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Developing a Profile of Small-Medium Companies in Leveraging IT for Sustainable Competitiveness

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Abstract. As outlined in Malaysia Economic Transformation Program (ETP), business sector is expected to play crucial role to harness the potential of globalization and to escalate national economic growth. Considering its domination over 98% of total established businesses, SME sector become essential to drive the government's agenda. Apart from human resource, financing, innovativeness, and legal environment, availability of timely and relevant information in support of business's decision making is highly crucial for ensuring its competitiveness. Accessibility to the relevant information helps firms to lower their operating cost, to effectively manage available resources and ultimately to improve overall productivity. Information Technology/Information Systems (IT/IS) has been recognized as one of the potential means to supply information for timely business decision making. Despite growing importance of IT/IS for firm's competitiveness, SMEs embrace constant challenges to deploy IT/IS effectively and thus hardly to optimize its strategic values. Consequently, IS planning is getting paramount to promote effective management of IT/IS within SME sector. Thus, this study proposes a study that investigates the current state of IS planning practices and the factors affecting the IS Planning success among Malaysian SMEs. Adapting IS planning framework of large organizations, this study proposes IS planning framework that is applicable for SMEs environment. The developed framework could facilitate SMEs to effectively manage IS planning as to ensure greater strategic benefits of IT/IS deployment.

1. Introduction

Economic Transformation Program has been proposed (ETP) as one of the national agenda to elevate Malaysian economy into developed-nation status as well as to realize high-income nation. To realize the high-income nation aspiration, ability of business sector to compete at global platform emerges as one of the key success factors. Consequently, Malaysian businesses play substantial roles to enhance their productivity and innovativeness. As such, efficient use of available resources should not be side-lined in promoting more productive business environment.

In view of its domination of total registered businesses Small Medium Enterprises (SME) sector has been taken into account in formulating various national strategic plans. The sector becomes one of the key enablers in promoting economic growth as formulated in 11th Malaysia Plan (11MP) and New Economic Model 2010 (NEM 2010). Specifically, 11MP aims to nurture the SMEs as engine of growth and innovation via several strategies; (i) regulatory cost reduction, (ii) capability building,

(iii) nurturing entrepreneurial culture, (iv) extending SMEs support systems, and (v) enhancing access to financing (EPU, 2010). SMEs are also expected to play more active roles in promoting Malaysian business presence at global platform. This corresponds well to the SME Master Plan that aims to mold globally competitive SMEs across all sectors. Moreover, expanding operation into global market is vital considering a stiff competition among businesses in securing domestic market opportunities. Thus, SMEs are expected to strengthen their capabilities and capacities to embrace globalization and liberalization challenges. The SMEs need to be highly competitive and innovative to be able to become part of the global supply chain and to collaborate with giant business entities worldwide.

Nevertheless, SMEs penetration into global competition has been relatively low as indicated by its export contribution. Despite its substantial contribution to the national GDP (36.3%) as well as employment opportunities (57%), more effort needed to promote greater roles of SMEs with respect to their productivity and of becoming high-value added exporters. As reported, Malaysian businesses are currently stuck in the middle and hardly move up to 'high value-added exporters' category as they relatively not ready to embrace global competition.

At present, only 49 SMEs companies are considered as successful exporters in Malaysia. This number is still relatively low as compared to the total numbers of SMEs in Malaysia. Furthermore, a total of 550 SMEs companies were awarded as top firms according to E50. These firms were among the four and five-star ranked firms as indexed by SME Competitiveness Rating for Enhancement (SCORE). SCORE is a diagnostic tool used to rate and enhance competitiveness of SMEs based on seven assessment criteria such as financial strength, business performance, human resource, technology acquisition and adoption, certification and market presence. One of the purposes is to assist the SME Corp Malaysia on improving the capacity building of 3-Star companies and below.

Facing globalization challenges require firms to be equipped with various capabilities. As outlined in SME Master Plan, six major factors deserve special attention to enhance SME competitiveness at global arena. These include human capital development, access to financing, market access, legal and regulatory requirement, infrastructure as well as innovation and technology adoption [1]. To remain highly competitive and survive in their respective industry, SME is under great pressures to respond quickly to the changes surrounding their business. In other words, availability of right information at the right time is vital as to ensure firms to make accurate and timely decision. Thus, deployment of appropriate IT/IS would facilitate firms with right information at the right time. In response, SMEs now depends more on IS to enhance their business effectiveness [2, 3].

Deployment of IT/IS enables provision of both financial and non-financial information for decision support. Consequently, availability of relevant and accurate information on timely manner would enable firm to reduce operating cost, to effectively utilize available resources, to execute strategic plans and ultimately to improve its overall productivity. Thus, promoting extensive IT/IS deployment among firms is in line with government effort in molding globally competitive SME across industries as outlined in SME Development Plan [1]. Despite progress on IS deployment among SMEs, the firms use of IS are relatively non-strategic in nature. The focus is mainly to support operational business instead to support firm's strategic objective. In turn, firms gain limited values out of the IT/IS-related investment. A global study conducted by KPMG and ACCA involving 2,600 finance professionals from 129 countries including Malaysia found that companies are not leveraging technology to drive profitability. The study also highlighted the challenges of four main areas that these companies are facing: organisation structure, operating model, quality of data, and use of technology.

Thus, to ensure successful deployment of IT/IS so as to correspond to the firm's strategic direction and ultimately preparing more competitive SME, proper IS planning deserves further attention. Information systems planning (IS planning) is a process of identifying an organization's portfolio of computer-based applications and technologies that could help the organization's in executing their business plans and achieving their business objectives [4]. Many studies have highlighted the importance of IS planning [5]. IS planning assists the organization in selecting the most suitable databases and systems that could support their operations and identifying the current and future applications. The dependency of business towards the IS practices in the organisation's daily operations requires them to focus more on the IS planning that aims to achieve closer alignment between IS (and the business processes that rely on them) and the organisations strategic goals, resulting in gaining competitive advantage from information technology [6].

Specifically, IT/IS deployment is more widespread for finance, accounting, and inventory management [7]. On other respect, the lack of competent IT experts has make firm to outsource their IS related projects [2]. With limited resources available, strategic IS planning becomes even more crucial for the firms. Ashurst, Cragg and Herring [8] also suggest that high level of internal competencies such as IT leadership by the owner or the top management of the firm are particularly important for progressive IT development to take place in SMEs. Taking into account dominant roles of top management in most of the SMEs decision making, therefore their active involvement in IT/IS related project promotes better planning process which ultimately ensures successful use of IT/IS. In similar vein, taking into consideration the need to ensure IT/IS corresponds well to users requirement, their involvement in any IS planning activities do have considerable impact towards successful IS planning processes [9]. Considering the emerging importance of IS in one hand, and firm challenges to embrace IS effectively on the other, it is critically important to understand the IS leveraging in the SME firms. Generally, this study aims to develop a profile of the IS leveraging among firms with different level of competitiveness.

2. Literature Review

2.1. IS practices amongst Small and Medium-sized Enterprises (SMEs)

SMEs contribute substantially to both 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 [10]. As they are generally domestic-oriented business, thus their trading activities would have direct impacts to a nation's economy [11]. Considering its vital roles in both developed and developing economies, many international agencies such as the United Nation (UN), World Intellectual Property Organisation (WIPO), and Organisation for Economic Cooperation and Development (OECD) come into play to facilitate firms to have a meaningful role in the economic system worldwide.

The 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 [12]. The report further shows that out of 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 entrepreneurial health and competitiveness of a particular country.

Owing to the salient role of SMEs for most nations' economy, the government has initiated various strategies and incentives to extend their efficiency and productivity. Deployment of appropriate IT/IS is one of the possible strategies for such purpose [11]. Nowadays, IT/IS has made it presence in all kinds of businesses of all sizes and has a significant bearing in extending business productivity. Ideally, a firm would receive considerable benefits of deploying IT/IS. IT/IS facilitates

firms in managing administrative tasks, enhancing production activities, and expanding product/service market [10]. It further enables rapid innovation activities and levels the playing field with their larger counterpart [13]. However, in Malaysia, the ICT usage in business operation among SMEs is only 27%, and 67% of internet usage.

Due to the overwhelming claims of IT/IS potentials, SMEs has been the subject of many studies over the years. Previous works concentrate on several aspects of IS practices. Earlier works are primarily concerned on drivers/inhibitors of IS adoption [14], intensity of IS deployment [7,15]. Several other works have also examined IS sophistication [16], IT/IS success factors [17. 18]. However, quite a handful of these studies have investigated on IS strategic-related issues. For example, Levy & Powell [19] explored current state of IS alignment in SMEs sector and reported that lack of alignment leads to firms failure to benefit from IS investment. Similarly, Cragg, King & Hussin [20] suggested that appropriate IS alignment with SMEs business strategy ensures greater IS success and firm performance. Meanwhile, Ismail & King [21] reaffirms the essence of IS alignment within a specific business function (accounting information system) to successful deployment of IS.

2.2. Overview of Malaysian SMEs

In Malaysia, SMEs is a seedbed to the Malaysian economy, as this sector constitutes virtually the entire business community. They are an important generator of the national economy and social harmony as they account for more than 99% of the established businesses [1]. Micro firms dominate more than 79% of the Malaysian registered business.

Malaysian firms have the greatest presence in the service sector, accounting for 87% of the total established businesses. Meanwhile, the remaining firms involve either in manufacturing or in agriculture business. The service-based firms make most presence in wholesale and retailing businesses. Pertaining to business nature, manufacturing-based firms involve predominantly in textile/apparel and food/beverage subsectors. Overall, the sector contributes about 40% of the nation's GDP and employment opportunities [1]. Consistent with initiatives by the SMEs' institutions worldwide, the Malaysian government is constantly finding ways to extend productivity of the SMEs. As such, the government has initiated various programs and allocated substantial resources to expand SMEs capabilities. The efforts pay particular attention on several core aspects like technology deployment, skills development, global presence, and entrepreneurship talent [22]. Agencies such as Multimedia Development Corporation (MDeC), SME Corporation (SME Corp), National SME Development Council, Malaysia External Trade Development Corporation (MATRADE), and Malaysian Ministry of International Trade and Industry (MITI) then spearhead the implementation of all government approved policies and strategies involving the SMEs.

Constant government's efforts progressively shaped Malaysian firms to embrace IT/IS. Malaysia has shown positive initiatives in promoting IS with respect to regulatory assurance, infrastructure, business climate, and business usage [23]. The Internet penetration has risen slightly from about 48% in 2005 to 53% of the total population in 2010 while broadband is getting more commonplace [24]. The domain name registrations have also surged substantially about 28% from 91,000 in 2009 to 127,000 in 2011 [25]. These are indeed strong signals for the growing acceptance among firms in term of IS in general and Internet-based applications, in particular. Despite the extensive government initiatives, findings from several studies reveal that IS usage is not well received by the SMEs. Most of Malaysian SMEs keep their traditional ways of operating their businesses while IS deployment is somewhat limited [26]. The IS use is relatively more commonplace for supporting informational-related tasks while online transactions are relatively rare in most firms [27]. Various barriers have been attributed for the slow progress of IS acceptance among SMEs.

Factors such as top management support and limited knowledge are among highly cited reasons [28]. SMEs also have inadequate IT infrastructures and technical support to ensure successful deployment of IS [29]. Other barriers such as perceived benefits [27], security, and trust issues have certain roles in promoting IS use amongst SMEs [30]. Ismail and King [21] noted that lack of alignment between IS capabilities and firm's information requirement do also contribute to effective use of IS among firms. More recently, Hussin and Suhaimi [31] found that major proportions of Malaysian SMEs are still struggling to align IS with their strategic objectives and thus limiting the benefits from such investment.

In view of the importance of IS on firm's operation especially for SMEs, adequate IS planning is necessary to ensure its effectiveness in supporting the business strategic objectives. However, limited studies have been conducted on assessing strategic IS issues amongst SMEs. Therefore, the SISP study focusing on SMEs context is greatly needed to establish further understanding of SISP success from industry level perspective. Industry level strategies such as SME sector constantly change over time which therefore demands for investigation at industrial level perspective [34].

3. Methodology

In line with the proposed study objective, data for this research will be collected in two stages, namely questionnaire survey and face to face interview. The questionnaire survey collects data that corresponds the first objective of the study. This study defines SME based on the National SME Development Councils guideline. In view of the study objective that attempts to examine how firms leverage IT for sustainable future, this study focuses on the firms which have been assessed under SME Competitiveness Rating for Enhancement (SCORE) index. SCORE index is an instrument developed to assess firm level of competitiveness. A self-administered questionnaire will be mailed to selected firms as to be identified from the list of firms registered under the SCORE index. The targeted respondent is firm's owner or any related manager whom is expected to have sufficient knowledge about the firm's strategy and IT deployment.

The questionnaire consists of four major parts. The first part gathers descriptive information of the firm. The second part assesses current use of IT applications as adapted from IT indicators [35]. The indicators include ICT indicators for individual as well as business level of IT use. This study will adopt ICT indicators for business checklist, which are more appropriate for the study. The study includes both basic core and extended core components in this present study. The third part examines IS planning tasks and phases as currently practiced by the firms based on Newkirk, Lederer, & Johnson [36] and Cassidy [37]. The final part seeks demographic data on participating respondents.

Stage 2 employs the qualitative field study. This approach is considered to provide additional support for the second objective. The interview will be carried out with selected firms after the survey is successfully completed. The respondents of the interview sessions are the top management of the chosen firms. The top management will be identified based on the survey. At the end of the interview sessions, the top management will be asked to provide several names(at least two) from their employees list that can be contacted. The follow up interview aims to explore in depth on the execution of IS planning tasks/activities in support of its business. A standardized open ended interview method will be utilized as it does not predetermine the answers and allow room for the participants to respond in their own terms [38]. Open ended interview allows the researcher to collect detailed data systematically [39]. To establish better insight of best practice of IT leverage amongst SMEs, this study will identify several firms obtained rating of 4 or 5 stars in their SCORE assessment. Interview with these firms will reveal how highly competitive firms deal with IT planning and use.

Having identified firm's best practices in leveraging IT would enable researchers to propose the most effective IS deployment and planning approach in building IT capability of the firms. Data obtained both from quantitative and qualitative approaches will be used in proposing the most effective IS deployment and planning approaches in preparing for more competitive firms.

4. Proposed data analysis

This study employs cluster analysis technique to explore possible profiles of firms that potentially emerged from the data collected. Cluster analysis is a multivariate approach to 'classify objects such as respondents, products, or other entities, on a set of user selected characteristics' [40]. It is primarily conducted to classify the objects into several distinct groups with high internal homogeneity (withincluster) and high external heterogeneity (intercluster). This technique groups the objects with similar characteristics, while objects with relatively distinct characteristics would stay apart. Another relevant point is that cluster analysis is an interdependent multivariate technique which allows analysis to be executed without the presence of dependent variable [41].

Cluster analysis has been widely applied across various research domains especially for developing and testing taxonomies [42]. Due to its classification ability, it is relatively popular among information systems research [43]. It was also considered for investigating IT/IS practices among SMEs. For example, Vlachos [44] employed cluster analysis to propose SMEs profiles based on selected demographic factors. Meanwhile, Magal, Koslage, & Levenburg [45] employed the cluster analysis to establish meaningful patterns of ebusiness diffusion among SMEs based on its use across value chain activities. The clustering procedures will be carried out based on (i) ICT indicators, (ii) IS planning tasks/activities and (iii) selected demographic variables as the clustering variables. The following diagram (Figure 1) illustrates overall research model.

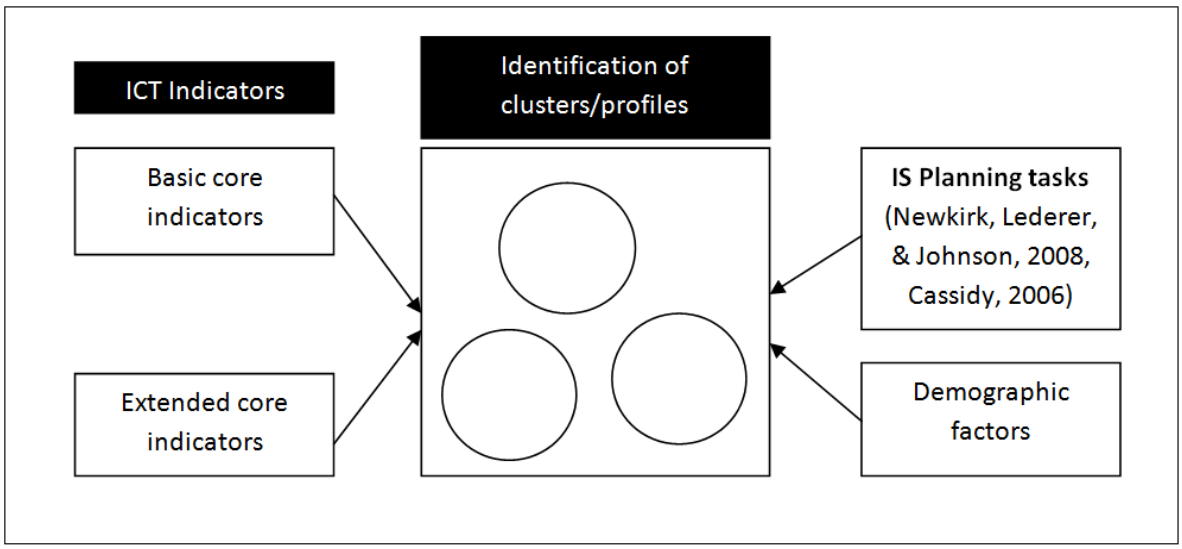

Figure 1 : Research Model

5. Conclusion

SMEs are generally family owned businesses. Therefore, deployment of IT/IS in a more effective manner would extend firm's productivity. More productivity will be reflected to better financial return which in turn promises greater income to the business ingeneral and to the families in particular. This corresponds well to the government aims to promote the high income society. Inanother respect, SMEs presently provides around 40% of employment opportunities to the society. More competitive business

ensures a more active business environment and promotes business expansion and finally creates more demands on employment opportunities.

By recognizing the factors affecting IS leverage activities, necessary actions can be initiated to ensure effective use of IS among the SMEs. Effective use of IS as potential tools to support the business operation would then lead to greater productivity. In other words, the SME would provide a higher contribution to the national economic growth with respect to the Gross Domestic Product (GDP). More productive operation also promises greater firm's competitiveness. Highly competitive and innovative firms are more capable to survive in the long term and to compete in global platform. Ultimately, this sector would contribute further to the national income from increasing export activities. This is in line with the continuous government effort to promote the SME sector as an economic backbone of national growth.

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