

Electronic Business and Firm Performance: An Empirical Analysis from South-East States of Nigeria

Okolocha, Chizoba Bonaventure

Department of Entrepreneurship Studies,
Faculty of Management Sciences,
Nnamdi Azikiwe University, Awka, Nigeria
Mail: cb.okolocha@unizik.edu.ng

Abstract

This present study therefore examines the impact of electronic business on the overall costs reduction in organization as well improving customer relations and revenue generation. Survey research design was adopted. The population for this study was chosen from bankers and businessmen. The sample size was determined using Cochran's equation of infinite population developed to yield a representative sample for proportions. Data was obtained from questionnaire administered on the sample population of 135 respondents across South-East States of Nigeria. Data obtained was analyzed using one sample t-test statistics with aid of SPSS version 20.0 software. Findings shows that electronic business significantly impacted on the overall costs of operation hence increase revenue of an organization as well improved customer relations and satisfactions. Therefore, recommended that the organizations, businessmen and financial institutions should embark on more effective Information Technology training of their members in order to enhance their performance as well customers' satisfactions.

Keywords: Electronic business, Costs reduction, Revenue generation and Customer relations.

INTRODUCTION

Recently, the advances on information technology (IT) have changed electronic business, substantially (Takeishi, 2002). Prahinski and Benton (2004) documented that IT could improve communications in and out of an organization and this could enhance the performance of the firms. There is no doubt that sharing information among various organizations can help them access better production, inventory management and distribution planning (Kearns & Lederer, 2003). Wu, Zhong and Mei (2011) examined two important issues associated with e-business. Firstly, was on what capabilities impact a company's capability to establish e-business success and perform better, where firm-level e-business success is evaluated using e-business service capability and IT-enabled collaborative advantages; and the second question was related to whether the two ways of measuring e-business success yields in various effects on organizational performance. The survey studies whether a firm's application abilities of e-business integrated

systems development and systems usage is positively associated with a firm's overall e-business success, which yields to a positive impact on organizational performance.

Business operation involves activities that are involved in business operations to maximize the firm's value. Job performance refers to the accomplishment of tasks and responsibilities assigned to the individual or employee on job place. This could be translated into the important role of a firm's application capability of e-business on e-business success. They also discovered that IT-enabled collaborative advantage maintains relatively more significant and greater impact on organizational performance. Wu and Chen (2006) presented a hybrid method for measuring the performance of e-business investments in high-tech manufacturing. The method uses other measures in addition to financial figures to measure the performance. The study used an integrative performance measurement system with a three-level structure of organizational hierarchy including corporate strategies, manufacturing decisions, and operational activities. Various levels of performance measures were investigated over various periods and the model was verified by survey data. The results showed that time tag had positive influence on the performance measures of corporate strategies and that they were significantly correlated with operational activities.

Bremser and Chung (2005) presented a conceptual model for performance measurement in the e-business environment. The primary aim of the paper was to present a framework for developing performance measurement metrics in the e-business environment using balanced scorecard methodology with existing taxonomies of e-business models. Kim, Song and Koo (2008) investigated the effect of strategic positioning on firm performance in the e-business context. They reported that innovative differentiation strategies together with technological resources could strongly influence firm performance in the e-business context, a context where there is considerable turbulence in technological development.

Popa, Soto-Acosta and Perez-Gonzalez (2016) reported that economic globalization is having a profound impact on all industries across the globe. The process of globalization is not the same, and there are large discrepancies to the extent by which industries are being divided into a single global market. At this juncture, economic globalization is pressurizing manufacturing firms, specially manufacturing Small and Medium Enterprises (SMEs) which must today compete globally (Raymond, Bergeron & Blili, 2005; Soto-Acosta, Popa & Palacios-Marques, 2015). In this context, brought by the advent and development of Internet technologies, among other

factors, manufacturing companies are adopting e-business technologies to increase productivity and quality, lower operating costs, and respond faster to customers' and business partners' needs (Jardim-Goncalves, Popplewell & Grilo, 2012). As a result, effective adoption and use of e-business technologies have become major management concerns (Popa et al., 2016; Soto-Acosta & Meroño-Cerdan, 2008).

In addition, Ezejiofor, Olise and Ezenyirimba (2013) assessed electronic business on ensuring accountability and service delivery. Soto-Acosta, Popa and Palacios-Marques (2016) with emphasis on factors that affecting electronic business use and how it affect organizational innovation and performance in SMEs. Kareem, Owomoyela and Oyebamiji (2014) ascertained the impact of e-commerce on business performance with particular reference to the selected supermarkets in Ibadan metropolis. Afsaneh (2012) based on the relationship between electronic business and intra and extra organizational cooperation.

As the existing research focuses on diverse areas of interest, most of these prior studies on e-business has emphasized on high e-business intensity countries like; USA, Canada and Scandinavian countries. Though the growth of e-business is on increase as well in developing economy like Nigeria as revealed by previous studies, there is need to extend the study of this nature to South East region or states (Abia, Anambra, Ebonyi, Enugu and Imo) in Nigeria. This present study therefore examines the impact of electronic business on the overall costs reduction in organization as well improving customer relations and revenue generation. This study attempts to address these issues, via a review of current literature through a critical summary of previous work, Journal papers and articles produced so far.

Review of Related Literature

Electronic Business

Electronic business is becoming an important initiative for companies to consider every aspect of running a business organization (Sahu, 2016). E-business may be defined as a process by which business organization conducts over a computer which involves buying and selling of products and services that carried out for profit as well as non-profit oriented organizations. E-business consist the continuous optimization of the value of an organization. Implementing E-business aspects needs organizational restructuring, new job descriptions and various revised policies. For

electronic business to become successful, the decision maker should understand these changes as well their impact on the performance of the organization.

Electronic business is focused on improving the organizational performance by adopting new technology and also connecting across businesses and business partners to attain competitive advantage which can reduce the overall costs of doing business. If electronic business executed properly, it can assist the organizations in improving customer relations and increase revenue thereby reducing the costs (Sahu, 2016).

The business firms have realized that the present customers require convenience, speed in service, personalization, and competitive prices in the shopping process. So the organizations need to evaluate how it can deploy technology in order to dip the process and value. Electronic business is having impact on the customer relationships at various levels. Customer relationships are becoming an important factor in differentiating one business organization from another. To retain the competitiveness, companies with E-business initiatives have started analyzing the relationships with customers, which enables the firms to maximize the customer relationship with the firms as well as the customer's value to the company. As companies make many of their operations in the internet, customers have an easier access and insight into their workings. Thus, E-business is changing the way companies and their customers interact with each other. E-business is also causing radical change in the companies' thinking about technology and this change is inevitable. Technology is no more related to the back office of any firm, it has become an integral part of electronic business enabled business processes. However, in electronic business initiative, technology should be used to innovate, as well facilitate the entire experience with the product.

Electronic business, organizational innovation and firm performance

Defining the concept of innovation is not straightforward because this subject has been studied from different approaches: technological, organizational, administrative, etc. However, there seems to be a consensus to treat innovation as new knowledge and ideas transformed into new products and/or services, new technologies, new processes and new organizational forms or structures (He, & Wong, 2004). For long time there has been extensive theoretical argumentation concerning the capabilities of IT to drive significant innovations in business processes, products and services of firms, and through them result in big improvements of their business

performance (Garcia-Penalvo et al. 2011; Soto-Acosta *et al.* 2011). Moreover, the ability to innovate, especially in dynamic environments, results from the collective ability of employees to share and combine knowledge (Nahapiet & Goshal, 1998). In this sense, there are a number of studies that link innovation to inter-functional coordination and the use of networks (Darroch 2005; Soto-Acosta *et al.* 2014a). Firms are using more and more collaborative technologies for the execution of the innovation process (Merono-Cerdan *et al.* 2008a). As a consequence, Merono-Cerdan *et al.* (2008b) found that most collaborative technologies.

In summary, according to Richard, Coulter and Vohra (2009), performance includes; customer satisfaction, Product market performance and Product services quality Organization performance can be measured through efficiency and effectiveness (Robins et al., 2009). An organization is efficient if it is cost and time effective (Bardhan, 2005). Therefore, customer satisfactions evaluate the product or services on the basis of expectation from that product or services which satisfied or not. Business operation involves activities that are involved in business operations to maximize the firm's value. Job performance refers to the accomplishment of tasks and responsibilities assigned to the individual or employee on job place (Muhammad et al, 2015).

Empirical Studies

Soto-Acosta, Popa and Palacios-Marques (2016) analyzed factors that affecting electronic business use and how it affect organizational innovation and performance in Small and Medium-Size Enterprises (SMEs). This paper develops an integrative research model which analyzes those relations using partial least squares (PLS) structural equation modeling on a dataset of 175 Spanish manufacturing SMEs. The study found that electronic business use emerges from technological and internal organizational resources rather than from external pressure. Muhammad, Cidgem, Akin, Said and Abdul Haseeb (2015) measured the impact of electronic commerce on organization performance. Using data collected from 50 samples filling online from the banking sector of Pakistan. Finding revealed that there is positive relationship between e-commerce and organization performance and by implementing e commerce; organizations improve its performance in terms of business operations, job performance and customer satisfaction. Kareem, Owomoyela and Oyebamiji (2014) ascertained the impact of e-commerce on business performance with particular reference to the selected supermarkets in Ibadan metropolis. Structured questionnaire designed by the researchers were used to collect data and

tested with simple regression analysis. They found that electronic commerce adoption has significant impact on service operations, cost operation reductions and profit levels. Ezejiolor, Olise and Ezenyirimba (2013) assessed the appraisal of electronic business in ensuring accountability in service delivery. This study reviewed various forms including journal papers, articles, websites and other relevant materials. Data for the hypotheses were analyzed and tested with Pearson Product Movement Correlation Co-efficient. Findings show that there is a relationship between electronic business and increase in productivity to enhance economic growth in Nigeria and there is also a relationship between electronic business and accountability in service delivery. Piotr, Tymoteusz and Sylwia (2013) verified the extent the e-business value creation model developed by Amit and Zott could be used to explain different profitability levels among firms. The study included 150 businesses with the largest representation of internet retailers and service providers. The major outcome of the study was developing logistic regression model that allowed establishing which variables were statistically significant predictors of operational return on sales ratio. Afsaneh (2012) present an empirical study to investigate the relationship between electronic business and intra and extra organizational cooperation. The findings revealed that electronic business directly increase intra organizational performance, indirectly increase organizational cooperation. Extra organizational performance directly increase organization performance, inside cooperation also indirectly influence inside cooperation through extra organization cooperation. Hu, Yang and Yang (2012) determined how electronic commerce creates value for firms from the perspective of dynamic capability theory. A theoretical model is proposed and tested using structural equation modeling techniques based on survey data collected from firms that have been using e electronic commerce in their operations for an average of 4 years and have more than 25% of sales or procurement via ecommerce channels. They found that top management participation is a key contributor to the development of a firm's potential and realized absorptive capacities.

As the existing research focuses on diverse areas of interest, most of these prior studies on e-business has emphasized on high e-business intensity countries like; USA, Canada and Scandinavian countries, the need for this study.

METHODOLOGY

Design

This study adopted survey research design which involves the gathering of data through questions and interviews from few people considered to be representative of the entire group. This design was selected for this study because the study seeks to sample the opinion of respondents and draw inferences based on their views.

Population

The following categories of people as the proposed population for this study were chosen:

1. Bankers
2. Businessmen

The sample size was determined using Cochran's equation of infinite population developed to yield a representative sample for proportions:

Formula;

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where; n – sample size

Z – Abscissa of the normal curve that cuts off an area α at the tail (found in statistical tables which contain area under normal curve)

P – Estimated proportion of an attribute present in the population

q – 1-p

e – Desired level of precision expressed in decimal.

Using a 90% confidence interval; Z = 1.645

e = $\pm 10\% = 0.1$

p = 0.5 (maximum variable)

q = 1- 0.5 = 0.5.

$$n_0 = \frac{(1.645)^2(0.5)(0.5)}{(0.10)^2}$$

$n_0 = 135$

Method of Analysis

Data collected for the study were analyzed by the researcher using five point likert scales. The two hypotheses formulated for the study were tested with one sample t-test with aid of Statistical Package for Social Sciences (SPSS) version 20.0 software package.

Decision rule:

Using SPSS, 5% is considered a normal significance level. The accept reject criterion was based on the computed t-value. If t-value calculated is equal or greater than tab t-value there is significant interaction effect, cal t-value value > tab t-value we reject Null and accept alternate hypothesis.

One hundred and thirty three (135) copies of the questionnaires were personally administered to the sample population of respondents. The researcher retrieved 94 questionnaires in usable form for analysis of the result.

Effective response rate of 70% was achieved which is reasonably good. The questionnaires were distributed to bankers and businessmen and women in South-East States.

Data Analysis and Results

Hypothesis One

Ho₁: Electronic business does not significantly impact on the overall costs of operation hence increase revenue of an organization.

Table 1: One-Sample Test

Questions	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
1	3.513	4	.025	18.80000	3.9415	33.6585
2	2.817	4	.048	18.80000	.2705	37.3295
3	2.370	4	.077	18.80000	-3.2269	40.8269
4	3.602	4	.023	18.80000	4.3092	33.2908
5	3.787	4	.019	18.80000	5.0181	32.5819
6	3.213	4	.033	18.80000	2.5536	35.0464

From the above one sample t-test table, the outcome from the questions tested shows that the calculated t-values are higher than the table t- values. This means that e-business facilitates product market performance and product services quality, reduces cost of transactions as well ensure time effectiveness. Since the calculated t-value is 56.521 and the table t-value is 1.812; it means that calculated t-value is greater than the table t-value. We therefore reject null hypothesis and uphold alternative hypothesis which states that electronic business significantly impact on the overall costs reduction hence increase revenue generation in organization.

Hypothesis Two

Ho₂: Electronic business has not improved customer relations and satisfactions.

Table 2: One-Sample Test

Questions	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
1	2.589	4	.061	18.80000	-1.3632	38.9632
2	2.555	4	.063	18.80000	-1.6291	39.2291
3	3.020	4	.039	18.80000	1.5190	36.0810
4	3.185	4	.033	18.80000	2.4119	35.1881
5	2.395	4	.075	18.80000	-2.9982	40.5982
6	3.044	4	.038	18.80000	1.6533	35.9467

From table 2 above, the outcome from the questions tested shows that the calculated t-values are higher than the table t- values. This means that e-business efficiency and effectiveness and job performance as well maximize the firm's value. Since the calculated t-value is 56.521 and the table t-value is 1.812; it means that calculated t-value is greater than the table t-value. We therefore reject null hypothesis and uphold alternative hypothesis which states that electronic business has improved customer relations and satisfactions.

Discussion of Results

From the hypotheses tested, the result revealed that electronic business significantly impacted on the overall costs of operation hence increase revenue of an organization as well improved customer relations and satisfactions. This finding is in line with the finding of Muhammad et al, (2015) who revealed that there is positive relationship between e-commerce and organization performance and by implementing e commerce; organizations improve its performance in terms of business operations, job performance and customer satisfaction. The findings of Kareem, Owomoyela and Oyebamiji (2014); Afsaneh (2012); Piotr, Tymoteusz and Sylwia (2013); Robins et al., 2009) and Bardhan (2005) who found that electronic commerce/business has significant impact on service operations, cost operation reductions and profit oriented and efficient, cost and time effective.

Conclusion and Recommendations

This research paper examined the impact of e- business on performance of an organization with particular reference to the selected business men and women as well bankers in South-East States of Nigeria. The result showed that e-business is a well come development for individual business men, financial institutions and the country at large, meaning that electronic business has significant impact on service operations, cost operation reductions and profit levels. The scope of this research is to measure the organization performance like business operation,

customer satisfaction and job performance among firms in the region, hence customers evaluates firms product or services on the basis of expectation from that product or services which satisfied or not.

It can be concluded that adoption of electronic business by Nigerian business men reduce transaction cost, improve service operations, expand business base, better understand the needs of foreign customers, and increase profit levels, customer satisfaction as well ensure product market performance and product services quality. From all these, it can easily identify e-business as important tool that will assist Nigerian firms and organizations to acquire information about a particular customer needs and foreign competitors from foreign distributors across the globe.

On this note, it recommended that the organizations, businessmen and financial institutions should embark on more effective Information Technology training of their members in order to enhance their performance as well customers' satisfactions.

References

- Afsaneh, D. (2014). The effects of e-business on organizational performance. *Management Science Letters* 2 (2012) 497–502.
- Bardhan, I., Krishnan, V., & Lin, S. (2005). A Model to Measure the Business Value of Information Technology: the Case of Project and Information Work.
- Bremser, W.G., & Chung, Q.B. (2005). A framework for performance measurement in the e-business environment. *Electronic Commerce Research and Applications*, 4(4), 395-412.
- Bresnahan, T.; Brynjolfsson, E.; Hitt, L. M. (2002). Information technology, workplace organization and the demand for skilled labor: firm-level evidence, *The Quarterly Journal of Economics* 117: 339-376. <http://dx.doi.org/10.1162/003355302753399526>
- Ezejiolor, R. A., Olise, M. C & Ezenyirimba E. (2013). E-Business an Appraisal in Enhancing Accountability in Service Delivery and Economic Growth. *Research Journal of Finance and Accounting*. 4(9) ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) www.iiste.org
- Garcia-Penalvo, F. J.; Colomo-Palacios, R.; Soto-Acosta, P.; Martinez-Conesa, I.; Serradell-Lopez, E. (2011). SemSEDoc: utilizacion de tecnologias semanticas en el aprovechamiento de los repositorios documentales de los proyectos de desarrollo de software, *Information Research* 16(4): paper 504.
- He, Z. L.; & Wong, P. K. (2004). Exploration vs. exploitation: an empirical test of the ambidexterity hypothesis, *Organization Science* 15(4): 481-494. <http://dx.doi.org/10.1287/orsc.1040.0078>
- Jardim-Goncalves, R., Popplewell, K., Grilo, A., 2012. Sustainable interoperability: the future of internet based industrial enterprises. *Comput. Ind.* 63 (8), 731–738.
- Kareem, T.S., Owomoyela, S.K & Oyebamiji, F. F. (2014). Electronic commerce and business performance: an empirical investigation of business organizations in Nigeria. *International Journal of Academic Research in Business and Social Sciences* . 4(8)ISSN: 2222-6990

- Kearns, G.S., & Lederer, A.L. (2003). A resource-based view of strategic IT alignment: how knowledge sharing creates competitive advantage. *Decision Sciences*, 34 (1), 1–29.
- Kim, Y.J., Song, J., & Koo, C. (2008). Exploring the effect of strategic positioning on firm performance in the e-business context. *International Journal of Information Management*, 28(3), 203-214.
- Meroño-Cerdan, A., Soto-Acosta, P., Lopez-Nicolas, C., 2008b. How do collaborative technologies affect innovation in SMEs? *Int. J. e-Collab.* 4 (4), 33–50.
- Muhammad, M. A., Akin, M. & Abdul, H. J. (2015). Impact of E-Commerce on Organization Performance: Evidence from Banking Sector of Pakistan. *International Journal of Economics and Finance*; 7(2). ISSN 1916-971X E-ISSN 1916-9728 Published by Canadian Center of Science and Education 303
- Nahapiet, J., Ghoshal, S., 1998. Social capital, intellectual capital, and the organizational advantage. *Acad. Manag. Rev.* 23 (2), 242–266.
- Prahinski, C., & Benton, W.C. (2004). Supplier evaluations: communication strategies to improve supplier performance. *Journal of Operations Management*, 22 (1), 39–62.
- Popa, S., Soto-Acosta, P., Loukis, E., (2016). Analyzing the complementarity of web infrastructure and Innovation for business value generation
- Palacios-Marqués, D., Soto-Acosta, P., Merigó, J.M., (2015). Analyzing the effects of technological, organizational and competition factors on web knowledge exchange in SMEs. *Telematics Inform.* 32 (1), 23–32
- Qing, H., Jianzheng, Y., & Lifan, Y. (2012). The impact of e-commerce on organizational performance: the role of absorptive capacity and integrative capability WEB 2011, LNBIP 108, pp. 261–273., © Springer-Verlag Berlin Heidelberg
- .Raymond, L., Bergeron, F., Blili, S., (2005). The assimilation of e-business in manufacturing SMEs: determinants and effects on growth and internationalization. *Electron. Mark.* 15 (2), 106–118.
- Robbins, S. P., Coulter, M., & Vohra, N. (2009). *Introduction to Management and Organizations* (10th ed., pp. 2-21). Pearson Education: Publishing Prentice Hall Publications.
- Sahu, S. (2016). Assessing the impact of e-business on organizational performance. *International Research Journal of Engineering and Technology (IRJET)* 3(8),e-ISSN: 2395 - 0056.
- Soto-Acosta, P., & Meroño-Cerdan, A., (2008). Analyzing e-business value creation from a resource-based perspective. *Int. J. Inf. Manag.* 28 (1), 49
- Soto-Acosta, P.; Colomo-Palacios, R.; Perez-Gonzalez, D. (2011). Examining whether highly e-innovative firms are more e-effective, *Informatica* 35(4): 481-488.
- Takeishi, A. (2002). Knowledge partitioning in the inter firm division of labor: the case of automotive product development. *Organizational Science*, 12 (3), 321–338.
- Wu, J.N., Zhong, W.J., & Mei, S.E. (2011). Application capability of e-business, e-business success, and organizational performance: Empirical evidence from China. *Technological Forecasting and Social Change*, 78(8), 1412-1425.
- Wu, I.L., & Chen, J.L. (2006). A hybrid performance measure system for e-business investments in high-tech manufacturing: An empirical study. *Information & Management*, 43(3), 364-377.