EFFECT OF E-COMMERCE AND THE GROWTH OF SMALL SCALE ENTERPRISES IN SELECTED ENTERPRISES IN ANAMBRA STATE

Okeke, M.N, Oboreh, J.C
Ezeaghaego, C.C
Department of Business Administration, Chukwuemeka Odumegwu Ojukwu University
Igbariam Campus, Anambra State, Nigeria

Abstract
This study examined the effects of e-commerce on the growth of small scale enterprises in Anambra State. The study became necessary following the fact that E-commerce is changing all business functional areas and their important tasks all over the world. The study reviewed relevant theoretical and empirical literatures and is anchored on two theories. Technology, Organizational and Environmental Model (TOE model) and Resources-Based View Theory. The data used were generated from the selected small scale enterprises in Nnewi, Onitsha and Awka. The data generated were analyzed using percentage analysis while the hypotheses formulated were tested using Z-test statistics. The study found that business-to-customer (B2C) exerts significant effect on the performance of small scale enterprises. It also revealed that E-commerce adoption has significant effect on growth of small scale enterprises. It was recommended that small scale enterprises yet to adopt e-commerce technology should do so to remain competitive in their industries.

Keywords: Environment, Technology, e-commerce, Business and Industries.

INTRODUCTION
E-commerce is changing business process in many organisations and, is set to have significant socio-technical implications (Al-Qirim, 2003, Currie, 2000). All companies today, whether big or small, local and international, use information systems and have invested significantly in information technology to achieve key business objectives such as improving the ability of the company (Laudon, 2007). Internet, related technologies and applications should be changed in line with changes in business operations: (O’Brien, 2007). Today, many aspects of the world market are affected directly or indirectly by the development of information technology. In the 21st century, the world market has been supported by a market system that uses electronic infrastructure. Common knowledge of information technology has no boundaries and can be reached anywhere by anyone accessing the Internet. According to Nd (2000), generally a lot of organizations, regardless of size, are unable to identify the overall potential of the existing values in the Ecommerce. The potential of the internet and its associated technologies to enable global e-commerce has been widely documented in scholarly publications (Cronin, 1996; Lee & Clark, 1997; Montaalegre, 1999; Press, 1996; Weingarten, 1994). The primary emphasis in much of the current debate about electronic commerce is on the global nature of electronic markets, and the lower costs of reaching global markets (Montaalegre, 2000; Steinfeld et al., 1999; UNCTAD, 2001). Internet-based market structures, and
more broadly, the extension of global telecommunication networks, appear to offer producer firms in
developing countries new exchange mechanisms that will enable them to compete on a more equal basis
in world markets (Goldstein and O’Connor, 2000; United Nations, 2000).
Small scale enterprises are often seen as vital for the growth and innovation of dynamic economies, as
they help to diversify economies. Small scale enterprises account for 60 percent to 70 percent of jobs in
most developed and developing countries and for most new jobs that are created within Africa, several
countries in Africa have prioritised their investment in small scale enterprises (Gordon, 2003). Small
scale enterprises account for about 85% of manufacturing jobs in Nigeria. The manufacturing sector is
said to be a characteristic feature of the production landscape (Aryeetey, 2001). About 70% of Nigeria’s
GDP is contributed by SMEs and it is estimated that 91% of the formal business entities are Small,
Medium and Micro Enterprises (SMEs) (Berry, 2002: Hassbroeck, 1996).
In Nigeria, e-commerce use among small scale enterprises is a new phenomenon. While e-commerce
solutions have been adopted by some multinational and large organisations, small size enterprises have
been slower in adopting these technologies. This low rate of adoption and the small scale enterprises’
inability to take advantage of emerging Internet technology to improve their business operations
deserves serious attention.
The process of globalization and widespread adoption of information and communication technology
(ICT) has created new challenges and opportunities for firms. The opportunities include access to new
markets that were previously closed due to cost, regulation, or indirect barriers, the ability to tap
resources such as labor, capital, and knowledge on a worldwide basis, and the opportunity to participate
in global production networks that are becoming prevalent in many industries such as automotive,
electronics, toys and textiles. Challenges come from foreign competitors entering firms’ domestic
markets, and form domestic competitors, reducing their costs through global sourcing, moving
production offshore or gaining economies of scale by expanding into new markets. Globalization
challenges firms to become more streamlined and efficient while simultaneously extending the
geographic reach of their operations.
Responding to these opportunities and challenges increasingly requires a fundamental restructuring of
organizational strategy and processes (Bradley et al., 1993). Due to increased competitive pressure,
companies are using new technologies to extend their products and operations into the international
marketplace (Snow et al., 1996). They are also using these technologies to achieve new innovative
transnational organizational forms (Boudreau et al., 1998; Sturgeon, 2002).
The adoption of ICTs such as the Internet makes it cheaper and easier for firms to extend their markets,
manage their operations and coordinate value chains across borders (Cavusgil, 2002; Williams et al.,
2001; Globerman et al., 2001). As Greenspan (2001) has said, "By lowering the costs of transactions and
information, technology has reduced market frictions and provided significant impetus to the process of
broadening world markets". ICT adoption fosters globalization by reducing transaction and coordination
costs and creating new and expanded markets with economies of scale (Mann et al., 2000; Steinfield &
Klein, 1999). Therefore, this study will examine the effect of e-commerce on the growth of small scale
enterprises in Nigeria.
E-commerce is changing all business functional areas and their important tasks. E-commerce has
attracted significant attention in the last few years. This high profile attention has resulted in significant
progress towards strategies, requirements and development of e-commerce applications (Afshar et al.,
2010).
Various researchers have examined the effects of e-commerce on the growth and development of small
scale enterprises. Some researchers as Poon (1997) emphasized the potential benefits that the internet
offered small scale enterprises which create an unprecedented opportunity for them to engage in national
and international marketing campaigns that previously have been unaffordable. In addition, Dutta (1999) found that small scale enterprises have been using the internet for several activities such as improved communication, access to information, marketing and transactions with customers and suppliers. Chien-Chao (2008) carried out a study on application of e-commerce and organizational performance in Taiwanese professional sports event promotion organizations and found that there was a significant relationship between the application of E-commerce and organizational performance. Also, Asiabugwa and Munyoki (2012) in their study aimed at establishing the relationship between e-commerce strategy and performance of commercial banks, and the factors influencing the adoption of e-commerce strategy found that there was a strong relationship between the e-commerce strategy and performance of commercial banks in Kenya. Whereas Ting-Peng, Cheng-Yi and Deng-Neng (2004) found that the adoption of e-commerce has a moderate impact on business performance.

**Types of E-Commerce**

**B2B (Business to Business):** It is the largest form of Ecommerce. This model defines that buyer and seller are two different entities (Malik, 2010). It is similar to manufacturer issuing goods to the retailer or wholesaler. For instance, Dell deals in computers and other associated accessories online, but it does not make all those products. So, in order to deal in those products, first step is to purchases them from other businesses i.e. the producers of those products. It is one of the cost effective ways to sell products throughout the world. Some of the benefits of using B2B are: It encourages businesses online. It facilitates import and export of products. It determines buyers and suppliers and also helps in positioning trade guides.

**B2C (Business to Consumer):** B2C refers to communicating with selling to an individual rather than a company. B2C e-commerce has the following advantages: Using B2C, online shopping can be faster and more convenient. The offerings and prices can change instantaneously. For example: if you want to sell goods and services to customer so that anybody can purchase any products directly from supplier’s website. Direct interaction with the customers is the main difference with other business models. As in B2B, it manages directly relationship with consumers, B2C supply chains normally deal with business that are related to the customer.

**B2E (Business to Employee):** This type of E-commerce refers to the requisitioning of supplies by employees for use in jobs, but this really has grown to encompass much more. B2E has grown into technologies that allow the employees to access their employee records to update address information.

**C2B (Consumer to Business):** A consumer saves his project with budget online and companies review it according to the requirement and bid on the project. This empowers consumers around the world by providing the meeting ground and platform for such transactions.

**C2C (Consumer to Consumer):** It helps the online dealing of goods or services among people. Though there are no major parties needed, the parties will not fulfill the transactions without the program which is supplied by the online market dealer such as eBay. It also involves the transactions between consumers through some third party (Wikipedia, 2011). The third party has no concern to check quality of the products being offered.

**Population**
The population of the study comprised of all the small scale enterprises in Anambra State.

**Sample Size**
The research employed judgmental sampling technique to choose the small scale enterprises and their key employees to get the desired target. The sample was selected from Onitsha, Nnewi and Awka. Thus, sample size of 282 respondents was chosen through purposive sampling. The sample comprised of 82 from Awka, 100 from Onitsha and 100 from Nnewi.
Method of Data Analysis
The need to enhance easy comprehension and analysis prompted the use of the frequency distribution table to present the data gathered. Mean scores were used to answer the research questions while z-test was used to test the null hypotheses at 0.05 level of significance. The choice of z-test is in line with the recommendation of Howith and Cranner (2011) who advocated the application of z-test for the sample from 40 and above.

Table 1 Respondents’ Opinion on Effect of Business-to-Customer (B2C) on Growth of Small Scale Enterprises

<table>
<thead>
<tr>
<th>s/n</th>
<th>Statements</th>
<th>SA %</th>
<th>A</th>
<th>D</th>
<th>SD %</th>
<th>Res. Total</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B2C usage ensures operational efficiency in small scale enterprises.</td>
<td>82</td>
<td>29</td>
<td>116</td>
<td>41</td>
<td>64</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>B2C enhances competitive position of small scale enterprises.</td>
<td>92</td>
<td>33</td>
<td>81</td>
<td>29</td>
<td>69</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>B2C reduces cost of operation in small scale enterprise.</td>
<td>102</td>
<td>36</td>
<td>123</td>
<td>44</td>
<td>43</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>B2C help to improve effectively the performance of small scale enterprise.</td>
<td>123</td>
<td>44</td>
<td>82</td>
<td>29</td>
<td>43</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>B2C provides high quality information needed for business operation.</td>
<td>87</td>
<td>31</td>
<td>92</td>
<td>33</td>
<td>63</td>
<td>22</td>
</tr>
</tbody>
</table>


From the table above, 82 respondents representing 29% strongly agreed that B2C usage ensures operational efficiency in small scale enterprises, 41% of the respondents agreed, 23% disagreed while the remaining 7% strongly disagreed. Analysis of the second statement reveals that 33% of the respondents strongly agreed that B2C enhances competitive position of small scale enterprises, 29% of the respondents agreed, 24% disagreed while the remaining 14% strongly disagreed.

The table also revealed that 102 respondents representing 36% strongly agreed that B2C reduces cost of operation in small scale enterprise, 44% of the respondents agreed, 15% of the respondent disagreed while the remaining 5% strongly disagreed. The data for the fourth statement reveals 123 respondents representing 44% strongly agreed that B2C help to improve effectively the performance of small scale enterprise, 29% of the respondents agreed, 15% of the respondents disagreed while the remaining 12% strongly disagreed.

The table also reveals that 31% of the respondents strongly agreed that B2C provides high quality information needed for business operation, 33% of the respondents agreed, 22% disagreed while the remaining 14% strongly disagreed.
Data Related to Research Question Two

Table 2 Respondents Opinion on Effects of E-commerce Adoption on the Growth of Small Scale Enterprises

<table>
<thead>
<tr>
<th>s/n</th>
<th>Statements</th>
<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
<th>% Res. Total</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>E-commerce improve interdepartmental Coordination</td>
<td>104</td>
<td>37</td>
<td>91</td>
<td>32</td>
<td>57</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>e-commerce encourages the growth of small scale enterprises</td>
<td>82</td>
<td>29</td>
<td>86</td>
<td>30</td>
<td>64</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>e-commerce help in production efficiency thereby encouraging growth.</td>
<td>99</td>
<td>35</td>
<td>92</td>
<td>33</td>
<td>41</td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>e-commerce help to reduce the cost of production</td>
<td>92</td>
<td>33</td>
<td>88</td>
<td>31</td>
<td>40</td>
<td>14</td>
</tr>
</tbody>
</table>


The table above indicates that 104 respondents representing 37% strongly agreed that e-commerce improve interdepartmental coordination, 32% of the respondents agreed, 20% of the respondents disagreed while 11% of the respondents strongly disagreed. The table also revealed that 82 respondents representing 29% strongly agreed that encourages the growth of small scale enterprises, 30% of the respondents agreed, 23% of the respondents disagreed while the remaining 18% of the respondents strongly disagreed. Furthermore, the table indicates that 99 respondents representing 35% strongly agreed that e-commerce help in production efficiency thereby encouraging growth, 33% of the respondents agreed, 15% of the respondents disagreed while the remaining 17% of the respondents strongly disagreed. The table also indicates that 92 respondents representing 33% strongly agreed that e-commerce help to reduce the cost of production, 31% of the respondents agreed, 14% of the respondents disagreed while the remaining 22% of the respondents strongly disagreed.

**TEST OF HYPOTHESES**

Z-test was used to determine if there is any significant difference between the frequencies and the research variables, t-test therefore measures the discrepancy existing between the observed and expected frequencies. To make the study valid the first set of score consists of the positive response of the respondents. Before the Z-test, the mean and the standard deviation are determined.

Formula for mean $X = \frac{\sum fx}{n}$

Where $X = \text{Mean}$

$\sum = \text{Summation}$

$\sum fx = \text{Total Number of Frequency}$

Formula for standard deviation $SD = \sqrt{\frac{\sum (X - X)^2}{n - 1}}$

Where $SD = \text{Standard deviation}$

$\sum = \text{Summation}$

$X = \text{Mean}$

$X = \text{Score or value}$

86
n = Number of score/items
I = Constant figure

Formula for Z-test = \[ \frac{X_A - X_B}{SD_A^2 + SD_B^2} \]
\[ \sqrt{\frac{n_A}{n}} + \frac{n_B}{n} \]

Where \( X_A \) = mean of first set of score
\( X_B \) = mean of second set of score
SD_A = Standard deviation of first set of score
SD_B = Standard deviation of second set of score
n_A = total number of value in first set
n_B = total number of value in second set

HYPOTHESIS ONE

H_0: Business-to-customer (B2C) does not exert significant effect on the performance of small scale enterprises

H_1: Business-to-customer (B2C) exert significant effect on the performance of small scale enterprises

<table>
<thead>
<tr>
<th>No.</th>
<th>X</th>
<th>( \overline{x} ) - x</th>
<th>( (x - \overline{x})^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>198</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>173</td>
<td>-23</td>
<td>529</td>
</tr>
<tr>
<td>9</td>
<td>225</td>
<td>29</td>
<td>841</td>
</tr>
<tr>
<td>10</td>
<td>205</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>11</td>
<td>179</td>
<td>-17</td>
<td>289</td>
</tr>
<tr>
<td>( \Sigma )</td>
<td>980</td>
<td>1744</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s Computation

Mean \( \overline{X} = \frac{\sum fx}{n} \)
\( \overline{X} = \frac{980}{5} \)
\( \overline{X} = 196 \)

SD = \( \sqrt{\frac{\sum (X - \overline{X})^2}{n - 1}} \)
\( SD = \sqrt{\frac{1744}{5 - 1}} \)
\( SD = \sqrt{\frac{1742}{4}} \)
\( SD = \sqrt{436} \)
\( SD = 20.9 \)
<table>
<thead>
<tr>
<th>No.</th>
<th>X</th>
<th>-x - x</th>
<th>(x - x)^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>84</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>109</td>
<td>23</td>
<td>529</td>
</tr>
<tr>
<td>9</td>
<td>57</td>
<td>-29</td>
<td>841</td>
</tr>
<tr>
<td>10</td>
<td>77</td>
<td>-9</td>
<td>81</td>
</tr>
<tr>
<td>11</td>
<td>103</td>
<td>17</td>
<td>289</td>
</tr>
<tr>
<td>Σ</td>
<td>430</td>
<td></td>
<td>1744</td>
</tr>
</tbody>
</table>

Source: Author’s Computation

Mean $\bar{X} = \frac{\sum fx}{n}$

$\bar{X} = \frac{430}{5} = 86$

$SD = \sqrt{\frac{\sum (x - \bar{X})^2}{n - 1}}$

$SD = \sqrt{\frac{1744}{5 - 1}} = \sqrt{436} = 20.9$

<table>
<thead>
<tr>
<th>Test</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>X mean</td>
<td>196</td>
<td>86</td>
</tr>
<tr>
<td>SD</td>
<td>20.9</td>
<td>20.9</td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Author’s Computation

The z test in testing the hypothesis I

Formula = $\frac{X_A - X_B}{\sqrt{\frac{(SD_A)^2}{n} + \frac{(SD_B)^2}{n}}}$

$= \sqrt{\frac{196 - 86}{20.9^2 + 20.9^2}}$

$= \sqrt{\frac{110}{436.8 + 436.8}}$

$= \sqrt{\frac{110}{87.4 + 87.4}}$

$= \sqrt{\frac{110}{2}}$

88
Decision Rule
If the Z-test result is between the score of -1.96 to +1.96, the null hypothesis is accepted and alternative hypothesis is rejected otherwise the reverse is the case.

Conclusion
Since the Z-test value of the set of score is outside the accepted region range, the null hypothesis is rejected and alternative is accepted. Therefore, it is accepted that business-to-customer (B2C) exerts significant effect on the performance of small scale enterprises.

HYPOTHESIS TWO
Ho2: E-commerce adoption does not have a significant effect on growth of small scale enterprises.
Hi: E-commerce adoption have a significant effect on growth of small scale enterprises.

Set of Score A

<table>
<thead>
<tr>
<th>No.</th>
<th>X</th>
<th>(\bar{x} - x)</th>
<th>((\bar{x} - x)^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>195</td>
<td>14</td>
<td>196</td>
</tr>
<tr>
<td>13</td>
<td>168</td>
<td>-16</td>
<td>256</td>
</tr>
<tr>
<td>14</td>
<td>191</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>15</td>
<td>180</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>(\Sigma)</td>
<td>734</td>
<td>4</td>
<td>517</td>
</tr>
</tbody>
</table>

Source: Author’s Computation
Mean \(X = \frac{\Sigma fx}{n}\)
\(\bar{X} = 734 \div 4 \Rightarrow \bar{X} = 184\)
SD = \(\sqrt{\frac{\Sigma(X - \bar{X})^2}{n - 1}}\)
SD = \(\sqrt{\frac{517}{5}}\)
\[ SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}} \]

\[ SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}} \]

\[ SD = \sqrt{\frac{442}{4 - 1}} \]

\[ SD = \sqrt{\frac{442}{3}} \]

\[ SD = 12.1 \]

<table>
<thead>
<tr>
<th>Test</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \bar{X} ) mean</td>
<td>184</td>
<td>99</td>
</tr>
<tr>
<td>SD</td>
<td>13.1</td>
<td>12.1</td>
</tr>
<tr>
<td>N</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Author’s Computation

The z test in testing the hypothesis I

Formula = \[ \frac{X_A - X_B}{\sqrt{\frac{(SD_A)^2}{n} + \frac{(SD_B)^2}{n}}} \]

\[ = \frac{184 - 99}{\sqrt{\frac{(13.1)^2}{4} + \frac{(12.1)^2}{4}}} \]

\[ = \]
\[
\begin{align*}
\frac{4 \cdot 4}{\sqrt{171.6 + 146.4}} & = \frac{85}{\sqrt{42.9 + 36.6}} \\
& = \frac{85}{\sqrt{8.9}} \\
& = 8.9 \\
Z\text{-test} & = 9.6
\end{align*}
\]

**Decision Rule**
If the Z-test result is between the score of -1.96 to +1.96, the null hypothesis is accepted and alternative hypothesis is rejected otherwise the reverse is the case.

**Conclusion**
Since the Z-test value of the set of score is outside the accepted region range, the null hypothesis is rejected and alternative is accepted. Therefore, it is accepted that e-commerce adoption has a significant effect on growth of small scale enterprises.

**Discussion of Findings**
The study examined the effect of e-commerce on the growth of small scale enterprises in Nigeria. The study revealed that Business-to-customer (B2C) exerts significant effect on the performance of small scale enterprises. The study also showed that e-commerce adoption has a significant effect on growth of small scale enterprises. This finding agrees with the work of Chien Chao (2008) who noted that the adoption of e-commerce has led to improved customer service, increased revenue, reduction of operation cost and increased market share, all geared toward enhancing competitive position in the industry.

**Summary of Findings**
The findings of the study include:
1. Business-to-customer (B2C) exerts significant effect on the performance of small scale enterprises
2. E-commerce adoption has significant effect on growth of small scale enterprises.

**Conclusion**
The study examined the effect of e-commerce on the growth of small scale enterprises in Nigeria. Data were generated from selected small scale enterprises in the three major towns (Awka, Onitsha and Nnewi). The data generated were analyzed and tested using z-test statistical technique. The study found out that most of the small scale enterprises in Anambra State have not adopted e-commerce in their
operations. The study also found that e-commerce affects the performance of small scale enterprises positively. The study therefore concludes that e-commerce affects the growth of small scale enterprises in Anambra State positively.

**Recommendations**

It was recommended that:

1. Small scale enterprises yet to adopt e-commerce technology should do so to remain competitive in the industry.
2. Government should subsidize the cost of ICT facilities so that small scale enterprises can use it to their benefit.
3. Small scale enterprises should take more initiative in their deployment strategies, as a positive reaction to pressures coming directly from competitors and non-trading institutions which tend to limit the fuller potential of what e-commerce has to offer.
4. Government should increase awareness of online business systems so that every business will be aware of the benefits of doing business online.

**REFERENCES**


Elia, E. and Lefebvre, L. 2004, Typology of B-to-B E-Commerce Initiatives and Related Benefits in Manufacturing SMEs, Proceedings of the 37th Hawaii International Conference on System Sciences, Hawaii, USA.