E-COMMERCE ADOPTION AND SMALL MEDIUM SCALE ENTERPRISES PERFORMANCE IN NIGERIA

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Abstract:  
Electronic commerce, commonly known as e-commerce can be regarded as the utilization of electronic systems such as the internet and other computer networks to aid the sharing of business information among trading partners, coordination and implementation of business transactions. Existing studies in Nigeria concentrated on factors that limit Small and Medium Scale Enterprises in adopting e-commerce technology and most of these studies were examined from consumers perspectives, however, little or no study have examined the impact of e-commerce adoption on the performances of SMEs. This paper employed the use of a quantitative research approach to analyse the behavior, experience, perspective of Small and Medium Scale Enterprises operators towards electronic commerce adoption in Nigeria. Based on the quantitative approach imbibed in this study, questionnaire was used to capture data that examined the objectives of the paper. The questionnaire was distributed both manually and electronically to total sample of over 250 SMEs. Data collected were analysed using descriptive analysis. The study showed that e-commerce has potentials to improve the performance of SMEs operators if factors limiting the adoption of e-commerce like security issues, under developed infrastructures, poor delivery logistics and poor courier systems, infrastructure facilities, incompatibility of business with e-commerce etc. The paper recommended improved infrastructural facilities and better strategies that will improve consumers and business technological knowledge and ensure favourable environment for e-commerce adoption.

Keywords: SMEs, e-commerce, operators’ perspectives, Nigeria

JEL: O33, M113, M31

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1. Introduction

Electronic commerce, commonly known as e-commerce, is the buying and selling of products or services over electronic systems such as the Internet and other computer networks. Electronic commerce draws on such technologies as electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern e-commerce typically uses the World Wide Web at least at one point in the transaction’s life cycle, although it may use a wider range of technologies, such as e-mail, mobile devices and telephones as well.

Until recently, the Nigerian internet space had little or no commercial viability. This was because information and communication technology was still developing and provided limited network opportunities for people. Then, not many gave online shopping (e-commerce) a chance in the ever competitive Nigerian market. This is not just because of the fact that several products jostle for the consumers’ pockets, but it was a completely new way of shopping unknown to Nigerians at that time. Fears and suspicions bothered on credibility issues, for instance, it was common to think of scams when approached for patronage. And so, for online operators had years of hurdles and having to face series of litmus tests (Tonia, 2015).

It has been reported that Small and Medium Enterprises Operators face stringent challenges in relation to the adoption of electronic commerce. Some of the difficulties they face relate to limited resources and technology capabilities, the scale and affordability of information technology, as well as the facility of implementation within rapidly growing and changing organizations (Raisinghani, et al 2005; Wanjau, Macharia and Ayodo, 2012). More so, standard solutions developed for the usage of large, stable, and internationally oriented firms do not fit well for small, dynamic, and locally-based enterprises which are common in developing countries (Wang and Cheung, 2004). Hence, many of the studies on electronic commerce adoption, evaluation and benefits in developed nations concentrate on large organizations (Lin, 2005). Like many other developing countries of the world, small and medium scale enterprises (SMEs) in Nigeria are regarded as important engines of growth through job creation, poverty alleviation and competitiveness in global markets. In addition, SMEs in Nigeria is responsible for about 70% of total industrial employment and 10-15% of the total manufacturing output (Akanbi, 2016). Existing studies reported that SMEs are generally lagging behind compared to large organizations as far as the adoption and usage of e-commerce is concerned (Simpson and Docherty, 2004). The development of Information and Communication Technology (ICT) and Electronic Commerce (e-commerce) Technologies are increasingly becoming important tools for SMEs to revive corporate management and promote growth of the national economy (Kapurabandra 2009).

Specifically, SMEs in developing countries face significant and unique challenges in adopting these technologies, which ought to have enhanced their fortunes. (Ribadu, Mohammed and Sa’ad (2014). However, majority of these studies were examined from the perspectives of the consumers and the satisfaction they derived from SMEs
adoption. Thus, the objective of this study is to examine the impact e-commerce adoption on SMEs Operators performance. Specifically, the paper intend to capture the unique challenges faced by Small and Medium enterprises and the extent to which location affect their performance. The study is divided into 5 sections. Section 2 and 3 present literature review and methodology of the study. Section 4 presents the analysis while section 5 concludes the study.

2. Literature Review

The growth of e-commerce developed countries cannot be compared with what is obtainable in developing economies. This is as a result of availability of adequate infrastructure, internet facilities and appropriate enabling environment. On the other hand, developing countries lack the necessary financial, legal, and physical infrastructures for the development of e-commerce. In addition, developing countries often have different cultures and business philosophies, which limit the applicability and transferability of the e-commerce models designed by Western countries. Nigeria in particular, internet usage is relatively low compared to other countries, this explains why e-commerce is still at an elementary stage in Nigeria (Bamodu, 2005).

Considerable studies have been carried out on the adoption of e-commerce by SMEs. For instance, a number of studies examined both the tangible and intangible benefits achieved by SMEs from the adoption of e-commerce. For instance, Abell and Limm (1996), Poon and Swatman (1997) and Quayle (2002) studies showed that benefits derived from the adoption of e-commerce were marginal in terms of direct benefits. They also noted that e-commerce brings about improvement in the quality of information, improved internal control of the business, improved relations with business partners as well as ability to reach new customers and new markets through the use of e-commerce.

In developing countries, studies like Dutta et al (2011) reported some of ICT challenges such as legal and regulatory issues, weak ICT strategies, lack of research and development, excessive reliance on foreign technology and low level of development.

In Nigeria however, many arguments have been put forward for low level e-commerce technology usage in Nigeria. The issue of security has been of utmost concern for instance, Nigeria has for years had a negative reputation as one of the world’s most corrupt countries engaging in wide scale Internet fraud. A recent survey by the Internet Crime Complaint Center (IC3) ranks Nigeria third in the world with 8.0% of perpetrators of cyber-crime living in Nigeria after the US (65.4%) and UK (9.9%) (Internet Crime Complaint Center, 2009). Another factor noted affecting the use of e-commerce and online shopping in Nigeria “is the lack of a nationally acceptable and recognized payment method for online goods and services” (Ajayi et al., 2008). Ayo et al. (2008) pointed out that the low level of e-Payment infrastructure in the country, serves as a barrier to public participation in e-commerce. From studies like that of Adeyeye (2008), it is evident that the Automated Teller Machine (ATM) is the most prominent method of payment. Shortage of indigenous online vendors is also another crucial
factor affecting online shopping in Nigeria. Most people who shop online do so from foreign online vendors because there are very few credible online vendors in Nigeria. However, shopping from these foreign vendors can be discouraging due to high shipping costs and most orders not being processed.

Other studies such as Lai (2007) examined the adoption of ICT in SMEs. His results showed that one of the major factors inhibiting ICT diffusion and intensive utilization is poor physical infrastructure. Also, the paper by Adeshina and Ayo, (2010) identified various contributing factors to hindering the adoption of e-commerce and online shopping in Nigeria. One of such factors is accessibility to the Internet. In contrast, majority of the Nigerian populace do not have access to the Internet. For example, Ayo and Babajide (2006) study on internet usage in Nigeria showed that about 16.1% of the total population (149,229,090 people) are internet users and less than 1% of the populace (i.e. 67,800 people) are broadband internet subscribers (Internet World Stats, 2009). From these percentages, it is obvious that only a fraction of the general populace uses the Internet and even those who access it do so through numerous cybercafés scattered all over urban parts of the country.

In summary, many of the studies conducted in Nigeria emphasized the benefits of e-commerce adoption to consumers and challenges faced in the adoption of e-commerce; however, few of these studies examine the impact of e-commerce adoption on the performance of SMEs and the limiting factors. Subsequent sections take up the challenge.

2.1 Theoretical Framework
The framework adopted for this study is the technology acceptance model (TAM). TAM is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably. The TAM was derived to apply to any specific domain of human–computer interactions (Davis, Bagozzi and Warshaw, 1989). The TAM asserts that two relevant beliefs —PU and PEU—determine technology acceptance and are the key presumption of behavioral intentions to use information technology. The first belief, PU was the degree to which an individual believes that a particular system would enhance job performance within an organizational context (Davis, Bagozzi and Warshaw, 1989). PEU, the second key belief, was the degree to which an individual believes that using a particular system would be free of effort (Davis, Bagozzi and Warshaw, 1989). According to Norhayati, Nik, and Noraini (2015) perceived ease of use represents the level of difficulty the user expects to have in integrating the tool into his or her routine. However, past research on consumer adoption of online services found that PEOU is an important antecedent of user’s adoption of new Web technology (Grandon and Pearson, 2004). In most studies, it suggests that the more complex new technology is perceived to be, the less likely it is to be adopted. In addition, the model indicated that system usage was indirectly affected by both PEU and PU.
3. Research Methodology

This section discussed the approaches, instrument, and processes employed in investigating the impact of e-commerce on SMEs in Nigeria. This study imbibes the use of a quantitative research approach due to the human factor in small companies which is very important to examine the behavior, experience, perspective of SMEs representatives. Based on the quantitative approach imbibed in this study, a questionnaire is used to capture data that examines the objectives of this study. The questionnaires were distributed both manually (paper) and electronically (over the internet). An online survey platform developed by Google; Google Forms, is used to distribute over 200 questionnaires over the internet via emails and social networks (precisely LinkedIn TM) to target SMEs. Google forms are an online survey platform equipped with tools to create, modify, and distribute Questionnaires. Administered questionnaires were automatically collected by the Google forms survey engine in an excel format and stored in Google Drive; a cloud storage space accessible by user. The paper questionnaires were also distributed to 50 SME correspondents to make a total sample of over 250 SMEs to be examined for inference on the study.

The aim of combining these two methods is to ensure that the data is collected across a wider geographical region which the electronic means will achieve, and also since the study also assesses the level of e-commerce adoption, the manual means of collecting data via administered paper questionnaires puts in consideration SMEs that does not make use of the internet and therefore e-commerce. The questions were constructed based on this study’s objective as follows:

- What kind of impact has e-commerce adoption had on your level of customers?
- How would you describe your enterprise’s marketing efficiency since adoption of e-commerce?
- Has the use of e-commerce in your firm brought about new business opportunity?
- Have you been able to expand your market range outside your base since the adoption of E-commerce in your business?
- What has been the impact of e-commerce adoption on your firm’s profit level?
- How would you describe the cost of using e-commerce adoption on your firm’s profit level?
- How would you describe the cost of using e-commerce in your firm?
- In terms of operational efficiency, what would you say your firm’s level of efficiency is since e-commerce adoption?

Other question such as age, gender and highest qualification of correspondent representing the firm, firm’s sector category, number of employees and number of year firm has been in existence, were also formulated into the questionnaire in other to compare and correlate the personal details of SMEs with determining factors of e-commerce level of adoption by and impact on SMEs.
4. Data Presentation, Analysis and Interpretation

This section presents data analysis on e-commerce and SMEs in Nigeria. Data were collected through a quantitative technique. Analysis of the data was done with the use of descriptive analysis, bar charts, pie charts, and report summary tables are presented. The analysis were carried out with the objective of examining the impact of e-commerce on SMEs’ level of customer, profit level, cost, market expansiveness, marketing efficiency and operational efficiency based on the responses of SMEs that participated in the online and paper questionnaire.

4.1 Analysis of the Profile of the Sample SMEs

Out of 200 contacts, one hundred and nineteen (119) respondents participated in the online survey, while all fifty (50) questionnaires distributed manually were retrieved. Hence, a total number of 169 SMEs participated in the survey. Summary of their responses was reported in table 4.1.

<table>
<thead>
<tr>
<th>Analysis on SMEs Classification</th>
<th>No of Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>24</td>
<td>14.2</td>
</tr>
<tr>
<td>Business services</td>
<td>29</td>
<td>17.2</td>
</tr>
<tr>
<td>Food</td>
<td>11</td>
<td>6.5</td>
</tr>
<tr>
<td>Wholesale/ Retail</td>
<td>35</td>
<td>20.7</td>
</tr>
<tr>
<td>Import/ Export</td>
<td>16</td>
<td>9.5</td>
</tr>
<tr>
<td>Others</td>
<td>54</td>
<td>32.0</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age of the Firms</th>
<th>No of Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than a year</td>
<td>18</td>
<td>10.7</td>
</tr>
<tr>
<td>1-3 years</td>
<td>50</td>
<td>29.6</td>
</tr>
<tr>
<td>4-9 years</td>
<td>62</td>
<td>36.7</td>
</tr>
<tr>
<td>over 9 years</td>
<td>39</td>
<td>23.1</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location of (Firms) in Nigeria</th>
<th>No of Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuja</td>
<td>9</td>
<td>5.3</td>
</tr>
<tr>
<td>Kwara</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>Lagos</td>
<td>59</td>
<td>34.9</td>
</tr>
<tr>
<td>Ogun</td>
<td>22</td>
<td>13.0</td>
</tr>
<tr>
<td>Osun</td>
<td>21</td>
<td>12.4</td>
</tr>
<tr>
<td>Oyo</td>
<td>24</td>
<td>14.2</td>
</tr>
<tr>
<td>Rivers</td>
<td>16</td>
<td>9.5</td>
</tr>
<tr>
<td>Others</td>
<td>13</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of e-commerce Usage</th>
<th>No of Firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses e-commerce technology</td>
<td>114</td>
<td>67.5</td>
</tr>
<tr>
<td>Not using at all</td>
<td>55</td>
<td>32.5</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.1.1 Analysis on SMEs Classification
It was shown from data collected that the largest percentage of SMEs classification was the wholesale/retail sector at 20.71% of total response, followed by Business sector (14.20%). The manufacturing sector constitutes 14.20%, import/export sector (9.47%), food (6.51%). However, the survey included just this few which according to previous studies are the main sectors in the Small Medium Enterprises, but nevertheless SMEs from other sectors participated in the survey and constitutes 31.95% of total sample. This result correspond with the findings of the Quarterly Census of Employment and Wages Data in Nigeria (2014) that wholesale represents 7.2% of all establishment & retail trade 12.9% of all establishment meaning these sector which constitute the trade sector is one of the largest in numbers.

4.1.2 Location of (Firms) in Nigeria
In addition, all 36 states of the federation including the Federal Capital territory Abuja was included in the survey questionnaire especially those sent through Google platform. However, the highest percentage of SMEs respondents were from Lagos state which was 34.91% (59 respondents) owing to reasons such as Lagos being the second most populous state with the highest number of business, small, medium or large, in Nigeria, followed by 14.20% (24 respondents) from Oyo, 13.02% (21 respondents) from Ogun, 12.43% (16 respondents) from Osun, 9.47% from Rivers 5.3% from Abuja and 2.96% (5 respondents) from Kwara.

The results also showed that percentages of SMEs that adopts e-commerce in their business activities are relatively low in Osun and Kwara with 28.6 % and 40.0 % respectively. The collation of responses on e-commerce usage in other states aside the above listed indicated an e-commerce user to non-user percentage ratio to be 30.8%: 69.2 %.

4.1.3 Analysis of SMEs Size Based on Number of Employees
The study revealed that 86.39% of the enterprises that participated in the survey were small enterprises, 69.82% responded that they had less than 10 employees while the number of enterprises that had between 10-20 employees were 16.57%. Medium size enterprises with over 20 employees were 13.61%. This result depicts the fact that Nigeria consists of small scale enterprises than medium scale enterprises.

In a research conducted by the Small medium enterprises development agency of Nigeria, a similar result was derived showing that total number of enterprise in Nigeria at least captured by the survey was 17,284.671. Part of which 17, 261,753 are micro enterprises, 21,264 were small scaled while Medium scale enterprise was 1,654. Moreover, the data indicated that largest number of firms that do not use e-commerce are small enterprises with less than ten employees with 37.3 % of respondents with less than 10 employee not using electronic commerce.

Analysis of the enterprises length of existence shows that 18 (10.65%) of the respondents were new enterprises and have operated for less than a year, while 23.08% have existed for ten years and above. 50 (29.59%) and 39 (36.69%) are between 1-3 years.
and 4-9 years old respectively. The data indicated that new enterprises are more into e-commerce than older ones. 83.3% of firms less than a year old use e-commerce, only 18% of firms between the ages of 1-3 do not use e-commerce. 62.9% and 48.7% of firms between the ages of 4-9 years and over 9 years respectively uses electronic commerce.

4.1.4 Analyzing the Level of E-Commerce Usage
Analysis from the figure below shows that 114 respondents which constituted 67.5% of SMEs that participated in the survey uses e-commerce in their business activities. 32.5% does not make use of electronic commerce in their business activities. This is an impressive percentage that has been influenced by the increasing knowledge of electronic commerce as shown in table 4.1.6 and the growth in level of internet usage in Nigeria.

Figure 4.1: Percentage of internet users in Nigeria (2000-2013)

(Data sourced from International Communications Union, 2013 and Internet World Stats 2013)

4.2 Analysis of Impact of E-Commerce on SMEs Performance
In the survey questionnaire the impact of e-commerce were broken into impact on; level of patronage by consumers, marketing efficiency, operational efficiency, business opportunities, market expansion and profit level. The cost of using e-commerce was also appraised. A descriptive analysis of the responses are explained one after the other and shown in figure 4.2(a), (b), (c), (d) and (e)
The result in figure 4.2 (a) shows that 85.1% (97 out of sample 114) of SME that uses e-commerce experienced increase in level of customers with the adoption of e-commerce in their business activities, 9% revealed that they been impacted negatively and customer level has decreased, for 14% level of customers is indifferent with e-commerce. The high percentage of small and medium scale enterprise is a function of the increase in number of online shoppers and businesses now conducted electronically.
A survey of consumer e-commerce adoption in Nigeria by IPSOS, a global market research company showed that out of the approximately 60 million internet users in Nigeria, 65% of users already shop online and another 24% of users expect to do so in the future.

Moreover, reports from figure 4.2(b) shows that electronic commerce has positively impacted profit level of 57.02% of adoptee SMEs and has also impacted the profit level of 28.95% in a very positive way. Profit level of 14.04% has made insignificantly effect on their profit level even with E-commerce adoption. The result is corroborated by figure 4.2.1 below. The increasing expenditure on online shopping is one major factor that influences the positive impact of electronic commerce on SME’s profit level. The rate of increase in the online expenditure is shown below.

![Figure 4.2.1: Total Expenditure on Online Shopping 2010-2012](https://example.com/image.png)
(Data derived from Euromonitor International, 2014)

On SMEs market efficiency, it was shown from figure 4.2(c) that 85.1% (97 out of 114) of SME that uses e-commerce has more marketing efficiency with the adoption of e-commerce in their business activities, 9% has been impacted negatively is not as efficient as before e-commerce adoption, for 14% level of efficiency is just the same as before e-commerce.

In addition, figure 4.2(d) indicates that 2.63% (3 out of 114 respondents that use E-commerce) did not correctly give their view on how e-commerce adoption has impacted their operational efficiency and the same percentage also responded to have had less efficient operations, operational efficiency has improved for 94.74% of SME adoptee with the adoption of e-commerce.

Finally, figure 4.2(e) results shows that 6(5.3%) of SMEs that responded to have adopted e-commerce did not respond to its impact on business expansion. 80.56% has been able to expand their market with new business opportunities since the adoption of e-commerce technology. However, 19.44% of SMEs respondents have not been able to expand their business outside their base.
4.3 Factors Limiting SMEs Operators in E-Commerce Adoption and Usage

According to the data collected, the major factors limiting e-commerce adoption are Lack of ICT infrastructure, security concerns, lack of e-commerce usage by business partners (suppliers & customers) and incompatibility with business.

![Figure 4.3: Factors Limiting Ecommerce Adoption and Usage](image)

From the figure 4.3 above, 37 (21.9%) of total respondents emphasized that the major factor limiting their adoption of e-commerce is lack of infrastructure. 35 (20.7%) are limited by e-commerce adoption due to security concerns. e-commerce adoption 20.1% (34 out of 169) are limited by business partners not using e-commerce. 13.0% (22 out of 169 respondents) are limited in the adoption of e-commerce because e-commerce is not compatible with the way they do business.

Some other limiting factors are unreliable network service provider as agreed by 9.5% of total respondents, low employee’s IT skills limits 5.3% of respondents. The expense of e-commerce adoption is a limitation to 4.1% (7 out of 169 respondents) while time barriers such as lead time limits 1.8% (3 out of 169 respondents).

5. Summary of Findings and Recommendations

The study shows that the level of e-commerce adoption is becoming more fascinating relative to what was predicted to be the expected outcome of e-commerce at its inception due to the low level of literacy, technology and low skilled labour in Nigeria. Unfortunately, this level of adoption and impact is not evenly distributed amongst all Nigerian SMEs, while some from a particular region benefit others do not. This study reveals that small and medium enterprises in more developed states like Abuja and Lagos benefit more from e-commerce adoption while those in less developed states such as Osun, Kwara, Ondo, do not benefit as much from e-commerce compared to the more developed states in Nigeria.
It was also discovered that e-commerce has potential to boost SMEs performance and bring about expansion in business outlook. However, the study revealed that major factors limiting the adoption and usage of e-commerce in Nigeria were security concerns, underdeveloped backbone infrastructures, poor delivery logistics and poor courier systems, incompatibility of business with e-commerce and consumers and business partners not using e-commerce. Different strategies are however put forward towards achieving even distribution of e-commerce and also to improve the level of e-commerce adoption in Nigeria.

To improve the level of adoption of e-commerce by SMEs the issue of uncertainty about internet security needs to be addressed. This is not the duty of the government alone, in fact the government has little to do in ensuring security in e-commerce. Commercial banks should improve security in all electronic payment modes; ATMs, Short codes, Internet banking etc., and also customer privacy should be ensured to safeguard their banking credentials and information. Current and on-going bank verification procedure is a program that has improve security in electronic commerce as it is devoid of counterfeit identities and has to some extent prevents on-line business fraud. Individual enterprise should also ensure that all online transactions are done with trusted persons whose identities are not anonymous and should use secured websites as well as document receipts of every online commercial activities. However, government should build a regulatory framework to guide against fraud and ensure secured online business.

Levels of awareness on electronic commerce usage and how to benefit more could be organized by government, private bodies or enterprises with advanced e-commerce knowledge. This will improve performance of SMEs, hence inducing business partners and customers to transact more electronically.

Investment on faster and cheaper transportation systems such as electronic trains and air courier via local airports will facilitate efficiency in service and satisfaction of customers as well as save cost of delivering good and services thereby increasing the profit level of SMEs. Also, government should promote even developments of Nigerian states if equality in the benefits of e-commerce to SMEs in different regions Nigeria is to be attained.

References
