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Achieving e-Business Excellence through Knowledge Management and Organizational Learning Capabilities: A Malaysian Perspective

NASRUDDIN KHAMIS, AININ SULAIMAN AND SUHANA MOHEZAR*

Faculty of Business and Accountancy, University of Malaya

ABSTRACT

E-business is recognized as a strategy that coordinates business processes across organizational boundaries effectively. Despite the values created by e-business, achieving and maintaining competitive advantage is not an easy task. This study draws on the organizational learning and knowledge management capability perspectives to identify six variables that influence e-business successful implementation. Based on the data collected from 110 firms in the Malaysian banking and financial service industry, our results demonstrate that technical expertise, training availability and knowledge management capability are factors that instigate successful e-business implementation. Nonetheless, there is insufficient empirical evidence to support a relationship between the knowledge level and e-business successful implementation. The findings enable firms to review their organizational capabilities and provide platforms as well as opportunities for more strategic managerial decision-making for e-business implementation.

Keywords: Knowledge management, organizational learning, e-business

* Corresponding Author: E-mail: suhanamohezar@um.edu.my
Any remaining errors or omissions rest solely with the author(s) of this paper.

INTRODUCTION

Electronic business or e-business has emerged as a new mechanism of communication for buyers and sellers. E-business could be described as commercial arrangements conducted through open networks using Internet infrastructure as a platform (Amit and Zott, 2001). The state-of-the-art technology ignores the traditional boundaries between firms in which it allows organizations to share business processes and exchange information virtually. By participating in this technology, businesses could establish new marketplaces that permit them to conduct electronic transactions and collaborate with their supply chain partners more effectively (Konings and Roodhooft 2002; Lee, Lee and Lin 2007).

In the banking sector, the establishment of e-business has affected how firms perform their daily operations (Poon and Jang 2008). The technology has facilitated new product development and introduction of alternative delivery channels. In recent years, financial institutions in the Asia Pacific Region have gradually adopted e-business as a way to streamline operations and improve their trading activities. They perceived this step as an opportunity and strategy to sustain their competitive advantage (Zhu *et al*. 2006). Despite the widespread of e-banking used in the region, little is known on how firms could leverage their organizational capabilities to generate business values from technology investment.

While the characteristics of the technologies such as e-banking systems by themselves could serve as competitive weapon, firms need to assemble these resources to create organizational capabilities, since competitors may easily duplicate the IT resources by purchasing the same hardware and software. Most organizations have technologies such as inventory control, administrative and financial control systems that store and retrieve data or facts, yet many do not capture the softer information. Ideas generated by workers are often quickly forgotten, although they are possibly to be captured through explicit narratives stored electronically for future reference, generating organizational knowledge, which are rare, valuable, imitable and scarce.

This organizational knowledge which emerges from organizational learning has increasingly become the strategic resource in today's dynamic competitive environment. Moreover, developing organizational learning and knowledge are viewed as an effective and efficient means of successful technological innovation (Martin and Matlay, 2003; Raymond and Blili, 2000). Different knowledge and learning strategy therefore, may translate into differ organizational performance. Despite these, little study has addressed these factors in examining the e-business adoption.

This study aims to examine the antecedents of e-business successful implementation from the perspectives of organisational knowledge and learning management. We collected cross-sectional data from Malaysian firms involved in the banking and financial service industry. Malaysia is one of the most affluent emerging economies in Asia with a strong economic growth. The Malaysian Gross Domestic Product (GDP) was estimated at US207,400 billion in 2009 (Malaysian Economic Planning Unit 2010); and is expected to increase annually with a growth rate of 5 to 7 per cent. The nation's move towards knowledge economy was marked by the establishment of Multimedia Super Corridor (MSC) in 1996, resulting in a substantial investment in physical and technological infrastructure (Ida 2008). The nation has also embarked on a mission to develop a knowledge-based society by introducing the Knowledge-based Economy Master Plan in 2002, which highlights various strategies to accelerate the transformation of Malaysia to the knowledge-based economy. With this move, the growth of the country is expected to be driven by both tangible and intangible resources, made up the combination of human knowledge, capital and physical assets. On the local banking sector front, internalization of financial markets has urged bankers to be knowledge-based and more efficient in managing knowledge in their banking operations. Despite giving prime focus to tangible assets, local financial institutions are still finding it very hard to gain competitive advantage. For the past 30 years, they have been actively automating their manual business processes, creating huge volumes of data and information, leading to reduced responsiveness and efficiency. Yet, being efficient alone is not sufficient. With the increasing standards of living, they need to be able to create added values, in which it is associated with the knowledge and learning capability of an organization (Goh, 2005). While the strategic values of organizational learning and knowledge management practice are clear, most firms in the local banking and financial services sector are not able to comprehend how these elements can be integrated in enhancing their e-business operations (Ali *et al*., 2006). The findings of the study thus, would enable companies to review their knowledge management and organizational learning capabilities rather than focusing exclusively on technological considerations; and develop well strategic e-business implementation plans, which in turn will enhance their future performance. The study also contributes to the technological innovation literature by forming an integrative framework from two perspectives – organizational learning and knowledge management, and demonstrates how it could be applied in the banking sector.

LITERATURE REVIEW

E-business could be defined as commercial or administration transactions conducted using the Internet infrastructure (Moodley 2003; Wang and Cheung 2004). E-business applications include e-procurement, customer relationship management (CRM) and Enterprise Resource Planning (ERP). E-business could be used as a means for communication and information sharing between partners thus ensuring smooth flow of material movement along the supply chain. The adoption of e-business applications such as e-procurement could further eliminate non-value added activities which include data entry and rectifying errors in paper work, enabling firms to enjoy 30 to 65 per cent lower transaction costs (Turban *et al.,* 2002). The utilization of e-CRM applications, which interface with sales, marketing and service functions, could facilitate firms to build deeper and more profitable long-term relationships with customers by enabling them to capture, sort and interpret customer information (Porter, 2001).

Various literature suggests that there are many factors affecting e-business implementation success. For instance, Lin and Lin (2008) indicated that firms with advanced IT infrastructure and IT expertise are more likely to succeed in e-business implementation in Taiwan. In another study conducted in the same country, Pan and Jang (2008) illustrated that firm size plays a pertinent role in e-business successful implementation since larger organizations are found to have more resources than their smaller counterparts. Using a mail survey involving 2,139 firms from developed countries which include Denmark, France, Germany, Japan, Singapore, Taiwan and the U.S, Gibbs and Kraemer (2004) demonstrated that favorable government promotions through economic incentives lead to a positive impact of e-business implementation. A similar study exploring ERP implementation in Canada illustrated that good relationship with key suppliers and customers lead to positive outcome of such technology adoption (Raymond and Uwizeyemungu, 2007). While these studies do provide some insights into the factors affecting successful e-business implementation, the scope is limited. Some scholars have argued on the importance of organizational learning and knowledge management capabilities (Fichman and Kemerer, 1997; Lin, 2007).

Organizational learning capability refers to the capacity or processes within firms to maintain and improve their performance. A company's organizational learning capability can be viewed through the training and technical expertise available as well as knowledge level of its employees (Lee *et al*., 2007). Organizational learning can promote information technology development in which it motivates employees to accept any challenges, difficulties in adopting the innovation. Employees in a strong learning organization would also have more effective training programme that facilitate users to increase their computer efficacy,

leading to improved performance and satisfaction (Hasan, 2006). Since e-business application is considered as complex innovations, the adoption of such technology does not only rely on IT a sound IT infrastructure (Fichman and Kemerer, 1997; Lin, 2007). Instead, the implementation of e-business entails them to engage in intensive learning. Firms may face substantial barriers in conducting e-business due to lack of knowledge that are required to understand, use and resolve problems relating to the technology, specifically at the early stage of implementation (Purvis *et al*., 2001). Hence, firms must undertake an intensive learning process to bridge their knowledge gap.

The organizational learning is also interrelated with knowledge management practice, as learning is required for the firm to possess new knowledge (Meso and Smith 2000). Knowledge management involves a range of strategies, processes and practices utilized by a firm to identify, capture, structure, share and apply an individual or organization's knowledge to attain competitive advantage and create sources for sustainable growth (Davenpot and Prusak, 1998). Knowledge management capability of a firm can be viewed from three perspectives namely knowledge acquisition, knowledge application and knowledge sharing (Lee *et al*., 2007). While information technology such as e-business offers immense potentials, firms may not be able to leverage their organizational competitiveness without developing a culture that encourage the acquisition, creation, and sharing of knowledge across organizations (Bharadwaj, 2000; Martin and Matlay, 2003). Since the technology infrastructure such as e-commerce is largely dependent on software and hardware which is standard and thus easily imitated, the technology component alone may not be able to sustain a firm's strategic advantage. The revolution of e-business has changed the way firms collect, store and process data (Oppong *et al*., 2005). The implementation of information technology applications such as e-business has resulted in the creation of huge volumes of data, leading to information overload (Ali *et al*., 2006). Only firms that possess the ability to develop the information into useful knowledge which could be shared efficiently and effectively will be duly rewarded. While organizational learning and knowledge management capabilities serve as important elements for successful e-business implementation, little empirical evidence exists to support this contention.

CONCEPTUAL FRAMEWORK

This study integrates organizational learning and knowledge management perspectives to interpret the antecedents of e-business successful implementation (Figure 1). The framework identifies a set of six factors comprising of training availability, technical expertise, knowledge level, knowledge acquisition, knowledge application and knowledge sharing.

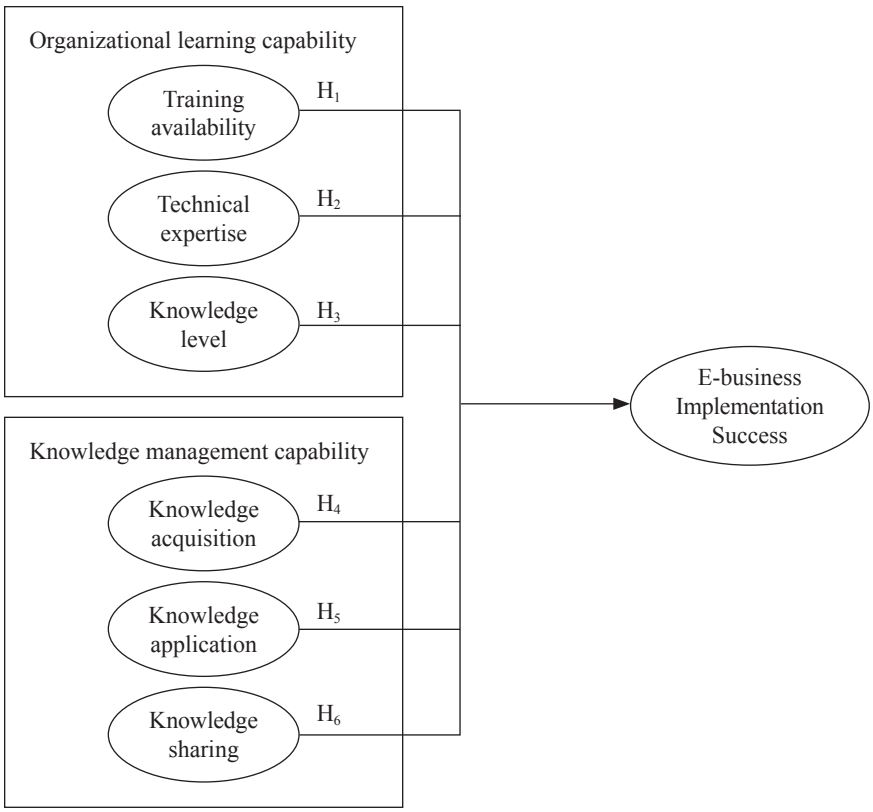

Figure 1 Framework for e-business implementation success

Training availability is described as the amount of education made available to technology adopters or users within a company; and that the level of training endured by a company' employees is positively related to successful implementation. Since e-business could be considered as new innovation to the adopting firms, its implementation requires firms to change the organizational structure and business process, which may be complex and difficult to accomplish to (Landry, Mahesh and Hartman, 2005). Yet, with adequate training, employees would attain a higher level of knowledge and understanding of the technology, enabling them to handle the system more effectively and efficiently, leading to successful implementation. Based on this argument, this study proposes

H1 : Training availability is positively related to e-business successful implementation

Technical expertise describes a firm's level of specialized technical proficiency, which includes skills to integrate front-office customer service and back-office system (Lee *et al*., 2007). Firms with high level technical expertise are expected to be well-versed in the technical aspects of e-business, which would facilitate them in realizing the potential values of the technology, as compared to those with lower levels of technical expertise (Bharadwaj, 2000; Zhu *et al*., 2006). Given this, we propose

H2 : Training expertise is positively related to e-business successful implementation

Knowledge level is defined as the degree of a firm's employees' familiarity with a technological innovation (Lee *et al*., 2007). There are various empirical studies justifying the importance of employees' familiarity and understanding of an innovation in technology adoption (Zhu and Kraemer, 2003; Gibbs and Kraemer, 2004; Lin and Lin, 2008). Employees with greater levels of e-business know-how would have positive attitudes towards the technology, and are more likely to be able to interact with their trading partners over the Internet more efficiently, leading to successful technology implementation. Hence, this study postulates.

H3 : Knowledge level is positively related to e-business successful implementation

Knowledge acquisition occurs when a company uses existing knowledge to capture new knowledge (Lin and Lin, 2008). According to Attewell (1992), organizations must have the know-what (factual knowledge about a technological innovation and its features), know-how (knowledge about how to apply a technological innovation in an organization), and know-why (knowledge required to meaningfully measure the cost, benefits and risks of applying a technological innovation) to integrate complex technological innovation successfully. This contention is supported by Darroch and McNaughton (2002) and Ravichandran (2005). They investigated the relationship between knowledge management practices and innovation types; and indicated that greater levels of knowledge acquisition would lead to higher successful rate of technology implementation. Therefore, this study proposes

H4 : Knowledge acquisition is positively related to e-business successful implementation

Knowledge application is described as the business processes through which effective storage and retrieval mechanisms enable an organization to access knowledge effortlessly (Lee *et al*., 2007). Some scholars argue that knowing the most does not necessarily translate into improved organizational performance, yet more importantly firms need to know how to utilize what they know effectively (Bierly, Kessler and Christensen, 2000). In line with this assertion, Gilbert and Cordey-Hayes (1996) and Johannessen *et al*. (1999) in earlier studies, indicated knowledge application as the main element for developing technological capabilities. Therefore, this study proposes

H5 : Knowledge application is positively related to e-business successful implementation

Knowledge sharing is defined as the business processes that distribute knowledge among all individuals participating in process activities (Alhawary and Al-Zegaier, 2009). It can be implied that after an organization acquires knowledge, they are not only required to use it efficiently and effectively, but to share the knowledge. Lin (2008) suggested that a knowledge sharing culture is the main organizational condition for successful knowledge management and exploitation. Jones and Price (2004) and Fiala (2005) found that knowledge sharing is important for utilizing e-business. Hence, this study postulates

H6 : Knowledge sharing is positively related to e-business successful implementation

RESEARCH METHODOLOGY

Survey Administration and Sample

A survey questionnaire based on a comprehensive literature review and pilot tested in 20 organizations were utilized in this study. Upon finalizing the survey, a larger study was conducted using a convenience sampling method. The sampling frame consists of organizations involved in Malaysian banking and financial service industry. The samples were drawn from the list of licensed banking and financial institutions registered with the Malaysian Government Central Bank. They include commercial banks, Islamic banks, government-owned banks, non-banking government-owned financial institutions, licensed money lenders, corporate licensed investment advisors and insurance companies. A questionnaire, cover letter, self-addressed and stamped envelope were mailed to the IT/IS executives

in the respected firm. Of the 300 questionnaires mailed out, 110 useable responses were received, resulting in 36.7 per cent response rate. Table 1 presents the sample characteristics.

Table 1 Sample characteristics

	Frequency	Percentage (%)
Number of employees in the organization		
1-100	4	3.6
101-500	6	5.5
501-1000	45	40.9
More than 1000	55	50.0
Total	110	100
Years of e-business implementation		
Less than 3 years	8	7.3
3-5 years	58	52.7
6-10 years	43	39.1
More than 10 years	1	0.9
Total	110	100
Average years of working experience of the IT personnel		
Less than 1 year	12	10.9
1-3 years	34	30.9
4-10 years	49	44.5
More than 10 years	15	13.6
Total	110	100

More than half of them were categorized as large companies and have implemented e-business for 3 to 5 years. Most of the responding organizations reported that their IT personnel have more than 4 years of working experience. The items and scales used in the study was assessed for reliability, using Cronbach's alpha. All the constructs had acceptable alpha values of over 0.6, which are above the minimum recommended value (Nunnally, 1978) (Table 2).

Operationalization of constructs

Most of the constructs are established measures from previous studies and they have been adapted to the context of this study. All items are measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Training availability was measured using two items adapted from Bradford and Florin (2003), while technical expertise was assessed by two-items adapted from McGowen and Madey (1998). These items measure the level of specialized technical expertise and education available to e-business users within the responding firms. The knowledge level construct was measured using three-item adapted from Thong (1999). Knowledge acquisition, application and sharing constructs were measured using a total of 13 items derived from Gold *et al*. (2001). Based on Zhu *et al*. (2006), this study measured the successful of e-business implementation using seven items comprising of perceived improvement on business commerce, internal efficacy and coordination.

ANALYSIS AND FINDINGS

Descriptive Analysis

Table 2 illustrates the mean and standard deviations of all items. The results indicate that the respondents placed slightly more emphasis on organizational learning and knowledge management capabilities. In general, the organizations surveyed perceived that the e-business implementation has resulted in improved internal efficacy, increased market share and enhanced coordination among business partner and suppliers.

Table 2 Descriptive statistics of measurement items

Items	Description	M	SD	α
Technical Availability				
TA1	My organization views employee training as an investment, not an expense	3.73	.85	.78
TA2	My organization provided extensive training in e-business	3.04	1.03	
Technical Expertise				
TE1	IS employees are generally very knowledgeable regarding technical matters	3.59	.56	.75
TE2	My organization contains considerable technical expertise	3.58	.57	
Knowledge Level				
KL1	The organization contains a high level of e-business knowledge	3.45	.70	.70
KL2	My organization hires highly specialized personnel for e-business	3.23	.75	
KL3	My organization is dedicated in ensuring employees are familiar with e-business	3.21	.91	

Table 2 (Cont'd)

Knowledge Acquisition				
KA1	My organization has processes for acquiring supplier knowledge	3.59	.56	.75
KA2	My organization has processes for generating new knowledge based on existing knowledge	3.60	.62	
KA3	My organization has processes for acquiring customer knowledge	3.82	.55	
KA4	My organization has processes for acquiring knowledge on developing new products/services	3.88	.48	
Knowledge Application				
KAP1	My organization has processes for integrating different sources and types of knowledge	3.88	.63	.86
KAP2	My organization has processes for transferring organizational knowledge to employees	3.82	.45	
KAP3	My organization has processes for filtering knowledge	3.45	.82	
KAP4	My organization has processes for applying experiential knowledge	3.46	.77	
KAP5	My organization has processes for applying knowledge to solve new problems	3.77	.71	
Knowledge Sharing				
KS1	My organization has processes for distributing knowledge throughout the organization	3.64	.73	.85
KS2	My organization has processes for distributing knowledge among our business partners	3.65	.66	
KS3	My organization has a standardized reward system for sharing knowledge	3.26	.86	
KS4	My organization designs processes to facilitate knowledge sharing across functional boundaries	3.48	.79	
E-business Implementation				
IM1	Increase market share	3.23	.54	.76
IM2	Improved customer service	3.51	.65	
IM3	Provide better products or services	3.55	.70	
IM4	Enhance business efficiency	3.65	.76	
IM5	Enhance staff productivity	3.71	.68	
IM6	Reduced transaction costs with business partners	3.37	.62	
IM7	Improve coordination with business partners or suppliers	3.58	.50	

Measurement Validation

The constructs used in this study were tested for content validity and construct validity. Content validity was established through careful selection of items based on a comprehensive literature review, consultation with experts and a pilot test. Construct validity was examined through both convergent and discriminant validity, which was conducted using factor analysis. A principal Axis Factoring with Oblique rotation was performed. Prior to performing this, the suitability of the data for factor analysis was assessed. The Kaiser-Meyer-Oklin (KMO) value was 0.869, exceeding the recommended value of 0.6 (Kaiser, 1974). A set of 20 items was factor analyzed, and 5 items were omitted since the loadings were less than 0.4 (Hair *et al*., 1998). Six factors were identified – knowledge application, technical expertise, knowledge acquisition, knowledge level, knowledge sharing and training availability (Table 3).

Table 3 Factor analysis

Items	Factors					
	1	**2**	**3**	**4**	**5**	**6**
KAP3	.88					
KAP4	.76					
KAP5	.75					
TE2		.88				
TE1		.70				
KA1			.79			
KA2			.71			
KL3				.71		
KL2				.62		
KS4					.71	
KS1					.68	
KS3					.56	
TA1						.92
TA2						.73
Eigen values	4.33	2.85	2.51	2.22	1.96	1.94
Cumulative %	21.68	35.92	48.46	59.57	69.38	79.10

Results

Multiple regression analysis was conducted to determine the hypotheses with regards to the successful of e-business implementation. Measures of training availability, technical expertise, knowledge level, knowledge acquisition, knowledge application and knowledge sharing were entered as predictor variables for e-business successful implementation. In summary, these six factors accounted for .50 per cent of the variance in the technology implementation (R_2=.50; R_2 adj = .47, F=16.89, p<0.001), suggesting that the group of variables (i.e. training availability, technical expertise, knowledge level, knowledge acquisition, knowledge application and knowledge sharing) can be used to reliably predict the e-business successful implementation. Knowledge sharing (β=0.342, p<0.001), knowledge application (β=0.287, p<0.05), knowledge acquisition (β=0.214, p<0.05), training availability (β=0.186, p<0.05) and technical expertise (β=0.176, p<0.05), were found to have a significant relationship with e-business successful implementation. Hence, H_1, H_2, H_4, H_5 and H_6 are supported. In contrast, this study found that knowledge level (β=.09; *p*=.26) had no significant relationship with e-business successful implementation. Therefore, H_3 are not supported. This suggests that the knowledge management capability, which is based on knowledge acquisition, knowledge application and knowledge sharing are the most important variables in determining the successful of e-business implementation.

Table 4 Results of multiple regression analysis

Independent variables	Dependent variables	B value	Sig	Hypotheses	Results
Training availability	E-business successful implementation	.186	<.05	H_1	supported
Technical expertise		.176	<.05	H_2	supported
Knowledge level		.09	.26	H_3	Not supported
Knowledge acquisition		.214	<.05	H_4	supported
Knowledge application		.287	<.05	H_5	supported
Knowledge sharing		.342	<.001	H_6	supported

DISCUSSION

This study integrates two theoretical perspectives – organizational learning and knowledge management capabilities to form an integrative framework for investigating some of the key issues related to e-business successful implementation. While one of the hypotheses was not supported in this study, the rest of the findings appear to reinforce the literature.

Consistent with Lee *et al*. (2007) , this study lend credence to the importance of training availability and technical expertise. The results imply that firms would be more likely to attain business excellence from e-business implementation if there are substantial levels of technical expertise and relevant training provided by the adopting organization. Given that the technology adoption is a complex process which requires some extent of organizational change and reengineering of business operations, development of appropriate skills and investment in staff training in e-business are prerequisites for gaining the potentials. Moreover, since the technology would evolve over time, lack of training may limits firms' capabilities in sustaining their competitive advantage. This finding affirms previous studies that found a strong support for the relationship between IT human capital and firm performance (Segars and Grover, 1998; Ravichandran and Lertwongsatien, 2005). While prior empirical research indicated knowledge level as a significant factor for firms to succeed in e-business implementation (Lee *et al*., 2007; Zhu and Kraemer, 2003; Gibbs and Kraemer, 2004; Lin and Lin, 2008) this element emerged as a non-significant in our study. The result suggests that knowledge level among the employees is not important in determining successful e-business implementation. This finding is not surprising since IT outsourcing is a prevalent trend among Malaysian organizations, particularly in the banking sector (Razak *et al*., 2007). Malaysian businesses perceive outsourcing as a value-added service to generate revenues and vehicle to improve their IT performance. Furthermore, firms in this sector are encouraged by the Malaysian Government Central Bank to outsource their non-core business processes including IT implementation to enhance their internal efficiency, enabling them to focus on selling and marketing financial service products (Suhaimi *et al*., 2007).

The results of this study demonstrate a strong positive linkage between e-business successful implementation and knowledge management capability. This finding suggests that in order to be able to truly exploit the potential values of e-business, firms need to acquire, apply and share their knowledge. Over the years, banks have been actively automating their manual processes to improve their efficiency (Ali *et al*., 2006).Yet, without proper management of information; the utilization of the technology would result in the creation of massive volumes

of data, leading to inefficiencies. Knowledge management provides opportunities for employees to enhance skills and experiences by working together and sharing other people's knowledge, which is pertinent in e-business implementation. This is certainly better than the old perspective that tends to focus on archiving data and information without concerning of associated human interpretation of context and content (Oppong *et al*., 2005). Hence, knowledge management serves as a promising capability that enables firms to acquire information and organize knowledge for easy retrieval and reuse, leading to e-business values.

CONCLUSION

This study contributes to a better understanding of the relationship between organizational learning and knowledge management capabilities towards e-business implementation success in the Malaysian context. While the local bank operators have giving prime focus on technology by actively automating their business processes, they are struggling to gain competitive advantage. As compared with their foreign counterparts, Malaysian banks have lower efficiency and productivity growth (Matthews and Ismail, 2006). This situation is worsening with the increased globalization of financial system, which calls for intense competition in the market. Eventually, they have begun to realize that tangible assets such as information systems can only help them to a certain extent, and they require much broader range of resources. Recognizing the urgency of promoting sustainable growth of financial industry, the Central Bank of Malaysia has accentuated on the integration of knowledge management in the technology deployment of a bank (Ali *et al*., 2006). Despite that the steps taken by the local banks to setup knowledge management team, wider applications of such concepts are still much desired. Surprisingly, given the importance of the technology implementation in financial sector, relatively there is only little research or implementation of knowledge management in this area has been done in the local banking industry, creating theoretical contributions of this research.

This study provides additional evidence to support the premise that a range of organizational learning and knowledge management capability affect the outcome of such technology implementation. Unlike most empirical studies in the area which are mainly based on innovation adoption literature this study extends this view by incorporating organizational learning and knowledge management capability perspectives. Despite the potentials of e-business adoption, achieving and maintaining such competitive advantage is not an easy task. Organizations investing in e-business often assume that the acquisition of such technology will automatically lead to better firm performance. Yet, the impact of the technology

relies on the managers' capability to strategically employ the system in appropriate ways. Managers in banking and financial service sector in Malaysia could exploit the values of e-business by cultivating an organizational culture and values that promote learning. Firms should provide training programmes which would help their employees to develop absorb and adopt the new technology effectively, thereby building up organizational learning capabilities. This is pertinent, since successful technology implementation depends on the organizational learning effect (Attewel, 1992; Peffers and Dos Santos, 1996). Such approach is also vital in improving employees receptions to the changes associated with the e-business implementation. Notwithstanding this, firms should also contemplate on building their knowledge management capability. The functions of IT infrastructure of e-business should not be limited to capturing data from numerous resources, they must also be able to analyze and convert the data into meaningful business information which can be shared between banks, customers and shareholders. More efforts need to be employed to transfer the e-business into a treasured asset. Dell for instance relies on knowledge management approach to leverage its e-business processes. The real time sharing of end-consumer data with Dell's supply chain members has helped others in the value network to improve their forecasting and inventory process, contributing to faster order delivery cycle times and reduced working capital requirements (Fahey *et al*., 2001). The capability to analyze customer orders further enables Dell to develop patterns revealing customer purchasing behavior, which would facilitates in cross-selling and up-selling of products.

LIMITATIONS

While this study expands our knowledge about the relationship between organizational capabilities and successful e-business implementation, further research must be conducted as there is a potential for more organizations to embrace e-business in Malaysia. Currently, the market penetration for e-business is restricted to urban areas. Despite this, with the deployment of WiMax by Packet One and High Speed Broadband (HSBB) by Telekom Malaysia, there could be opportunity for more companies to venture into e-business. This is evidenced in the report by the Ministry of Finance in June 2008 (www.treasury.gov.my), which stated that the growth momentum in the communication sub-sector remained stable at 7.5% (Q4 2007: 7.2%) supported by wider customer base and higher usage of cellular, broadband and 3G services. The cellular subscriber base rose 16.5% to 24.3 million with 87.9% penetration rate on account of strong demand for voice, non-voice and multimedia services (end-December 2007: 20.0%; 23.3 million; 85.1%).

The findings of this research may be confounded to some degree of external validity, as the sampling frame is restricted to organizations in the banking and financial service sector located in the Klang Valley. Possible biases might exist considering that only one geographical area is selected and the sampling frame may not be representative of the actual target organizations as a whole. Future research in this area should target more firms geographically scattered that involve in the e-business implementation which include Multi National Company, Public listed company and also the SME (Small and Medium Enterprise). The reliance of self-reported firm performance may be subject to potential bias. Although the self-reported data are not uncommon in studies examining management behavior, and is argued to be valid when these competencies are measured using structured rating instrument (i.e. survey)(Chandler and Jansen, 1992), it is likely that the respondents may rate their performance as favorable, as they want to present a better company image to others. Furthermore, while clear instructions and explanations were provided to the respondents, there may be a possibility that not all the respondents interpreted the question in the same manner. While the employment of quantitative research is useful in providing data that can be established for wider generalization (Zikmund, 1994), some researchers argue that depending on this approach solely, would lead to the inability to examine complex and differentiated underlying research issues (Byrne, 1998). Future research should attempt to collect data through interviews and focus groups whereby the results would be beneficial to other companies.

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