Abstract

This study aims to develop a model of factors motivating and inhibiting electronic commerce adoption among small and medium enterprises (SMEs) in Brunei Darussalam. Recent statistics show that total number of businesses employing web sites in Brunei Darussalam is very small compared to those in Singapore and Malaysia. Organizations are coming under increasing pressure to adopt electronic commerce as part of the need to be efficient and competitive and to play a greater role in driving the economy. With the new century, the continued prosperity of Brunei Darussalam can no longer be taken for granted. Qualitative research method, in the form of semi-structured interviews, was used to identify factors that are important and relevant to encourage willingness to adopt. Findings indicate that owner characteristics like lack of perceived benefits, lack of knowledge and skill, percieved lack of trust are significant inhibitors while environment characteristics like competitive pressure, government support and infrastructure are significant motivators of electronic commerce in Brunei Darussalam. The model forms a basis for further research as further quantitative study, in the form of survey, can be carried out to assess the model’s validity and provide further insights into the relationships among the factors.

Keyword: Electronic Commerce, Diffusion of Innovation, Adoption, Small and Medium Enterprises

1. INTRODUCTION

For most of the twentieth century, the country of Brunei Darussalam has enjoyed growing prosperity. This prosperity has been the result of bountiful oil and gas resources relative to a small population. Brunei Darussalam’s Gross Domestic Product (GDP) per capita in 1997 was estimated at US$14,800, the second highest in ASEAN and the fourth highest in Asia [6]. With the new century, the continued prosperity of Brunei Darussalam can no longer be taken for granted. There are warning signals of fundamental economic problems which threaten to undermine the prosperity and with it the social stability enjoyed by the people of Brunei Darussalam. Since 1994, the government has been incurring a budget deficit averaging B$1 billion a year which is equivalent to an average of 15% of GDP [3]. Official statistics show current unemployment to be at 5.1%. Forecasts of job prospects by the Department of Statistics for school leavers between 1992 and 2001 suggest that up to 25% may not be able to secure employment [3]. With the private sector facing the worst crisis since 1984, nearly every sector is recording sharp declines ranging from 20% to 60% for year ending 1998. The burden on his
Majesty’s Government therefore remains very large. Over 75% of Bruneian national workforces are employed by the government. Government and government related contracts account for most of domestic economic activity. This situation is increasing unsustainable. The government’s financial ability to undertake these burdens is sharply reduced as a result of sharply reduced oil and gas revenues and losses in the investment of Brunei Darussalam’s foreign reserves.

Given these warning signs, organizations in Brunei are coming under increasing pressure to adopt e-Commerce technology as part of the need to be efficient and competitive and to play a greater role in driving the economy. Recent statistics [4] show that number of total businesses employing web sites in Brunei is very small compared to those in Singapore and Malaysia. Only 1.82% out of 2,188 private companies in the country has web sites. In comparison, Singapore has more that 90% of total private companies have web sites. Another study indicates that only 18% of the SMEs use e-Commerce with revenues of only B$500,000. Internet use is only to attain advantage over other business in image building. It is also said that the use of the facilities is influenced by social cultural values or simply for status. Given these problems, the following research questions were formulated to address the issues:

1. What factors influence the adoption of e-Commerce by SMEs in Brunei Darussalam?
2. What relationship that exists between these factors and the decision to adopt e-Commerce? To what extent do these factors explain the decision to adopt e-Commerce?

This paper is concerned with the first research question. It reports the findings of a qualitative study to identify the major inhibitors and motivators. The second research question will be answered by a subsequent field survey and quantitative analysis to provide further insights into the relationships among the factors identified.

2. SIGNIFICANCE OF THIS STUDY

This study is significant for two reasons. Firstly, it fills a knowledge gap about e-Commerce adoption in Brunei Darussalam, and aims to identify which factors are important for encouraging willingness to adopt e-Commerce. Prior research by Pricewaterhousecoopers [25] in all twenty-one APEC member countries has identified a number of perceived barriers and motivators. However, the result is a generalization for all APEC countries and did not include detailed investigations on relationships of the factors and their relative importance. Using a qualitative approach, this study attempts to uncover and understand a phenomenon about which little is known.

Secondly, this study focuses on a relatively unexplored and important sector in Brunei – the SMEs. Little research has been conducted on this size of firm. The importance of SMEs stems from their increased role in job creation and economic growth for Brunei [6]. It is hoped that this new knowledge would help researchers and practitioners alike to better understand the e-Commerce development and implementation in Bruneian SMEs. Such an understanding will be useful for government authorities and private companies in drawing guidelines on how to encourage and motivate widespread adoption of e-Commerce.
3. LITERATURE REVIEW

Technology and diffusion literature suggests a range of motivators and inhibitors of innovation and technology adoption. These motivators and inhibitors can be reviewed to provide the basis for the questions to be used during qualitative interviews. The next few sections review these related literature and those theoretical motivators and inhibitors that may be used for the interviews.

3.1. Innovation Diffusion Theory

The Rogers’ innovation diffusion theory [28] is perhaps the most frequently cited theory in most research on diffusion of innovation [1; 29; 13; 32; 10]. Rogers’ theory is useful because it attempts to explain, not only the factors which influence the adoption of an innovation, but also the manners in which new innovations are disseminated through social systems over time [24]. An effort by Moore and Benbasat [19] to evaluate user perceptions of information technology innovations supported the characteristics of innovation described by Rogers.

Rogers defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system [27;pp.5]. Innovation is defined as any idea, practice or object that is perceived to be new by an individual. Rogers defines the five innovation characteristics as follows:

1) Relative advantage – the degree to which an innovation is perceived as being superior to its predecessor in terms of economic profitability, low initial cost, a decrease in discomfort, savings in time and effort, and the immediacy of the reward. Many change agencies offer incentives or subsidies to clients in order to speed the rate of adoption in innovations.

2) Compatibility – the degree to which an innovation is perceived as being compatible with existing beliefs, experience and needs of potential adopters. A faster rate of adoption occurs when an adopter perceives an innovation as meeting the needs of the client.

3) Complexity – the degree to which an innovation is perceived as being relatively difficult to understand and use. The perceived complexity of an innovation is negatively related to its rate of adoption.

4) Trialability – the degree to which an innovation can be used on a trial basis before confirmation of the adoption must occur. Rogers’ studies found that “the trialability of an innovation, as perceived by members of a social system, is positively related to its rate of adoption. Early adopters are models for later adopters” [28; pp 243].

5) Observability – the degree to which the potential adopter perceives that the results of an innovation are visible to others. Displaying an innovation’s superiority in a tangible form will increase the adoption rate [5; 27].

According to Rogers [28], a technological innovation will diffuse faster if it is perceived as having the five attributes of an innovation. These five attributes represent the main determinants that explain 49% to 87% of the variance in the rate of adoption.
3.2. Information Technology Adoption Models

The technology acceptance model proposed by Davis [7] suggests that IT adoption is affected by prior use-related beliefs. The model identifies two such beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). Economic factors or outside influences (suppliers, customers, and competitors) are not specifically addressed in this model, nor the influence and personal control factors on behavior. PU is “the degree to which a person believes that using a particular system would enhance his or her job performance” [7 pp.320]; while PEOU is “the degree to which a person believes that using a particular system would be free of effort” [7 pp 320]. Study conducted by Gefen and Straub [9] that tested the applicability of technology acceptance model to e-Commerce adoption have found that PEOU and PU played a significant role in the use of websites for product browsing and purchasing.

Another IT adoption model known as the Decomposed Theory of Planned Behaviour model [30] discusses technology adoption in terms of behaviour and social influence. In this model, technology adoption is a direct function of behavioural intention and perceived behavioural control. The model further suggests that innovation characteristics (e.g. relative advantage, compatibility) help to form intention.

Constructs used in these two models are generally based on perceptions, attitudes, beliefs and social influence, together with psychological considerations in determining technology adoption, acceptance and usage. Limitations of these models are that they tend to ignore factors both within and outside the organization that may impact IT adoption and diffusion, for example, economic factors (cost, pressure from suppliers or customers or competitors), and characteristics of the firm (size, sector and status).

3.3. Nature of Small Businesses

Small businesses are different from large organizations in terms of their small numbers of employees and the subsequent influence of a single person (that is, the owner/manager) [20; 23]. A review of the literature on the nature of small business provides valuable insight into the owner or individual factors likely to influence adoption of e-Commerce.

Poon et al. [23] and Reynolds et al. [26] find that, in small firms, strong owner influence plays a significant role in the adoption of an innovation. For example, if a small business owner is strong-minded, then his or her strong influence will have a significant impact on decisions (such as innovation adoption) made by the company. This influence is therefore likely to be more significant than that of other managerial staff within the organization. Poon et al. [23] add that the innovativeness of small business owner/manager varies, so that this personal trait is likely to influence decisions (such as innovation adoption) made by the organization.

The education and experience of employees of small businesses, and owner/managers particularly, have also played a role in influencing the adoption of an innovation. Owner/manager with narrowly focused education and experience has been found to be less likely to appreciate the value of e-Commerce [20]. Studies by Poon et al. [23] and Reynolds et al. [26] reveal that small businesses often have difficulty obtaining finance. For this reason, e-Commerce adoption might be considered too expensive for many small businesses because of their lack of financial resources.
3.4. Diffusion of Information Technology in Small Business

There is a growing body of literature specifically looking at small business and their use of IT, thus extending the insight into facilitating and inhibiting factors of e-Commerce use provided by the more general literature on the nature of small business. These factors can be categorized into factors relating to the owner/manager, the organizational and environmental.

3.4.1. Owner/Manager Characteristics

Researchers have identified a variety of owner characteristic factors that affect technology adoption in small business [14; 12; 33; 11]. Thong and Yap [33] identify computer literacy of small business owner and lack of knowledge of benefits derived from IT as important determinants for IT adoption. If the owners are unaware or do not understand the technologies available, they are unlikely to adopt them into their own business. Reynolds et al. [26] study confirms that owners and employees of small businesses tend to have limited skills and expertise especially when it comes to the use of IT [16].

Perceived benefits affect technology adoption in terms of the perceived ease of use and/or usefulness of the technology [21; 12; 33]. If an owner/manager does not perceive the technology in a positive way, he/she will be reluctant to adopt. Premkumar and Roberts [24] identify that the primary motivation for small businesses to adopt new technologies is the anticipated benefits these technologies will bring to the company.

3.4.2. Organizational Characteristics

Using different focus and alterative research design, several researchers have identified additional factors that are organizational in nature [14 12; 33]. These firm or organizational factors include organizational readiness, top management commitment, lack of financial resources and the level of information intensity.

Organizational readiness/benefit refers to the level of technology currently incorporated into business processes [12]. With special focus on perceived benefits and impact of IT as adoption factors, Lacovau et al., [12] identified organizational readiness (financial and technical resources of the firm) and external pressure to adopt (from competitors and trading partners) as additional important facilitating factors. A small business will be reluctant to adopt innovative IT unless there is a specific request for it by their trading partners and/or customers [21; 33; 12]. If this external pressure to adopt IT is not present in the industry sector, then the business owner may perceive the technology as a waste of resources.

3.4.3. Environmental Factors

Several other factors other than those stated above have also been identified as factors affecting IT adoption in small businesses. One limitation of the research models used by most researchers is that they do not consider return on investment. Financial issues are vitally important to owner/managers and often drive technology adoption in small firms [21; 29]. An innovative small business owner may recognize all the benefits to his firm in adopting IT in terms of both a
short or long-term investment. However, without sufficient funding the owner cannot adopt. Another factor identified by many researchers is vendor support. Wood and Nosek [35] and Yap, Soh and Raman [36] state that vendor support is positively associated with small business success with IT. This suggests that support from e-Commerce vendors (including Internet Service Providers) for instance, might have a positive influence on e-Commerce adoption by small to medium sized businesses.

3.5. Adoption of Internet Technologies

A review of literature on adoption of Internet technologies revealed that most research concentrates on Electronic Data Interchange (EDI) and Internet adoption. It was found that adoption of Internet technologies literature provided support for many of the theoretical, innovation and organizational factors identified in the literature reviewed earlier. While there are some amount of research on e-Commerce adoption and usage, much of this research is limited to larger organizations, and adoption models vary in terms of the determinants used. A review of some of the studies is presented below.

A study by Pearson & Grandson [21] indicates that the cost of implementation significantly inhibits adoption of e-commerce in Chile. Fielding [8] adds that small businesses find Internet technologies such as EDI too complex, too difficult to implement and too expensive.

In an Australian study, Lawrence [15] identifies many factors that inhibit the adoption of e-Commerce by small business. Factors include a low level of existing hardware, limited resources, need for immediate return on investment, organizational resistance to change, a lack of available information, and a preference for manual methods of undertaking business. An extensive survey conducted by McGowan and Madey [18] indicates that the implementation of Internet technologies is dependent on a number of factors that include organization size, resource availability, and the level of technical knowledge.

A model used by Akkeren and Cavaye [1] in their research on the adoption of entry-level Internet technologies identifies a number of factors from previous research thought to influence Internet technology adoption. These factors are presented in categories of owner/manager characteristics (perceived benefits, assertiveness, perceived control) and firm characteristics (size, sector, status, organizational readiness, external pressure to adopt, customer/supplier dependency, structural sophistication of the firm).

Many researchers have raised the issue of security as an important inhibitor to Internet adoption [22; 31]. For example, Tan and Ouyang [29] pointed out that small businesses in China tend to be concerned about the security of payments via the Web, while McComb [17] suggests that many businesses are worried about hackers gaining access to credit card details, bank records and so on.

Government entities are among the most powerful institutional forces affecting innovation [37]. Government initiatives like the e-government programme, entrepreneurship development programme and the information support programme were found to be the dominating factors for Internet growth and e-commerce adoption. In fact, the rapid spread of electronic mail systems embodied in the Internet was due largely to the subsidy, knowledge building, deployment, and standard setting roles played by institutions of higher education in the United States, Europe, and Japan [38]. In a study of the importance of U.S. government policies on technology development...
strategy at the firm level, Crow [39] found that as government financing or influence increases, sales of the affected products subsequently increase. Mowery and Rosenberg [40] suggested that government policies that enhance, or appear to enhance the ability of the firm to compete in the marketplace, have a strong positive influence on technology development strategy at the corporate level. These policies include direct research and development (R&D) funding, agency level research policy, investment tax credits, industry policy, and R & D tax credits. A study on the use of the Internet found that government endorsement was one of the dominant factors in Internet growth in Singapore [41]. This result affirms the role played by the e-government initiatives in pushing the adopting of Internet in Singapore [42].

4. RESEARCH METHOD

This study uses a qualitative research technique in its collection of data. The face-to-face interview method was adopted because of the exploratory nature of the research question and also because of the interview’s ability to identify and generate the range of relevant issues that a subsequent quantitative study can address.

The sample for the study consists of ten SMEs randomly chosen from a local business directory. The interviews were conducted in August 2003 at the enterprises’ premises and lasted about one to one and a half hours each. The interview involved talks to the key decision makers (i.e. SME owners) about their feelings and interpretations on e-Commerce adoption and its perceived benefits and barriers. A semi-structured questionnaire derived from a review of research literature was used in the interviews. The instrument collected data on the enterprise profile, benefits of e-Commerce adoption, perceived barriers, perceived motivators and ranking of factors. The instrument was pre-tested for comprehension with some enterprises. For ethical reason, an information sheet explaining the research work and the rights of the interviewee was handed out and explained. During the interviews, measures were taken to ensure the wordings of the questions and the manner of questioning did not bias the interviewees.

5. PROFILE OF THE SELECTED SMALL AND MEDIUM ENTERPRISES

The following table presents the profile of the ten SMEs randomly selected for the qualitative interview. For ethical reasons, these SMEs are referred to as case A, B, C, D, E, F, G, H, I and J respectively.

<table>
<thead>
<tr>
<th>Case</th>
<th>Adoption Status</th>
<th>IT Facilities</th>
<th>Nature of Business</th>
<th>No of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Non-adopter</td>
<td>One old PC</td>
<td>Manufacturing</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>Non-adopter</td>
<td>2 PCs</td>
<td>Sales and Services</td>
<td>7</td>
</tr>
<tr>
<td>C</td>
<td>Adopter</td>
<td>4 PCs, email, homepage, website</td>
<td>Hotel</td>
<td>15</td>
</tr>
<tr>
<td>D</td>
<td>Adopter</td>
<td>5 PCs, emails, homepage, website</td>
<td>Event Management</td>
<td>10</td>
</tr>
<tr>
<td>E</td>
<td>Non-adopter</td>
<td>2 PCs, emails</td>
<td>Books &amp; Stationery</td>
<td>8</td>
</tr>
<tr>
<td>F</td>
<td>Non-adopter</td>
<td>None</td>
<td>Battery Servicing</td>
<td>9</td>
</tr>
<tr>
<td>G</td>
<td>Adopter</td>
<td>8 PCs, emails, Homepage, website</td>
<td>Travel Agency</td>
<td>19</td>
</tr>
<tr>
<td>H</td>
<td>Adopter</td>
<td>10 PCs, emails, Homepage, website</td>
<td>Travel Agency</td>
<td>12</td>
</tr>
<tr>
<td>I</td>
<td>Non-adopter</td>
<td>4PC and Networking</td>
<td>Hardware</td>
<td>4</td>
</tr>
<tr>
<td>J</td>
<td>Non-adopter</td>
<td>1 PC</td>
<td>Stationery Store</td>
<td>6</td>
</tr>
</tbody>
</table>
6. FINDINGS

A range of organizational, innovational and environmental factors was indicated as being responsible for influencing the adoption of e-Commerce. However, certain factors had been indicated as being more influential than others. These include relative advantage, security, government support, competitive pressure, IT knowledge, perceived benefits, perceived usefulness, knowledge and skills, national infrastructure and return on investment.

6.1. Barriers to e-Commerce Adoption

The study reveals a number of important reasons responsible for inhibiting the adoption of e-Commerce. Lack of perceived benefits or relative advantage was seen as important barriers to adoption. Although many non-adopters did perceived e-Commerce as an exciting new opportunity with tremendous potential, they did not however feel that they would gain any benefits by adopting it in their businesses at that time. Benefits include economic profitability, low initial cost, savings in time and effort, the immediacy of the reward, immediacy of return of investment and cost effectiveness. For instance, Case A felt strongly against the use of Internet and stated that “I am satisfied with my present way of doing business. I do not see any real benefit of using the Internet … I just do not see it as useful and helpful. I have to incur extra cost, time and effort…”. Similarly case J felt the same and commented that “I do not see any use (benefit) of e-Commerce for my business. Furthermore, the economy is still bad. Do not know when it will pick up again..”. Case I however appeared to have perceived some benefits of Internet and stated that “I do not think e-Commerce is beneficial and necessary for me at the present moment but we plan to have a homepage next year just for advertising reason.”

Knowledge and skills were also perceived as important barriers. Many non-adopters still claimed that they did not possess the relevant knowledge and skill to adopt e-Commerce in their enterprises. Majority of the non-adopters described themselves as computer illiterates and had no idea on how e-Commerce technology could benefit their businesses or on how it would suit their businesses. The following explanations offered by four enterprises were typical of the non-adopters:

“What is the use of Internet or e-Commerce? I am happy with my way of doing business… If I do what you said, I have to spend more money, time and effort. Will it help my business?” (Case A)

“I do not know what e-Commerce can do for my battery business? Besides, I do not know much about using a computer. It can take a long time for me to learn and understand “ (Case F)

“We are still quite ignorant about what eCommerce is and what it can do for us” (Case I). “What exactly is e-Commerce? In what way can it help my business?”(Case J)

Security was also another concerned by non-adopters. Feelings of insecurity were caused by perceived risk of e-Commerce usage, lack of privacy and confidentiality or lack of trust for the innovation. For instance, in a sales and purchase situation, some non-adopters felt that their customers lacked the trust for e-Commerce and refused to conduct purchases or payment online while some felt that their products information and prices were confidential and would not reveal
them to their competitors. These non-adopters had the following comments to support their claims:

“I think this is not the time yet to go e-Commerce because many people in Brunei are still worried about buying online…I am also worried about purchasing online or supply my VISA number etc (case E)

“My price is sensitive and confidential. How can I advertise my prices on the Internet? (Case B)

“How secure is it to pay or buy over the Internet? I am not so convinced”  (Case I)

“It is safe to buy using the computer. Will other people see my visa number?” (Case F)

Other barriers indicated by non-adopters include high initial cost, lack of immediacy of return on investment and lack of pressure from suppliers and customers. Cost was a particular issue for the non-adopters who were very concerned about the cost of adopting the technology and the ongoing costs of updating websites, maintaining the hardware and updating software version. One non-adopter (case B) was concerned about the cost of e-Commerce and felt that the cost of setup, connection cost and surfing charge were still high for him. He suggested that the government should help to lower the cost of e-Commerce and other business operating costs.

Immediacy of return of investment was another particular concern for some non-adopters. This is expected of SMEs because of high initial outlay of resources and their need for return on investment in a very short term. One non-adopter (case B) explained his concern as follows:

“… will think twice before putting my money … return might not be attractive … market of Brunei is small…”.

External Pressure plays a role in e-Commerce adoption. Some non-adopters stated that one reason for their non-adoption of e-Commerce was because their suppliers did not adopt it either. If their suppliers require that all orders must be done the e-Commerce way, these non-adopters would have no choice but to do the same. One non-adopter (case E) had the following explanation:

“… My suppliers usually walk in with all the brochures and catalogs and I simply order from there. …. Emails are enough for me for the time being”

6.2. Motivators of e-Commerce Adoption

Similarly, the study also reveals a number of important motivators to e-Commerce adoption; however, there were noticeable difference between the motivators indicated by non-adopters and adopters. The following discusses the views from non-adopters on what they thought were the main reasons that would motivate them to adopt; and the comments from adopters on what they thought were the reasons that had motivated them to adopt e-Commerce.
6.2.1. Non-adopters

External pressure was perceived as an important factor that could motivate adoption by many non-adopters. Non-adopters indicated that they would consider implementing e-Commerce if a large proportion of their competitors in their industry had already done so, but they did not believe that this had happened yet. One non-adopter (case E) justified his decision by explaining the following:

“...so far not many businesses in my line are going e-Commerce, I am not that worried. If there are a lot, I might follow”.

Some also stated that they would consider e-Commerce unless there was specific request for it by their trading partners or customers. Some of these small businesses believed that e-Commerce adoption could only be of use if the rest of their related industry in which it operated was participating as well. An owner of a stationery shop explained that many of their suppliers were not having e-Commerce and they preferred to come to his shop with their catalogs and order forms.

Support in terms of awareness, education, financial assistance and government initiative like the e-government and the eASEAN programme was also seen as important motivator. Non-adopters indicated they would be motivated if they were more knowledgeable about e-Commerce and if the cost of doing business using e-Commerce would be lower. Accordingly to them, government support would be helpful in terms of financial assistance, lowering of business cost and provision of awareness programme. One owner of a trading company (case B) insisted that government should make it cheaper for small enterprises to go e-Commerce like lower connection cost, cheaper telecom charges, tax, subsidy or even interest free loan and so on. Another owner (case E) was specific and had the following comment:

“Our BRUNET is so disappointing... always down and so expensive compared to Malaysia etc. I heard that a couple of weeks ago, many mails had gone missing because of some kind of crash. The government must do something.”

Other motivators mentioned by non-adopters included security, perceived usefulness and cost effectiveness. Some felt that they would probably go e-Commerce if the innovation’s security had improved while some felt that they would use e-Commerce if the technology was useful in terms of helping to increase their market, return on investment and better profitability.

6.2.2. Adopters

Relative advantage was seen as an important motivator by all adopters. All adopters reported that they had adopted basic e-Commerce because they wanted an effective means of advertising their presence in the worldwide market. The following are typical justifications provided by most adopters:

“...we are on the net mainly to advertise ourselves and our services. For that, we got enquiries from all over the world about tours available in Brunei. The cost of maintenance is not cheap but for the benefits it bring... I think it is worth it.” (case G)
"..for us, a home page etc help to advertise our travel services worldwide. Email also allows customers to contact us cheaply and quickly”. (case H)

Adopters also considered relative advantage as motivator for decision for further adoption and investment in e-Commerce. When asked about when the enterprise would be increasing their use of e-Commerce for their businesses, one travel agent had the following to say:

‘… we will wait and see. Until we see improvement in the economy, lower cost of maintenance and some sense of profitability, then we will invest further.”(case G)

Most adopters also indicated that they had implemented e-Commerce because many of their competitors had already done so. The fear of competitors gaining an advantage through e-Commerce, either by enhancing their company image or providing better customer service, was often cited as a catalyst for action in adopting e-Commerce. One owner of a guesthouse (case C) said that his main reason for having a home page was that many guesthouses and hotels had already having it. The owners of two travel agencies shared the same view as follows:

“As you know, Anthony tours etc are having websites as well … What will our customers think of us?” (case G)

“Several agents are having homepages etc. We are forced to have it for the sake of image and keeping up our good reputation”(case H)

When asked about what they thought were the reasons that would further motivating them to adopt e-Commerce, most adopters felt that they would consider if some of the following concerns were addressed. Many adopters would consider implementing more e-Commerce if more government support was forthcoming. The government had provided some support to promote e-Commerce in terms of the establishment of a national taskforce, the provision of incentive schemes, the establishment of the information support programme and the introduction of e-government initiatives. Despite these effort, many adopters felt that there were others that the government could and should do. Some of these expectations include actions to lower business cost, operational cost and connection charges. One owner of a travel agent (case G) expressed her concern about the increasing high cost of maintaining the website and hoped that the government could help to lower the connection charges or to provide some kind of financial incentives. Another travel agent (case H) was concerned about the role of the national tourism board. She had the following comment:

“... We are disappointed with our tourism board ... a lot of talk but little action. Unlike Singapore, the tourism board and government are actively helping agents in using Internet and promoting business.”

Many adopters would also consider implementing more e-Commerce if the security situation surrounding e-Commerce had improved. Perceived risk and lack of trust for e-Commerce had caused many people to feel insecure when dealing with e-Commerce. Unless the attitude improved, many adopters felt that there would be little use of having a full e-Commerce capability. One owner (case G) commented that she had second thought about implementing
booking and payment via her website. She added that many people still did not have complete trust for e-Commerce as many still come personally to pay at their offices. Another owner (case H) shared the same concern and commented:

“.. We are not thinking of doing any payment .... etc in our website yet.... people here still feel insecure ...and are not ready for this”

Other motivating factors included cost effectiveness, immediacy of return on investment and improved national infrastructure. Some indicated that they would invest more in e-Commerce if the return of investment would be felt in the short term. However, because of poor economic outlook and limited market situation, many had felt that there was little justification for more investment. Some also indicated their concern about the speed and service of the Internet providers in Brunei. The high charges and the frequency of breakdown were some of the other concerns.

7. A MODEL OF FACTORS FOR E-COMMERCE ADOPTION

The interviews reveal a number of reasons for inhibiting and motivating e-Commerce adoption in Brunei Darussalam. These can be summarized into a model of factors as shown below:

Fig. 1: A Proposed Research Model for E-Commerce Adoption in Brunei Darussalam
8. CONCLUSION

This study reveals a number of interesting issues about e-Commerce adoption in Brunei Darussalam. It also helps to provide a better understanding of the diffusion of an emerging innovation in the country and aims to identify the factors that are important for encouraging willingness to adopt e-Commerce. Such knowledge will provide a basic framework for further empirical research.

In line with most studies [21; 14; 12; 20; 23; 26; 33], this study suggests that owners’ characteristics are significant inhibitors of e-Commerce adoption in the SMEs. Owner/manager with narrowly focused education and experience has been found to be less likely to appreciate the value of e-Commerce. If an owner/manager does not perceive the technology in a positive way, he/she will be reluctant to adopt. If the owners are unaware or do not understand the technologies available, they are unlikely to adopt them into their own businesses. This study confirms that owners and employees of small businesses tend to have limited skills and expertise especially when it comes to the use of IT. Factors in the owners’ characteristic category that appear to have the most influence in inhibiting adoption are: computer literacy of the owners, mistrust of the innovation and lack of perceived benefits or relative advantages. An interesting finding is that although some non-adopters did perceive e-Commerce as an exciting new opportunity with tremendous potential, they did not however feel that they would gain any benefit by adopting it in their businesses at that time. Benefits include economic profitability, low initial cost, savings in time and effort, the immediacy of the reward, immediacy of return of investment and cost effectiveness.

This study also suggests that environment characteristics are significant motivators of e-Commerce among SMEs in Brunei. Non-adopters indicated that they would consider implementing e-Commerce if a large proportion of their competitors in their industry had already done so while adopters indicated that they had implemented e-Commerce because many of their competitors had already done so. The fear of competitors gaining an advantage through e Commerce, either by enhancing their company image or providing better customer service, was often cited as a catalyst for action in adopting e-Commerce. Non-adopters also indicated that they would be motivated if the government was more supportive in terms of provision of awareness programme, financial assistance and, reduction in telecommunication charges. These results are consistent with most recent studies [29; 34].

Contrary to Rogers’ claim, this study suggests that his diffusion of innovation theory does not, in itself, act as an impetus to e-Commerce adoption. The claim that his five attributes explain 49% to 87% of the variance in the rate of adoption cannot be fully supported. Similarly, IT adoption models do not too, in themselves, act as major determinants to e-Commerce adoption. This study suggests that owners/managerial and environment factors play a significant role in determining the adoption of e-Commerce among SMEs in Brunei.

This study provides a basis for further research. The proposed model can be used to generate appropriate hypotheses. Quantitative research, in the form of survey, can then be carried out to assess the model’s validity and provide further insights into the relationships among the factors. A good understanding of the inhibitors and facilitators will be useful to relevant authorities and private companies for drawing guidelines on how to encourage and motivate widespread adoption of e-Commerce in Brunei Darussalam.
9. REFERENCES


4 Small and Medium Enterprise owners/managers and 2 officials of two different Banks â€“ the Central Bank of Nigeria (CBN) and United Bank for Africa (UBA) â€“ were interviewed. Data collected from the interview were processed and analysed. Few recommendations were made. Patrick Ohunmah Igudia. A Qualitative Evaluation of the Factors Influencing the Adoption of Electronic Payment Systems (SMEs) by SMEs in Nigeria, European Scientific Journal, 2017, Home. Â· About.