

# Examining the Effect of E-Commerce on Business Performance in A Business Environment

ANTHONY IGWE

Department of Management, University of Nigeria, Enugu Campus, Enugu, Nigeria

J. U. J ONWUMERE

Department of Banking and Finance, University of Nigeria, Enugu Campus, Enugu, Nigeria

OBIAMAKA P. EGBO

Department of Banking and Finance, University of Nigeria, Enugu Campus, Enugu, Nigeria

## Abstract

In this exercise, the effects of electronic commerce in the light of business to business transaction are examined. Our assessments result in the development of four propositions regarding the impact of electronic commerce on business performance. Our propositions link the adoption of electronic commerce through information flow and speed of decision making to business performance. From these propositions, we have suggested a model of the impact of electronic commerce adoption on business performance, the benefit of the buyers, the suppliers and the customers. The model implies a mediated link between electronic commerce and business performance. It is our view that the adoption of this model will enhance business activity and its overall performance.

**Keywords:** E-Commerce, Business Performance, Environment

## INTRODUCTION

Among the most powerful forces affecting the world's economy and commerce today is the substantial increase in globalisation through the use of Information and Communications Technologies (ICTs). Kaynak et al (2005) suggest that the rapid emergence of E-commerce has changed the nature of business so quickly and pervasively that where once it was revolutionary, now, it is simply evolutionary. Many authors have stated that e-commerce provides many opportunities to create better business economics (Oliver, 1999) and some have gone as far as indicating that e-commerce is the "great equalizer" (Quinn, 1999). If these statements are true then it would mean that businesses should be receiving some sort of benefit from the implementation of these technologies. The ability of the World Wide Web (WWW) to facilitate communication has triggered the need for businesses to think about new ways of conducting their affairs (Herbig and Hale, 1997; Pattinson and Brown 1996; Hamill, 1997). As the medium has been suffering from substantial hype, it would appear that business operators have been reluctant to participate in the e-commerce environment, although various researchers are predicting phenomenal growth in the near future. If the existing ratio between business to consumer (B2C) and business to business (B2B) markets holds in the "new economy" then it is expected that the (B to B) market should be 100 times larger than the (B2C) market (Caralli, 1995). Against this background of uncertainty and potential (Venkatesh 1998), is an opportunity to conduct extensive academic research into e-commerce from the perspective of the B2B operation. This paper explores current theory on B2B transactions in the "old economy" and then translates them into an e-commerce setting.

These translations are then examined for their likely impact on businesses that adopt the "new economy" approach in their activities. There are nearly as many definitions of E-commerce as there are contributions in the literature. The World Trade Organisation (WTO) defines E-commerce as "... the production, distribution, marketing, sale or delivery of goods and services by electronic means" (Baker & McKenzie 2001 cited Kaynak et al 2005). Shultz & Baumgartner (2001) define the concept as: "the buying and selling of information, products, and services via computer networks". As there are no commonly agreed to definitions of E-commerce for E-commerce, the definition provided by Globerman et al (2001 cited Kaynak et al 2005) will be adopted in this paper, viz., "any economic transaction where the buyer and the seller come together through the electronic media of the Internet, form contractual agreement concerning pricing and delivery of particular goods and services and complete the transaction through the delivery of payments and good or service as contracted".

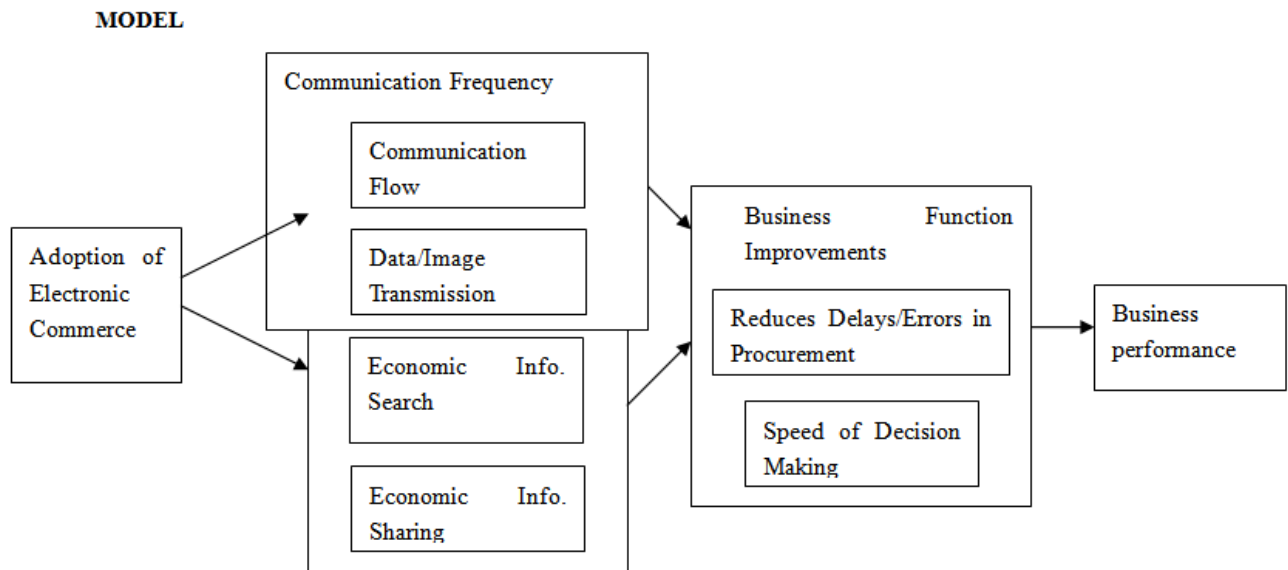
However, the definition by Kalakota and Whinston (1997) has four distinguishing perspectives. They include (1) Communication perspective – E-Commerce is the delivery of information, products/services or payments over telephone lines, computer networks or any other electronic means; (2) Business process perspective – E-Commerce is the application of technology towards the automation of business transactions and workflows; (3). Service perspective – E-Commerce is a tool that addresses the desire of firms, consumers and management to cut service costs while improving the quality of goods and increasing the speed of service delivery; and (4) Online

perspective – E-Commerce provides the capacity to buy and sell products and information on the Internet as well as other online services.

### CONCEPTUAL FRAMEWORK

In order to assess the effect of electronic commerce on business to business dealings, we need to first start with the already well established literature on buyer behaviour. Starting in the late sixties (Strauss 1962;(Robinson, Farris and Wind 1967), organisational buyer behaviour has been dissected and analysed in great detail. One of the main thrusts of the more recent works has been to examine the effect of information on the buying process.

Duncan and Moriarty (1998) discuss the relationship between the notions of exchange, communication and technology setting, the stage for more detailed investigation in the future. Earlier work (Larson 1994) indicated that there was a strong relationship between information flow and business performance. When this work is held up beside the recent trend toward electronic commerce, it begs the question of the impact of WWW on communications. If increased communication sparks increased performance, then a communication revolution should revolutionize performance. Dawes, Lee and Dowling (1998) suggest that information will have an impact on performance only when there is a differential in the amount of information available to various firms. This implies that the WWW might well be a zero sum game. However, others such as Lilien et al. (1998) suggest that any increase in information, and more importantly, information use, will result in a net gain in overall efficiency allowing all participants to prosper. Clearly, there is confusion as to the effect of information on businesses. To make matters worse, the type of industrial purchase is also likely to moderate the informational effect with Duncan and Moriarty (1998) suggesting that technology based information improvements would help mainly transactional purchases.



Specifically, Electronic Data Interchange systems have immediate effects on the performance of a business such as:

- (a) Faster transmission;
- (b) Greater accuracy of data interchange;
- (c) More complete information about the transactions
- d) Provide what telephone or fax services could not provide
- e) Increase in communication flow
- f) Provides what telephone or fax services could not provide

### THE SIGNIFICANCE OF ELECTRONIC COMMERCE

Electronic Commerce has made an impact on virtually every business after years of exploration. Online booksellers and music stores such as Amazon, Barnes and Noble, and Borders, to name several, have connected with a significant consumer segment. Traditional retailers such as Wal-Mart have established an on-line presence, and the personal computer industry exemplifies a range of business models on the World Wide Web:

from simple distributors-integrator-catalog models such as NECX, Microwarehouse, and PC Mall to make-to-order PC manufacturers such as Dell and Gateway. Even on-line groceries shopping which was originally being thought of as not likely to bloom has become common enough to attract \$456 million in gross revenues for 1998 (Kirsner, 1999). And banking, taking full advantage of the information flow through the World Wide Web (WWW), has practically extended most of its function onto Internet. As a recent BusinessWeek article (Robert D Hof, 2000) predicts: buyers (of all corporations) using net marketplaces will grow from about 28% in 2000 to estimated 70% in 2002; and sellers (of all corporations) using net marketplaces will grow from about 8% in 2000 to estimated 72% in 2002.

However, conducting business on-line does not necessarily guarantee savings or better service, nor does it guarantee competitiveness. Rapid-growing technology and technology adoption makes estimates understanding of the web-enhanced capabilities difficult. Fundamental changes in competition, strategy, information structure, and organizational design represent some of the probable changes this medium will inevitably bring. Moreover, there also exists urgent needs for greater speed and efficiency, corporate decentralization, incentives to control purchasing costs, and the growth in electronic commerce.

### **WEB-ENHANCED CAPABILITIES**

What indeed are the competitive advantages EC can provide that traditional firms don't have? Watson et al. (1998) offer five reasons to participate in electronic commerce: (1) to reduce search and transactions costs; (2) to promote the image of a leading-edge corporation and increase visibility; (3) to improve customer service; (4) to enable market expansion; (5) to lower stakeholder communication costs through on-line transactions and global information distribution. Ghosh (1998) identifies four opportunities created by electronic commerce. Each opportunity explains feasible and compelling uses of electronic commerce: (1) establishing direct links with customers: sample activities include on-line ordering, providing new services; benefits for firms include lower interaction (operating) costs, developing loyalty; and benefits for customer include speed, lower cost, and availability of valuable information. (2) Circumventing other members of value chain: sample activities include ordering on-line from source with both physical and virtual resources; benefits for the firms includes reducing nodes in information and material flow in supply chain; and benefits for customers include lower cost, valuable information, and customization. (3) Developing new products and services: sample activities include creating new product/service by the aid of Internet; benefits for the firms include building loyalty, better use of resources; and benefits for customers include, again, lower cost, speed, valuable information, customization, and integrated offerings. (4) Becoming the dominant electronic presence within an industry: sample activities include becoming the pioneers in the industry to provide e-channels; benefits for the firms include superior competitive position from scale, scope, and integration; and benefits for customers include cost, speed, valuable information, and market dominance. Rayport and Sviokla (1995) develop a framework for thinking of *marketspace*, a "virtual realm" where products and services are delivered through information-based channels. The authors propose three sequential value-adding information processes created by EC: (1) visibility, referring to the easiness of managing existing operations efficiently, such as ERP; (2) mirroring capabilities, referring to substituting virtual activities for physical activities, particularly in enhancing speed, flexibility, cost, and quality; (3) customer relationships, referring to improving customer relationship through web-based advertising, service, knowledge base information, and ordering and fulfillment. Integrating the concepts, we can see that EC can enhance traditional capabilities such as cost, quality, flexibility, and delivery, as well as innovation and technology, and more importantly, knowledge. EC also succeeds in shortening the distance between customers and the firm through the use new information to tailor products/services to customers' needs and develops new, technology-based relationships with them. Although electronic commerce offers new, exciting, and potentially revolutionary strategic choices, forms, and implementations, it does not transcend extant frameworks and conceptions. Extensive literature review indicates that the implications for electronic commerce comprise many of the concepts of competitive capabilities found in operations strategy literature such as neo-operations strategy (Roth, 1996), and the Service Factory (Chase, 1989). However, how do these similarities and differences influence business performance? Naturally, our first step is to search answers from different traditional Operations Management literature.

### **BENEFITS TO THE BUYERS:**

Purchasers could view a product using the convenience and the flexibility of the Internet to locate and view product and its features from various organizations, examine the price request modifications to the product and order the product by completing the required formalities without having to leave the office. A higher degree of adoption of electronic commerce and its associated increase in asynchronous data/image transmission will augment business performance. Bloch, Pigneur and Segev (1996) argue that electronic commerce provides information to customers through on-line electronic brochures or buying guides. This can be seen as an

additional marketing channel, allowing for a global reach.

The advantages of electronic commerce as a way to deliver marketing mix information and its ability to be available in real time, anywhere provided the customer has the right infrastructure to access this information will have effect on business performance. As information is transacted electronically, ordering of good and services are made economically and easily.

As information is transacted electronically, ordering of goods and services are made economically and easily. From the demand side the potential benefits from electronic commerce include the information on the procurement process, where the process can be streamlined and trading procedures can be standardized through computerization. Delays and errors in procurement can be reduced. Information that is provided by various businesses in an electronic commerce environment on goods and services that the buying organisation can compare would prove more efficient and informative for matchmaking with the requirements and allow for competitive rates for procurement. Some argue that electronic commerce has the capacity to empower small businesses by providing equal opportunity to gain and transfer or exchange information.

Bloch, et al. (1996) argues that a large source of the business value that electronic commerce can provide comes from changing the products themselves in addition to the way they are advertised, ordered or delivered. Database marketing techniques can then be used to analyze this information, in order to improve new product development and target specific offers to certain customers (Berry, 1994). This is mainly due to the potential of collecting information that will be used to customize products.

A higher degree of adoption of electronic commerce and its associated economical information sharing will increase the speed of the decision making process. The advent of the computer and the implementation of subsequent management information system programs have had a greater effect on industrial purchasing than has anything else in the past. Not only has the computer served as an important tool for the use in purchasing but also the purchase of that computer required a purchasing decision of intense complexity for each business (Bonoma, 1977). The authors found that as purchasing departments' use of computers increased they were able to off-load routine tasks of ordering and were able to focus on looking for suppliers and bargain better deals. The electronic commerce environment allows economical interactive search to look for bargains at reduce cost. An electronic commerce environment purchasing organizations will need on-line facilities that will not only help them in locating resources but also provide help in locating products and services that match certain customized requirements within a certain price range.

### **BENEFITS TO THE SUPPLIERS**

Suppliers who are contacted to meet various specific requirements required by the purchasing organisation can provide specific information to the purchasing organisation in real time in order to speed up the purchaser's decision making process. Economical interactive search also provides the purchasing organisation to look for similar organisation that can provide products with similar specification and use the information to bargain price. From the supplier side the supplier can also search intellectually for purchasing organisation that require particular products and try to supply information to the buyer in order to speed up the purchaser's decision making process.

### **BENEFITS TO THE CUSTOMERS**

Mass customization has been used for some time now (Pine, 1993); it endeavours to create specific products for each customer, based on his or her exact needs. Customization to create specific products for customers can now be possible for the information bank of electronic commerce. In the future, electronic commerce links between customers and suppliers will suppress the need for an infrastructure to gather customer data, and will allow customers to do it from home, their office or on the road. This direct link also allows the supplier to gather very detailed data on customer profiles, their needs, patterns of buying etc.

### **CONCLUSION**

There has been a lot of hype associated with virtual environments and in particular the electronic commerce environment. Of late, the literature has begun to identify the ways in which this environment is important and the measures that need to be developed to ascertain the effect of electronic commerce on business performance in a business environment. Virtual markets are technological environments of a particular kind and the measurement of these business-to-business markets in an electronic commerce environment has not been established in literature. To this end the theory of Industrial Buying Behaviour has been used as a basis to identify factors for various constructs and add to it other factors and to develop a number of proposals based on the developed

conceptual framework. A higher degree of adoption of electronic commerce and its associated increase in interactive search will increase the speed of the decision making process. The proposed future research in this area is to expand the application of channel performance in electronic commerce and measure the improvement in effectiveness that organizations would realize by conducting business in this environment.

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