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IT strategy in Singapore: the Case of Small and Medium Sized Enterprises in Singapore

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Abstract

This paper discusses the initial results of the investigations IT strategy in Singapore industry. Previous researchers have identified various barriers to exploitation of IT. These have been relevant to western industries. In this research the authors have undertaken the research to identify how Singaporean industries are looking at IT implementation. A series of interviews were conducted in Singapore SMEs. It was concluded typically small companies had misconceptions and misgivings about IT strategy. Current research mainly focusses on large companies and thus there was gap between existing approaches and those relevant to small companies. IT decisions were delegated to the middle management in a significant proportion of small companies that had a business-aligned IT strategy. Funding of IT remained elusive to small companies especially with emergence of new tools. This research has paved way for further research and analysis on the IT strategy and adoption in SMEs

Keywords: SMEs, Singapore, Strategy, barriers, IT adoption

1.0 Introduction

Many managers find it hard to handle IT strategy. Their scepticism stems from business failures that are results of their misconceptions and mishandling of IT strategy. There are also different schools of thought on the importance of IT to business, as well as how IT strategies should be approached. Little has been documented previously on the challenges of small companies with regard to their IT strategy in specific geographies. Hunter et al. (2001) attributed these challenges to the following groups of problems—internal and external dependencies, as well as planning inefficiencies. Ballantine, et al (1998) made similar discoveries, while Harindranath, et al (2008) decided to categorise issues of ICT adoption by SMEs into technology-related and business-related problems. These ICT related problems were similar to those identified by Kotelnikov (2007).

In relation to SMEs, Hussin, et al (2002) have also identified that firms were unable to align their business and IT strategies because they were lacking in IT maturity and sophistication, as well as requisite knowledge. Though these works providing an insight into the world of IT strategy of SMEs, are mainly based on data collected from western and developed economies, in fact there is a need to look into the IT strategy adopted by developing economies especially, South East Asian Countries. This research address this, it explores the IT approaches of SMEs in Singapore. Its overall aim is to determine the strategic IT approaches adopted by Singapore SMEs and identify potential barriers that prevent the exploitation of IT resources, its objectives are

1. To study specific IT strategies relevant to small companies which enable them to compete effectively
2. To examine the current behaviour of small companies and determine challenges they face in IT adoption and implementation.
3. To analyse the impact of external influences on IT strategies of small companies.

2.0 Methodology

A mixed method of research was undertaken. A series of interviews were undertaken and a questionnaire was distributed. In evaluating the IT strategy of Singapore SMEs, this paper only presents the findings related to the first stage - that of the interviews. It does not comment on survey findings and in consideration of getting broader

consensus, this section does not burden the reader with the detail aspects of merits of this methods adopted in the research project.

3.0 Data collection

The principal objective of this research is to determine the strategic IT approaches identified in the various literature that are applicable to small businesses in the current context. The research was conducted in two parts; series of face-to-face interviews (10) and self-administered survey (55 usable responses). SMEs from various sectors were approached to participate in the interview. Out of these, one was a Non-Constituency Member of Parliament in Singapore with extensive knowledge and experience in the use of IT in SMEs. He served as the knowledge expert who shared his insight on the area for this research. Due to resource constraints, the interviewed SMEs were all based in Singapore. Prior to the interviews, participants were provided explanations and context of various terms for consistency such as: IT strategy, Competitive advantage, Leadership/followership role in technology and Distinctive IT competencies.

Invitations to take part in the survey were posted on the Internet, e-mailed to potential participants and disseminated through YMCA Singapore and business contacts. The survey was deliberately not bounded by geography (within Singapore) to minimise any location bias. It was also optional to answer all questions because the participant may not feel comfortable answering some for various reasons.

4.0 Findings and Analysis

The semi-structured interviews assisted in the exploratory and explanatory studies of IT strategies in SMEs. The exploratory study sought to reveal what SMEs were doing in reality with respect to their IT strategies. The explanatory study aimed to lend some sense to identified patterns by revealing links between reasons and causes. Based on analysis of existing literature, as well as findings from interviews, the scope for the quantitative research was developed that looked into several aspects of small companies in relation to IT strategy. The following points summarise the findings that were derived from the data collected from Singapore SMEs.

Firstly, challenges faced by small companies, the findings from the survey and interviews suggested that small companies were faced with operational challenges in areas related to financial constraints, human resource constraints (IT skills) and infrastructural constraints. SMEs with a business-aligned IT strategy were more able to justify IT spending on a strategic level. On the other hand, small companies where IT strategy was not aligned to business strategy tended to look at the immediate constraints and returns as part of the IT strategy justification process.

Secondly, the importance of business-IT alignment on strengthening in-house technology innovation and deriving material impact, SMEs were more likely to strengthen in-house technology innovation capabilities if IT strategy was aligned with business strategy. Small companies with a business-aligned IT strategy that had also undertaken in-house technology innovation over the last two years were more likely to achieve some material impact.

Thirdly, Management process and leadership style, there was a high degree of top management involvement in the strategy planning, even though in half of the interview cases, the IT knowledge of top management was found to be inadequate. There was no change in material impact on the company due to innovation if the decision maker of ICT purchases changed from top management to middle manager. It was found that 87.3% of the top management relied heavily on middle management or employees in the actual job allocation process.

Fourthly, establishing partnership, SMEs with a business-aligned IT strategy were more likely to form partnerships with other companies that were related to their IT strategy. Geographic scope of these partnerships was mainly confined to local and regional countries. Singapore SMEs' perception of competitive advantage was fairly in-line with its material impact achieved through technological innovation. The small companies were generally able to achieve competitive advantage in customer service, innovation and market reach. In relation to funding strategies, the analysis showed that businesses that had a business-aligned IT strategy were more likely to seek out and succeed in their application for IT related funding schemes.

Fifthly, achieving differentiation through IT, technological innovation was mostly used to drive development of new products, improve process and product efficiencies and product branding. There was less emphasis on generating long term competitive advantages for small companies through technological innovation. The various activities undertaken by the small companies to strengthen in-house innovation capabilities suggested an approach that was oriented towards IT strategy and IT infrastructure and process and less on using a more innovative leadership role in identifying core business competencies through the use of ICT solutions.

Lastly, trends in adoption of ICT tools, Singapore SMEs were willing to invest in basic ICT equipment such as computers and ensured the employees had proper access to basic productivity tools. Adoption of the more sophisticated Stage 3b and 4 ICT tools was normally confined to companies where the core business was related to the IT functionality. Web 2.0 and mobile solutions were more widely adopted in service based industries whereas adoption of process optimisation systems was more evident in small companies related to supply chain industries. Compromises were often made when it came to technology upgrading. Companies that were willing to explore technological innovation to drive development of new products were more willing to invest in solutions and tools for research and development. Findings from interviews also suggested that a more ad hoc basis in planning IT related expenditure whereas findings from the survey suggested that small companies were most willing to spend on developing new products, followed by hardware infrastructure. Small companies without a business-aligned IT strategy were least likely to spend on IT training even though these companies acknowledged that limitations in employees' capabilities were one of the main factors affecting successful implementation of IT strategies. Revenue, followed by the number of new products developed, were the two most popular methods of ROI calculation for small companies.

IT strategies were ad hoc and short-term for small companies that mainly used IT to support their business operations. However IT was used as a strategic tool to achieve competitive advantage in small companies that offered IT products or solutions. Additionally, Gaps between strategic plans versus actual implementation were actually observed. This suggests resource-limitations may be an issue. Also,

government policies were the top key factor that had a major impact on IT strategy of small companies.

5.0 Conclusions

In conclusion, the study showed that most small companies were misguided in regard to their IT strategy. Firstly, from the interviews, it was obvious that typical small companies had misconceptions and misgivings about IT strategy. The usual response (from 2 interviewees) was to dismiss IT strategy as unnecessary or use it for the support of normal business operations (2 other interviewees). Their spontaneous approach towards IT strategy meant that more often than not, they reacted to their environment and tried to adapt to circumstances. With no long-term plans, they were usually not able to fully reap the benefits of using an IT strategy to gain competitive advantage, at least not through a considered approach.

Secondly, there were gaps between existing approaches and what was relevant to present small companies. While the main concepts and models, such as SAM and Porter's (2004) competitive advantage through technology, were generally applicable, there were areas where the findings of this research have shown to be different from previous studies. For example, this research revealed that there was a high level of top management involvement in IT strategy planning among small companies, as opposed to findings by Harvey (1987). So this is probably no longer applicable to today's context of small companies. Concerns on keeping up with IT innovation also emerged as a newly identified challenge from this research. At the rate the IT landscape evolves, this might be a valid concern.

Thirdly, IT decisions were delegated to the middle management in a significant proportion of small companies that had a business-aligned IT strategy. This was in contrast to Burn and Szeto (2000). In fact, interview analysis revealed that small companies desired business knowledge in IT employees. This could potentially bridge the gap between business and IT even when top management, who was shown to have inadequate IT knowledge, was not fully involved in all key IT decisions. The impact of external factors on IT strategy was also not rigorously looked at in previous literature. The interviews exposed the importance of taking into account these factors in their

plans as most small companies and their IT strategy was—directly or indirectly—affected by external forces.

Fourthly, funding remained elusive to small companies. One of the most pressing concerns of small companies when it came to IT expenditure was cost. As a result of this constraint, small companies missed opportunities to create competitive advantage. Generally, there was a lack of grants and funding schemes to assist small companies of all sectors to adopt longer-term IT strategies. This phenomenon was observed to occur globally. On top of that, small companies that did not align their IT strategy with their business strategy were observed to have a lower chance of obtaining any grants or funding.

Lastly, emergence of new tools alleviated issues on cost of IT adoption. One of the small companies (in interview) benefited from the emergence of new technology such as cloud computing. By adopting IT tools and services built on cloud computing, the company was able to avoid heavy initial spending. Instead, its IT costs would increase only as the company grows in size. The affordability of new IT equipment and widespread adoption of Stage 3 ICT tools such as social media and Voice-Over-IP helped small companies exploit technology to achieve greater efficiency and productivity.

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