Effects Of E-Business On Organizational Performance In Nestle Nigeria Plc.: An Empirical Approach.

By

Olateju, O.I. (Ph.D),
Department of Business Administration & Management Technology,
Faculty of Management Sciences
Lagos State University, Ojo.
EMAIL: olawale_olateju@yahoo.com

Elegunde, A.F.
Department of Business Administration & Management Technology,
Faculty of Management Sciences
Lagos State University, Ojo.
EMAIL: emolomo2003@yahoo.ocm

Tijani, A.A
Department of Business Administration & Management Technology,
Faculty of Management Sciences
Lagos State University, Ojo.
EMAIL: abadeen080@yahoo.com

Abstract

The study examines the effects of e-business on organizational performance in Nestle Nigeria Plc. To assess the situation, 150 questionnaires were administered to members of staff of Nestle Nigeria Plc., using stratified sampling technique. The data collected was analyzed using descriptive statistics, correlation and regression analysis. The findings revealed that computer aided tools has a positive effect on market share. It was discovered that 96.9% of the variance that occurred in the usage of computer aided tools could be traced to the organizations market share. The study also revealed that there is a significant relationship between ICT adoption and operational efficiency. It was recommended among others that business organizations should be willing to invest heavily on computer aided tools.

Key words: *Computer, Efficiency, Performance, ICT and System*

Introduction

Electronic Business is making use of internet facilities for proper connectivity and facilitating business process activities. It also enhances effective flow of communication and collaboration within an organization and its customers, suppliers, stakeholders and the outside world. E-business as an instrument has transformed the old way of doing business and almost every organization at present is an active user.

E-business can be defined as any transaction available over the internet (Lee, 2004). The transaction could be between producers and consumers; organizations to organizations and a country to other countries. Since various types of trading partners, e-business can be classified into business-to-business (B2B) and business-to-consumer (B2C). E-business help firms share information through the internet, facilitate transactions, improve customer services and strengthen supplier integration.

Although e-business has technical components, management issues must be addressed regarding the changes in organizational processes and interaction both within a firm and among firms. Firm's ability to manage process innovation and to improve the learning capacity of its workers, as such has become a source of competitive advantage. Moreover, developing organizational learning and knowledge management strategies has been considered as an effective and efficient means of successful information technology (IT) implementation (Lee, 2004). Empirical studies have seldom addressed the organizational learning and knowledge management capabilities which influence e-business contribution to firm performance.

According to Kearns and Lederer(2003), information technology (IT) has made possible the sharing of information along supply chain, and is it often referred to as an essential enabler of supply chain management (SCM) activities. Of all the information technologies, the Internet and the Web have profound impact on business integration and collaboration (Rabinovich, Bailey, and Carter 2003). Technologies that use the Internet, Web, and Web-based applications for communication are called e-business technologies (Balakrishnan and Geunes 2004; Vakharia 2002). E-business technologies have impact on managerial practices since they use open and non-proprietary network for the transfer of data between organizations (Rabinovich, Bailey, and Carter 2003). E-business has grown widely around the world and at such transactions are made easier and faster than before.

Statement of the Problem

In recent years, most organizations are adopting different types of e-business technology to improve their products and increase their customer base. According to Vakharia (2002), the web was in use for collaboration processes such as planning, forecasting, etc. previous studies revealed that IT has positively enhanced firms' performance and a step ahead for organizations to have competitive advantage over their counter parts (Bharadway 2000, Kearns and Lederer 2003). However, there has been lack of studies on how e-business technologies impacted on supplier performance and what benefits can be achieved.

In the study conducted by Angeles and Nath (2001), it was discovered that manufacturing firms are significantly larger than supplier firm both in sales and employees. This was further buttressed by Maloni & Benton (2000) that there exist an imbalance of power between manufacturers and suppliers. This is due to the fact that manufacturers have more capital to continue in business than the suppliers.

Therefore, the adoption of business should be of greater importance to the organizations at large, especially the supplier firm (Lee, 2004).Also in the work of Boyaci and Gallego (2004), they concluded that e-business technologies significantly benefit the retailers, when transacting businesses. Although, retailers to a large extent, uses the technology to attract customers and enhance sales and at such they were able to attract more customers. However, the study primarily focuses on financial performance, operational performance of the retailers neglecting the fact that organizations should be the paramount benefactor of e-business. This was improved in the study conducted by Subramani (2004), that organizations that want to compete locally or internationally should adopt the use of information technology in order to remain top in the target market. Therefore, this study intends to fill the gap as e-business is becoming ubiquitous in the business environment.

Objectives of the Study

The main objective of this study is to investigate the effects of e-business on organizational performance in Nestle Nigeria Plc. The specific objectives include,

i. To examine the effect of computer aided tools on the market share of Nestle Nigeria Plc.

ii. To investigate whether there is a relationship between ICT adoption and operational efficiency of Nestle Nigeria Plc.

Research Questions

1. Does computer aided tools have effect on the market share of Nestle Nigeria Plc.

2. Is there a relationship between ICT adoption and operational efficiency of Nestle Nigeria Plc?

Research Hypotheses

H_o: Computer aided tools does not have effect on the market share of Nestle Nigeria Plc.

H_o: There is no relationship between ICT adoption and operational efficiency of Nestle Nigeria Plc.

Literature Review

Theoretical Framework

In reviewing the literature, Technology-organization-environment (TOE) framework that was developed by Tornatzky and Fleischer (1990) found out that the comprehensive need that serves as a theoretical guideline for studying factors shaping the value of e-business. The TOE framework analyses three aspects of a company's context that enhance the process by which it adopts and implements a technological innovation context, organizational context, and environmental context. Technological context refers to both the internal and external technologies relevance to the firm. These include existing technologies inside the firm, as well as the pool of available technologies in the market. Organizational context is defined in terms of several measures which include, firm size and scope; the centralization, formalization, and complexity of its managerial structure; the quality of its human resources; and the amount of slack resources available internally while environmental context focus on the area where a firm conducts its business, competitors access to resources supplied by others, and dealings with government (Tornatzky and Fleischer 1990). These three contextual factors influence a firm's intent to adopt an innovation, and affect its assimilation process and eventually its impacts on organizational performance. This is consistent with the technology diffusion theory of Rogers (1983).

Conceptual Framework

Concept of E- Business

E-business, is defined by Agboola (2006), as a tool of re- defining old business and maximizing the business value .E-business is complex in usage due to the areas involve like changes in business processes and financial investments which include computerization, networking infrastructure as well as human resource management. According to Lee (2004), E-business refers to the functions of exchanging information and commercial transaction support that operate on telecommunications networks linking business partners especially suppliers and customers. However, e-business is an organized software application which links and manages information flows within and across firms and also enabling managers to make specific decisions using the information gathered that truly reflects the current state of their businesses. According to Gilbert (2002), opined that e-business is also a new approach in managing businesses and relationships between trading partners and also reflects a company's intention using the Internet in sharing information, facilitating transactions, improving customer service and strengthening back-office integration. Electronic business is referred to as business activities conducted over the Internet and has become one of the most remarkable information technologies (IT) inventions in the last decade.

More so, e-business allows companies to execute electronic transactions among business partners, and also creates opportunities for firms to establish interactive relationships, such as suppliers, logistics providers, wholesalers, distributors, service providers and end customers. According to Lee (2004), e-business also enhances organizational efficiency, and extends their reach, all at a very low cost. E-business value enhances firm's performance especially in terms of internal operations, downstream and upstream market. Hence, enough information enables organizations to enlarge their sales channels and improves customer relationships Agboola (2006). E-business improves business efficiency and employee productivity within firms.

According to Grover and Malhotra (1997), in their study, opined that top management supports enterprise resource planning (ERP) implementation and at such it enhances the adoption of e- business. A study conducted by Grover and Malhotra (1997), suggested that adoption of Information technologies influence the front size, scope and financial resources of firms thereby affecting the value creation of e- business. Organizational learning and knowledge management affects the impact of e-business on firm performance. Consequently, Grover and Malhotra (1997) define as technological capability

that is used in acquiring, processing, and transmitting information for effective decision making. This encompasses of computer hardware, peripheral devices, and software which enables organizational communication. IT systems consist of telephone, fax, enterprise resource planning (ERP) systems, and the Internet. It also include several newly emerging technologies such as, GPS, voice e-mail, and improved specialized mobile radio (ESMR), cell phones that can be used as low cost long-range.IT systems differ from one another depending on the cost and capability.

However, IT has provided a huge capability to capture and transfer inventory data yet it is considered to be costly in implementing by companies, (Rutner, Waller, and Mentzer, 2004), while some companies are considering the long-term benefits relatively to initial cost. Recently IBM change PCs of its sales support force with Blackberry devices which are hand held wireless devices that can transfer data and also e-mail information from one place to another. IBM initially considered the cost implication, but the cost-benefit analysis suggested that the long-term cost per use would result in significant savings; Rutner, Waller, and Mentzer, (2004). Similarly, e-business technologies represent a type of IT that uses the Web and Internet for communication activities. Hence, e-business technologies are under the broader term of IT. Bailey and Rabinovich (2001) and Vakharia (2002), consider e-business technologies to have a greater effect on information exchange between or among buyers and sellers due to their large capability and low cost. The Internet has surpassed information technologies such as EDI in its information sharing capabilities and cost. Chopra, Dougan, and Taylor (2001), opined that the volume of the savings from e-commerce will vary depending on each company's situation. For example, estimates that firms can achieve through transaction of business can incur savings close to 2% of sales with the use ofthe Internet. Furthermore, EDI is an information technology that makes use of computer-to-computer transmission of business transactions and it is based on industry policies. More so, Internet allows sharing and integration of information between/ among supply chain partners at a relatively low transaction cost and does not require adherence to company standards. EDI is widely used in many industries, especially the auto industry, and at such most organizations are faced with the decision of whether to abandon these systems and move to operating with e-business technologies.

Organizational Performance

The corporate world has historically measured financial performance and sales volume. Measures of financial performance, sales volume, and

customer satisfaction are not wrong: they are merely insufficient. Many organizations fail to understand how these indicators fit within the comprehensive measurement strategy that is required to effectively redesign processes (Lee, 2004). Organizational performance is probably the most widely used dependent variable in organizational research today yet at the same time it remains one of the most vague and loosely defined constructs.

Measuring organizational performance is difficult, especially when what has to be measured keeps changing (Laudon, 2001). Many small and medium-sized enterprises are becoming ever more focused on their organizational performance. Organizational performance comprises the actual results or output of an organization as measured against its intended results or outputs. Typically, there are different ways to characterize various types of organizational performance in small and medium sized enterprises. Laudon, (2001) argued that organizational performance encompasses three specific areas of firm outcomes namely, Financial performance (profits, return on assets, return on investment, etc.), Product market performance (sales, market share, etc.); and Shareholder return (total shareholder return, economic value added, etc.).

According to Gilbert (2002) organizational performance indicators from relationship marketing perspective include: increasing market share, retaining current customers, attracting new customers, creating loyal customers, increasing profit, increasing return on investment, positive image. Hammer & Mangurian (1987) argued that organizational performance have three dimensions which include financial performance, operational performance, and stakeholder performance.They wanted to emphasize that in a process of moving to a process enterprise, therefore, managers need to conduct a thorough analysis to determine what aspects of process performance are most directly linked to achieving the organization's overall objectives (Hammer & Mangurian, 1987)).However, while both process definition and measurement is important, in themselves they are not sufficient to assure performance improvement. Assessing process competence needs to address the extent to which enterprise level business processes are defined, measured, improved and managed.

E-Business and Organizational Performance

Resent research regarding the influence of IT on performance measures has resulted in unrelated results, suggesting that a 'productivity paradox' exits (Sriram and Stump 2004). Many suggestions have been profound for this paradox, among these are management's failure to leverage the full potential of IT (Dos Santos and Sussman 2000), poor measures of performance,

ineffective ICT implementation (Stratopoulos and Denning 2000), and time lag between investment on IT and its impact on performance (Deveraj and Kohli 2000; Rai, Patnayakuni, and Patnayakuni 1996).

Studies evaluating the performance of IT have typically focused on either financial performance measures or nonfinancial measures .Only one study to date (Subramani 2004) has evaluated overall IT performance based on both strategic and operational performance measures. Studies focused on e-business technologies have similarly not evaluated a full set of performance measures. To date, there are no studies of e-business technologies that have looked at a complete set of first-order performance measures as defined by Mukhopadhyay and Kerke (2002).ICT improves firm performance indirectly by fostering inter-firm relationships (Hammer and Mangurian1987). Gilbert (2002) consider that the benefits of IT may be "qualitative, indirect, and diffuse" and suggest that IT may ultimately impact performance by influencing relational outcomes. For example, a study of extranet investments made by Fujifilm in Canada showed that the e-business technologies allowed the firm to provide a wider range of information to dealers and resellers, and also enabled the company's salespeople to build online relationships with these intermediaries (Gilbert 2002). This suggests that it may be important to simultaneously consider both the direct and indirect impact of IT on performance, though no studies to date have done so with a focus on e-business technologies.

Relationship between Computer Aided Tool and Market Share

It was noted in the work of Subramani, (2004), that for example in India products can be produced and sold at any price but today situation has changed as computer aided tools such as computer aided manufacture has thrown great challenges to their manufacturing industries. Their products have to compete with superior products globally, which are lower in cost and higher in quality and performance this resulted to shrinking the manufacturing base and the market share of gross domestic products declines. Organizations need to be able to translate sales targets into market share because this will demonstrate whether forecasts are to be attained by growing with the market or by capturing share from competitors. Market share is the percentage of a market accounted for by a specific entity, (Subramani, 2004). Firms with market shares below a certain level may not be viable. Similarly, within a firm's product line, market share trends for individual products are considered early indicators of future opportunities or problems. In other words, for companies to compete locally and internationally there is need to improve in production which will account

for more products for in the market and thereby boosting their market share. Subramani, (2004) opined that market share is the proportion of a market accounted for by an organization. It is essential that Sales target is converted into market share because this will show that forecasts are attained by growing with the market or by capturing share from competitors.

Firms with market shares below an aspiration level may not be viable. Similarly, within a firm's product line, market share trends for individual products are considered early indicators of future opportunities or problems (Subramani, 2004).

Also according to Subramani (2004), computer aided tools is very important in today's businesses, hence it helps to achieve higher productivity rates with less labour.

Relationship between ICT and Operational Efficiency

Subramani (2004), defined customer satisfaction as the percentage of total customers whose experience with a company's products and services exceeds defined satisfaction goals. Customer satisfaction focuses on employees' ability to fulfill customers' expectations. According to Agboola (2006), Information and Communication Technology (ICT) is the automation of processes using computers hard and soft-wares that ensure efficient running of activities. it is important for organizations to effectively manage customer satisfaction, because satisfaction is perhaps the best indicator of how a firm's customers will make further purchases in the future. Gilbert (2002), opined that ICT has improved organizational efficiency, quality, transparency and customers' satisfaction in many organisations. They further buttress their points by saying that customers patronise organizations that exceed their expectation s with the adoption of ICT.

Based on the objective of this research the study puts forward the model below. The model is based on the assertion that if internet ICT is used and improved continuously and knowing that the needs and wants of the customers must be fulfilled; organizational efficiency and growth will be achieved. Agboola (2006) opined that ICT adoption has improve three critical domains which are efficiency, quality, and transparency in any organisation and at such enhance customer satisfaction.

Relationship between Internet and Organizational Efficiency

During recent years, the use of modern ICT has been adopted with the aim of establishing organizational efficiency and offering services in a fast,

easy and more convenient way. Internet has become the means for several transactions between suppliers, distributors and also within larger international corporations. The merging of computer and telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created a new development where information has become the engine of growth around the world, (Laudon, 2001).Further research has discovered that internet has also drastically enhance speed- to- market of goods and services by making purchases, orders, invoices and shipping notification, (Laudon, 2001). This has been able to improve organizational efficiency.

Based on the objective of this study, which has to do with "the effects of E- business on organizational performance in the manufacturing sector", the study puts forward the following model. The model is based on the assertion that if internet, ICT is continuously used and improved knowing that the needs and wants of the customers must be fulfilled; organizational efficiency and growth will be achieved both locally and internationally. These relationships were discussed earlier in this chapter.

Research Methods

Survey research design was used in this study. The population of the study was the entire members of staff of Nestle Nigeria Plc. There are approximately 1300 members of staff in the organization. The sampling technique used for this study is stratified random technique. This was done by diving the members of staff by department (strata) and then selecting one-tenth (1/10) of the population in each of the departments as the sample, (Asika, 2004). Therefore, the sample size was 130 employees of the organization.

Table 1: Population and sample size

S/N	DEPARTMENT	POPULATION	SAMPLE
1	Human resources	65	7
2	Finance	54	5
3	Public relations	68	7
4	Marketing	255	25
5	Legal	45	5
6	Sales	328	33
7	Production	485	48
	Total	**1300**	**130**

Source: Field survey (2013)

Data Collection Instrument

The research instrument that was used for the purpose of this research study was questionnaire. The questionnaire has two sections which are: Section A and Section B.

Section A consists of bio-data of respondents while Section B of the questionnaire consists of statements relevant to the research study. In this section, a likert scale was used to measure the degree of agreement by the respondents to statements. The likert scale used in the questionnaire had (5) points, which are expressed as follows;

5-Strongly Agree
4-Agree
3-Undecided
2-Disagree
1-Strongly Disagree

One hundred and thirty (130) copies of the questionnaire were administered to the respondents.

Model Specification

Mathematical model is the commonest model in research because of its inherent simplicity. It simply specifies the relationships and interrelationships among the variables of a research problem in equations. (Asika 2004).

To determine the effect of Organizational Culture on Organizational Performance in Shell Nigeria Plc. two models were used:

(1) E- Business(EB)

E- Business is the independent variable which is assumed to be a function of three variables, listed below. Mathematically expressed as

EB f(x1)
Where
EB= E- Business
i =1 and 2
X_1 = computer aided tools
X_2 = Information communication technology

2. Organizational Performance (OP)

This is the second variable, which was assumed to be a function of three variables.

OP = f (x1)
OP = Organizational Performance
Where *i* = 1, and 2
X_1 = market share
X_2 = operational efficiency

Data Analysis

All completed copies of the questionnaire were properly edited and used for testing of the hypotheses of this study. Correlation and regression analysis were used in testing the stated the hypotheses.

Hypotheses Testing

Hypothesis one

H_o: Computer aided tools does not have effect on the market share of Nestle Nigeria Plc.

Table 1: Regression analysis of computer aided tools and market share

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.985[a]	.969	.959	24.350

a. Predictors: (Constant), Computer aided tools

Coefficient of determination, R square (R2) is the variation of the dependent viable explained by the independent variable. It is the proportion of the variation around the mean that the regression model explains.

The value of 0.969 in the model summary is the coefficient of determination; it shows that 96.9% of the variance that occurred in the usage of computer aided tools is traceable to organizational market share.

Hypothesis Two

Ho: There is no relationship between ICT adoption and operational efficiency

Table 2: Correlations between ICT adoption and operational efficiency

		ICT ADOPTION	OPR. EFFICIENCY
ICT ADOPTION	Pearson Correlation	1	.848
	Sig. (2-tailed)		.070
	N	5	5
OPR. EFFICIENCY	Pearson Correlation	.848	1
	Sig. (2-tailed)	.070	
	N	5	5

Correlation analysis is the study of the relationship between two variables. It is used to measure the strength association between to variables. The correlation coefficient describes the strength of the relationship between two variables designated by R referred to as Pearson product moment correlation coefficient. An R of -1.0 or +1.0 indicates perfect correlation while 0 indicates no relationship.

The value 0.848 in the model summary represents the correlation coefficient between ICT adoption and operational efficiency. This value indicates that there is a very high positive relationship between them significantly at 0.05.

Discussion of Findings

The first hypothesis showed that computer aided tools has a positive effect on market share. This means that computer aided tools enhance the market share due to large production and easier transactions. This was supported by Agboola (2006) which states that computer aided tools are important to the survival and growth of any business, organizations need to be able to translate sales targets into market share because this will demonstrate whether forecasts are to be attained by growing with the market or by capturing share from competitors.

The test conducted on hypothesis two showed that there is a significant relationship between ICT adoption and operational efficiency. This was in line with Agboola (2006), where he stated that the merging of computer and telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created a new development where information has become the engine of growth around the world. Also supported by Laudon, (2001) where he opined that internet has also drastically enhance speed- to- market of goods and services by making purchases, orders, invoices and shipping notification, This has been able to improve organizational efficiency.

Conclusion and Recommendations

The following recommendations are made;

i. It is absolutely necessary for to be computerized in order to place them properly against the rising competition in the manufacturing sector and of course the advantage derivable there in. The study therefore suggests that business organization should source for appropriate software that will suit their corporate image and also enable them to face the challenges of the new millennium.

ii. Business organizations should be willing to invest heavily on computers in order to always update their system as and when the need arise. Their system should as and when the need arise. Their system should also be made to fully comply with the millennium bug.

iii. Seminars and Symposium should be organized from time to time for management staff to improve the versatility and understanding the computer and their effective usage.

iv. Business organizations should endeavour to train their staff on computer appreciation course so as to have basic knowledge of computer appreciate the need for "change"

v. Business organizations should create awareness on legal implications of electronic business so as to enable both the operators and clients to understand their limitations.

References

Agboola, A.A., (2006), Information and Communication Technology (ICT) in Banking Operations in Nigeria: An Evaluation of recent Experiences, Retrievedfromhttp://unpan1.un.org/intradoc/groups/public/documents/AAPAM/UNPAN026533. Pdf, on Nov. 10, 2010.

Angeles, R. and Nath, R. (2001). Partner Congruence in Electronic Data Interchange (EDI)-Enabled Relationships, Journal of Business Logistics, Vol. 22, No. 2, pp. 109-127.

Asika, N. (2004). Research Methodology: A process Approach. Lagos: Mukugamu & Brothers Enterprises.

Bailey, J.P. and Rabinovich, E. (2001), "Internet Retailers' Dilemma of Operational and Market Efficiencies," in Ram Ganeshan and Tonya Boone eds., New Directions in Supply Chain Management: Technology, Strategy, and Implementation, New York: AMACOM, pp. 39-57.

Balakrishnan, A. and Geunes, J. (2004), "Collaboration and Coordination in Supply Chain Management and E-Commerce," Production and Operations Management, Vol. 13, No. 1, pp. 1-2.

Bharadwaj, A.S. (2000), "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation," MIS Quarterly, Vol. 24, No. 1, pp. 169-196.

Boyaci, T. and Gallego, G. (2004), Supply Chain Coordination in a Market with Customer Service Competition," Production and Operations Management, Vol. 13, No. 1, pp. 3-22.

Chopra, S., Dougan, D. and Taylor, G., (2001), "B2B e-Commerce Opportunities," Supply Chain Management Review, Vol. 5, No. 3, pp. 50-58.

Deveraj, S., and Kohli, R. (2000), "Information Technology Payoff in the Health-Care Industry: A Longitudinal Study," Journal of Management Information Systems, Vol. 16, No. 4, pp. 41-76.

Dos Santos, B., and Sussman, L. (2000), "Improving the Return on IT Investment: The Productivity Paradox," International Journal of Information Management, Vol. 20, No. 6, pp. 429-440.

Gilbert, J. (2002), "Resellers, Click Here," Sales and Marketing Management, Vol. 154, No. 9, p. 25.

Grover, V., and Malhotra, M. (1997), "Business Process Reengineering: A Tutorial on the Concept, Evolution, Method, Technology, and Application," Journal of Operations Management, Vol. 15, No. 3, pp. 193-213.

Hammer, M., and Mangurian, G.E. (1987), "The Changing Value of Communications Technology," Sloan Management Review, Vol. 28, No. 2, pp. 65-71.

Kearns, G.S., and Lederer, A.L (2003), "A Resource-Based View of Strategic IT Alignment: How Knowledge Sharing Creates Competitive Advantage," Decision Sciences, Vol. 34, No. 1, pp. 1-29.

Laudon, J.P. (2001). Management Information Systems: Organisation and Technology in the Network Enterprises, 4th ed.USA: Prentice Hall International Press.

Lee, H.L., (2004), "The Triple-A Supply Chain," Harvard Business Review, Vol. 82, No. 10, pp. 102-112.

Maloni, M. and Benton, W.C. (2000), "Power Influences in the Supply Chain," Journal of Business Logistics, Vol. 21, No. 1, pp. 49-74.

Mukhopadhyay, T., and Kekre, S. (2002), "Strategic and Operational Benefits of Electronic Integration in B2B Procurement Processes," Management Science, Vol. 48, No. 10, pp. 1301-1313.

Rabinovich, E., Bailey, J.P., and Carter, C.R. (2003), "A Transaction-Efficiency Analysis of an Internet Retailing Supply Chain in the Music CD Industry," Decision Sciences, Vol. 34, No. 1, pp. 131-172.

Rai, A., Patnayakuni, R. and Patnayakuni, N. (1996), "Refocusing Where and How IT Value is Realized: An Empiricai Investigation," Omega, Vol. 24, No. 4, pp. 399-406.

Rutner, S.M., Waller, A and Mentzer, J.T. (2004), "A Practical Look at RFID," Supply Chain Management Review, Vol. 8, No. 1, pp. 36-42.

Sriram, V., and Stump, R. (2004), "Information Technology Investment in Purchasing: An Empirical Investigation of Communications, Relationships, and Performance Outcomes," Omega, Vol. 32, No. 1, pp. 41-55.

Stratopoulos, T. and Denning, B. (2000), "Does Successful Investment in Information Technology Solve the Productivity Paradox?" Information & Management, Vol. 38, No. 2, pp. 103-117.

Subramani, M. (2004), "How Do Suppliers Benefit from Information Technology Use in Supply Chain Relationships?" MS Quarterly, Vol. 28, No. 1, pp. 45-73.

Vakharia, A.J. (2002), "e-Business and Supply Chain Management," Decision Sciences, Vol. 33, No. 4, pp. 495-504.