CASE STUDIES OF E-COMMERCE ADOPTION IN INDONESIAN SMEs:

THE EVALUATION OF STRATEGIC USE

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ABSTRACT

The use of e-commerce in small medium-sized enterprises (SMEs) has become an important topic in information systems research. At present, there is a large number of well-documented benefits derived from e-commerce for small-medium enterprises (SMEs) both in theoretical and practical literature. Despite the enormous attention given to encourage SMEs to adopt e-commerce both by academics as well as governments, little research has been carried out in identifying strategies of e-commerce adoption for SMEs in developing countries, especially Indonesia. It is, therefore, the aim of this paper to understand the factors and combinations of factors that SMEs need to be considered before embracing e-commerce into their business by providing a closer look at actual experience of Indonesian SMEs. Case study research was carried out to analyse and explain the underlying factors that are likely to determine the varying extent of e-commerce adoption in SMEs, especially the service sector. The findings of the case studies have further extended into the development of proposed practical framework to illustrate how e-commerce adoption should be carried out from a strategic perspective.

INTRODUCTION

Small and Medium-sized Enterprises (SMEs) have grown in importance in the global economy during the last couple of decades. Both theoretical and practical economic and business development literature acknowledges the key contributions of SMEs to the development of both national and international growth of economy. This fact is not only measured by the number of SMEs which represents nearly 90% of the total establishments across the world, but also their significant role in creating employment opportunities (Hall 2002). Information Communication and Technology (ICT), on the other hand, is found to play an important role for any organisation (Kai-Uwe Brock 2000). The use of ICT that range from mainframe to personal computers, from word processing to sophisticated application and systems have made considerable inroads into large,

medium and even small organisations (Doukidis et al. 1996). Recent research also found positive signs that SMEs can take advantage of electronic commerce (e-commerce), as a type of ICT, in helping their business to expand (MacGregor et al. 2002).

A number of e-commerce adoption methodologies and types of e-commerce applications have been suggested through literature - both the academic press and trade journals - and are being undertaken by many organisations. Most of this research, has however, focused on developed countries where the structure of the economy is common. There are only few studies that shed some light on prescribing strategies of e-commerce adoption for SMEs in developing countries, especially Indonesia.

Therefore, this research was aimed at addressing this gap in our knowledge – to understand the factors and combinations of factors that SMEs need to be considered before embracing e-commerce into their business. Case study research was carried out to analyse and explain the underlying factors that are likely to determine the varying extent of e-commerce adoption in SMEs, particularly the service sector. The findings of the case studies have further extended into the development of proposed practical framework to illustrate how e-commerce adoption should be carried out from a strategic perspective.

LITERATURE BACKGROUND

Characteristics of ICT in SMEs

The adverse impact of the economic slowdown in South East Asia region, especially Indonesia, and the globalisation of the world economy underscore the need for SMEs as the backbone of the national economy to become more resilient and competitive. Thorp (1998) believes that successful implementation of ICT offers the prospect of substantial competitive advantage for large and SMEs alike.

However, SMEs are not 'little' large business (Culkin and Smith 2000, Dandridge 1979). In terms of e-commerce implementation, it requires one to give thorough attention and proper understanding towards SMEs characteristics before delineating further issues of technology adoption and strategies.

The renowned characteristic of SMEs that are common in most countries is the lack of in-house ICT expertise and financial resources. Furthermore, in relation to ICT usage, previous research conducted by Heikkila et al. (1991) found that there are three major differences between SMEs and large organisations:
- SMEs tend to use computers more as tools and less as a communication medium;
- The small number of stakeholders involved in an SME means that there are likely to be fewer problems in terms of organisational politics;
- SMEs have considerably fewer resources available to implement ICT solutions.

Much of the research also shows that the decision for ICT adoption in SMEs are more likely made by the owner (Doukidis et al. 1996, Matlay and Addis 2003), which often have little concern towards the importance of ICT strategy and planning within their business (Beckett 2003). Furthermore, Yap et al. (1992) found in their research that the management involvement is crucial to IT success within SMEs.

Research on SMEs and E-commerce

E-commerce can be defined as any economic or business activity through Web storefronts to enable the buying and selling of products and services and to facilitate the transaction of business and activities between and amongst individuals and organisations (Schneider 2002). In a wider definition, however, e-commerce is not limited to buying and selling products online. Along with customers, an online business will also find its suppliers, accountants, payment services, government agencies, and competitors online. These online partners demand changes in the way they do business from production to consumption (Alter 2002, Bidgoli 2002). Succinctly, e-commerce is a new way of doing business (Seyal and Rahman, 2003; Schneider, 2002; Rahman and Raisinghani, 2000).

Numerous studies into the use of e-commerce in SMEs recently have been of an exploratory and qualitative nature (Drew 2002). While there is rapid growth and development of dot-coms and the 'new economy', SMEs in developing countries have been slower to adopt e-commerce than their developed countries (Intrapairot and Srivihok 2003).

Moreover, there are several issues that have been raised in recent SME literatures, which include:
- Exploring the advantage and disadvantage of e-commerce in Thai SMEs (Intrapairot and Srivihok, 2003)
- The importance of e-commerce infrastructure in facilitating the e-commerce adoption initiatives for SMEs in developing countries (Jennex et al. 2004, Stylianou et al. 2003).
- The use of e-commerce by manufacturing sector of Italian SMEs (Santarelli and D'Altri, 2003).
- Adoption attributes that may affect e-commerce use in Brunei SMEs (Seyal and Rahman 2003)
- Factors influencing e-commerce adoption decisions in small and medium enterprises (SMEs) in Thailand (Lertwongsatien and Wongpinunwatana 2003)
- The use of e-commerce in Australian SMEs (MacGregor et al. 1998).

In addition, the business press and trade journals have also given coverage to many of the issues faced by SMEs in moving into e-commerce (Matlay and Addis 2003, Phillips 1998, Schlenker and Crocker 2003).
However, there are some issues that have received very little attention in research to date, such as:
- Framework that helps SMEs evaluate the strategic use of e-commerce as well as guiding the adoption process.
- Assessment of e-commerce application and post adoption experiences in different sectors of Indonesian SMEs.

Impact and Benefit of Strategic Use of e-commerce in SME

One might question why the presence of e-commerce has expanded very rapidly in recent years. The answer is simply because of the opportunities and benefits that are evident from the current implementation by many organisations. The concept of strategic use e-commerce through the utilisation of Internet software and services also endeavours to link Internet use with opportunities it offers to the firm (Sadowski et al. 2002). It further recognises that the strategic potential Internet use

allows exercising the control over the bounds of relationships and interfaces used in relationships between customers and the business, which are also related to the firm's strategies.

E-commerce has offered a variety of potential benefits both to SMEs and large business. Numerous studies claim their findings on the benefit and impact of e-commerce. Those findings are summarised into the following points (Chan 2001, Schneider 2002):

- E-commerce offers unmatched savings in terms of transaction costs
- The reduction of cost in advertising and promotion
- Speed communication between buyer and seller
- Companies can shorten their traditional supply chains, minimise transport obstacles, and reduce delivery costs.
- Physical limitations of time and space are removed.

Despite the attractive benefits that SMEs may obtain from adopting e-commerce into their business, SMEs possess significant problems in identifying the appropriate application of e-commerce and its strategy due to the lack of knowledge and planning in ICT. Consequently, it is hardly surprising to witness that most of the SMEs' owner/managers will finally develop their ICT strategy through a 'trial-and-error' method.

E-commerce and SMEs in Indonesia

During the last twenty years, there has been considerable growth in terms of the number of SMEs throughout Asian economies, with Indonesia in particular. Indonesian SMEs have proven to be the most dynamic and vibrant sector, especially during the time of the financial crisis in 1997 (Urata, 2000).

For the purpose of this research, the official definitions from two Indonesian government bodies The Central Bureau of Statistics (CBS, 2003) and the Ministry of Cooperatives and Small Medium Enterprises (DEPKOP, 2000) will be adopted. The definition is described as follows (see Table 1):

Small Enterprise (UU No. 9/1995): Central Bureau Statistics (BPS):	▪Asset < Rp. 200 million (excluding land and building) ▪ Annual sales volume < Rp. 1 Billion *and/or* ▪Employees: 5-19 people
Medium Enterprise (Inpres 10/1999): Central Bureau Statistics (BPS):	▪Asset Rp. 200 million - Rp. 10 Billion (excluding land and building) ▪Annual sales volume > Rp. 1 Billion *and/or* ▪Employees: 20-99 people

Table 1. Definition of Small and Medium Enterprises in Indonesia

 The significance of SMEs to the Indonesian economy is further highlighted by their contribution to national development and by the fact that, as a sector, they provide and create jobs as well as facilitate the elimination of poverty (DEPKOP 2005).

Furthermore, Indonesia is slowly joining the information superhighway. With the huge and widely spread population, the development of internet technology and infrastructure will not only become a

potential market of e-commerce business but also a means to bridge hundreds of islands spread around the Indonesian archipelago. Therefore, a national campaign has been carried out by the government through seminars and other media in order to convince the benefit of e-commerce and to increase the use of e-commerce by businesses in Indonesia (DEPKOP 2005).

METHODOLOGY

As mentioned earlier, our research objective is to understand the factors and combinations of factors that SMEs need to be considered before embracing e-commerce into their business in Indonesia. Given the little empirical knowledge on the e-commerce management practices in Indonesian organizations, and the exploratory nature of this study, the qualitative case-study approach was considered appropriate for this research. One of the primary limitations of case research is the limited generalisability of the findings (Eisenhardt 1989). Working within this constraint, in order to achieve a fairly generalisable set of results and useful information, this study is analysed from interviews with two SMEs owners/managers.

The two SMEs were selected on the basis of their business size as well as their unique post e-commerce adoption experience. All of the participants were contacted and asked for their willingness to participate in the study. It is important to note that all participants are involved in this research on a voluntary basis.

Furthermore, this study did not include any multinational or transnational organisations, as our intent was to study 'local' business firms operating in typical developing country settings. Due to the non-disclosure agreements with these organisations, the SMEs involved in this study will be referred to as company A/B. All interviews were recorded and the entire conversations are based on open and semi structured interviews (Mahemba and De Brujin 2003).

Data Collection and Analysis

The two hours of semi-structured interviews were used to gather the details of experience from each participant. This method has the advantage of obtaining unambiguous responses to certain issues, although at the risk of influencing responses by attitudes and the structuring of questions. These weaknesses can be addressed by control and evaluation questions. For the analysis of interviews purposes, each interview was recorded and later transcribed verbatim. This ensured that the notes compiled during the interview were an accurate reflection of the information being provided by the interviewees. Moreover, in order to add to the usefulness of information collected, multiple sources of information were used. This data triangulation method involved using multiple data sources in the interview process. Apart from conducting interviews, the researcher cited relevant documents and was often invited to observe company premises. A multiple research approach is cited as one method of ensuring the reliability and validity of qualitative research (Creswell 2003).

CASE STUDIES

Company A: Educational Service

Company A is located in West Java, Indonesia. The primary business of this firm is to provide students from any junior and senior high school in town with educational coaching services.

The e-commerce adoption was finally initiated by the Manager so as to give the students a more convenient way to retrieve results, download any course material of their study or even post the questions online simply from the nearest Internet café or even at their own convenience at home. A subsidiary goal is to find potential students that are interested in learning by distance so it will save some cost on employing more tutors.

Considering that the performance of the web may affect the convenience of the customer, the Manager was decided to invest in technology by hiring professional web developer to design and develop their website.

The problem has finally emerged that only a few students are utilising the website facility, while no students have enrolled in distance learning classes. After the survey evaluation and interview with a few students completed by the organisation, the owner realised that most of the students believed there is not much difference in terms of cost between logging into the website from the nearest Internet café and obtaining the result personally from the office. Indeed, by going to the office personally, the students would have some chance to ask and confirm their answer directly to the tutors.

Company B: Transportation Service

Established in 1979, company B is a privately owned inner city bus operator with bus rental, which is located in Central Java, Indonesia.

It was the owner's initiation to embrace e-commerce into their business, which was actually recommended by one of his colleagues that had just finished attending an e-commerce seminar, organised by the government agencies. His colleague believes that e-commerce will help the business by cost reduction, increased sales and improved productivity.

There is only one staff member with the appropriate skills in using a PC and email applications. However, there are no staff with skills in designing and developing the website, so the only available solution for the owner is to hire a programmer to build the website for the company. In 2002, the company has successfully set up the website that allows the potential customers to find out the available services, types of vehicle available for hire, pricing information, bus route and details of the office location.

Within just the first few months of e-commerce adoption, the company has started facing several challenges in managing their business online. The owner said that the company had received a number of complaints from customers who felt unsatisfied with the response time in replying to their message through email. In addition, the majority of customers appear to prefer traditional ways of gathering information, ie. through phone and fax machine.

DISCUSSION

There are several points which have emerged from the analysis of the two companies involved in the case studies above, which will now be discussed.

The critical value of business strategy

Numerous literature acknowledges the fact that the lack – or absence in some cases- of business strategy in SMEs may hamper their ability to thrive (Ballantine et al. 1998, Morison et al. 2003, Shaleh 1986). This claim had been supported by the two cases previously described above.

It is obvious that both companies portrayed are sharing some common interests, ie. to look for ways of taking advantage and getting as much benefit as possible from their investment in e-commerce. However, what has been missing from the above adoption processes is the initial process of identifying their business strategy prior to the e-commerce adoption decision. Thorough identification of the business strategy facilitates the company's knowledge of the business objectives, strength of the business, available resources and business environment that in a later stage can also be used for defining what the key business processes are.

Furthermore, it is important to emphasise that e-commerce is not entirely about technology. Instead, it is more appropriate to perceive e-commerce as a way for organisations and industry to gain value from and transform key business processes with the Internet and related technologies. The failure in e-commerce adoption can also be triggered if the owner/manager believes that the existing business process issues can be resolved simply by converting them into electronic form. In fact, applying technology without careful planning and justification frequently results in poorer performance.

The Proposed Practical Framework

In order to assist SMEs formulate an effective e-commerce adoption decision, this paper has extended the analysis of the qualitative data into the development of a practical framework as shown in Figure 1. A full description of steps involved will be presented as follows.
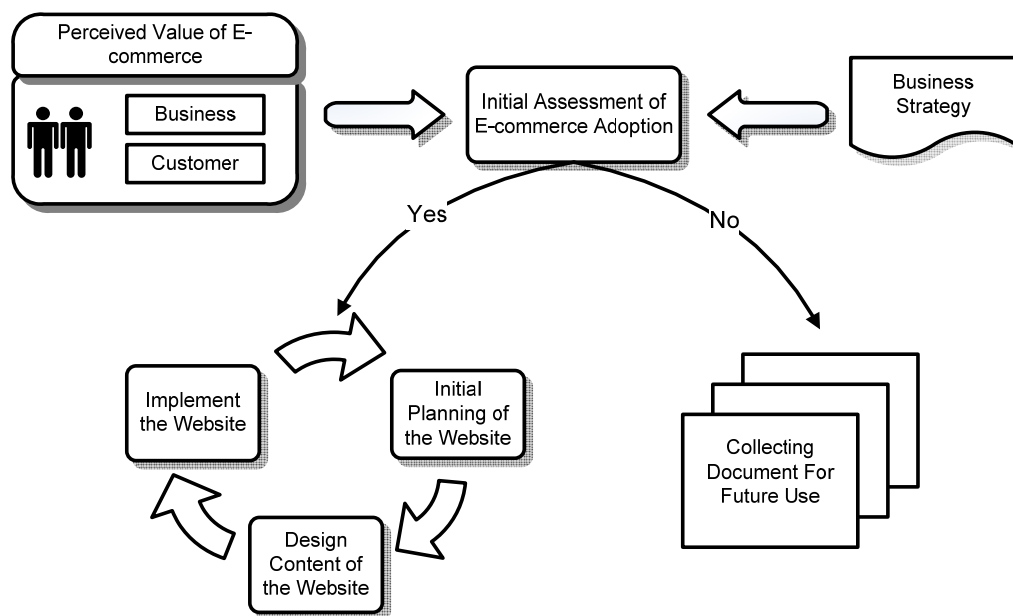

Figure 1. Proposed E-commerce Adoption Framework for SMEs

Step 1 - Initial Assessment of E-commerce Adoption

Along with identifying key business process and business strategy prior to e-commerce adoption, it is also important for the business to gather as much as information on e-commerce readiness of the external entity – such as the customer – that will also have an impact and influence on the e-commerce success in the business. This is due to the fact that most SMEs in the service sector considered e-commerce not only improves internal productivity and cost saving, but also engages the customer by increasing the customer's comfort.

In addition, Mitra and Chaya (1996) propose that there is a need to quantify the benefits from the investments in building quality e-commerce and also to require solid evidence of value-add to customers. This is due to the fact that the added value for customers will result in additional profit for the organisation, as they are able to maintain current customer relationships and develop new ones based on the attractive offerings a new e-commerce can afford.

After the company had quantified the benefits of adopting e-commerce both from business and customers' perspectives, the next factor to identify is the alignment of the business strategy to the technology. Drew (2002) found in his study that the establishment of e-commerce technology as a competitive advantage will depend upon how well the SME can integrate the process into the total business strategy.

Step 2 – The website development loop

If through the initial assessment of e-commerce adoption process it is found that e-commerce will benefit the business, the next step to be carried out is defining the website development plan. During this step, the business should identify the functionality of the website such as by defining to what extent the website will serve. Is it only for marketing purposes or is it developed to replace the service that a bricks and mortar shop can provide?

An example boundary of website development plan is illustrated in Figure 2. The figure provides an example of how the development process can be divided into three stages. In this case, during initial implementation, the company implemented three additional static pages to the main page of the website. As the business expands, the business strategy evolved and further enhancement of the website may be required. This enhancement can be fulfilled by adding additional features such as online ordering forms, online payment facilities and so on.
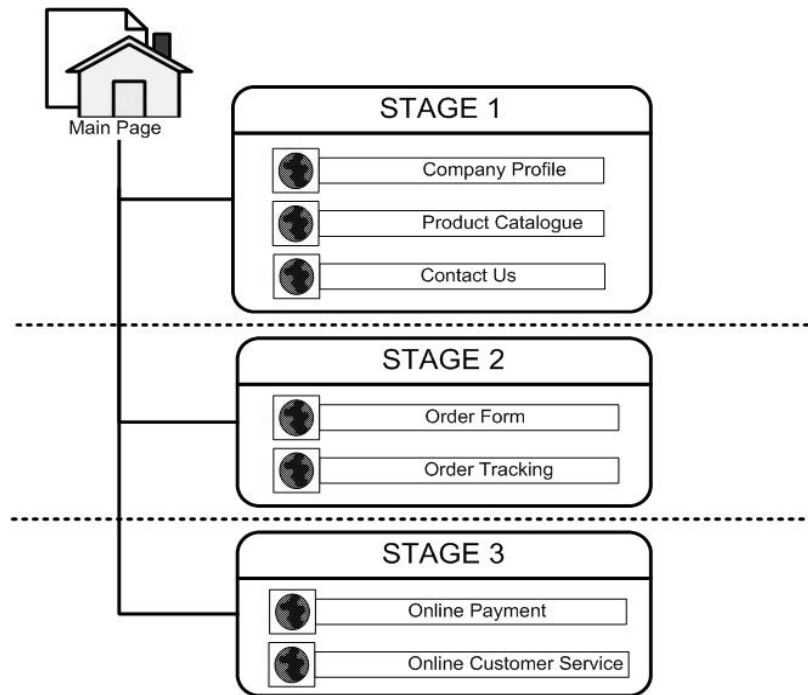
Figure 2. Sample of Website Development Plan

The next step to implement in the website development loop is designing the content of the website. In this step the company may hire a graphics designer and/or web programmer, and work closely to determine what content may be appropriate for the business. If the website is only dedicated to customers within the country, then the use of local language would be appropriate to minimise the confusion. Finally, the entire document collected from this step – such as the website layout and contents – can then be used to implement the website.

In addition, it is also important for the company that utilises the website as a marketing tool to consider registering the website on several search engines or promote it through other media.

Although the steps in the framework depicted in Figure 1 seem like a sequential process, it is possible to have iteration between steps. By the maturity of the business, the boundaries of the website can be adjusted to fulfil the business needs.

The needs for external support

Another point to be emphasised is the importance of continuing support from the government or any non-government bodies that are concerned with the development of SMEs. This implies support bodies need to provide more comprehensive assistance, which is to guide SMEs from beginning to end in the adoption process. This assistance is critical due to the fact that most of SMEs lack in-house expertise, which means some assistance is needed in identifying issues prior to adoption decisions – such as defining business strategies as stated above. As much as important of convincing SMEs the benefits of e-commerce, helping them in the adoption process may also become one of the solutions in eliminating chances of failure or inefficient use of e-commerce.

Finally, in order to be effective in helping SMEs, it is also important for the government to ensure that the information on what kinds of services are provided widely to all SMEs. It is relevant to note that information provided by ASEAN (Association of South East Asian Nations) (ASEAN (Association of South East Asian Nations) 1997) shows that in Indonesia less than 20 per cent of the SMEs entrepreneurs have received assistance from the governments.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The research context of this study limits the conclusion that can be drawn. One of the key weaknesses in this study lies in the difficulty of generalising the proposed framework to the adoption of B2B types of e-commerce. This is due to the restricted nature of the study context – that is the adoption of B2C website by small service company – which limits the generalisability and applicability of the findings to other study contexts.

Further study is therefore needed to assess the applicability as well as the significance of the proposed determinants by incorporating the impact of culture, management styles and other variables that may also impact on adoption processes. It should also consider the views of successful adopters to help develop a more holistic understanding of factors in thriving e-commerce adoption.

CONCLUSIONS

Electronic commerce (e-commerce) adoption case studies in two Indonesian SMEs have been presented in this paper. It shows an analysis of the importance of aligning business strategy with e-commerce adoption in SMEs. The study also underlines several factors and a step-by-step process of adopting e-commerce through a proposed framework.

The results of this study are useful not only for managers of SMEs but also for government bodies, in developing countries such as Indonesia, that have economic reasons to be concerned about the development of SMEs. The author believes that the results will also provide some insights to ICT consultants – with SME customers – in order to improve their service and customer satisfaction.
This paper advances the field of qualitative research in IT by providing an actual experience of how the use of case study can be applied to identify important factors that SMEs need to consider before adopting e-commerce. The data gathered from the case study had also been used to build a framework for e-commerce adoption.

It is hoped that the experiences we had in employing the methodology will also serve as basis information for any researcher interested in conducting case study in developing country, particularly Indonesia.

Although the research context is quite specific, it is believed that the findings are of relevance to other industries and other countries.

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