EMPIRICALLY EXAMINING BARRIERS TO E-BUSINESS ADOPTION IN SMEs IN INDONESIA

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ABSTRACT
We examine SMEs’ attitudes towards e-Business adoption from a multi-dimensional perspective to provide an understanding of the challenges and barriers to e-Business adoption in the SMEs context. We derive a framework containing the interaction among various elements that influence e-Business adoption. The framework was analysed with data from case studies involving Indonesian SMEs. Prior findings have shown the importance of e-Business for companies’ growth. However, we have extended this evidence by providing an understanding of issues that are important for e-Business adoption in the SMEs context. We have empirically established that e-Business adoption occurs through an interaction of various internal and external factors with owner-manager-related factors having the greatest influence on the outcome. The understanding of issues identified by this study will help policy makers, business owners, industry institutions, and other stakeholders to influence the uptake of e-Business among SMEs in Indonesia and elsewhere. Theoretical and practical implications are discussed.

Keywords: B2B; e-Business; Emerging economies / countries; Indonesian SMEs; Internet Technologies, Qualitative analysis, Small and Medium Enterprises (SMEs).

1. INTRODUCTION
Academics and practitioners have recognised that the advent of Internet technologies has brought about a significant shift in business practices and ways of doing business (Wu et al., 2003). These technological changes have resulted in new ways of communication, which has had a substantial effect on how businesses exchange information, conduct transactions and manage business relationships between organizations (Turban et al., 2002). The exponential growth of Internet users has also enabled faster dissemination of information and a rapid increase in the number of business transactions over the Internet. The use of Internet-based technologies to conduct business is called “e-Business” Wu et al., (2003, pg. 425) defined e-Business as

“the use of Internet technologies to link customers, suppliers, business partners, and employees using at least one of the following: (a) e-commerce websites that offer sales transactions, (b) customer service websites, (c) intranets and enterprise information portals, (d) extranets and supply chains, and (e) IP electronic data interchange”.

The implementation of e-Business has indeed offered several compelling benefits that have enabled companies to improve their business performance (Sauer, 2000) and develop greater collaboration with their business partners (Caro and Navarro, 2010).

The benefits offered through e-Business have not only attracted large companies to embrace it, but also more and more SMEs (Wilson et al., 2008). SMEs’ participation in e-
Business has afforded them greater opportunities that they would not be able to access otherwise. Thus, by participating in e-Business, SMEs have the opportunity to engage with other firms in the market and leverage their flexibility and adaptability to stay competitive (Poon and Swatman, 1998).

Despite the promising outlook for the growth of e-Business among SMEs, little research exists on what facilitates or inhibits adoption of e-Business among SMEs, especially in emerging economies (Reimers et al., 2004; Zhao et al., 2008). For instance, Indonesia is one of the emerging economies with the largest number of SMEs in Southeast Asia with approximately 53 million SMEs. Yet Indonesia is considered to be lagging behind compared with other Southeast Asian countries in terms of e-Readiness and uptake of e-Business (Dutta and Osorio, 2012). The small number of e-business marketplaces in Indonesia also indicates that Indonesian SMEs are not actively using e-Business model and may not be aware of the benefits of implementing and using e-Business. This situation is further complicated by the fact that very little research has been done to analyse the development of e-Business in Indonesia (Kartiwi, 2006).

Thus, this study attempts to fill the above described gap in knowledge and investigate two fundamental questions:

(1) How do Indonesian SMEs perceive e-Business
(2) What are the main barriers to Indonesian SMEs adopting e-Business?

We argue that understanding the e-Business adoption of SMEs in Indonesia is not only important for the Indonesian economy, but it is equally important for other emerging economies.

2. Literature Review

2.1 e-Business and Technology Issues in Emerging Economies

The rapid development of ICT and unprecedented changes in the business environment have prompted organizations to respond to these challenges by integrating ICT into their business operations (Sigala, 2003) and implementing e-Business practices. Some studies argue that developing countries have a slower e-Business adoption rate compared to developed countries (Molla and Licker, 2005). The slower e-Business adoption rate in emerging economies has been explained as resulting from environmental, managerial and organizational constraints (Molla and Licker, 2005). Other researchers have noted that emerging economies are often confronted with several issues such as lack of e-Business policies and regulation, inadequate telecommunication and Internet infrastructure, lack of trust in e-Business use and concerns about security issues regarding e-Business implementation (Zhao et al., 2008). Similar barriers have been found in the Indonesian context where inadequate infrastructure and the lack of reliable Internet regulations and policies are found to be the underlying reasons of the low NRI (Network Readiness Index), which inhibits the e-Business development in Indonesia (OECD, 2004). In some parts of Indonesia, telecommunication infrastructure is still in a very deficient state with only 0.2 per cent telephone line density (Economist Intelligence Unit, 2009).

2.2 e-Readiness in Indonesia

Regardless of e-Business proliferation and its associated benefits, many Indonesian SMEs are still sceptical about e-Business adoption, as they consider it a new phenomenon. A report from the World Economic Forum and INSEAD in 2012 ranked Indonesia 80th among 142 countries based on its NRI (Dutta and Osorio, 2012). The NRI ranking was based on four
Factors including environment (political and regulatory, business and innovation), readiness (infrastructure, affordability, and skills), usage (individual, business and government) and impact (social and economic). This low ranking puts Indonesia in the bottom of the table compared to other Southeast Asian countries (Singapore, 2\textsuperscript{nd}; Malaysia 29\textsuperscript{th}; China 51\textsuperscript{st} and Thailand 77\textsuperscript{th}). This situation indicates that e-Business practices in Indonesia are still at a very initial stage.

Indonesia’s low NRI ranking has prompted the Indonesian government to focus on e-Readiness. The Association of Indonesian Internet Service Provider (APJII) revealed that the high cost of bandwidth, poor fibre-optic infrastructure and limited PC penetration has contributed to the low Internet diffusion in Indonesia (Economist Intelligence Unit, 2009). APJII also painted a rosy picture of Indonesian internet market predicting a drop in bandwidth prices of up to 50\% due to influx of new ISP providers serving the market (Economist Intelligence Unit, 2009). Such developments are expected to provide support for e-Business uptake due to consistent broadband connectivity and availability of faster network connection (Zakaria and Janom, 2011).

2.3 SMEs’ Characteristics in Adopting New ICT

Not surprisingly, some studies suggest that smaller enterprises possess different characteristics compared to larger firms (Fillis and Wagner, 2005; Matlay and Addis, 2003). These different characteristics sometimes serve as a barrier for SMEs to accepting new changes, particularly ICT adoption that requires a certain level of skills and knowledge. SMEs tend to be (1) risk averse with IT adoption in the organization strongly influenced by the owner-manager of the SME (Matlay and Addis, 2003), (2) slow in adopting the new technology due to its unfamiliarity with ICT (Thong, 1999), (3) lacking resources in IT knowledge, personnel and financial resources (Zhu et al., 2002), (4) lacking in control over business environment and power to influence their partners to implement e-business (Zhu et al., 2002) and (5) lacking in investment in sophisticated application or software (Thong, 1999).

2.4 Barriers to e-Business Adoption

The success of e-Business adoption is represented by the ability to integrate the internal and external factors (Lin, 2007). The internal factors manifest internally, while the external factors are caused by the environment outside of the company.

2.4.1 Internal Factors

Individual

It is widely recognized that the owner-manager of an SME plays a dominant role in decision-making in the technology adoption process (Fillis et al., 2004). Hodson and Whitelock (2003) found that lack of aspiration and poor IT knowledge of the owner-manager will most likely inhibit SMEs from adopting e-Business. Therefore, if the owner-manager of a firm is not open to new technology innovation or has no competency and knowledge in managing e-Business, it will hinder the firms from engaging in e-Business practices.

Positive attitudes toward adopting e-business come from the enthusiasm from knowledge about computers, perceived advantages of e-business, and the realisation that e-business is in congruence with a company’s strategy (Mirchandani and Motwani, 2001). Thus, it is necessary to understand the owner-manager’s motivations, their perceived values and their attitudes toward adopting new technology or innovations (Fillis et al., 2004). In addition, Storey (1997) also identified that the owner-managers in small firms tend to have different objectives, with many of the owner-managers only wanting to obtain a minimum level of income, rather than maximizing their profits. This situation might also serve as a
barrier which inhibits SMEs from obtaining potential benefits from an e-Business implementation to improve their business performance.

Organizational
Previous studies have shown that smaller size companies are less likely to adopt new developments in ICT due to their simple organisational structure and lack of large amount of information to communicate and store. Thus, SMEs often perceive that it is not necessary or required for them to use complex communication technology to manage their work (Windrum and Berranger, 2002).

In fact, limited financial resources cause SMEs to provide less training to their employees which leads to insufficient ICT expertise within the organization (Windrum and Berranger, 2002). Although SMEs face resource limitations, some argue that they should not ignore the significance of ICT but instead embrace new technologies in their businesses to obtain greater value through e-Business usage (Ashurt et al., 2011).

Lin (2007) claims that organizational learning is crucial to the process of adopting new technologies in an organization. However, SMEs face challenges in quickly adapting to new changes in the market as they are known to limit their focus on day-to-day business rather than future planning. Such a situation restricts SMEs from upgrading their skills and knowledge.

2.4.2 External Factors

IT Infrastructure
Kamel (2006) argues that IT infrastructure and the level of technological sophistication are some of the essential factors impacting the adoption of e-Business. Especially in countries where the Internet Service Provider (ISP) infrastructure is still developing, supporting regulations and equal accessibility are crucial to the adoption of e-Business. The Internet is the main element for the deployment of e-Business, yet Internet access and infrastructure in developing countries are far from satisfactory (Kamel, 2006).

Zhu et al., (2002) found that there is a major relationship between organizational innovativeness and technological resources. Thus, organisations need to build a good IT infrastructure as it plays a major role in supporting e-Business adoption.

Market and Industry
Another factor that hinders SMEs from adopting e-Business is the lack of power to influence partners to adopt e-Business which makes it difficult to achieve economies of scale (Zhu et al., 2002). Likewise, the company with innovative or state-of-the-art ICT might find it difficult to build external contact with the other party if the other party has not adopted the particular ICT or is still in their early stages of adoption. Therefore, integration between SMEs and external partners is crucial for e-Business implementation.

Government Support
Government is one of the most influential stakeholders that shapes and controls development activities including e-Business activities (Roberts and Toleman, 2007). According to Julta et al. (2002), government plays a significant role in assisting ICT diffusion. Several studies have also noted that government plays a leading role in accelerating and stimulating the faster e-Business adoption (Zakaria and Janom, 2011; Molla and Licker, 2005).

Indeed, government’s initiatives which provide economic and financial support assist SMEs in adopting e-Business. As such we will examine government’s role in influencing e-Business in Indonesia.
2.5 Conceptual Framework

With the integration of the relevant theories and the literature (Fillis et al., 2004; Lin, 2007; Reimers et al., 2004; Shakir et al., 2007; Zakaria and Janom, 2011), this study has identified five key factors to examine the barriers to SMEs adoption of e-Business in Indonesia (Figure 1). These factors are individual support, organizational support, IT infrastructure, market and industry norms, and governmental influence (Table 1). The conceptual framework is presented in Figure 1.

The reciprocal relationships among the factors are shown by the dotted lines. The five factors have a direct and indirect influences through their effects on other factors that could inhibit e-Business adoption.

As the government’s influence affects all of the other factors, it is depicted as a large square that encompasses the others. Individual factor is shown to have a reciprocal relationship with both organization and IT infrastructure. This is because individual owner-manager with negative or indifferent attitudes towards e-Business might constrain the adoption of e-Business (Mirchandani and Motwani, 2001; Fillis et al., 2004).

Market and Industry norms is also predicted to affect both organizational and IT infrastructure in a specific country. SMEs often have no power to influence their business partners to adopt e-Business (Zhu et al., 2002). Therefore, without the readiness of their market and industry to adopt e-Business, organizations cannot achieve economies of scales by adopting e-Business and are therefore reluctant to implement e-Business. The lack of IT infrastructure might also hinder the readiness of the market-industry to a certain level, which could cause them to lag behind and oppose the adoption of e-Business.

Figure 1. Factors that affect e-Business adoption by SMEs
Table 1. Literature summary of e-Business adoption for Indonesian SMEs (authors, 2013)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Description</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>• Owner-manager’s attitude towards e-Business</td>
<td>Fillis et al., 2004; Fillis and Wagner, 2005.</td>
</tr>
<tr>
<td></td>
<td>• Benefits of implementing e-Business to the organization</td>
<td></td>
</tr>
<tr>
<td>Organizational</td>
<td>• Knowledge of adopting e-Business</td>
<td>Zakaria and Janom, 2011; Sharkir et al., 2007; Lin, 2007</td>
</tr>
<tr>
<td></td>
<td>• Expertise in ICT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organization culture and the availability of technology used in the organization</td>
<td></td>
</tr>
<tr>
<td>IT Infrastructure</td>
<td>• Technology penetration in the country</td>
<td>Zakaria and Janom, 2011; Sharkir et al., 2007; Kamel, 2006; Zhu et al., 2002.</td>
</tr>
<tr>
<td></td>
<td>• Availability and affordability of the necessary technology in the country</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of IT service providers or consultants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• E-Business awareness of those IT service providers and trustworthiness of the providers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of telecommunication providers and support available</td>
<td></td>
</tr>
<tr>
<td>Market and Industry</td>
<td>• Willingness to adopt e-Business by the suppliers and buyers</td>
<td>Zakaria and Janom, 2011; Reimers et al., 2004; Zhu et al., 2002.</td>
</tr>
<tr>
<td></td>
<td>• Pressure from the market and Industry</td>
<td></td>
</tr>
<tr>
<td>Government Support</td>
<td>• SMEs’ awareness of governmental e-Support</td>
<td>Zakaria and Janom, 2011; Sharkir et al., 2007; Molla and Licker, 2005; Roberts and Toleman, 2007.</td>
</tr>
<tr>
<td></td>
<td>• SMEs’ perception of governmental e-Support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Government initiatives towards the implementation of e-Business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Availability of research centers to support e-Business learning</td>
<td></td>
</tr>
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<td></td>
<td>• Regulation and policies for e-Business</td>
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3. RESEARCH METHODOLOGY

Given the purpose of this study, an exploratory approach is the most suitable for this research since it will help to obtain deeper insights into the issues relevant to the study. A multiple case studies’ approach is adopted for this study as Robson (2002: 178), describes case studies as ‘a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence.’

In-depth interviews are widely recognized to be the most frequently used approach in qualitative research methods because the interviewer is able to obtain in-depth information. Therefore, face-to-face interviews have been chosen for this study in order to have a greater understanding of the problems and gain insight into the topic. The interviews were based on semi-structured, open-ended questions to enable the respondents to freely express their thoughts and opinions.

3.1 Questionnaire Development

Based on the research of Perotti et al. (2012), two different versions of the question guide were created. While the complete and detailed version of the questionnaire was retained by the interviewer, the shorter version was sent to the interviewee. This was to help the informant to be more prepared for the questions prior to the interviews. The questions were
organized into five main sections: (2) Individual, (3) Organizational, (4) IT Infrastructure, (5) Market and Industry and (6) Government. Additionally, general questions about the company were also asked.

3.2 Sample Selection
For the purposes of this study, SMEs were determined based on the classification from the Indonesian Small Medium Enterprises Organization (DEPKOP) and the Central Bureau of Statistics (CBS) in Indonesia (DEPKOP, 2010; Kartiwi, 2006) (see Table 2).

Table 2. Defining Characteristics of Small and Medium Enterprises (SMEs) in Indonesia

<table>
<thead>
<tr>
<th>Small Enterprise (UU No. 20/2008)</th>
<th>Medium Enterprise (UU No.20/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Bureau Statistic</td>
<td>Central Bureau Statistics</td>
</tr>
<tr>
<td>• Assets &gt; Rupiah. 50 million- 500 million (Excluding Land and Building)</td>
<td>• Asset Rp.500 million- Rp. 10 billion (Excluding land and building)</td>
</tr>
<tr>
<td>• Annual sales volume &gt; Rp. 300 Million - 2.5 Billion and/or</td>
<td>• Annual sales volume &gt; Rp. 2 Billion - Rp. 50 Billion and/or</td>
</tr>
<tr>
<td>• Employees: 5-19 people</td>
<td>• Employees: 20-99 people</td>
</tr>
</tbody>
</table>


The SMEs chosen for this study all come from the manufacturing sector in Indonesia. A company was considered eligible if it met the following criteria: (1) must be an Indonesian company (2) must be classified as SME based on the criteria in Table 2, (3) must be involved in the manufacturing sector, (4) must be located in the Greater Jakarta Metropolitan Area (Jabodetabek- Jakarta, Bogor, Depok, Tangerang and Bekasi). The location was limited to Greater Jakarta for two reasons. Firstly, Greater Jakarta is one of the largest metropolitan areas in the world (Demographia, 2013) and is also the heart of Indonesian trade, government administration and industry. Secondly, it was chosen to simplify the data collection.

Nine companies meeting these criteria were contacted with five of them agreeing to participate in the study. Three out of the five companies were selected for this study based on the polar-type (Miles and Huberman, 1994) filtering criterion that contrasts the characteristics of the cases by choosing an organization with high and low performance on particular aspects. Thus, the polar-type filtering categorized the three SMEs based on their different stages of e-Business implementation and attitudes, enabling us to obtain different perspectives on how SMEs in different stages of e-Business readiness have responded to the adoption of e-Business in Indonesia. Thus, the stages are divided into three categories: conservative (laggard) stage, process stage and adopter stage (summarized in Table 3).
Table 3. Companies chosen for the study

<table>
<thead>
<tr>
<th></th>
<th>Core Business</th>
<th>Year Established</th>
<th>Employees</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Company A (Chocolate trader and producer)</td>
<td>2008 (Trading) 2011 (Produce)</td>
<td>25</td>
<td>Adopter</td>
</tr>
<tr>
<td>2.</td>
<td>Company B (Plastic injection)</td>
<td>1986</td>
<td>98</td>
<td>Process</td>
</tr>
<tr>
<td>3.</td>
<td>Company C (Printing intermediary)</td>
<td>1991</td>
<td>12</td>
<td>Laggard or Conservative</td>
</tr>
</tbody>
</table>

3.3 Data Collection, Validity and Reliability

Interviews were conducted with the Chief Executive Officers (CEO) or the owners of each company as they are the main decision-makers in the organization and thus play an essential role in deciding the implementation of e-Business. The names of the three companies are represented here as Company A, Company B, and Company C in order to maintain anonymity. All interviews were conducted face-to-face in Bahasa (the official Indonesian language and the native language of the interviewees). The interviews were tape recorded with each interview taking approximately one to two hours. The interviews were subsequently transcribed for analysis.

To ensure the validity and reliability of the data collection, this study has applied the multiple case study approach which is believed to minimize interviewer bias towards the results. To ensure the validity of the interviews, the conclusions drawn from each interview were then sent to be verified by the respondents (Yin, 2003).

4. Data Analysis

4.1 Company Overview

The sample of this study involves three Indonesian manufacturing SMEs (A, B and C), which are at the advanced, process and laggard stages of e-Business adoption respectively. The chosen samples were selected in order to obtain greater insight into SMEs’ perceptions and attitudes towards e-Business adoption in Indonesia.

Company A (Advanced Stage)

Company A is a chocolate trader and producer headquartered in Jakarta. The company was established in 2008 and started to expand its business in 2011 by investing in a new plant for producing chocolate. The majority of Company A’s clients are international buyers from Western Europe, Africa and the United States. Therefore, almost 95% of Company A’s production is exported. Company A’s initiative to implement e-Business was driven by demand from its international buyers and the need to streamline its business processes. Currently, Company A engages in several e-Business activities such as communicating through emails, participating in e-Procurement activities, implementing an Exchange Data Interchange (EDI) system and maintaining a corporate website to introduce their profile and products. We interviewed the CEO of the company, who is also the owner of the company.

Company B (Process Stage)

Company B is an Original Equipment Manufacturer (OEM) that offers a variety of plastic production services to other companies. Company B’s main market and suppliers are domestic, mostly located on Java, but they also have several suppliers from Taiwan and Hong Kong. Company B is categorized in the process stage because it is using the Internet to
manage their business but not fully involved in various e-Business related activities. For example, they are contacting their suppliers through emails and searching for new suppliers or products through e-marketplaces. However, company B is not interested in engaging in other e-Business practices. Until now, Company B has had no intention of expanding their business. They strongly believe that the business can be sustained by its existing customers and their word-of-mouth. The interview was conducted with the owner of the company.

Company C
Company C is a paper printing company. It is categorized in the laggard stage of e-Business adoption because it does not engage in any e-Business practices. Instead, company C is still using a traditional paper-based system and typewriters to process all the orders and purchases. Most of their customers are repeat customers, who are maintained through trusted relationships or new customers who come via word-of-mouth referrals. The owner of company C was interviewed for this study.

4.2 Data Analysis
4.2.1 Individual Support
One of the reasons that Company A has been designated as being in the advanced stage of e-Business adoption is because of the receptiveness and positive attitudes of the company’s CEO towards the importance of e-Business implementation. The interviewee believes that the huge amount of capital invested for e-Business infrastructure is a long-term investment which is very beneficial especially in the global marketplace. He is also responsive towards the development of technology and agrees that companies should adapt to change in order to compete in both domestic and international markets. Particularly, the respondent understands that engaging in e-Business practices could increase efficiency, communication and profits for the organization.

The CEO of Company B recognizes the benefits of e-Business and perceives it to be valuable for certain businesses. However, he expresses his lack of enthusiasm for an extensive e-Business adoption for his company. The respondent considers it unnecessary to invest capital into e-Business systems in the company. The respondent also suggests that problems may arise if they moved from a paper-based system to an electronic-based one, which might require extra resources and time to teach the employees with an uncertain outcome. He also adds that the most important factor for his company in terms of adopting e-Business is the readiness of its market and industry. The CEO has an unfavourable attitude towards e-Business and believes that their business is sufficient without implementing other complex e-Business system. Therefore, this attitude has constrained Company B from engaging in any other e-Business activity beyond its current fairly rudimentary e-Business practices.

The CEO of Company C holds an unfavourable attitude toward e-Business. He is not aware of the benefits of e-Business and assumes that e-Business is not necessary for his business. The owner also has limited knowledge of IT or e-Business, which has made him resistant toward technology changes and has made him feel more comfortable using traditional paper-based business processes. The CEO has no intention of marketing his business to obtain new customers or expand his business. Therefore, he believes that it is not necessary to implement any e-Business practices. The founder also explains:

“…. some people might not be ready for changes, and so do I. In my case, I do not quite understand how to use e-Business and what it is about. Maybe it is also caused due to the different generation. I am not technology savvy nor understand much about the latest technology. Therefore, it would be quite challenging and hard for me to be receptive in applying new system or technology”.

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4.2.2 Organizational Support or Readiness
Company A is considered to have good organizational readiness to implement e-Business. Company A employs technology savvy workers who are familiar with the latest technology. In responding to the barriers to e-Business implementation in the organization, the CEO elaborates on the transition process:

“Our Company faced some difficulties in the early e-Business adoption, but I believe it is normal that some problems might occur during the transition from paper-based work to electronic-based work. Our company can deal with it without serious problems because we hired consultants to help us in selecting the most suitable system for our company. We also provide training and assistance for our employees to deal with the new technology”.

Moreover, due to the small numbers of employees in Company A, the CEO explains that they have been systematic in their approach towards knowledge about the environment and that the organisation is receptive to changes. The company has taken a series of steps and actions in dealing with changes in business environment and regularly keep their staff members informed of the new decisions or such changes. For instance, the company conducts meetings with employees to introduce new rules, procedures, and systems. The company also ensures that their employees can adapt to any new system through extensive training and guidance. This ensures that the new information is disseminated and understood by all employees, which helps the company to apply new technology or system without any major difficulties. Currently, Company A has their own website and e-marketplace coordinator responsible for managing all the data and communication with their international customers. The employees are used to dealing with ICT processes and usage.

The CEO of Company B claims that it would be quite difficult for Company B to educate their employees to adopt e-Business practices as Company B has some employees who are capable of handling daily computer tasks but no specific IT experts who understand e-Business. The CEO elaborates further stating that one of the barriers for his company in adopting e-Business might lie in the lack of skilled human capital in general in his company. The organizational learning in Company B is also considered quite slow due to the low-levels of skilled labour. The respondent also exhibits little enthusiasm for providing training to their employees: “It will be a great challenge for the company to educate inexperienced employees to adopt e-Business because it takes more time and a slower learning process as they have no basic skills dealing with new technologies”. In the past, there have not been substantial technological changes at the company. The last major technology introduced was the installation of CCTV cameras in the manufacturing plant, which are linked to the main office. However, this is just a normal improvement within the company. Thus, one of the main barriers for Company B to implementing other e-Business practices in the organization is the lack of ICT expertise.

Finally, Company C has the same problem as Company B in terms of the lack of IT experts and high-skilled workers as most of its employees are not familiar with the usage of computers. Most of their employees are high school graduate who are only capable of doing unskilled labour. As a result, it would be quite difficult for this company to adopt e-Business, as they lack the resources in term of IT experts. Poor understanding of the benefits of e-Business by the CEO leading Company C has also made him reluctant to make an investment in new technology assets that are not easily understood by the organization. This lack of understanding by the owner of the company has also led to the organization preserving their paper-based work, which is supported by a typewriter; no computer is even used in the organization.
4.2.3 IT Infrastructure
Both Companies A and B stated that they are facing no difficulties or any dissatisfaction regarding the IT infrastructure in Indonesia as it is perceived to be adequate for daily business processes. The owner of Company A believes that it is not difficult to find an IT service provider as the availability of ISP companies is adequate and the services affordable. He explains that more ISP companies have entered the Indonesian market, offering different Internet packages with affordable price and speed. Thus, it is perceived that Internet service in Indonesia is progressing to a higher standard. However, Company B has experienced some difficulty finding the right IT service provider due to its limited knowledge of the IT industry. This has caused confusion and hesitation for Company B in terms of adopting e-Business since they are not aware how to find a suitable and reliable IT service provider. In contrast, Company C has not implemented any e-Business practices, as it is not well informed about the current condition of the IT infrastructure, especially e-Business in Indonesia.

4.2.4 Market and Industry Support or Norms?
Company A conducts most of its transactions globally through the Internet, which is supported by the readiness of its customers who have already implemented e-Business systems.

For company B, most of its markets and industry are still operating using a paper-based system for managing all orders, deliveries and billings. Company B emphasizes that there is no added value for them in implementing e-Business without the readiness of their suppliers or customers. The CEO also further explains that one of its biggest suppliers, and a national player in its industry, is also still relying on a paper-based system for taking orders and it uses phone calls rather than emails to contact Company B. Although that supplier of Company B has deployed their own intranet system and inventory system, yet they prefers to use the paper-based method for taking orders and receiving payment from company B. The CEO also discusses transparency issues between suppliers and customers in Indonesia, where some companies are unwilling to share their information with their partners. There is little transparency or tolerance for sharing information. Hence, this might be another reason why some companies hesitate to adopt e-Business. Another reason might be that some companies in Indonesia are not knowledgeable of various payment processes. While in the realm of e-Business, relationships and trust are key in Indonesia, it is still common that payments are not made on time. Company B believes that direct contact is needed and found to be more effective rather than requiring information or payment through the Internet.

The same applies to Company C as their customers and suppliers also do not use any e-Business practices. Currently, Company C does not have many suppliers, so there are few difficulties communicating with their suppliers by phone or face-to-face communication. According to the owner, most of their customers also prefer to meet face-to-face when placing new orders to ensure the right colour and quality for the printing which is difficult to do through email. Thus, the owner of Company C is sceptical that e-Business could add value as none of its partners or customers are using e-Business. The owner of Company C also perceives e-Business as a cutting-edge system not suitable for the current condition. In particular, the market and industry it belongs to do not require any e-Business practices.

4.2.5 Governmental Support
The CEO of Company A is not aware of government support to improve e-Business adoption in Indonesia. The owner believes that government actions have not been effective enough in guiding SMEs in adopting e-Business. However, Company A’s CEO does not feel that the lack of governmental support might have hindered his company from adopting e-Business because they understand ICT. The owner does believe that governmental support is
particularly necessary in helping SMEs who are not familiar with e-Business to accept and implement it. The owner believes that in the end, with or without governmental support, companies are required to adopt e-Business as more organizations are deploying e-Business systems.

Company B is aware that the Indonesian government has undertaken several actions to encourage ICT usage in Indonesia. However, the owner of Company B also raises doubts regarding the functions of the e-government (services and information that the government offers through the Internet) and whether the offline support from the governments will work to assist Indonesian SMEs in adopting e-Business. The CEO of Company B explains that it has not received any benefits from the program: “A platform has been provided by the government in an attempt to develop technology in Indonesia, but it seems that it is not quite functioning.” The CEO elaborates, stating that the support from the government regarding the socialization of e-business is considered remarkably low and that no real action that has been experienced. Another point raised by the CEO relates to changing government regulations and laws especially for something as new as e-Business. Without clear laws and regulations; Company B will probably not adopt e-Business in the future. Furthermore, the CEO believes that obviously government support is unquestionably essential.

In discussions with the founder/owner/CEO of Company C, tax issues and privacy was found to be their main concerns regarding e-Business. He believes that the laws and regulations relating to e-Business in Indonesia are not yet well-established enough to guide e-Business practices. He is also concerned about the company’s privacy, that its internal working could be easily tracked and monitored by competitors or the government. In the interview, the CEO also notes that he is unaware of e-Government or any governmental support related to e-Business initiatives for SMEs. He agrees that governmental support is essential, but he is not expecting much from the government at this time. This discussion also brought out the unwillingness of Company C to implement e-Business unless there are well-established e-Business rules and regulations and trusted ICT experts to help the CEO in managing e-Business.

5. **DISCUSSION OF FINDINGS**

5.1 **Internal Factors**

According to the findings above, support of the individual owner-manager of an organization is found to be significant at all three different stages e-Business adoption. This result is also supported in other studies, where the role of top management is critical for reinforcing e-Business adoption (Fillis et al., 2004). The cases above illustrate that positive attitudes of the individual owner/manager are necessary in order to influence the entire organization to support the adoption of e-Business.

Another factor which was predicted to affect SMEs approving e-Business systems is a lack of resources. Regardless of their stage of adoption, organizational readiness is not only impacted by lack of resources but it is also influenced by individual (owner-manager) attitudes which then affect their recruitment criteria for employees. It appears that an individual who understands the benefits of e-Business is expected to provide relevant training for their employees and invest in e-Business infrastructure to bring about the e-Business transformation of the company.

5.2 **External Factors**

Contrary to prior research (Shakir et al., 2007) IT infrastructure aspect was not found to be a significant inhibitor for either company A or B. Both companies faced no difficulties or dissatisfaction with IT infrastructure in Indonesia. In contrast, company C has limited
knowledge regarding IT infrastructure in terms of weaknesses or otherwise, since they have not implemented any e-Business practices yet.

In the three cases above, trading partners and the market-industry were also found to be significant inhibitors of e-Business adoption. Company B and C are clear examples of this; the tendency towards low usage of e-Business activities in their market and industry has led to their lack of e-Business practices uptake.

While company B has conducted some e-Business practices, the low e-Business awareness from its market-industry has prevented it from fully engaging in online business. In contrast, it is discovered that company A’s readiness to be involved in e-Business was influenced by the pressure and demand of its market and industry.

On the other hand, sharing of information with business partners is another issue that was highlighted in the case of Company B and C. Many Indonesian companies are afraid to share private information with their business partners, which makes them reluctant to apply the EDI system in their organizations.

In relation to government factor, the results from the three cases were found to be quite contrary to previous findings, in that company’s A initiative to adopt e-Business is a result of market pressure rather than governmental support. In fact, although all three companies agreed that government support is essential, each of the firms expressed their frustration regarding the government’s support. It is perceived that government initiatives and support procedures have not been executed properly and have not really been effective in assisting SMEs to adopt e-Business.

Governmental assistance is deemed to be more necessary for SMEs who are in the process or laggards stages of e-Business adoption as they are limited in ICT knowledge and resources, and thus, likely to need more attention and assistance from the Indonesian government in order to have a faster adoption rate. Lack of support from the government is understood to be one of the reasons for the slower e-Business adoption rate in Indonesia but is not the main factor that impinges on organizations’ ability to adopt e-Business practices.

6. Conclusion, Implications, Limitations, and Future Work
The study produced a conceptual model that can be used to analyze the main barriers that hinder Indonesian SMEs in their desire to adopt e-Business practices. The conceptual model comprises of two sources of influence, internal sources (Individual, Organization) and external sources (IT infrastructure, Market and Industry, Government support). Although the sample companies in the research are at different stages of adoption, they share some common influential factors. Three of the five factors: ‘individual’, ‘market and industry’, and ‘government support’ were found to be the most prominent in the obstruction of Indonesian SMEs embracing e-Business practices.

Individual aspects are considered to be the most fundamental elements in initiating the process of e-Business adoption in the organization. The owner-manager of the company should be supportive, with good knowledge and perceived benefits of e-Business in order to facilitate e-Business adoption in the organization. Secondly, the market and industry also have a significant contribution in both encouraging and discouraging Indonesian companies from adopting e-Business. The readiness of their international business partners has made this company follow the same business system as their partners. Nevertheless, it appears that the majority of Indonesian SMEs are not ready for and have not adopted any e-Business practices. Therefore, it is vital that markets and industries be encouraged and supported in engaging e-Business practices, in order to accelerate a faster e-Business adoption in a country.

Although government assistance in general is crucial, it is believed that the inadequate support from the Indonesian government has had a more significant impact in impeding the e-Business adoption of Indonesian SMEs in the process and laggard stages. It is suggested that
the government should pay active role in educating Indonesian SMEs about e-Business and benefits thereof, particularly to those in the process and laggard stages, in order to stimulate greater economic growth in Indonesia.

6.1 Implications
The results of the study has several theoretical and practical implications. In terms of theoretical implications, the findings could be used as a reference for further e-Business development in emerging economies. This research has empirically tested and provided a conceptual framework that has highlighted five main barriers comprised of both internal and external factors that might serve as an inhibitor for SMEs in deploying e-Business practices. The conceptual framework can be further used as fundamental principles in identifying the barriers that hinder e-Business adoption and be set as a guideline to improve the e-business condition in a country. In addition, the study has identified some of the key issues confronted by Indonesian SMEs in manufacturing sector in adopting e-Business.

Practically, the results of this research could be useful, both for policy making and private sector firms wanting to engage in e-Business activities. The results could be used by policy makers as a guideline in planning approaches to accelerate e-Business adoption rates in Indonesia. It could also provide more insightful information on which aspects the government should particularly focus on regarding the issues faced by SMEs.

In addition, there are enormous business prospects related to ICT industries in the largely untapped Indonesian market. Thus, private ICT companies could use these results to understand the barriers and seize the opportunity to serve the unexploited market and fully take advantage of it to maximize its business portfolios.

6.2 Limitations and Further Research
The study has few limitations. Firstly, it only includes a small number of participants from each level of e-Business stages and only interviewed the CEO of the company. Thus, the result might be biased as they present CEO’s point of view. Secondly, the paucity of research and limited information on the B2B market in Indonesia, especially in terms of e-Business, has limited the data collection for the purpose of this study. Finally, as the study consisted of three different stages of e-Business adoption, so the results have limited generalizability.

This study has also opened several opportunities for further research. Research involving a larger sample size and involving samples that have no prior experience with e-Business practices could be done. Selecting specific laggard stage samples is recommended as this study’s findings show that this is the stage of greatest concern; companies in this stage appear to be not interested in e-Business activities. Further research could also consider using a survey method, as it enables greater data collection from more samples, so that the main barriers confronted by Indonesian SMEs can be accurately determined. Another suggestion for further research could involve investigating how to increase Indonesian SMEs awareness towards e-Business adoption and examining the potential outcomes of governmental support systems and initiatives that are perceived to be ineffective.

REFERENCES


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