

## **An Empirical Study of Factors That Influence the Adoption Of e-Commerce in Nigerian Business Organizations.**

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**ABSTRACT:** *This study examines the factors that influence the adoption of e-commerce in Nigerian business organizations. Structured questionnaire was used to collect data from seventy (70) respondents who comprise all CEOs of selected business organizations in Lagos state, Nigeria. Multiple regression was employed to analyze the data and the result showed that that innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security independently and jointly predict e-commerce adoption ( $F(6, 63) = 55.042$ ;  $R^2 = 0.840$ ;  $P < .05$ ). The predictor variables jointly explained 84% of the variance of e-commerce adoption. It was concluded for Nigerian business organizations to embrace e-commerce for their business operations technological infrastructures should be put in place by the government and also government should establish an empowered independence e-commerce agency to implement all policies relating to the adoption and usage of e-commerce in Nigeria.*

**KEY WORDS:** *E-commerce, Business Organization, Infrastructure, and Security*

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### **I. INTRODUCTION**

Electronic commerce has been recognized globally as a mechanism for business organizations to reach global markets. Kapurubandara and Lawson,(2008) asserted that the use of Information and communication technology (ICT) has become a key strategy to gain competitive advantage by business organizations in the fast globalizing environment. Ifenedo, (2011) also agreed that e – commerce has helped in building long-term customer relationships through customer satisfaction. The use of e-commerce is widespread and regarded as an essential tool for the efficient administration of any organization and in the delivery of services to clients (Apulu and Latham, 2011).The adoption of e-commerce in Nigerian business organizations has increased since the users of internet in Nigeria has grown from 0.1% in 2000 to 29.5% of its population in June 2010 and still has the potential to grow higher (Ayo, Adewoye and Oni, 2011). According to Tunde, (2013) Nigeria recorded an estimated 25 per cent growth in online shopping with revenues valued at N62.4 million in 2011, which is N12.5 billion increases from 2010 as reported by Euro monitor international, a global market research organization .He said that “Online shopping has changed the way customers and retailers think. Customers are constantly seeking to comfortably shop endlessly while retailers are constantly seeking new paths to growth. A country’s prospects for online retail success are closely related to how many people use the Internet and how many are comfortable purchasing products online in terms of security and customer satisfaction.”E-commerce in Nigeria is still in its early days but the future is incredibly bright. A lot of young Nigerians trying interesting things on the web and many times they are compelled to do this because of lack of infrastructure. We have seen a number of sites selling all sorts of goods and offering services online (Sajuyigbe, 2012).Oguntude and Oyeyipo, (2012) observed that the level of internet usage in Nigeria is very low compare to developed countries and e-commerce is still in an elementary stage. Raphael (2013) highlighted some basic factors, which he termed obstacles to the growth of e-commerce in Nigeria. According to him, lack of basic infrastructure like steady power supply, good roads as well as limited access to telecommunication infrastructure and high cost of Internet could hinder the growth of e-commerce in Nigeria. In the area of poor infrastructure, he said the issue revolved primarily around power, available technological expertise and poor funding for startups. It is on this premise that this study wants to examine the factors influencing e-commerce adoption in Nigerian business organizations with special reference to the selected business organizations in Lagos State.

### **II. LITERATURE REVIEW**

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also refers to any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or

services through a computer-mediated network. Electronic commerce refers to conducting business transactions over the Internet, which includes exchange of information of value in the form of products and services as well as payments, using web-based technologies (Fraser, Fraser and McDonal, 2000). According to Ige (2004) definition for electronic commerce is “the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks”. Eurostat (2004) defined e-commerce as transactions conducted over Internet Protocol-based (IP) networks or over other computer-mediated net-works. The Internet and e-commerce are transforming the way firms operate by redefining how back-end operations are conducted (Terzi, 2011).

**2.1 Benefits for business organizations from e-commerce adoption**

The benefits of adoption of e-commerce has summarize in the table 1 below

**Table 1: Benefits of e-commerce adoption**

Benefits	Descriptions	Source
Improved Customer Service	E-commerce leads to openness of communication, closeness to the customers and easy and accessibility booking.	Abidet al, (2012) Sajuyigbe, (2012)
Operational Efficiency	E-commerce leads to accuracy, reliability, time saving and flexible platform	Xu&Quaddus (2009)
Improved Relationship	E-commerce enhances customer relationship through efficiency and effectiveness of workgroup.	Abidet al, (2012) Sajuyigbe, (2012) Xu&Quaddus (2009)
Cost Saving	By improved customer service, less personnel and time. Reduce tasks and decreased material expenses	Duan (2012) Sajuyigbe (2012) Stockdale &Standing (2004)
Access to Global Market	E-commerce helps companies to have access to new markets, new customers and new services	Sajuyigbe (2012)
Increased Sales	E-commerce leads to increased sales	Abidet al, (2011)
Better Access to Information	Increased ability to obtain information about customers and suppliers.	Xu&Quaddus (2009) Ohet al, (2012)

**2.2 Factors affecting e-commerce adoption in Nigerian business organizations**

Kalakota and Robinson (2001) saw the adoption of e-commerce as more of an external pressure brought about by a new type of customer value proposition of what they want, when and how they want it and at the lowest cost. Oguntade and Oyeyipo, (2012) pointed out that low computer literacy on the part of the consumer is a serious concern. The eventual price of the product or service to be bought could be too high or impossible to pay in a specified currency or particular e-payment system. According to O’Toole (2003), security of information exchanged between the partners and the fear that strategic data can be accessed by competitors is a major obstacle for the small companies. Moreover, customers are also concerned about the data collection about them and the security of electronic financial exchange (O’Toole 2003). Other important obstacle is unwillingness of top management to implement new strategy.

Khalifa *et al*, (1999) also stated that privacy, security, authentication and legal issues are the main elements associated with e-Commerce. The main barriers to e-Commerce adoption appear to be the unwillingness of managers to be responsible for technological change (Kalakota and Robinson, 2001). According to Sajuyigbe (2012) majority of business organizations in Nigeria have not embraced e-commerce due to some factors such as lack of network infrastructure, insufficient knowledge about e-commerce technology, lack of interest by management, e-commerce security issues and capital required for e-commerce. Al-Qirim, (2003) in his study, identified level of national infrastructure and government involvement in fostering e-Commerce adoption as other important factors which need consideration by policy makers, while others studies (Abid et al. 2011; Arendt, 2008; and Duan, 2012) believed that lack of knowledge and skills are the most important barriers to e-commerce adoption by business organizations.

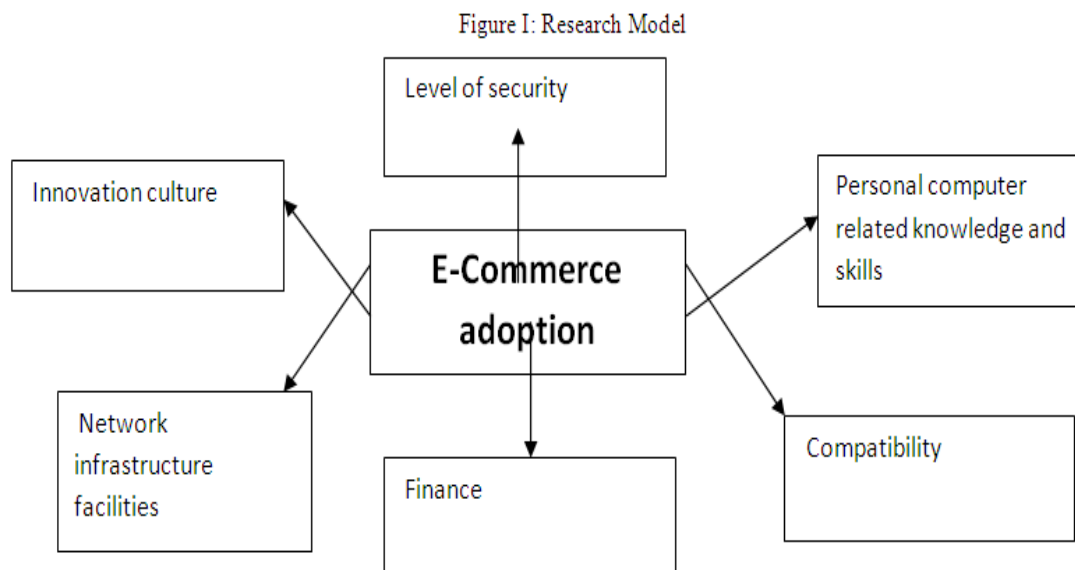
**Table 2: Barriers to e-commerce adoption (Adapted from Arendt, 2008 as cited in Diyan, 2012)**

Category	Barriers	Source
Management and strategy	Lack of awareness Lack of long term business strategy Lack of innovation culture Resistance of top management	Arendt (2008), Abid et.al (2011), Duan (2012)
Cost and financing	Lack of finance resources Long process of return on investments	Arendt (2008), Abid et.al (2011), Fillis et al.(2003)
Skills and training	Lack of experience and knowledge	Arendt (2008), Abid et.al (2011), Oh et al. (2012)
The Supply chain	Unsuitability for the type of business Lack of consumer demand	Arendt (2008), Chaffey (2002)
Technology Choices	High level of complexity Lack of time	Abid et.al (2011), Fillis et al.(2003)
Security and reliability	Business risk Security factors	Arendt (2008), Oh et al. (2012), Abid et.al (2011), O'Toole, 2003, Oh Ka-Young et al. (2012)

Source: (Diyan, 2012)

### III. MODEL SPECIFICATION

Based on the literature discussed above, the research model illustrated in Figure 1 below for this study consists of six set of variables: innovation culture, Infrastructure, finance, knowledge and skills, compatibility and level of security. These variables are hypothesized to affect the adoption of e-commerce in Nigerian business organizations.



Source: Designed by Researchers.

**3.1 Research Questions**

- [1] Does innovation culture predict e-commerce adoption in Nigerian business organization?
- [2] Does infrastructure predict e-commerce adoption in Nigerian business organization?
- [3] Does finance predict e-commerce adoption in Nigerian business organization?
- [4] Do knowledge and skills predict e-commerce adoption in Nigerian business organization?
- [5] Does level of security predict e-commerce adoption in Nigerian business organization?
- [6] Does compatibility predict e-commerce adoption in Nigerian business organization?
- [7] Do innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security jointly predict e-commerce adoption in Nigerian business organizations?

**Mathematically, the model is expressed as follows:**

$$ECA = F( X_1 + X_2 + X_3 + X_4 + X_5 + X_6 )$$

$$ECA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where;

- ECA = E-commerce adoption
- X<sub>1</sub> = Innovation culture
- X<sub>2</sub> = Infrastructure
- X<sub>3</sub> = Finance
- X<sub>4</sub> = Knowledge and skills
- X<sub>5</sub> = Compatibility
- X<sub>6</sub> = Level of security
- β<sub>0</sub> = Intercept
- β<sub>1</sub>- β<sub>6</sub> = Regression coefficient
- ε = Stochastic error term

**IV. METHODOLOGY**

The sampling frame of this study consists of business organizations engaging in manufacturing, construction and services activities located in Lagos state, Nigeria. Lagos was selected because it is the largest industrial city in Nigeria with vibrant economic activities. Structured questionnaire was used to collect data from seventy (70) respondents who comprise all CEOs of selected business organizations in Lagos state, Nigeria. The reliability and validity of the measures for this study were tested to ascertain the suitability and rigour of the study instrument. Pre –test and pilot studies were used and the most precise level of measurement was used in each question within the constraints of meaningful discernibility of values. A 5-point scale is used in the questionnaire. The test reveal that the innovation culture (0.85), infrastructure (0.79), finance (0.78), knowledge and skills (0.81), compatibility (0.77) and level of security (0.88) respectively. Multiple regressions were used to analyze the data.

**4.1 Data analysis and Interpretation of Result**

Table 3. Multiple Regression Analysis Table Showing Innovation Culture, Infrastructure, Finance, Knowledge and Skills, Compatibility and level of Security Prediction of E- commerce Adoption.

Variable	Coefficient	t-value	p-value	R <sup>2</sup>	Adj. R <sup>2</sup>	Std. error	F	DW- Stat
Innovation culture	0.137	3.652	<.05					
Infrastructure	0.446	3.911	<.05					
Finance	0.052	2.646	<.05	0.840	0.825	0.22063	55.043	2.141
Knowledge & skills	0.080	3.822	<.05					
Compatibility	0.072	1.049	Ns					
Level of security	0.245	5.000	<.05					

Table 3 shows that innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security were joint predictors of e-commerce adoption ( $F(6, 63) = 55.042$ ;  $R^2 = 0.840$ ;  $P < .05$ ). The predictor variables jointly explained 84% of the variance of e-commerce adoption, while the remaining 16% could be due to the effect of extraneous variables. Innovation culture ( $\beta = 0.137$ ,  $t = 3.625$ ,  $P < .05$ ); infrastructure ( $\beta = 0.446$ ,  $t = 3.911$ ,  $P < .05$ ); finance ( $\beta = 0.052$ ,  $t = 2.646$ ,  $P < .05$ ); knowledge and skills ( $\beta = 0.080$ ,  $t = 3.822$ ,  $P < .05$ ); and level of security ( $\beta = 0.245$ ,  $t = 5.000$ ,  $P < .05$ ) were significantly independent predictors of e-commerce adoption, while compatibility ( $\beta = 0.072$ ,  $t = 1.049$ ,  $P > .05$ ) has influence on e-commerce adoption but not significant. This implies that innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security have influence on the adoption of e-commerce. This result is conform to (Abidet *et al.* 2011; Arendt, 2008; Duan, 2012, Raphael, 2013 and Sajuyigbe, 2012) who found that innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security are the major factors that influence e-commerce adoption.

#### 4.2 Discussion of findings

This research paper examined the factors that influence e-commerce adoption in Nigerian business organizations with special reference to the selected business organizations in Lagos metropolis. The study found that infrastructure is most prominent factor that influence e-commerce adoption in Nigeria with highest beta ( $\beta = 0.446$ ) followed by level of security ( $\beta = 0.245$ ), innovation culture ( $\beta = 0.137$ ), knowledge and skills ( $\beta = 0.080$ ), compatibility ( $\beta = 0.072$ ) and finance ( $\beta = 0.052$ ) these results agreed with Sajuyigbe, (2012) and Al-Qirim, (2003) who rated infrastructure as number one factor that influence e-commerce adoption in Nigeria. The study discovered that level of security is another important factor that influences e-commerce adoption and this result is in line with Khahfa *et al.*, (1999) and O'Toole, (2003) who agreed that privacy, security, authentication and legal issues are the main elements associated with e-Commerce adoption. While other factors (innovation culture, finance, knowledge and skills, and compatibility) also influence e-commerce adoption but compatibility is not significant.

### V. CONCLUSION AND RECOMMENDATIONS

It is clear from the findings that all variables i.e innovation culture, infrastructure, finance, knowledge and skills, compatibility and level of security were jointly predicting the e-commerce adoption in Nigerian business organizations. The current study also revealed that infrastructure and the level of security are the most important factors that influence the level of e-commerce adoption. The research identified compatibility as another factor that influences the adoption of e-commerce in Nigerian business organizations but its compatibility found to be insignificant. It is hereby recommended that for Nigerian business organizations to embrace e-commerce for their business operations, technological infrastructures should be put in place by the government and also government should establish an empowered independence e-commerce agency to implement all policies relating the adoption and usage of e-commerce in Nigeria.

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