

ORGANIZATIONAL READINESS, ENTREPRENEURSHIP, EXTERNAL PRESSURES & STRATEGIC VALUE OF E-COMMERCE ADOPTION: PERCEPTIONS OF CEOS OF BRUNEIAN SMES

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Abstract

The present study investigates 85 owners cum CEOs of the Bruneian SMEs regarding their perception of organizational readiness, entrepreneurial orientation, and external pressures towards perceived strategic value that further lead to the electronic commerce (EC). PLS-graph was used to test the model. Among the three contextual variables such as entrepreneurial orientation of the CEOs, organizational readiness and external factors only organizational readiness is significant to perceived strategic value of EC that in turn predict the organizational adoption of e-commerce. Based upon the results and conclusions some recommendations are made for the relevant authorities to gear up the EC adoption.

Keywords: *e-commerce adoption, small and medium organizations, CEOs and Brunei Darussalam*

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1. INTRODUCTION

Electronic Commerce (EC) is defined as process of buying, selling, transferring or exchanging products, services and/or information via computer network including the Internet (Choi, *et al.* 1991). Although the Internet has existed for the past three decades, EC has become a sheer reality only after the development of World Wide web (WWW) and its associated technologies (Napier *et al.*, 2001).

The adoption of EC in developing countries differ from the developed countries in term of availability of technological, environmental, financial, legal and physical

infrastructure deemed necessary for the adoption of EC (Molla and Licker, 2005). Researchers in the developing countries have studied several factors that are significant to EC adoption especially within the context of SMEs (Tan &Teo, 2000; Seyal and Rahim, 2010). Sutanonpaiboon and Pearson (2006) pointed out that EC can be an important source of competitive advantage for the SMEs. According to IT gurus and vendors, EC technologies have the potential to deliver strategic values to business. According to Amit and Zott (2001), strategic impact from e-business can arise from value creation in locking-in business partners and transaction efficiencies. In particular, from SME viewpoint, EC technologies can be used as a strategic weapon.

As pointed, despite the potential benefits of EC, the adoption among small businesses remained limited (Gallup¹, 2009). The case is even more alarming among SMEs in the developing countries as indicated by a study (Mirchandani and Motwani, 2001). All these studies were conducted to address the adoption factors contributing toward the adoption and/or lack of adoption decisions of SMEs. However, most studies took place in the context of North American and other developed countries businesses.

The IS researchers in the western world studied factors that influence the usage of technology so as to predict, explain and control the Information Systems/technology users (Tan &Teo, 2000). However, we must also understand that businesses in developing countries face challenges that are entirely different from those of developed countries. Most of the prior studies have investigated the role of the external variables with the behavioral components to determine behavioral intention or actual use of the IS systems or use of a particular technology such as e-mail, voice mail or WWW.

To address this gap in the literature, we report on the findings of a survey of 85 senior managers of SMEs selected from Brunei Darussalam by drawing on a theoretical framework initially proposed by Subramanian and Nosek (2001) which was later adapted and revised by Grandon and Pearson (2003; 2004) for SME context. We found the existence of a significant relationship between SME managers' perceptions towards the strategic value of EC and the factors that influence EC adoption decisions.

¹www.gallup.com/

The rest of the paper is structured as follow. In the next section, a brief and critical analysis of the relevant literature sources is provided and a research model is introduced. This is followed by a brief description of the economy of Brunei Darussalam. After that the research approach is described. Next, the findings are presented and discussed. Finally, the contributions of our work are highlighted and future directions of research are indicated.

2. LITERATURE REVIEW

The organizational adoption of EC is a multi-discipline. The investigation of EC adoption had been viewed from several perspective especially strategic management, information management as well as entrepreneurship. Most of the researches were confined to the theoretical underpinning such as Diffusion of Innovation theory (Roger, 1995), followed by Technology Acceptance Model by Davis, (1989). These two models together with Technology Organization Environment (TOE) model were significant in predicting adoption behavior of the technology. Other less common theories applied was Theory of Planned Behavior (Fishbein&Ajzen, 1975)However, the present study focuses on the two independent research streams taken independently in the IS literature: the strategic value of the certain information technologies to top managers and factors that influence the adoption of IT.

In the following sub-sections, we report a critical analysis of two streams of literature relevant to our research: strategic value of information technologies and adoption of information technologies.

Perceived Strategic Value of Information Technologies

We have made three general observations. First, the primary focus of this stream is on large organizations. Second, a strategic value of IT has been examined in term of senior managers' perception towards the relationship between IT investment and business performance. However, the findings are inconclusive. For example, Hitt and Brynjolfsoon, (1996) studied the relationship between IT investment and the benefits in the form of profitability, productivity and consumer surplus that bring in the organization and found that IT increases productivity but does not necessarily increase business profits.

Likewise, Amit and Zott (2001) studied the perceptions of senior managers about the value of e-business and found e-business to be valuable for organizations because it enables increased transaction efficiency gains which in turn lower price of products. In contrast, Barua *et al.* (1995) concluded that the productivity gains from IT investments have been neutral or negative. Third, some authors have

identified several key factors that help in creating a strategic value from the adoption of IT-enabled business applications. For instance, in their landmark study, Subramanian and Nosek (2001) developed a model to describe how information systems provide strategic value and identified three key factors (i.e. operational support, managerial productivity and strategic decision aid) which affect strategic value from those applications. The significance of these factors was further confirmed by Grandson and Pearson (2003; 2004) in relation to values arising from EC. The lack of serious attention given to SME managers' perceptions for strategic values of IT is the notable weakness of this stream of literature.

Information Technology Adoption

In general, two types of theoretical frameworks have guided the investigations of IT and EC adoption practices: micro-level theory and macro-level theory. The former focuses on the adoption of IT applications by individuals and the latter is concerned with the adoption of a wide range of information technologies and practices at individual institutions. Each stream is briefly discussed below.

Organizational adoption of IT and EC: The vast majority of the existing IT adoption literature is however concerned with macro-level theory building and examines the practices of organizational IT adoption decisions. These studies generally tend to rely on a small number of core theories of IT adoption. According to Fichman (2004), diffusion of innovation (DOI) serves as the most widely cited theoretical framework although other theories such as structuration theory.

Interestingly, some authors have examined EC adoption by drawing on concepts from both micro-level theory and macro-level theory. An example is the study of Grandon and Pearson (2003) who based on the prior work of Davis (1989) identified external pressure to be an important variable for organizational adoption decisions of EC. In another study, Grandon and Pearson (2004) examined EC adoption among SMEs in Chile and found external pressure to be a significant factor influencing the EC adoption.

Similarly, literature on adoption of IT in small businesses and adoption of Internet or EC identified several other facilitating and inhibiting factors which are traditionally grouped into organizational, managerial and environmental factors (Molla and Licker, 2005). In their study, Mehrtenset *al.* (2001) looked at the Internet adoption among seven SMEs and found that perceived benefits, organizational readiness and external pressure as determinant factors. Chang and

Cheung's (2001) work further support the similar factors that influence Internet/WWW adoption.

Casual link between perceived strategic value and EC adoption

Literature is full of studies that supported causal link between the perceptions of strategic value and adoption (Grandon& Pearson, 2004; Sutanonpaiboon and Pearson, 2006 and Seyal & Rahim, 2010). Executive involvement is concerned with CEO's perceptions and attitudes concerning IT-that is the degree to which CEO views IT as critical to an organization's success (Jarvenpaa and Ives, 1991).

3. RESEARCH MODEL INCLUSION OF VARIABLES & DEVELOPMENT OF HYPOTHESES

On the basis of prior literature review and subsequent studies by Subramanian and Nosek, (2001); Grandon and Pearson, (2003; 2004), one stage model was first designed and were modified after Sutanonpaiboon and Pearson, (2006). The modification was done by eliminating the two constructs from TAM; perceived usefulness and perceived ease of use as a part of PSV construct. The new model combined three endogenous variables with exogenous variables perceived strategic value and EC adoption. Similarly, Pham *et al.* (2007) developed a success model to study the EC in Vietnamese SMEs. They modified the original model of Grandon and Pearson, (2004) with two additional variables trust and perceived risk. As the purpose of this study is to establish a link between perceived strategic value and EC adoption by investigating factors that are significant determinants of EC among Bruneian SMEs, it is reasonable to modify the model. Another reason for this modification is because of the use of Grandon& Pearson (2004) model in one of the studies conducted among Bruneian SMEs in (Seyal & Rahim, 2010). The study only explained 31% of the variance in PSV constructs that linked five variables which is not very promising figure and perceived strategic value remained insignificant. Therefore, an attempt is made to conduct this study with the modified independent variables measuring perceptions of owners/managers such as; organizational readiness, entrepreneurial orientation and external pressure and to link it with perceived strategic value that finally determines the EC.

Organizational Readiness

Perceived organizational readiness is defined as managers' perception and evaluation of the degree to which they believe that their organizations has awareness, resources, commitment and governance to adopt EC (Molla and

Licker, 2005). Within the context of developing countries Molla and Licker (2005) have developed a perceived e-Readiness model that identified many of the relevant contextual and organizational factors that might affect EC adoption in developing countries. The model included two major constructs that measures both perceived organizational e-readiness and perceived external e-Readiness.

Mehrtenset *al.* (2001) found that perceived benefits, organizational readiness and external pressures as determinant factors. Seyal and Rahim, (2010) in their study of eighty-six Bruneian SMEs found organizational readiness as one of the significant factors in EC adoption. Sutanonpaiboon and Pearson, (2006) in their study of 155 managers/owners of Thai SMEs have developed a model of factors such entrepreneurial orientation, organizational readiness and external pressures that lead to the perceived strategic value that finally determined the EC adoption. Popular e-Readiness variables included connectivity and technology infrastructure, business environment, consumer and business adoption policies, legal support and social and cultural infrastructure including the attitude of managers/owners.

Similarly, other studies especially within the context of developing countries such as in China and India have viewed the potential e-Readiness factors which SMEs perceived as important to influence their decision to adopt EC. The results of these studies highlighted an e-Readiness model as a basis of considering firm readiness to embrace EC. Based upon these assertions we propose our first hypotheses as:

H1: Organizational readiness is strongly associated with perceived strategic value among the managers of Bruneian SMEs.

External Pressure

External pressure to adopt the technology refers to influences from the organizational environment (Iacovouet *al.* 1995). External pressure was assessed by incorporating five items: competition, dependency on other firms already using EC, the industry, social factors, and the government (Grandon& Pearson, 2004). In their two studies they found the external pressure as significant factor influencing the EC adoption. Several other studies such as Mehrtenset *al.* (2001); Chang and Cheung, (2001) has found the external pressure as one of the predictors of range of Information Technology features such as EDI, email and internet, internet adoption and EC adoption. Similarly, Seyal and Rahim (2010) in their Brunei-based study found the role of external pressure along with three other variables as significant predictor of EC adoption.

H2: External pressure is strongly associated with perceived strategic value among the managers of Bruneian SMEs.

Entrepreneurship Orientation

Entrepreneurship identifies the innovative and energetic practice to create an opportunity and take action realizing it. In general it is found that most innovative firm will be more predisposed to discover or develop novel technological systems allowing them to design new processes, product or ways of functioning and organizing before their competitors. Seyal and Rahman, (2003) found that owners/managers have a strong influence when it comes to an organizations adopting EC. Based upon this assertion we propose our hypotheses:

H3: The entrepreneurship orientation is strongly associated with the perceived strategic value among managers of Bruneian SMEs.

Perceived Strategic Value

In the today's business environments, understanding IT's business value is an important issue and there is a need to establish a method that fully examine the IT's value in a business context. Although studied extensively, the studies using perceived strategic value have produced inconsistent results. Loveman (1994) concluded that corporate IT investment has had practically no impact on productivity. Meanwhile, others have reported varying degrees of positive performance impact due to IT investment (Barua *et al.* 1995).

In addition, some authors have identified several key factors that help in creating a strategic value from the adoption of IT-enabled business applications. For instance, in their landmark study, Subramanian and Nosek (2001) developed a model to describe how information systems provide strategic value and identified three key factors (i.e. operational support, managerial productivity and strategic decision aid) which affect strategic value from those applications. The significance of these factors was further confirmed by Grandson and Pearson (2003; 2004) in relation to values arising from EC. Seyal and Rahim, (2010) also found strategic value as important predictor of EC adoption. Based upon this assertion we propose our fourth hypotheses:

H4: Perceived strategic value is strongly associated with EC adoption among Bruneian SMEs.

4. METHODOLOGY

Subjects and data collection

A questionnaire was distributed among the senior managers of 130 companies selected randomly from the catalogue of SMEs in March 2010. A total of 105 completed questionnaires was received, out of which 20 were discarded because five were incomplete and another fifteen were not completed by a senior manager/owner; thus yielding a response rate of 82%.

Instrument Development

A survey instrument was developed that included questions on respondent demographics, nature of business of the participating companies, type of EC technology used within business, and a series of items used for capturing senior managers' perceptions towards perceived strategic value, external pressure and entrepreneurial orientation and their EC adoption decisions. In addition, EC adoption decision was measured by using a total of six items and is adapted after Molla and Licker, (2005). All other items on their relevant construct were adapted from Grandon and Pearson (2004) and Molla and Licker, (2005).

5. RESULTS

Participant demographics

The survey responses indicate that the senior managers are well educated having either a college degree or diploma in business and finance disciplines. The majority of managers were male (53%) with 65% of them were in the age group of 30 to 50 years.

A profile of the participating companies which confirms a wide range of their business sectors. Most businesses (80%) are found to have an access to the Internet and maintain a company website (77%). In addition, most companies (74%) conduct some forms of EC activities via their websites.

Statistical analysis

Data analysis was performed in two stages. Stage 1 concerned with performing descriptive data analysis, reliability analysis and exploratory factor analysis. The stage 2, on the other hand, involved the use of PLS-graph software for analyzing the significant path between various endogenous and exogenous variables.

Reliability analysis

All 25 items measuring the perceptions of the participating managers on EC were evaluated for reliability. Two items measuring reduced cost and improved customer service were dropped. This is because these items had the lowest corrected item-total correlation of .08 and .35. Convergent and discriminant validities of these construct were assessed via factor analysis and these constructs explained the total variance exceeding the cut-off value of .50. Thus, both the convergent and discriminant validities were demonstrated.

Path analysis

Path analysis is a method for studying the direct and indirect effects of variables hypothesized as causes of variables treated as effects. Path analysis and related techniques are also called “causal modeling”. The strength of each individual path was assessed in terms of the standardized path coefficient, ranging from -1 to +1. It is evident data that construct organizational readiness with perceived strategic value (PSV) has significant path coefficient whereas, external pressure, entrepreneurial orientation remained insignificant with perceived strategic value. Interestingly, 25% of the variance is explained by the three endogenous variables toward the perceived strategic value. Finally, the path between PSV and EC adoption is significant at 5% significant level and alone it explained 38% of the variance. Thus we could only get the H1 and H4 supported.

6. DISCUSSION

The major inquires of this study were to examine the adoption of EC among Bruneian SMEs and the owners/managers perception of how three antecedent variables such as organizational readiness, entrepreneurial ship and external pressure is linked with the perceived strategic value by the CEOs of these SMEs.

Out of four hypotheses tested through PLS-graph only two were supported. The findings of our study are now compared with those of conducted by Grandon and Pearson (2003; 2004) in Chile and USA and Seyal & Rahim, (2010) in Brunei. In addition, our results partially support the results of Subramanian and Nosek (2001) and Grandon and Pearson (2003, and 2004) and Seyal & Rahim, (2010). Only organizational readiness was supported whereas, in these studies organizational support and managerial productivity were found to be significant. In addition the relative importance of perceived strategic value further indicated the awareness of SME managers as strategic one but unfortunately they could not relate this with their entrepreneurial orientation or failed to reap benefit of EC as strategic or for competitive advantage.

Overall, the findings of our study reinforce prior Brunei-based studies (Seyal and Rahman, 2003) in that variables measuring the managerial and organizational factors are significant determinants of EC adoption among Bruneian SMEs. Seyal and Rahman (2003) indicated that there is a direct link between the success of IT adoption process and CEO attitudes toward the adoption of IT. However, an EC adoption requires considerable financial and technical investment and the CEOs have to aware of benefits of EC prior to the adoption. The EC implementation requires an organization's commitment. This finding is also consistent with the views of Sutanonpaiboon and Pearson, (2006).

External factors were not found to be significant factor that the CEOs perceived to be of any strategic value. The results are in contrast with Grandon and Pearson (2003, 2004) and Seyal and Rahim (2010) who indicated that four out of five proposed factors (i.e. organizational readiness, external pressure, perceived ease of use and perceived usefulness) are determinants of EC adoption in Brunei Darussalam. However, we must acknowledge that unlike the study of Grandon and Pearson (2003; 2004) in which external pressure was measured using five items, our study received support for only four items with item measuring industry pressure using EC, were excluded. Most of these SMEs are buying from the local wholesalers who control the local business that is why for most of the CEOs do not perceive this as significant.

Finally, our results further noted the insignificance of entrepreneurial ship on CEOs' perception of being strategic; this is in contrast with the findings of Grandon and Pearson (2003; 2004); Sutanonpaiboon and Pearson (2006). This again showed he business practices of these SMEs. As being resource deficient they are more likely to be less competitive and believe more on day to day survival rather than be strategic or competitive. This further endorsed the findings of Seyal and Rahman (2003) that small businesses in Brunei are not competitive. This is very important findings and need to be addressed by the relevant planning authorities accordingly.

7. CONCLUSION

The study has noticed a significant increase in explaining the shared variance of 7% from the previous Brunei-based study using the original model from 31% to 38% that further indicates the better parsimony of the revised model. This leads us to suggest that more research should be undertaken with additional variables (e.g. relative advantages, technological infrastructure) that may improve the power and parsimony of the model used in our study. Therefore, our study makes a

considerable contribution to knowledge and practice as very little is reported about SME's perceptions towards EC in this region.

Our study has several limitations. First, the data analysis is based on self-reported responses of the owner managers which may lead to the possibility of response bias. Second, as our study is cross-sectional in nature, the notion of 'causality of relationship' cannot be completely demonstrated, and hence longitudinal research is required to address this concern. Third, the study is limited to testing only three independent variables. There are other variables that can be tested to further enhance the research findings. Fourth, even though the sample size (85) in our study meets the minimum requirements for the empirical research, increasing the sample size is desirable because it would enhance the power of analysis and hence future studies in this region should involve a greater sample size.

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