The Impact of Electronic Commerce Application on Business Process in Small and Medium Scale Enterprises in Adamawa and Taraba States-Nigeria

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Abstract: Electronic commerce is very important to business processes. This is because it generally provides new ways and opportunities for organizations to broaden their participation into new markets. Despite these numerous contributions there still lots of challenges confronting SMEs in the application of electronic commerce because they are small and are challenged by lack of adequate resources and training, inadequate infrastructure, lack of push from the supply chain, lack of vision and a persistent poor security measure. The major objective of the study is to investigate the impact of electronic commerce applications on business process in small and medium scale enterprises in Nigeria, with specific reference to Yola and Jalingo in Adamawa and Taraba State Respectively. The survey design was adopted for the study. The primary data were collected through structured questionnaires administered to sixty five (65) SMEs that were stratified randomly selected. The data collected were analysed using regression analysis to test the relationship among the variables. An analysis of variance was used to test the hypothesis. The results of the study signify that the electronic commerce applications have a significant and positive impact on business process in electronic payment system, customer support service, order and delivery, marketing, and advertising. Also, findings showed that majority of the firms were faced with unpredictable electricity supply. The study recommends that the organisation and government should formulate good strategies to implement e-commerce into their structure and as the business environment changes; organisation should change as well in accordance with the dynamics, complex and turbulent business environment.

Keywords: SMEs, E-commerce, Information, Management, Operational, Support Service

1. Introduction

Small and medium scale enterprises (SMEs) are the backbone of virtually all economies of the world because of their role in employment creation and provision of personalized services [56]. The sector account for 70% of industrial employment [60]. Also the agricultural sector, which largely consists of SMEs, employs over 60% of the nation’s workforce [47]. There are various advantages claimed for SMEs which includes: the encouragement of entrepreneurship [46, 14, 13]; the greater likelihood that SMEs will utilize labour intensive technologies [10, 47, 39] and thus have an immediate impact on employment generation [14, 4, 54, 10]; they can usually be established rapidly and put into operation to produce quick returns; Small and medium scale enterprises development can encourage the process of both inter-and intra-regional decentralization [41]; and the may well become a counter veiling force against the economic power of large enterprises [47].

It has been observed and verified in many studies that SMEs have been actively looking for suitable solution and methods of adopting and integrating electronic commerce in their business process [44, 30, 48]. Electronic commerce is changing business process in many organizations and its set to have significant socio-technical implications [20, 8]. This is due to the fact that many researchers hold the view that electronic commerce has positive impact on business
Electronic commerce is not just another mechanism to sustain and enhance existing business practices; it is a paradigm shift that is radically changing traditional ways of doing business [37]. Existing business processes must be seamlessly integrated with new electronic form of interaction with suppliers and customers [30].

Despite this approaching, little research has focused on the link between business processes and successful application of electronic commerce in small and medium scale enterprises (SMEs) in Nigeria. This study chooses SMEs for important reason as they have quicker decision-making which makes them in the best position to adopt to new technologies like electronic commerce than the large organizations which have slowed decision-making due to bureaucracy.

1.1. Statement of Research Problem

Electronic commerce is very important to business processes. This is because it generally provides new ways and opportunities for organizations to broaden their participation into new markets. The application of electronic commerce in business process of SMEs brought with it many advantages including marketing changes, controlling business cost, customer expansion, and creation of wealth, creation of job opportunities, ability to be reachable worldwide, production gain and system efficiencies, as well as value creation [42].

Despite these numerous contribution, there still lots of challenges confronting SMEs in the application of electronic commerce because they are small and are challenged by lack of adequate resources and training, inadequate infrastructure, lack of push from the supply chain, lack of vision and a persistent poor security measure. SMEs heavily rely on an environment in which structures and process must remain simple, flexible and adoptable [18]. The implementations of internet technologies by SMEs are powerfully affected by such characteristics.

It is against these backgrounds that the study focuses on investigation of electronic commerce usage in SMEs, especially different electronic commerce application such as electronic payment system, advertising, marketing, customer support service, and order and delivery. Also to explore in what extent the usage of electronic commerce changes performance of business processes in Nigeria.

1.2. Objective of the Study

The general objective of the study is to investigate the impact of electronic commerce applications on business process in small and medium scale enterprises in Nigeria. However, the specific objectives are to:

i. examine the impact of electronic payment system on business process in SMEs in Nigeria;
ii. investigate the impact of electronic customer support service on business process in SMEs in Nigeria;
iii. assess the impact of electronic order and delivery on business process in SMEs in Nigeria;
iv. analyze the impact of electronic marketing on business process in SMEs in Nigeria;
v. investigate the impact of electronic advertising on business process in SMEs in Nigeria; and
vi. assess the challenges associated with the implementation and uses of electronic commerce on business process in SMEs in Nigeria.

1.3. Research Hypotheses

Based on the objectives formulated above, the following hypotheses are generated for the study in null (H0) form:

i. Electronic commerce applications (such as electronic payment system, customer support service, order and delivery, marketing, and advertising) have no significant and positive impact on business process in SMEs in Nigeria.

ii. There are no challenges associated with the implementation and uses of electronic commerce in business process of SMEs in Nigeria.

1.4. Scope of the Study

The study covers five electronic commerce applications like electronic payment system, customer support service, order and delivery, marketing, and advertising. It covers business processes as management, operational and supporting processes. It covers Small and Medium Scale Enterprises in Yola and Jalingo Metropolises Adamawa and Taraba State respectively which are using electronic commerce applications and own internet website. Also it covers periods from 2010-2015.

1.5. Significance of the Study

The need for the study of this nature cannot be over stated, now that the application of electronic commerce has brought so many benefits like marketing changes, control business cost, customer expansion, wealth creation, job creation opportunities and easy to reach worldwide [42]. The study will draw the attentions of the management and owners of SMEs to the urgent need for the adoptions of electronic commerce applications into their enterprises to enhance efficiency and effectiveness. The study is of benefits to the existing and potential entrepreneurs so that they can understand the significant of electronic commerce applications in business processes. Finally, this study is of great contribution to the future development of line of research, particularly in developing country like Nigeria. Thus, this study is of significant value to scholars.

2. Literature Review

2.1. Small and Medium Scale Enterprises (SMEs)

Previous literatures used to define SMEs from different perspectives such as defining it based on number of employees, paid up capital, sectors of operations and also the intensity of investment incurred [12]. As in Nigeria there is no clear-cut definition that differentiates purely Small Scale
enterprises from Medium scale enterprises.

To [62] SMEs is a business characterized by using owner’s resources, some retained earnings, trade credit, and short-term bank loans, without access to capital market or long term loans, employing fifty (50) people or less capital outlay of five million (₦5m) or less.

[29], argue that SMEs are identified based on their financial strength, personnel and operating capabilities. Just as [43] rightly put that SMEs can be observed on the basis of capital employed, workers employed, turnover, simple management structure and the forms of the business.

The proliferation of SMEs in every part of the country is seen as the vehicle that stimulates the employment opportunity which indeed boosts economic growth and development of many nations [29]. Hence, SMEs stimulate the development of local machinery and raw materials to fit the production procedures of organizations. To buttress this fact the studies conducted by [7, 9, 1, 2, 43], have relatively shows that SMEs are the viable means of promoting self-reliance in economic development as well as in accelerating the pace of industrial technology.

2.2. Concept of Business Processes

Organizations are becoming more focused on their business processes. According to [21] business process is a structured, measured set of activities designed to produce a specific output for a particular customer or market. It implies a strong prominence on how work is done within an organization, in contrast to a product focus’s emphasis on what. A process is thus a specific ordering of work activities across time and space, with a beginning and an end, and clearly defined inputs and outputs: a structure for action. Taking a process approach implies adopting the customer’s point of view. Processes are the arrangement by which an organization does what is essential to produce value for its customers.

This definition contains certain attributes a process must acquire. These attributes are achieved by a focus on the business logic of the process, instead of taking a product perspective. Following Davenport’s definition of a process we can conclude that a process must have obviously defined boundaries, input and output.

- Embedded: A process cannot exist in itself; it must be embedded in an organizational structure.
- Order: It must consist of activities that are ordered according to their position in time and space.
- Value-adding: The transformation taking place within the process must attach value to the recipient, either upstream or downstream.

According to literature review [45, 16, 35, 51] most common types of business processes are included: management processes, operational processes, supporting processes. These types of business processes summarized as:

- Management processes: The processes that govern the operation of a system. Typical management processes include corporate governance and strategic management.
- Operational processes: The processes that constitute the core business and create the primary value stream. Typical operational processes are purchasing, manufacturing, advertising and marketing, and sales.
- Supporting processes: This support the core processes. Examples include accounting, recruitment, call center, technical support.

The table 1 shows briefly the variety of types of business processes in the different organizations.

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Types of Business Processes in Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>[22]</td>
<td>• Entities (inter-organizational, inter-functional, and inter-personal processes)</td>
</tr>
<tr>
<td>[57]</td>
<td>• Objects (physical and informational processes)</td>
</tr>
<tr>
<td>[21]</td>
<td>• Activities (operational or managerial processes)</td>
</tr>
<tr>
<td>[21]</td>
<td>• Customer-facing processes</td>
</tr>
<tr>
<td>[21]</td>
<td>• Product and service development processes</td>
</tr>
<tr>
<td>[21]</td>
<td>• Delivery processes</td>
</tr>
<tr>
<td>[21]</td>
<td>• Management processes</td>
</tr>
<tr>
<td>[45]</td>
<td>• Primary processes</td>
</tr>
<tr>
<td>[45]</td>
<td>• Support processes</td>
</tr>
<tr>
<td>[23]</td>
<td>• Management processes</td>
</tr>
<tr>
<td>[23]</td>
<td>• Acquisition/payment</td>
</tr>
<tr>
<td>[36]</td>
<td>• Conversion</td>
</tr>
<tr>
<td>[36]</td>
<td>• Sales/collection</td>
</tr>
<tr>
<td>[36]</td>
<td>• Condition-creating processes</td>
</tr>
<tr>
<td>[16, 35, 51]</td>
<td>• Operational processes</td>
</tr>
<tr>
<td>[16, 35, 51]</td>
<td>• Supporting processes</td>
</tr>
</tbody>
</table>

Source: [12]

2.3. Electronic Commerce

Electronic commerce is refers to the use of communication technology particularly the internet to market, buy and sell goods and services to the consumers. Just as [59] rightly conceived e-commerce as... the seamless application of information and communication from it point of origin to its end along the entire value chain of business process conducted electronically and design to enable the accomplishment of a business goal. This development may
be partial or complete and may cover business to business (B2B), as well as business to customer (B2C), and Customer to customer (C2C) transactions. The Author is also of the opinion that, this form of trade involves any transaction that is transmitted electronically in order to achieve a predefined business goal in as much the transaction is defined between a customer and business organization and vice-versa.

[58] Conceptualized it as a process of formatting commercial transactions at a self remote from the trading partner and then using electronic communications to execute that transaction. According to [24] e-commerce is a general concept covering any form of business transaction or information exchange executed using information and communication technology (ICT), between companies or between companies and public.

Based on the definitions specified above, it is rational to wrap up that electronic commerce is any form of organized activities that engages communication and exchange of information between people or group of people and or organization using the agreed electronic technology in order to accomplish a defined goals and objectives.

### 2.4. Electronic Commerce Applications

[38] Claim that electronic commerce facilitates the growth and expansion of firms in developing countries due to the ability of the internet and ICT to reduce cost of transaction, eliminate intermediaries and facilitating linkages to the global supply chains. This expansion and growth can be possible if small and medium scale enterprises in Nigeria can take advantages of internet technologies to make considerable savings on communication, production process and delivery of goods and services.

Electronic commerce is changing all functional areas of business and their significant tasks ranging from production to paying invoice. The significant of electronic commerce has attracted attention among SMEs in Nigeria. This high profit attention has resulted in significant progress towards strategies, requirements, and development of electronic commerce applications [55, 32, 3]. There are many various types of electronic commerce applications. It can be categorically grouped into five different types as shown in table 3 below.

**Table 2. Types of Electronic Commerce Applications.**

<table>
<thead>
<tr>
<th>Types of Electronic Commerce Applications</th>
<th>Descriptions</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Advertising</td>
<td>• Provide product information customers &lt;br&gt; • Displaying company information on website &lt;br&gt; • Online electronic brochures or buying guide &lt;br&gt; • Display only a range a products which are relevant to the particular customer &lt;br&gt; • Online help-Frequently Asked Questions &lt;br&gt; • Online product update</td>
<td>[17, 50, 5]</td>
</tr>
<tr>
<td>Electronic Customer Support Service</td>
<td>• Online Handling of customer feedback/queries &lt;br&gt; • Online application and registrations &lt;br&gt; • E-mail communication personalization &lt;br&gt; • Allowing a customer to contact a sales office &lt;br&gt; • Share information with competitors, customers and suppliers &lt;br&gt; • Using internet to find out customers’ needs and wants &lt;br&gt; • Using internet for anticipating customer needs &lt;br&gt; • Achieving customer satisfaction through the electronic channel</td>
<td>[52, 5, 26]</td>
</tr>
<tr>
<td>Electronic Marketing</td>
<td>• Electronic Fund Transfer(EFT) &lt;br&gt; • Online credit card processing &lt;br&gt; • Electronic money &lt;br&gt; • Smart and prepaid card &lt;br&gt; • Coordinating procurement with suppliers online &lt;br&gt; • On-line ordering of software products &lt;br&gt; • Lower costs per business transaction &lt;br&gt; • Tracking incoming and outgoing goods delivery &lt;br&gt; • Online order entry and delivery &lt;br&gt; • Electronic Data Interchange(EDI)</td>
<td>[11, 17, 31, 33, 49]</td>
</tr>
<tr>
<td>Electronic PaymentSystem</td>
<td>• Electronic Fund Transfer(EFT)</td>
<td>[24, 17, 63, 26]</td>
</tr>
<tr>
<td>Electronic Order andDelivery</td>
<td></td>
<td>[31, 40, 52, 25]</td>
</tr>
</tbody>
</table>

Source: [12]

### 3. Research Methodology

The survey design was adopted for the study. The population of the study comprised of small and medium scale enterprises in Yola and Jalingo Adamawa and Taraba State respectively which are using electronic commerce applications and own internet website. The study employed both primary and secondary sources of data collections. The primary data were collected through structured questionnaires administered to sixty five (65) SMEs that were stratified randomly selected. The questionnaire were design to asked the respondents extends of agreement and disagreement using five point Likert scale with 5=Strongly Agree (SA), 4= Agree (A), 3=Neutral (N), 2=Disagree (DA), and 1=Strongly Disagree (SD). The data collected were analysed using regression analysis to test the relationship among the variables. An analysis of variance (ANOVA) was used to test the hypothesis using SPSS 19.0.

### 4. Data Analysis, Results and Discussions

As previous noted the investigation of this study stand on
the questionnaires that were administered.

Hypotheses 1: Electronic commerce applications (such as electronic payment system, customer support service, order and delivery, marketing, and advertising) have no significant and positive impact on business process in SMEs in Nigeria.

**Table 3. Regression result of hypothesis 1.**

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>(Constant)</td>
<td>0.606</td>
<td>0.067</td>
<td>9.056</td>
<td>0</td>
</tr>
<tr>
<td>E-Commerce Applications</td>
<td>0.5</td>
<td>0.021</td>
<td>0.95</td>
<td>24.268</td>
<td>0</td>
</tr>
</tbody>
</table>

Overall Model: $F=325.683, P<0.05; R^2=0.903$; Adjusted $R^2=0.902$

In the analysis of hypothesis one above, the dependent variables business process of small and medium scale enterprises and the independents variables are the electronic commerce applications namely: electronic payment system, customer support service, order and delivery, marketing, and advertising. The estimated result indicates that all the electronic commerce applications have positive and significant impact on the business processes (management, operational and supporting processes) of SMEs at

**Table 4. Regression result of hypothesis 2.**

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>(Constant)</td>
<td>0.464</td>
<td>0.096</td>
<td>4.819</td>
<td>0</td>
</tr>
<tr>
<td>Challenges Associated with E-Commerce Implementation</td>
<td>0.392</td>
<td>0.022</td>
<td>0.915</td>
<td>18.047</td>
<td>0</td>
</tr>
</tbody>
</table>

Overall Model: $F=325.683; p<0.05; R^2=0.838; Adjusted R^2=0.835$

With regard to the hypothesis two above, the regression analysis based on the independent variables as (1) high cost of installations, (2) stiff competitions, (3) poor maintenance culture, (4) inadequate infrastructural facilities, (5) inadequate skilled manpower, (6) slow speed of internet connection, and (7) lack of security equipments to deal with theft are challenges associated the electronic commerce applications. The results shows positive and statistically significant effects on the business processes in SMEs with $F$-statistics ($F=325.688, P<0.05$). The challenges confronting the electronic commerce applications implementation and uses counted for ($R^2=0.838$) of variance in business processes in SMEs with (Beta=0.915). This suggests that there are challenges associated with the implementation and uses of electronic commerce in business process of SMEsin Nigeria.

The results signify that the electronic commerce applications have a significant and positive impact on business process in electronic payment system; customer support service, order and delivery, marketing, and advertising. Also, findings showed that majority of the firms were faced with unpredictable electricity supply. This affirmed the report by [15], who stated that in Nigeria, poor electricity service, lack of infrastructure and unprogressive monopoly sector are the major constraints. [19], tinted some of the challenges of e-business as cost of implementation, security, lack of technical and managerial skills. This study long-established this as almost all the respondents investigated designate lack of security equipment to deal with theft of credit card information, high cost of implementation and inadequate technical manpower as the challenges their firms confronted with.

5. Conclusions

By means of the bearing of Major Corporation to online transactions and the expansion of electronic commerce speed up growth and entering the world economy, as one of the most significant features of the modern digital financial system, small and medium enterprises are still sleeve behind superior organizations in the adoption and assessment of e-commerce regardless of the benefits it presents. This study presents research accomplish on small and medium enterprises in Nigeria in order to examine a collision of electronic commerce on their business processes. There are many different types of e-commerce applications; we can group them according to five categories: electronic marketing, electronic advertising, electronic order and delivery, electronic payment system and electronic customer support service. With regards to this, exercise of the electronic commerce in SMEs of Nigeria can have an optimistic collision on the business processes. The
troubles groundwork the low implementation of complicated e-business technology recline not in Internet access, cost and managerial understanding, but in the issues including deprived electricity, high cost of implementation, industry practice, lack of push from supply chain, as well as internal issues like lack of resources, know-how and planned dream to direct.

With regards to the findings, the following recommendations are made: The organisation and government should formulate good strategies to implement e-commerce into their structure and as the business environment changes; organisation should change as well in accordance with the dynamics, complex and turbulent business environment; Government should create more widespread awareness about e-business; and Government should support SMEs in terms of loan, adequate training and provision of regular electricity and support to overcome the identified barriers to e-business implementation.

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