

E-BUSINESS USAGE AND BUSINESS PERFORMANCE: DEVELOPMENT OF MULTIDIMENSIONAL E-VALUE MODEL

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Abstract

The study aims to develop a multidimensional theoretical model which explains factors (categorised under technological, organisational and environmental constructs) that influence E-business usage; how level of E-business usage could influence business performance as well as whether E-business experience could moderate the “usage-performance relationship. Concerning more on the adoption and post-adoption stages regarding drivers of E-business usage and value creations, this paper constructs a model in attempts to close the knowledge gaps found in prior studies. From literature review, theories relating with E-business innovation and diffusion, also value creation were examined to identify knowledge gaps within previous measurements of business performance. A multidimensional E-value model was then developed by innovating three theories and model, i.e., the TOE model (Tornatzky & Fleischer, 1990), the RBV theory and the Balanced Scorecard (Kaplan & Norton, 1992).

Keywords: E-business Acceptance, Business Performance, Value Creation.

1.0. Introduction

Huge potential of the Internet changed the traditions on running a business. Electronic business (E-business) had grown to be a new edge for business environment (Intan Salwani, Marthandan, Norzaidi & Chong, 2009). E-business diffusion and value creation had emerged as an interesting topic. A study by Klenow and Clare (1997) for example, found that technologies employed in a country determined the country’s income variations. Multiple theories and models on diffusion of technology innovation and E-business value creations were drawn to seek answers to the following research questions:

- i. What factors could be used as key antecedents of E-business usage?
- ii. How E-business usage influenced business performance?
- iii. Whether experiences (in number of years) in E-business activities moderated the relationship between E-business usage and business performance?

In answering the research questions, this study attempts to develop a multidimensional theoretical model which explains factors (categorised under technological, organisational and environmental constructs) that influence E-business usage; how level of E-business usage could influence business performance as well as whether E-business experience (in years) could moderate the “usage-performance relationship. Concerning more on the adoption and post-adoption stages regarding drivers of E-business usage and value creations, this paper constructs a model in attempts to close the knowledge gaps found in prior studies. The model

was developed by innovating three theories and model, i.e., the TOE model (Tornatzky & Fleischer, 1990), the RBV theory and the Balanced Scorecard (Kaplan & Norton, 1992).

2.0 Literature Review

2.1 Theories Related to E-Business Innovation and Diffusion

Reviews of literature highlighted the popularity of studies regarding technology diffusion among individuals, and organizations (Tornatzky & Fleischer, 1990; and Rogers, 1962). EFT, EDI, Enterprise Resource Planning (ERP), adoption drivers and barriers, or hindrance were among the popular research areas. The late 1990s had shown the switch of research stream towards E-business adoption.

2.1.1 Theory of Technology Diffusion

Originating from Rogers (1962), the theory was famous and popular in prior studies on innovation diffusion. For a technology to be adopted, Rogers divided the process of adoption into five stages; awareness, interest, evaluation, trial, and adoption. For the awareness stage, Rogers (1962) assumed that individuals were exposed toward innovation without full information. Moving to the interest phase, individuals became interested with the new idea and seek for further information. At the evaluation stage, individuals psychologically applied the innovations either in his present or anticipated future condition, and next decided whether to try it or not. Full use of the innovation was made at the trial stage. For the adoption stage, individuals decided to carry on with the usage of the innovation. As the theory of technology diffusion focused mainly on individuals, further work was done by DePietro, Wiarda and Fleischer (1990) in developing a framework to gain understanding on the adoption of technology in organizations. The three elements of change were:

i. Technology

It included five innovation elements argued by Rogers (1983) that influenced adoption. DePietro, Wiarda and Fleischer (1990) in addition found that major innovations increased advantages but reduced compatibility of the innovation.

ii. Organization

Formal and informal intra-organizational system for communication and control influenced adoption tendency. Firms' resources and innovativeness also played an important part.

iii. Environment

In line with Porter (1980), firms' strategic technology decisions depended on industry characteristics for instance competition, customers' and suppliers' relationship management, and government in addition to stages of the industry life cycle.

Founded on the three contexts above, Tornatzky and Fleischer (1990) next constructed the TOE model to be used in technology adoption evaluation. The model was consistent with Rogers (1983) on the theory of innovation diffusion in organization.

2.1.2 Technological, Organizational and Environmental (TOE) Model

The model identified three characteristics that influenced firm's adoption, implementation, and use of technological innovations (Robertson, 2005; DePietro, Wiarda & Fleischer, 1990; and Tornatzky & Fleischer, 1990). The TOE model assessments were based on the followings:

i. Technological Context

It focused on a firm's current and new technology that could influence the firm's ability to conduct E-business or other technology implementation. Past technology usage and computer facilities owned by companies were some of the construct measurements.

ii. *Organizational Context*

It referred to descriptive measures of organizations for instance internationalization scope, size of organization and managerial beliefs.

iii. *Environmental Context*

It focused on the environment of the business or the industry's external factors that might affect the firms for instance legal protection and government's regulation.

Prior studies on E-business adoption demonstrated that the TOE model was famous particularly for studies conducted in 1995 onwards. In 2003, Tan, Nah, Iacovou and Kim introduced a model named "Model of Small Business E-marketplace Adoption" (Figure 1) that was basically based on the TOE framework.

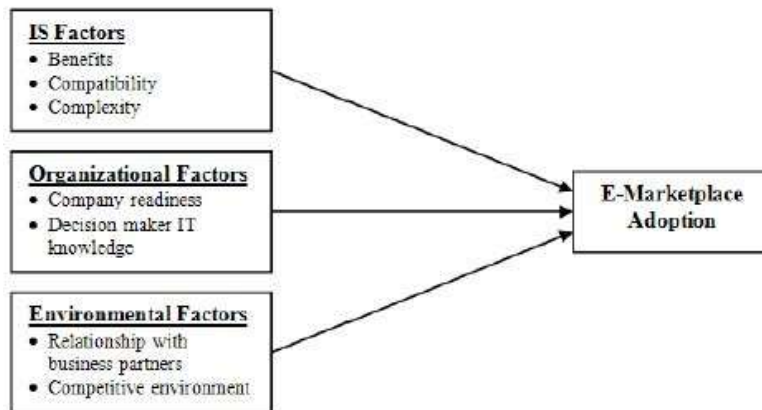


Figure 1: E-Marketplace Adoption Model

In another recent study, an integrated model that examined the assimilation of E-business; initiation, adoption, and routinization was developed by Zhu and Kraemer (2005). The model featured TOE contexts as prominent antecedents in the assimilation stages (Figure 2).

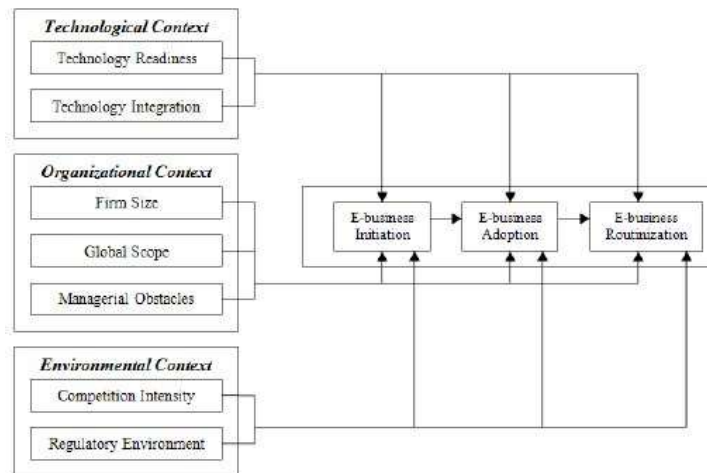


Figure 2: The Conceptual Model on E-Business Assimilation

2.2 Theories and Conceptual Models in E-Business Diffusion and Value Creation

In determining how E-business usage influence business performance, review of literature was done regarding the post adoption stage of E-business by looking at previous theories and models such as the Evolutionary Game Theory (Kauffman, Wang & Miller, 2002), the IS assessment selection model (Myers, Kappleman & Prybutok, 1997), the Data Envelopment Analysis (DEA)

model and the RBV theory. However, given that organization was selected as unit of analysis, the most famous theory and model that were related to this study were the evolutionary game theory (Kauffman, Wang & Miller, 2002), and RBV theory (Zhu & Kraemer, 2005; and Peteraf, 1993).

2.2.1 Evolutionary Game Theory

The theory applied the mathematical theory of games in biological context; arose from the realization that frequency dependent fitness introduced a strategic evolution. Developed by Fisher (1999) in 1930, the theory aimed at explaining the estimated sex ratio equality in mammals. However, the evolutionary game theory seemed to attract interest of economists, sociologists, anthropologists, social scientists, and philosophers. As the theory applied both the analogy of bio-diversity theory and genetic survivability in population ecology to different species in a highly competitive organic biome, it can also be applied to social science research. Kauffman, Wang and Miller (2002), tested the strategic morphing and survivability of E-business firms using the evolutionary game theory. Applying the theory to E-business context, Kauffman, Wang and Miller (2002) emphasized on how firms survived by having strategic fitness to compete in the marketplace. Studying the application of the evolutionary game theory among DotCom companies, environmental interaction, competition, genes and mutation were found to be the predictors of success or failure among companies. The theory identified that specific character of an industry, specific firm factors and E-business specific factors were drivers to survivability of DotCom companies (Figure 3).

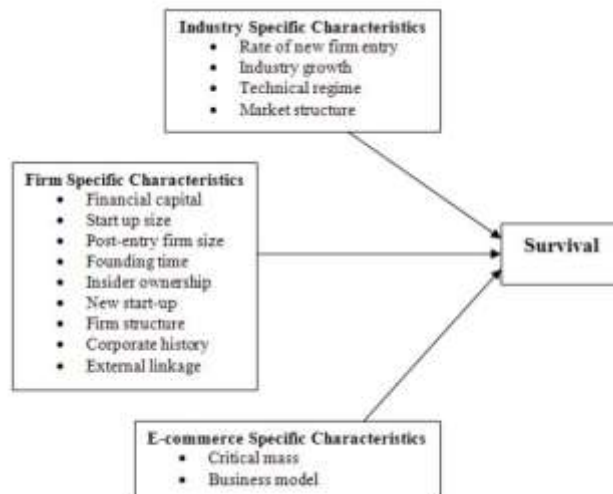


Figure 3: Drivers of Dotcom Survival in Evolutionary Game Theory

Applying the evolutionary game theory, it was found that when abundant resources were available and when competition was not strong, firms with low-grade genes might survive. However, in a situation of limited resources, high competition might weed out firms with superior genes. In this theory, firms came to realize the success factors through exploration, experimentation, market examination, and learnt from competitors' experience (Kauffman, Wang & Miller, 2002). In comparison to the TOE model, the Evolutionary Game Theory seemed to be similar as industry specific characteristics could be represented by environmental characteristics while both firm specific characteristics and E-business specific characteristics were related to organizational characteristics and technological characteristics. It was therefore concluded that the Evolutionary Game Theory intersected the TOE model when used to study E-business usage.

2.2.2 Resource-Based View (RBV) Theory

Applying the concept of the RBV theory, a business was developed from resources and capabilities owned by a company. Resources referred to “anything that could be thought of as strength or a weakness of the firm” (Wernerfelt, 1984). In prior studies, the RBV theory was used in analyzing IT potentials (Mata, Fuerst & Barney, 1995). It explained that technology was not as important as organization skills in leveraging IT. Good performance was achievable by firms in similar market by exploiting limited resources. In Zhu (2004), the RBV theory was applied as a foundation to link E-business usage and performance. Focus was given to how companies leveraged E-business investment in creating exclusive Internet-enabled potential that established the overall effectiveness of E-business firms. Even if some arguments might be raised up as E-business had existed in the market (EDI and EFT) did not generate value, a counterargument arose that despite of how commodity-like the technology was, the architecture that removed barrier of system incompatibility and made it possible to build a platform to launch E-business was for no reason a commodity (Powell & Micallef, 1997). The uniqueness of E-business lied on its capabilities of hard to copy resources. When discussing about E-business usage and value creations, Zhu and Kraemer (2005) integrated both the TOE framework and the RBV theory in assessing E-business usage and value creations by organizations. According to Zhu and Kraemer (2005), E-business leveraged Internet’s unique characteristics in improving business performance. Their study investigated E-business functions that made use of Internet’s unique characteristics that enabled value creations. E-business capabilities were classified as front-end functionalities and back-end integration. It was established that both front-end functionalities and back-end integration predicted E-business value creations with back-end integration having a much stronger impact.

2.3 Summary on Theories Related to E-Business Innovation, Diffusion and Value Creation

In looking at E-business innovation and diffusion, the theory of technology diffusion by Rogers (1962), and the TOE model by Tornatzky and Fleischer (1990) were used extensively in prior studies (Figure 4). However, in relation to organization as the unit of analysis, the TOE model was the most famous (Robertson, 2005; Zhu & Kraemer, 2005; and Zhu, 2004).

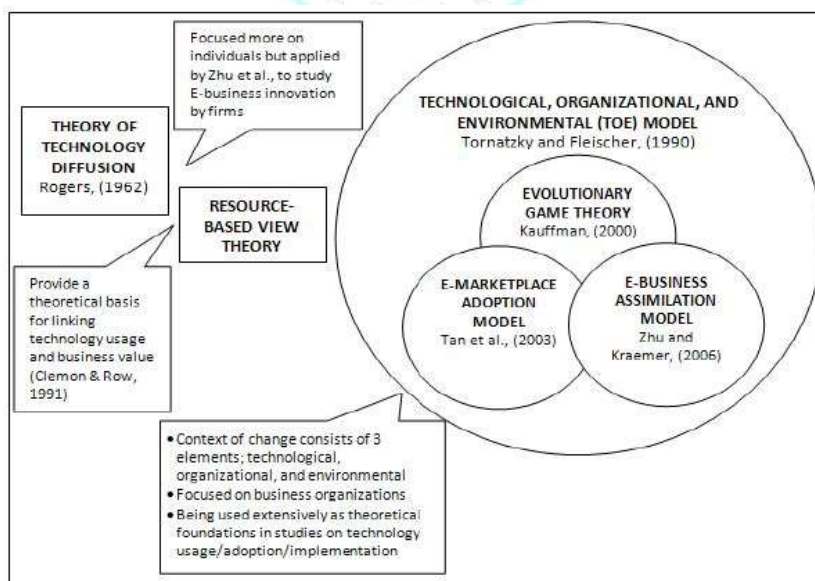


Figure 4: Summary on Prior Theoretical Models Related to E-Business Innovation, Diffusion and Value Creation

In prior studies, what seemed missing in the literature related to the use of the TOE model was the empirical assessment on indirect effects of the constructs under study. This violated the initial work of DePietro, Wiarda and Fleischer (1990), that developed an influential framework to understand technology adoption by looking at three elements; technology, organization, and environment that interacted to influence technology adoption. Another argument was on the function of the TOE framework in a broader perspective. Dedrick and West (2003) for example, assumed that the TOE framework was only being used as an analytical tool to distinguish between inherent innovation qualities and the motivations, capabilities and broader environmental context of adopting organizations but not a depiction of framework or theory. As a result, the integration of TOE with other theories to study E-business usage and value creation added more significant value. Zhu and Kraemer (2005) for instance, integrated the TOE framework with the RBV theory in investigating the post-adoption variations in E-business usage and value creations. Analyzed from a resource-based view, E-business value creation stemmed from the unique characteristics of the Internet, the front-end functionalities and the back-end integration (Zhu, 2004). However, indirect effects and the influence of moderating variable were not included in the study.

Reviewing the literature on technology diffusion and value creation, it was found that the RBV theory had been used extensively compared to the evolutionary game theory. The evolutionary game theory was quite similar to the TOE model. As in Kauffman, Wang and Miller (2002), the drivers of DotCom survival in the evolutionary game theory were categorized into three; industry specific characteristics (similar to environmental context in the TOE model); firms specific characteristics (similar to organizational context in the TOE model); and E-business specific characteristics (similar to technological context in the TOE model). Seeing this as a repetition, and due to lack of literature on the evolutionary game theory when looking at factors determining E-business usage on a firm's performance, the researcher believed that the TOE model was more reliable to study the drivers of E-business usage. In addition, the combination of both the TOE model and the RBV theory could propose meaningful results on how E-business influenced business performance.

2.4E-Business Usage and Business Performance

As companies were intensively investing in E-business, the main issue that came up was “does this investment pay off?” The main objective of investing in E-business was to improve performance (Zhu & Kraemer, 2005). The ability of E-business to improve business performance was evidenced by Clayton and Criscuolo (2002). Their study had shown that click and mortar companies tend to gain influence on performance as compared to brick and mortar businesses. In prior studies related to E-business and value creation, E-business had proven to improve customer service, inventory control, marketing, distribution, operation costs and cycle time reductions, and increased market reach (Ratnasingam, 2000).

2.4.1. Business Performance Measurement

Business performance measurement helped businesses to set business objectives and provide feedback regarding the progress to achieve the objectives (Simons, 2000). In general, measures were quantitative values used in making comparisons over time (Simons, 2000). Comparisons were done on preset target but did not require having exact value and could be compared with a specific target. It was clear that measures could be objective or subjective. However, the issue related to performance measurement lied on the attributes of measurement that provided accurate measures of performance globally. However, a generally applicable systematic approach to performance measurement had not been developed. Different types of systems required specific measurements' characteristics and therein lay the difficulty in creating such a general approach. Thus, previous work had sought to develop various performance measure frameworks for different types of systems that shared certain characteristics.”

From the accounting perspective, there were two measurement procedures to determine a company's performance; financial and non-financial measures (Simons, 2000; and Hilton, 1999). Although financial measures were very important, to some extent, financial performance criteria were being augmented by non-financial measures. Non-financial measures concentrated on current activities which acted as the drivers to future financial performance. In accounting, balanced scorecard was the famous performance measurement system initiated by Kaplan and Norton (1992). In a balanced scorecard, performance measurement was done based on four perspectives; financial, customers, internal business process, and learning and growth. "Financial perspective" examined whether strategy execution contributed to company's improvement. "Customer perspective" defined value proposition applied by firms in satisfying customers and generating sales to the targeted customers. "Internal business process" concerned on the processes which created and delivered value proposition to the customers. This perspective focused on activities and processes needed to provide effective and efficient value expected by customers. Lastly, "learning and growth" focused on the firm's intangible assets such as skills required in supporting value creations.

2.5 Development of E-Value Model

Constructing the E-VALUE model (Figure 5) required thorough review of literature to identify the specific constructs. Considering significant factors, the study reviewed the literature related to E-business drivers, E-business usage and value creation. It was found that past studies centred on the TOE model and the RBV theory or by integrating both model and theory, the advancement made in the current study was on the integration of TOE model, RBV theory, and E-business scorecard in providing multi-dimensional theoretical model. Consideration was given on the pre and post adoption of E-business usage; direct and indirect effects; the influence of moderator; and providing unbiased views of constructs, dimensions and elements from the accounting, business and IT point of views. The E-VALUE model was hoped to close the knowledge gaps in the literature as depicted in Table 1.

Table 1: Gaps in Prior Studies and Proposed Innovations in Relation to the Integrated Model of E-business Use and Value

Gaps in prior studies related to E-commerce usage and value creations	Innovations in the proposed E-VALUE model to overcome the missing links and gaps in knowledge area existed in prior studies
<p>The absence of important variables such as managerial beliefs and pressure intensity (as suggested in the literature) that could have significant influence on e-commerce usage</p> <p>In prior studies, front-end functionalities and back-end integration were regressed directly to e-business value. Both variables were actually referring to web-functionalities and will influence e-commerce usage.</p> <p>The absence of moderator effect which could have a strong contingent effect on the relationship between e-commerce usage and business performance.</p>	<p>The addition of two new variables; managerial beliefs, and pressure intensity.</p> <p>Front-end functionalities and back-end integration were renamed as web functionalities and regressed towards E-commerce Usage.</p> <p>Moderator variable (e-commerce experience) was included to test whether its inclusion could modify the original relationship between e-commerce usage and business performance.</p>

The measurement of business performance is not comprehensive enough from the accounting point of view. Prior studies focused only on three factors; the impact of sales, impact on internal operations, and impact on procurement. Other important dimensions and attributes were ignored.

Business performance was measured based on the four perspectives in balanced scorecard as suggested by Kaplan and Norton (1992). However, with some modification in the measurement attributes to suit the needs of performance measurement from technological and accounting points of view, this study introduces “e-business scorecard” as a comprehensive and multidimensional performance measurement tool.

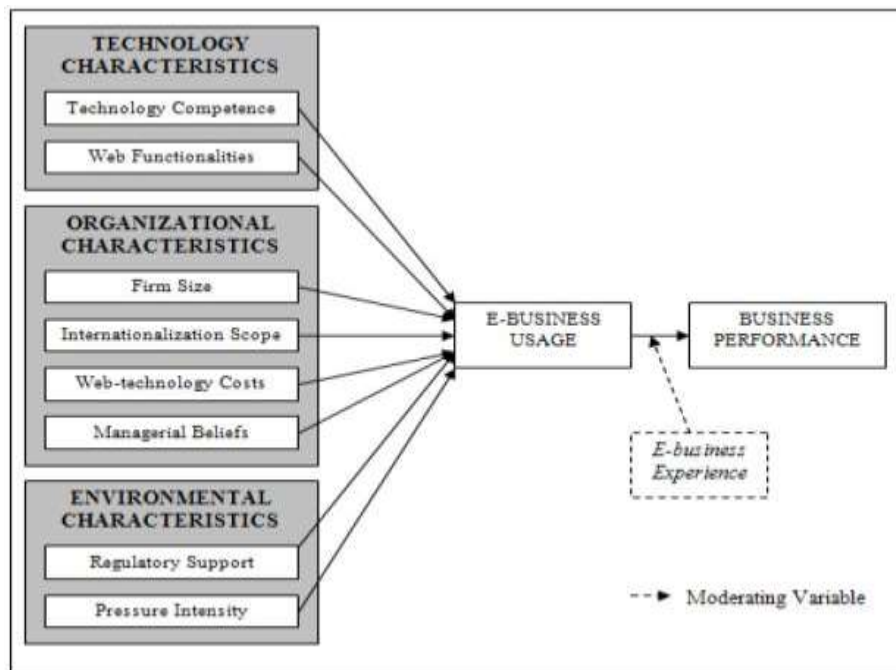


Figure 5: Proposed E-Value Model

2.5.1 Drivers To E-Business Usage

In the E-VALUE model, drivers to E-business usage were classified into three contexts based-on the TOE model; technological, organizational and environmental. This was consistent with Zhu, Kraemer and Xu (2006) who studied the innovation assimilation, and Robertson (2005), who focused on the critical drivers in B2B E-business.

2.5.1.1 Technological Context

Technological Context depicted a firm’s internal and external technologies (Zhu et al., 2004). Reviewing prior studies, IS adoption success was found to be driven by technology resources (Bharadwaj, 2000; and Kuan & Chau, 2001). An empirical investigation on the relationship linking advanced IT and performance (Bharadwaj, 2000) indicated that high IT capabilities of a firm (i.e., physical IT infrastructure components, human IT resources, and IT-enabled capabilities) outperformed a control sample of firms in various profit and cost-based performance measures. For the current study, technology competence represented the independent variable in the technological context.

i. Technology Competence

The concept of technology competence was associated to the firm's specific technologies, execution of technology related tasks, and routines (Scupola, no date). Not only physical assets, technology competence also constituted intangible resources as IT expertise and knowledge were complementary to physical assets (Helfat, 1997). According to Mata et al. (1995), and Bharadwaj (2000), technology resources were represented by infrastructure, human resources and knowledge. A study by Grant and Mukerji (2005) proposed a model that linked IT resources and IT routines through IT capabilities to the creation of opportunities for new advantages. In their study, Grant and Mukerji (2005) referred highly skilled managerial and technical employees and IT infrastructure as their IT resources. Technology infrastructure functioned as the foundation of E-business (Robertson, 2005). Together with technology infrastructure, knowledge and skills of IT human resources were exploited in the development of E-business (Zhu & Kraemer, 2005). In Zhu (2004), IT infrastructure was found to predict E-business capability. In competence based theories, firms' capability in acquiring, assimilating and exploiting technology innovation relied on their human resource portfolio (IT expertise) (Szulanski, 1996).

Technology competence was measured by referring to firm's technology infrastructure, IT human resources and knowledge which enabled firms to develop and implement E-business. Questions were asked on the percentage of employees who used computer at work, the percentage of employees who had information technology qualification and number of technology facilities used by the organization before E-business implementation.

ii. Web-functionalities

Functioned as an interface, front-end (or the website) enabled communication between sellers and buyers and was found to significantly influence E-business usage. Besides, front-end functionalities enabled delivery of real-time product information, offered customization and assisted customers using online account administration that led to recuperating transactional efficiencies and widened the existing channel (Zhu & Kraemer, 2002). Back-end conversely, referred to the activities that were related to order fulfilment, inventory management, procurement, payment processing, packaging and delivery. Integration however, helped to fit the pieces, linking unrelated systems and fragmented resources to allow firms to take full advantage of their existing investment (Zhu, 2004). Back-end integration included the integration of web-based front system (known as front-end) with the corporate databases and the back-end IS. The integration facilitated the process of order fulfilment and logistics management.

In prior studies (Zhu & Kraemer, 2005; and Wen, Lim & Huang, 2003), front-end and back-end were found separated as two independent variables which were regressed towards business performance. When discussing E-business portal however, both were found to fall under web-functionalities. For that reason, this study used the term "web-functionalities" as an independent driver to E-business usage. Measurement of "Web functionalities" was based on both front-end and back-end system.

2.5.1.2 Organisational Context

i. Firm Size

Firm size was used in measuring several dimensions that led to innovation. As larger firms were believed to have greater resources, it would enable the experiment of new innovation and to acquire sufficient financial resources in implementing the innovation. In Damanpour (1992), a study on organizational size and innovation found that larger firms had a number of advantages compared to small firms on the followings:

- Larger firms were likely to have more slack resources in facilitating EPS adoption;
- Larger firms were more prone to gain economies of scale;
- Larger firms were said to have high capabilities in managing early stage investment risks; and
- Larger firms were more powerful in bringing together trading partners to join the technology adoption.

Sciadas (2004) had proven the importance of firm size in a study on E-business usage. Although small firms did well in basic E-business connectivity, they lagged behind when it came to applications that were more sophisticated. The study believed that size must be examined in conjunction with sector of activity. For some industries, small firms were more connected than large firms. As firm size was still being debated to have positive and negative relationships with E-business usage, firm size was considered as an important construct under the current study.

ii. Internationalization Scope

The Internet opened a platform for global connectivity which offered greater business scope (Zhu et al., 2006). Reviewing the technology diffusion literature, it was found that greater internationalization scope led to greater IT demand (Hitt, 1999). As the adoption predictor, the role of a firm's internationalization can be explained from two perspectives; the costs and synergy perspectives. From the costs perspective, the effect of business globalization through E-business could be explained by looking at the transaction cost (Williamson, 1983). In traditional businesses, firms with greater scope had higher internal coordination costs, higher search costs and higher inventory holding costs. However, with the introduction of E-business that helped to reduce the internal coordination costs through business digitalisation (Hitt, 1999), lower search costs for both buyers and sellers or suppliers and customers (Malone, et al, 1987), and improved inventory management, it was believed that firms with wider scope were more motivated in adopting E-business. In this study, internationalization scope was defined as the geographical extent of the firm's operation and its trading globalization. E-business eradicated the geographical restrictions of running businesses. It allowed business expansions for wider market penetration (Khan & Motiwalla, 2002). With E-business, firms were able to move to the global market.

iii. Web-Technology Investment Cost

Web technology investment cost referred to the extent of management's beliefs regarding E-business value creations. Technology investment increased costs and management concerned. However, the consistent relationship between IT investment especially in E-business and organizational performance was rarely discussed in prior literature (Hitt & Brynjolfsson, 1996). Zhu and Kraemer (2005) assumed that higher investment led to greater usage and could benefit performance. Reviewing the literature, Web technology investment costs was referred as financial commitment on costs and expenses in relation to installing and implementing any enhancements in supporting technology innovation (Karakaya & Khalil, 2004). For the current study, Web technology investment costs were referred to the financial commitment on hardware, software, system integration, and human resources training.

iv. Managerial Beliefs

According to a study on innovations and organizations conducted by Zaltman, Duncan and Holbeck (1973), managerial belief found to be the first stage in innovation adoption process. At this stage, the management identified the objective of business change and searched for new innovation that suited the objective before the adoption decision. Managerial belief, whether positive or negative, was an important antecedent that needed to be evaluated in strategic planning (Child, 1972). In prior literature, few studies found that management interpretation and judgements regarding organization and environment force played a critical role to explain

strategic choice and drove technology innovation (Coltman, et al, 2003). In short, an insight that materialized from prior studies suggested that managerial belief was an important antecedent towards technology innovation and implementation. In this research, managerial beliefs represented top management acts regarding E-business.

2.5.1.3 Environmental Context

i. Regulatory Support

In Zhu et al. (2003), regulatory environment was found to be a predictor of innovation diffusion. As new technology emerged in the market that influenced innovation in business transactions, new policy and regulatory framework needed to be formulated to avoid abuses. Not to forget, support by government would assist E-business usage. Zhu and Kraemer (2005) found that regulatory support was an important environmental construct that affected E-business usage. Support by government in terms of policy development was also theorized to influence the diffusion of IT (Umanath & Campbell, 1994). Issues such as security and privacy, legal protection and business laws developed concerns among companies to participate in online business (Kraemer et al., 2006). As for the current study, regulatory support referred to governments' responsibility in encouraging E-business usage by developing laws and incentives for E-business.

ii. Pressure Intensity

Based on a threshold model in the field of sociological studies, decision on engaging in a specific behaviour was said to rely on competitors (Krassa, 1988). Zhu et al. (2006) and Porter (1985) measured competition intensity by looking at three markets; local, national, and international markets that affected firms in terms of competition. Internal and external factors were used to classify drivers of E-business investment by firms (Windrum & Berranger, 2003). As in Martin (2001), customer pressure, competitive pressure, and key suppliers were classified as external factors that drove E-business adoption. Improved knowledge-sharing, cost reduction, and increased efficiency were categorized as internal drivers towards E-business adoption intention (Martin, 2001). For the current study, pressure intensity was identified as a driver to E-business usage. The researcher believed that the term "pressure intensity" gave clearer meaning as compared to competition intensity (which only focused on competitors) and internal or external drivers (which was too general).

2.5.2 E-Business Usage

Review of literature showed that the term E-business usage, implementation, and adoption were used interchangeably without any difference in the meaning. Zhu and Kraemer (2005), for example, used the term E-business usage in one of their research, but in another article by Zhu et al. (2003), the term E-business adoption was used to refer to E-business implementation. Therefore, for the current study, E-business usage was assumed to be equivalent to E-business implementation or E-business adoption.

2.5.3 E-Business Experience (Moderating Variable)

Kauffman, Wang and Miller (2002) studied how firms survived by using the Evolutionary Game Theory. It was found that through a trial and error process, firms learned on what strategies to adopt in generating profits. Similar to the mutation process, firms realized what worked better by exploration, experimentation, examining the reaction of market and financial performance, as well as gaining information from competitors' experience (Kauffman, Wang & Miller, 2002). Realizing this, E-business experience was believed to have strong contingent effect on the independent variable (IV) – dependent variable (DV) relationship. Therefore, this study tried to look at how the presence of moderating variable modified the "usage–performance" relationship.

2.5.4 Measuring E-Business Performance

In this study, E-business scorecard (Table 2) was developed as a measurement of E-business performance for click and mortar companies. E-business scorecard applied the concept of Balanced Scorecard (Kaplan & Norton, 1992) which focused on financial, customers, internal business process and learning and growth. Originally, a Balanced Scorecard supplied top managers with a fast and comprehensive measure of the traditional business performance (Kaplan and Norton, 1992). E-business scorecard however, considered both technological and traditional accounting elements in performance measurement; and also focused on the post-adoption stage of E-business adoption i.e., “the impact”, as a solution to the knowledge gap in assessing E-business performance.

Table 2:E-Business Scorecard – Performance Measurement Tool For E-business

E-BUSINESS SCORECARD: DIMENSIONS & ATTRIBUTES	
<u>IMPACT ON FINANCIAL</u> Profitable Increase the Return on Investment (ROI) Contribute to the revenue Operational cost reduction Reduced the cost of acquiring a new customer Reduced the cost for customer relationship management Reduced the procurement costs Reduced the inventory costs	<u>IMPACT ON INTERNAL BUSINESS PROCESS</u> Increase on-time delivery of services Reduce the number of problems with customer reservations processing Reduce the number of E-business issues reported in internal audit report Reduce the number of E-business issues reported in external audit report Increased staff productivity Improved coordination with suppliers
<u>IMPACT ON CUSTOMER</u> Online customers repeat their web purchases Reduced the number of customer complaints Generate new customers	<u>IMPACT ON LEARNING AND GROWTH</u> Increase sales Widened sales area Improved customer service

3.0 Conclusion

This study had extended the knowledge in literature with the development of E-VALUE model which had integrated features of TOE model, RBV theory and Balanced Scorecard. The study is hoped to provide significant contribution with a presentation of multidimensional model that explains factors (categorized under technological, organizational and environmental) influencing E-business usage. It is recommended for future studies to test the effectiveness of this model across different industries which utilises the advantages of E-business in their daily business operations.

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