Food and Beverage).

In contrast to the other two firms, CEO of Company B was not directly involved in the SISP process. Instead, he provided his opinion about whether to proceed with the development or not. Holding the role as a middle person between the top management and the development teams, The IT/IS manager sought advice from the top management. She mentioned that,

"Normally, for our company, I will meet my CEO, basically once a month when we have a meeting for monthly task update. I will update him the status of the key projects, which are in progress. So, he won't be involved in the project. I just give him a summary to get what he says about the status. For some projects, if I can't make decision by myself, I will seek his opinion. I ask him first if we shall go for this." (IS/IT Manager, Female, 37 years old, Company B, Printing Service Company).

As the interview further revealed, top management also acts as a researcher in the IS planning process. In this context, the top management is responsible for seeking information related to the proposed system. To illustrate, the owner of Company A stated that he studied the proposed technology including a site visit to the supplier's office [53]. Taking such role puts less reliance on his employees to supply this information. As he asserted,

"Ooo.... They do not know either [about the technology].... Most of my employees, they only know about their daily tasks. I am the one who needs to know everything." (Owner, Male, 51 years old, Company A, Manufacturing Industry).

The IT/IS manager of Company B requested for demo from suppliers and consulted their business friends. She stated that,

"Normally we request for demo. After the demo, we say that give us one month to test. We also seek information from the people that working in the same areas as us. In my company, we have this kind of projects, how about your company?" (IS/IT Manager, Female, 37 years old, Company B, Printing Service Company).

In addition, a respondent from Company C surveyed the system online and consulted with the company's auditor and business friends. He also investigated the supplier. The respondent stated that:

"The director checks the supplier too...to confirm whether the supplier can provide after sales services...whether the supplier is scammer or not... He checks whether his business friends use the same supplier..., if so, maybe he will follow them. Maybe." (Account Executive, Female, 36, Company, F&B Industry).

The above findings can be summarized in Table 4.

Table 4. Roles of Top Management as Decision Maker and Researcher

	Company A	Company B	Company C
Decision maker			
Decision to acquire new technology/IS	Owner was involved directly	CEO was involved indirectly	Director was involved directly
Researcher			
Investment in new technology/IS	Study the proposed technology thoroughly	Request for demo from suppliers and consult their business friends	Survey the system online and consult the company's auditor and business friends

Based on the information in Table 4, it can be concluded that the owner or director of Company A and C were directly involved in making decision to acquire new IT/IS but the CEO of Company B was not directly involved. IT/IS manager was given the responsibility to take the necessary actions but the ultimate decision was in the hand of CEO. Furthermore, all the owner, director, and IT/IS manager of Company A, C and B acted as a researcher in justifying the investment in new IT/IS but in different ways.

In sum, the findings suggest that, apart from having a significant role as key decision maker, the top management plays the role of researcher in the strategic IS-planning process. Specifically, other than having an authority to make final decision on the proposed system project, the top management takes further initiative to obtain relevant information for the proposed systems rather than merely relying on the employees to supply the information. The top management seeks information from various parties including employees, executives, other business owners as well as the system vendors.

4.2 Roles of users

In most instances, users are actively involved by merely providing input for IS planning processes. As user from Company B highlighted:

“The business unit manager will be involved during the planning stage. After we studied their problems, we present to them what are the pros and cons of the system. They will give their opinions in the decision-making meeting.” (IS/IT Manager, Female, 37 years old, Company B, Printing Service Company).

The user from Company C further added, although the users may be able to influence the directors, they do not have solid authority to make decisions on behalf of the company. As the respondent suggests,

“At the end, the director will make his own decision. We can provide inputs only. Whether he wants to follow us or not, it is up to him.” (Account Executive, Female, 36, Company C, F&B Industry).

From the beginning of the SISP process, the users play a significant role in describing the users' requirements for a proposed new system to the top management or directors. The users surveyed the market and identified systems that are suitable for the nature of the business and have a long-life span. When asked whether the inputs from users are important, one respondent replied:

“Of course! The input from the users is very important and should be considered. We are the ones who know about the system because we use it daily. And we are the ones who need the system. If we are not comfortable with the system, it will be difficult later on.” (Account Executive, Female, 36, Company C, F&B Industry).

She further added that user's roles are very important and may influence the top management decision making. She said:

"I told the director about the weaknesses of X accounting system, and he listened. From my information, we changed to Y accounting system." (Account Executive, Female, 36, Company C, F&B Industry).

The users also provided inputs during the planning process to make sure that the applications acquired can assist them in performing their daily tasks. One user explained,

"At the beginning stage, I believed they involved certain groups of people who are directly involve with the system. Definitely, they will go to the users and come out with a discussion first and meet up to understand the requirements and then only develop. We will discuss before everything is started." (HR Manager, Female, Company B, Printing Service Company).

Nevertheless, the results demonstrate that, for some firms, the roles of users in the strategic IS-planning process were not only limited to providing inputs for decision making. To some extent, the users also acted as a decision maker [53]. However, the authority to make the ultimate decision was restricted to those whom the applications were highly related to their routine tasks. For example, in Company A, the Accounts Manager decided upon the application to be used in the accounting department. The owner stated that,

"For example, the accounts department, they will make their own decision. I do not know about their applications... The HR manager refused to use any applications for her department, so I said ok... They know better about their department." (Owner, Male, 51 years old, Company A, Manufacturing Industry).

Further, when respondents were asked about who made the decision on the applications to be used in their departments, one of the users asserted, "We make our own decision" [53] (Accounts Executive, Female, 60 years old, Company A, Manufacturing Industry).

In sum, as the findings suggest, even though employees play most crucial roles as an input provider in strategic IS-planning process, certain users are being empowered to make decisions, particularly on the aspects that are related to their responsibility and daily routine activities. It can be summarized that users of both companies acted as input provider and researcher but in different ways as shown in Table 5.

Table 5. Roles of User as Input Provider and Researcher

	Company A	Company B	Company C
Input Provider			
IS planning process	Not available	Discussion about the problems with the current system and the requirements for new system with IT/IS manager and development team	Discussion related to the weaknesses of the current systems and the needs for proposed system with director
Researcher			
Investment in new IT/IS	Not available	Prepare return of investment for a proposed system	Survey the market and identify suitable systems

As a conclusion, both the top management and users act not only as a decision maker but also as a researcher in the strategic IS planning process. Unlike the top management that makes the ultimate decision on the new systems or technology, employees are seen to make decisions specific to their own tasks. Both top management and users in the SMEs also studied and surveyed the systems and technology before they actually acquired them. Such study conducted ranged from searching on the Internet to asking for advice from business industry associates and company's auditors.

5. Discussion and implication of the study

The deployment of IT/IS is getting more essential in today’s business to facilitate the supply of timely and accurate information in support of business decision making. Regardless of the increased interest towards IT/IS in business, SMEs relatively lag behind with respect to their larger counterparts as firms embrace constant challenges to effectively deploy IT/IS. However, SMEs have not optimized IT/IS strategic values. Hence, more effective IS planning deserves further investigation to promote more effective IT/IS management of these firms. More importantly, the unique nature of SMEs means that top management commitment and user involvement in IS-planning activities should be expected to be somewhat different than those of larger organizations. Therefore, this study examined the top management commitment and user involvement in the IS planning practices of three selected SMEs that are operating in three different industries, namely, manufacturing, food and beverages, and printing.

Figure 2 synthesizes the results obtained from this study. Overall, the figure shows the different roles played by top management and users, factors affecting the top management commitment, and user participation.

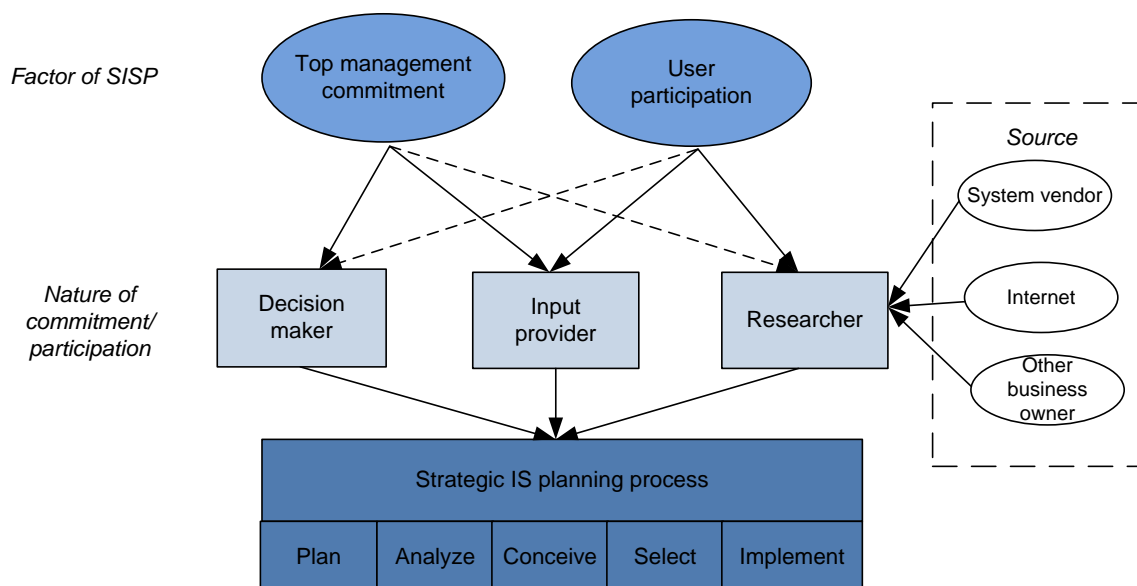


Figure 2: Roles of top management and user in SMEs strategic IS planning process

Note: Dotted line indicates indirect roles while straight line suggests direct roles played by top management and user participation

The importance of top management in strategic IS planning has been highlighted in some studies. Raja Mohd Ali [30], in a study of top management and users in an education industry, found that top management contributes to IS planning in many ways such as being a knowledge provider regarding the business environment, a resources provider, and a decision maker. In contrast, this study suggests that, in the context of SMEs, top management not only acts as a decision maker, but also as a researcher by collecting and gathering relevant information regarding the systems or technology that a business wants to acquire. In other words, rather than restricting themselves as a decision maker and resource provider, top management of the SMEs tend to actively involved in multiple roles at various stages of IS planning. This corresponds to the claim that the involvement of the owner in all aspects of the business is due to the unique nature of SMEs with respect to the size and the more active roles of the top management [25]. Comparing the results of this study

with those studies involving larger organizations, the top management not only makes decisions on what technology or IS that their organization needs to acquire, but also involves in the process before the actual decision can be made. This prior process is collecting and gathering as much information as possible about the IS and technology that could help the organization to achieve its business objectives. As SMEs have limited financial resources, especially with regards to technology, the top management must be very selective in acquiring the technology to ensure a maximum return on investment.

Similarly, as the result indicates, the roles of users in the strategic IS planning process is not limited to only providing inputs, but, to some extent, the users also act as a decision maker. The result of this study is somewhat inconsistent with those of Raja Mohd Ali [30], whose works are discussed above. Her study found that the users play some roles namely, input provider, feedback provider and system user but not as a decision maker. This present study, however, found that users are empowered to make a decision, particularly for decisions to acquire the systems or technology that are highly related to their routine tasks. In such cases, the users have a better grasp of the system functionalities that correspond best to the requirements for performing their tasks. As has been stated in an earlier section of this paper, SMEs are unique compared to larger organizations in terms of its operation, resource limitations and decision-making power. In most cases, only a few people are attached to functional departments such as sales and accounts. Therefore, these employees would have vast knowledge and experience about their work and related needs. As a result, the assumption is that they are the most suitable people to make decisions about what technology or application to acquire or whether to acquire a new technology or information system. More importantly, one metric for IS planning success is that a system or technology is useful and able to assist a firm in achieving its intended business objectives.

More interestingly, one of the case companies in this study was a medium-sized firm with relatively larger number of employees. As the firm is getting larger in size, the focus of its' IS planning shifts from operational-oriented (or quick-fix of the emerging problem) to a more long-term focused and a more strategic in nature [25]. The comparison across small and medium-sized firms involved in this case study clearly indicates that while small firms are primarily concern on using IT to enhance efficiency and effectiveness of the existing operation or meeting the urgent demand of the current business needs, medium-sized firm (in this case - Company B), spells out long-term benefits of IT investment as its primary objective i.e. sustaining firm's competitiveness and retaining market share. This result corresponds well with [23] on the practice of IS planning in a medium-sized manufacturing-based SME. Also, there is somewhat varying roles played by top management of those small firms in relative to the medium firm. The top management of small firms involves directly with the decision making and research activities prior to the system acquisition. Meanwhile, the top management of medium firm indirectly involved in the planning activities and seems to empower the responsibility to their subordinates or specific department. With regards to the user involvement, both small and medium firms do indicate direct user involvement in the IS planning process via discussion with the top management. Considering the fact that medium-sized firms are comparatively having greater manpower and resources than smaller firms, therefore, empowerment by the top management becomes possible. Hence, the roles of top management in the IS planning process reduced considerably while at the same time maintain its authority as a decision maker. In another respect, smaller firms hardly reported to have setup separate IS function to oversee IS-related activities [42]. Hence, as the findings further suggest, the medium-sized firm put greater reliance on the IS manager in managing the ERP project as compared to other smaller firms. To compensate the limitation of not having separate IT division, the smaller firms, therefore have demonstrated greater top management in most parts of the IS planning activities, particularly as the role as researcher. Nevertheless, the roles played by users in both small and medium-sized firms are relatively similar but is more specific in nature.

Figure 2 further highlights three common sources of information for both top management and users while carrying out research on a proposed system. In this study, the decision for acquiring a new technology or systems was made with the assistance from subordinates and other business owners or through their own research via the Internet source without the support of IS expertise or IT consultants. This is consistent with Mohammed and Nzelibe [54] who stated that one characteristic associated with SMEs firms is that the top management participates actively in the decision-making process and day-to-day operation of the firm with little or no adequate specialist support. The result could not agree further with Néal's [46] observation; in contrast to large organizations that usually subscribe to the specialized paid

research service in setting up their IS planning (which involve financial cost), SMEs tend to favor available resources (in this case through his/her own research and reading activities) or at least opted for a more affordable advice such as the accounting firms or IT consulting firm around them.

Table 6 highlights the factors affecting top management commitment in the strategic IS planning process. These include owner's knowledge of the new technology, a sense of ownership and information accuracy. Raja Mohd Ali's [30] study highlighted a consistent result about the owner's knowledge. However, the results of her study based on large organizations is not limited to knowledge about a new technology only, but also knowledge about the environment and the future of the studied organization. With regards to the sense of ownership factor, this might be because the SMEs are normally owned by families and co-operative partners who would have a high sense of belonging to the firms. Apart from that, top management has full responsibility to ensure the survival of the firm and thus need to provide its full commitment to a decision made on an IT-related investment.

Table 6: Factors affecting top management and users to participate in SISP process

Factors affecting	Top management	Users
Knowledge	X	X
Ownership	X	
Information accuracy	X	
Compulsion		X

Similarly, one factor affecting user involvement in the strategic IS planning process is employee's knowledge. This is consistent with Raja Mohd Ali's [30] study who found that the users participate in the strategic IS planning process due to, among other reasons, their knowledge about their tasks. One of her respondents highlighted that the users have knowledge about their work-related tasks, so they will provide sound information about future IS. In the same study, the element of compulsion also was found to be one of the factors explaining user participation. In a similar vein, Bruque and Moyano [55], in their qualitative study on identifying the factors behind the intensity and speed of adoption of information technology in SMEs, reported that the participation of the member-workers (employees) was seen as important in the decision-making process regarding innovation in technology. Some respondents in their study felt that the ownership, management and workers was important in the introduction of technological innovations.

The aim of the study was to investigate the practice of IS planning by Malaysian SMEs, with a particular focus on the role of top management and user involvement. The results lead to implications that can be viewed from theoretical and practical perspectives. The results of the study contribute further to the body of knowledge by demonstrating the roles of top management and users in the strategic IS-planning process in the SME environment. While previous studies have mainly highlighted the importance of top management commitment and user participation in the strategic IS-planning process in large organizations [56],[1], this current study is among the first attempts to study the commitment of the top management and the participation of users in the strategic IS-planning process of SMEs. Furthermore, this study has highlighted how top management and users participate in the strategic IS planning process. Specifically, the study examines the roles of top management and users as decision maker, researcher and decision maker. The study further reports factors contributing to varying roles of top management and users' involvement. Despite the fact that the study has ascertained applicability of IS planning phases in the SME environment, further refinement is needed as to reflect somewhat different roles played by the top management and users involvement amongst firms in this sector. Hence, the outcomes of the study could shed some insight for researchers to further refined IS-planning phases as Newkirk et al. [28] proposed earlier by incorporating the roles of top management and users that possibly better fit with the SME context. This study has then set a starting point for further investigation.

With respect to managerial implications, the study is of relevance for top management of the SMEs. The findings could facilitate the top management to plan for more efficient and effective strategic IS planning. Hence, to slowly moving

from IS planning that is informal, operationally-oriented and short-term focused, into a more strategic IS planning approach, as to reap optimum values from IT/IS. Having considered limited resources and capabilities, this study provides understanding to the top management and users of the SMEs on the roles and responsibilities that they would have to anticipate in IS planning activities. This study, therefore, could facilitate management decision making by informing about the importance of top management commitment and the roles that users may be empowered with to ensure effective strategic IS planning activities. Owing to its inherent constraint of resources and expertise to optimize strategic IT values, more extensive collaboration with their IT consultant or vendor is very much anticipated in a way to further support the top management decision. Such move would complement the limitations (lack of IT knowledge and skills) that are inherent amongst the SMEs. In addition, partnering with IT consultant or vendor ensures more synchronized IS planning to take place within a firm [42]. Consequently, by having more establish IS planning activities could potentially facilitate the SMEs in aligning their IT investment in support of their strategic needs.

6. Conclusion

Having considered its domination of the business presence and its substantial contribution to the economic development of most countries, the Small and Medium Enterprise (SME) sector has been given exceptional governmental attention while formulating various national strategic plans. Even though SMEs usually comprise a large percentage of total established business, its contribution to national GDP and employment opportunities are relatively moderate. Hence, more efforts are expected to promote greater roles played by SMEs by extending their productivity and pushing the firms to become high-value added exporters. With globalization challenges facing them, firms must be equipped with various capabilities to survive, which include continuous innovation and technology adoption. The deployment of appropriate IT/IS facilitates firms in extending information-processing capabilities that provide firms with right information at the right time. Therefore, proper IS planning is essential to ensure that the deployment of IS/IT aligns with the strategic business needs of the firms. Considering the dominant roles of top management in most SMEs decision making, and the importance of user participation in planning activities, this study initiated an investigation of the roles of top management and users in the strategic IS planning process.

Deploying a case study approach, a series of interview sessions were conducted involving three top management and four users working at three SMEs operating in different industries (manufacturing, printing service, and food and beverage). The investigation revealed that the top management plays two important roles in the strategic IS-planning process, namely, decision maker and researcher, whilst the user plays mainly the role of an input provider. The results of the study are somewhat consistent with findings related to large organizations except for the role of top management role in SMEs as a researcher. This might be because the strategic IS planning process in larger organizations is typically conducted by a special steering committee or by consultants. This team develops the strategic IS planning and presents a report to the top management whereas, for smaller organizations, such a team will be too costly. In this study, finding information regarding new technology or information systems was the responsibility of the owner with the assistance of employees or business partners.

Despite meaningful insights, some precautions on interpreting the results of this study must be observed considering its limitations. First, this study was conducted on firms located in the northern region of Malaysia. The SME environment in the other parts of Malaysia might give a different view regarding the roles of top management and user participation and the strategic IS planning process itself. Second, the research quality depends heavily on the individual skills of the interviewer and could have been influenced by the interviewers' personal biases. Nevertheless, effort was made to minimize the possible bias by triangulating the data obtained with the interviewees. Lastly, the study involved three companies in three different industries, which limits an explanation on the results as each industry has unique dependence on the information systems and technology. Future research should include more companies in the same industries to increase the generalizability for specific industry.

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References

- [1] V. Basu, E. Hartono, A. L. Lederer and V. Sethi, "The impact of organisational commitment, senior management involvement, and team involvement on strategic information systems planning," *Information & Management*, vol. 39, pp. 513–524, 2002.
- [2] T. Bechor, S. Neumann, M. Zviran and C. Glezer, "A contingency model for estimating success of strategic information systems planning," *Information & Management*, vol. 47, no. 1, pp. 17–29, 2010.
- [3] M. J. Earl, "Experiences in strategic information systems planning," *MIS Quarterly*, pp. 1–24, 1993.
- [4] G. S. Kearns, "How the internal environment impacts information systems project success: an investigation of exploitative and explorative Firms," *Journal of Computer Information Systems*, pp. 63–75, 2007.
- [5] L. Chi, K. G. Jones, A. L. Lederer, P. Li, P., H. E. Newkirk and V. Sethi, "Environmental assessment in strategic information systems planning," *International Journal of Information Management*, vol. 25, no. 3, pp. 253–269, 2005.
- [6] G. Premkumar and W. R. King, "Organisational characteristics and information systems planning: an empirical study," *Information Systems Research*, vol. 5, no. 2, pp. 75–109, 1994.
- [7] M. T. Smits, K. G. v. d. Poel and P. M. A. Ribbers, "Assessment of information strategies in insurance companies in the Netherlands," *Journal of Strategic Information Systems*, vol. 6, pp. 129–148, 1997.
- [8] A. Garg and D. P. Goyal, "Striving towards strategic alignment in SMEs: an empirical analysis," *Journal of Advances in Management Research*, vol. 9, no. 1, pp. 77–95, 2012.
- [9] T. Fuller, "Fulfilling IT needs in small businesses: a recursive learning model," *Small Business Journal*, vol. 14, no. 4, pp. 25–45, 1996.
- [10] Z. T. Temtime, S. V. Chinyoka and J. P. W. Shunda, "Toward strategic use of IT in SMEs: a developing country perspective," *Information Management and Computer Security*, vol. 11, no. 5, pp. 230–237, 2003.
- [11] P. Schubert and U. Leimstoll, "Importance and use of information technology in small and medium-sized companies," *Electronic Markets*, vol. 17, no. 1, pp. 38–55, 2007.
- [12] J. Xiong and S. Qureshi, "Information technology for development in small and medium-sized enterprises," *Information Systems and Quantitative Analysis Faculty Proceedings & Presentations*, [Online] Available: <http://digitalcommons.unomaha.edu/isqafacproc/20>, 2015.
- [13] W. H. DeLone, "Determinants of success for computer usage in small business," *MIS Quarterly*, vol. 12, no. 1, pp. 51–61, 1988.
- [14] M. Ghobakhloo, M. Sabouri and T. Hong, "Information technology adoption in small and medium-sized enterprises; an appraisal of two decades literature," *Interdisciplinary Journal of Research in Business*, vol. 1, no. 7, pp. 53–80, 2011.
- [15] N. Nduati, K. Ombui and A. Kagiri, "Factors affecting ICT adoption in small and medium enterprises in Thika Town, Kenya," *European Journal of Business Management*, vol. 2, no. 3, pp. 395–413, 2015.

- [16] H. Teittinen, J. Pellinen and M. Järvenpää, "ERP in action—challenges and benefits for management control in SME context," *Journal of Accounting Information System*, vol. 14, no. 4, pp. 278–296, 2013.
- [17] R. Ashrafi and M. Murtaza, "Usages and effects of information and communication technologies on small and medium sized enterprises in Oman," *International Conference on Information Resources Management (CONF-IRM) 2008 Proceedings*, [Online]. Available: <http://aisel.aisnet.org/confirm2008/60>, 2008.
- [18] G. Premkumar, "A meta-analysis of research on information technology implementation in small business," *Journal of Organizational Computing and Electronic Commerce*, vol. 13, no. 2, pp. 91–121, 2003.
- [19] C. Ashurst, P. Cragg and P. Herring, "The role of IT competencies in gaining value from e-business: an SME case study," *International Small Business Journal*, vol. 30, no. 6, pp. 640–658, 2011.
- [20] H. O. Awa, S. C. Eze, J. E. Urieto and B. J. Inyang, "Upper Echelon Theory (UET): A major determinant of information technology (IT) adoption by SMEs in Nigeria," *Journal of Systems and Information Technology*, vol. 13, no. 2, pp. 144–162, 2011.
- [21] L. Raymond, A. M. Croteau and F. Bergeron, "The strategic role of IT: an empirical study of its impact on IT performance in manufacturing SMEs," *International Journal on Advances in Systems and Measurements*, vol. 4, no. 3–4, pp. 203–211, 2011.
- [22] D. A. Erlandson, E. L. Harris, B. L. Skipper and S. D. Allen, "Doing naturalistic inquiry: a guide to methods," California, Sage publications, 1993.
- [23] H. Haron, Z. N. Zolkarnain and S. Md. Sabri, "A situational analysis of strategic information system planning in the context of a Malaysian SME," In *3rd International Conference on Research and Innovation in Information Systems – 2013 (ICRIIS'13)*, Kajang, Selangor, Malaysia, 2013.
- [24] C. Hagmann and C. McCahon, "Strategic information systems and competitiveness," *Information and Management*, vol. 25, pp. 183–192, 1996.
- [25] M. Levy and P. Powell, "Information systems strategy for small and medium sized enterprise: an organisational perspective," *Journal of Strategic Information Systems*, vol. 6, pp. 63–84, 2000.
- [26] P. Cragg, A. Mills and T. Suraweera, "Understanding IT management in SMEs," *The Electronic Journal Information Systems Evaluation*, vol. 13, pp. 27–34, 2010.
- [27] S. Blili and L. Raymond, "Information technology: Threats and opportunities for small and medium-sized enterprises," *International Journal of Information Management*, vol. 13, pp. 439–448, 1993.
- [28] H. E. Newkirk, A. L. Lederer and A. M. Johnson, "Rapid business and IT change: drivers for strategic information systems planning," *European Journal of Information Systems*, vol. 17, pp. 198–218, 2008.
- [29] A. L. Lederer and H. Salmela, "Toward a theory of strategic information systems planning," *Journal of Strategic Information Systems*, vol. 5, pp. 237–253, 1996.
- [30] R. H. Raja Mohd Ali, "The impact of culture on strategic information systems planning," PhD. dissertation, Department of Management, Massey University, Palmerston North, New Zealand, 2016.
- [31] G. Mentzas, "Implementing an IS strategy- a team approach," *Long Range Planning*, vol. 30, no. 1, pp. 84–95, 1997.
- [32] A. Cassidy, "A Practical Guide to Information Systems Strategic Planning," Auerbach Publications. NW: Taylor & Francis Group, 2006.

- [33] P. Parviainen, M. Tihinen, J. Kaariainen and S. Teppola, "Tackling the digitalization challenge: how to benefit from digitalization in practice," *International Journal of Information Systems and Project Management*, vol. 5, no. 1, pp. 63–77, 2017.
- [34] S. P. Williams, V. Hausmann, C. A. Hardy and P. Schubert, "Managing enterprise information: meeting performance and conformance objectives in a changing information environment," *International Journal of Information Systems and Project Management*, vol. 2, no. 4, pp. 5–36, 2014.
- [35] World Trade Organization, "World Trade Report 2016: Levelling the trading field for SMEs," WTO Publications: Switzerland, 2016.
- [36] M. Azam and M. Quaddus, "Examining the influence of national culture on adoption and use of information and communication technology: A study from Bangladesh's SME perspective," *The International Technology Management Review*, vol. 3, no. 2, pp. 116–126, 2013.
- [37] Asia Pacific Economic Cooperation [APEC], "Study on SMEs internationalisation best practices across selected APEC economies," Spring Singapore: Singapore. [Online]. Available: <http://www.apec.org>, 2011.
- [38] V. Kotelnikov, "Small and medium enterprises and ICT," Bangkok, Thailand: UNDP Asia-Pacific Development Information Programme. [Online] Available: <http://www.apdip.net/news/sme>, 2007.
- [39] World Association for SMEs [WASME], "Annual report for 2004 – 2006," WASME: Uttar Pradesh, India. [Online]. Available: <http://www.wasmeinfo.org>, 2006.
- [40] I. Irefin and I. Abdul-Azeez, "An investigative study of the factors affecting the adoption of information and communication technology in small and medium scale enterprises in Nigeria," *Australian Journal of Business and Management Research*, vol. 2, no. 2, pp. 1–9, 2012.
- [41] J. Hashim, "Information communication technology (ICT) adoption among SME owners in Malaysia," *International Journal of Business and Information*, vol. 2, no. 2, pp. 221–240, 2015.
- [42] A. Gutierrez, J. Orozco and A. Serrano, "Factors affecting IT and business alignment: A comparative study in SMEs and large organisations," *Journal of Enterprise Information Management*, vol. 22, pp. 197–211, 2009.
- [43] P. B. Cragg, M. King and H. Hussin, "IT alignment and firm performance in small manufacturing firms," *Journal of Strategic Information Systems*, vol. 11, pp. 109–132, 2002.
- [44] N. A. Ismail and M. King, M., "Factors influencing the alignment of accounting information systems in small and medium sized Malaysian manufacturing firms," *Journal of Information Systems and Small Business*, vol. 1, no. 1–2, pp. 1–20, 2007.
- [45] C. A. Chao and A. Chandra, "Impact of owner's knowledge of information technology (IT) on strategic alignment and IT adoption in US small firms," *Journal of Small Business and Enterprise Development*, vol. 19, no. 1, pp. 114–131, 2012.
- [46] C. L. Néal, "IT strategic planning for SMEs – white paper," Chartered Professional Accountants Canada, 2010.
- [47] M. Levy and P. Powell, "SME flexibility and the role of information systems," *Small Business Economics*, vol. 11, no. 2, pp. 183–196, 1998.
- [48] B. J. Hicks, S. J. Culley and C. A. McMahon, "A study of issues relating to information management across engineering SMEs," *International Journal of Information Management*, vol. 26, pp. 267–289, 2006.
- [49] D. A. Mirchandani and A. L. Lederer, "Less in More: Information systems planning in an uncertain environment," *Journal of Information Systems Management*, vol. 29, no. 1, pp. 13–25, 2012.

- [50] M. Kamariotou and F. Kitsios, "An empirical evaluation of strategic information systems planning phases in SMEs: determinants of effectiveness," Paper presented at 6th International Symposium and 28th National Conference on Operation Research, pp. 67–72, 2017.
- [51] K. Siakas, M. Naaranoja, S. Vlachakis and E. Siakas, "Family businesses in the new economy: how to survive and develop in times of financial crisis," *Procedia Economics and Finance*, vol. 9, pp. 331–341, 2014.
- [52] A. Garg, D. P. Goyal and A. S. Lather, "Information systems success factors in software SMEs: a research agenda," *International Journal of Business Information Systems*, vol. 3, no. 4, pp. 410–430, 2008.
- [53] R. H. Raja Mohd Ali, R. Mohamad, Y. Y. Abdul Talib, and A. Abdullah, "Strategic IS planning practices: a case of medium manufacturing company in Malaysia," in *The 17th Annual Conference of the Asian Academic Accounting Association*, Kuching, Sarawak, Malaysia, 2016.
- [54] U. D. Mohammed and C. G. Obeleagu-Nzelibe, "Entrepreneurial skills and profitability of small and medium enterprises (SMEs): resource acquisition strategies for new ventures in Nigeria," *Proceedings of 25th International Business Research Conference, South Africa*, [Online]. Available: https://wbiworldconpro.com/uploads/south-africa-2014/management/1389072800_417-Mohammed.pdf, 2014.
- [55] S. Bruque and J. Moyano, "Organisational determinants of information technology adoption and implementation in SMEs: the case of family and cooperative firms," *Technovation*, vol. 2, no. 5, pp. 241–253, 2007.
- [56] R. H. Raja Mohd Ali and R. Mohamad, "Strategic information system (IS) planning practices among small and medium enterprises in Malaysia," Research Report submitted to Research Innovation and Management Centre, Universiti Utara Malaysia, Malaysia, 2014.

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