

Towards Determining the Level of Adoption of Business-To-Consumer Electronic Commerce (B2CEC) Among Merchants in Southwestern Nigeria

Adeyemo, O. A.¹ and Oyebisi, T.O.²

¹Afe Babalola University, Ado-Ekiti, Nigeria

²African Institute for Science Policy and Innovation, Obafemi Awolowo University, Ile-Ife, Nigeria

Corresponding Author: Adeyemo, O. A. (adeyemo@abuad.edu.ng)

Abstract: This Paper Determined The Level Of Adoption Of Business-To-Consumer Electronic Commerce (B2CEC) Among Adopting Merchants In Southwestern Nigeria. This Is With A View To Maximize The Adoption Rate Of The Technology In The Region. Survey Method Was Employed And Primary Data Were Obtained Through Questionnaire Administered Face-To-Face To Ten Purposively Selected B2CEC Merchants. The Questionnaire Elicited Information On The Level Of Adoption Of B2CEC By Considering Factors Such As Absorptive Capacity And Market E-Readiness Among Others. The Data Were Subjected To Relevant Descriptive Statistical Analysis. The Results Showed That, The Level Of Adoption Of B2CEC In Southwestern Nigeria Is Increasing Due To High Absorptive Capacity, And Also Confirmed The Lack Of Government E-Readiness Which Had Resulted In Inadequate Infrastructure To Support And Improve B2CEC Adoption Among Merchants.

Keywords: Electronic Commerce, Level Of Adoption, Adoption, UTAUT

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I. Introduction

The adoption and usage of Information and Communications Technologies (ICT) is having its effect felt on business processes, the way people live and work, and innovations as a result of these are continuously emerging (Ssewanyan and Busler, 2007). This makes it imperative and challenging for any society to seize this global opportunity to better increase her economy by participation in the global front while exploring ICT. However, ICT no matter how well designed with supporting infrastructure in place would be touted and perceived as useless if not well adopted by societies. Technology adoption can be defined as a combination of activities that is engaged in by individuals, government, and organizations in an ever changing world affected by continuous improvement in ICT. The consequence of not participating will persistently limit the potential of any society to enjoy the benefits that comes with a growing technology like Business-to-Consumer Electronic Commerce (B2CEC).

One of the major duties identified as being responsible for any technology, most especially B2CEC, is to ensure that there is maximization of its adoption rate and the most important step towards achieving these is to understand the factors that influence its adoption (Chigona and Licker, 2008). The B2CEC industry in Nigeria is neglected and its potentials go untapped (Aladesanmi, 2015). The current situation regarding the industry is hindered by limited theoretical and empirical study in the context of the level of B2CEC adoption.

In B2CEC, surveys have shown that its adoption by businesses in developing countries such as Nigeria would be an important indicator of economic growth because of the perceived benefits of transaction cost involved (Kartiwi and MacGregor, 2007; Molla and Licker, 2005; MacGregor and Vrazalic, 2004; Wen *et al.*, 2001), hence, the need to determine the level of adoption of B2CEC in Nigeria. Some studies in Nigeria have previously identified the limited understanding of the drivers of B2CEC adoption in Nigeria (Molla and Licker, 2005; Chiemeke *et al.*, 2014; Bamodu, 2005, Ayo *et al.*, 2011; Ajisegiri, 2015; Molla and Licker, 2005; Datta, 2001; Kshetri, 2007) and none on the determination of the level of adoption of B2CEC.

Some studies have opined that government has done little in helping ICT adoption most especially B2CEC because there are limited rules and policies that may help to achieve success and sustainability in a view to improve the level of adoption in the B2CEC industry in Nigeria. At present, it is the international institutions that influence the laws, regulations and policies in developing countries as regarding the compatibility of B2CEC and use of the Internet for transactions (Raghunath and Panga, 2013; pather *et al.*, 2006). Consequently it was concluded that the level of adoption of B2CEC in developed countries differ significantly from developing countries because of the different perceptions on the necessary and existing financial, legal and physical infrastructure and frameworks (Al-hudhaif and Alkubeyyer, 2011; Kuzic *et al.*, 2002). This paper seek

to determine the level of adoption of the B2CEC among the merchant adopters since the industry is fast evolving.

II. Literature Review

2.1 B2CEC in Nigeria

The economy of Nigeria is a middle income, mixed economy and an emerging market in the world today. In 2009, Nigeria's economy was ranked as 31st in the world in terms of GDP (PPP) and its emergent, through currently underpinning manufacturing sector is the second largest on the continent (Ma'aruf and Abdulkadir, 2012).

Policies such as the "cashless policy" have all but added to the growing acceptability of B2CEC in the conduct of business, discriminating between time and space by making business transactions and making the overall process a lot better. It can be said that B2CEC websites were rare before the year 2000 in Nigeria but today there exist over 70 B2CEC merchants as shown in Table I. The prominent areas of the country that have begun the business of B2CEC about a decade ago are from the southern part and are largely reaping the benefits in term of firm productivity and increasing economies of scale. Nigeria will be the major beneficiary of the abundant benefits in B2CEC if they can maximize the level of its adoption to reach other regions, but there are inadequate empirical research that have helped determine factors to consider towards achieving that purpose.

2.2 B2CEC in Developed Countries

The growth witnessed in the adoption and use of B2CEC in the developed countries such as the United States of America and China has been tremendous and continuously on the upward trend. The level of adoption of B2CEC in Asia-Pacific countries was high in 2012 and surpassed North America in B2CEC spending in 2013 to become the number one market for B2CEC sales. However, the United States remain the single country with the largest share of worldwide B2CEC spending while China also from Asia Pacific is expected to close the gap faster in the shortest possible time. The introduction of B2CEC giant named Alipay since 2004 may have helped increased global influence of China in B2CEC sales.

Table I: list of Some B2CEC Merchants in Nigeria

1. 3sbids.com	26. mallforafrica.com	51. taafoc.com
2. 3stiches.com	27. mannastores.com	52. theflosshop.com
3. aascargo.com	28. mizzybshoesonline.com	53. time-tellng.com
4. awoofshop.com	29. mybidmonster.com.ng	54. truebranches.com
5. beademporium.co.uk	30. myboolah.com	55. uk2meonline.com
6. buycorrect.com	31. mygadgetsmaill.com	56. upscalecollections.com
7. buynigeriaonline.com	32. najjashop.com.ng	57. wakanow.com
8. buynownow.com	33. najjastyles.com	58. walahi.com
9. buyright.biz	34. najjaweddings.net	59. yeside.gostorego.com
10. circuitatlantic.com	35. nigeriacatalog.com	60. buylikemagic.com
11. dafunshop.com	36. osarmoire.com	61. hausofdinma.com
12. depearl.com	37. outfitgalore.com	62. webmallng.com
13. emartnigeria.com	38. ovashop.com	63. egoleshopping.com
14. flegz.com	39. procureitnigeria.com	64. icanstock.com
15. foodsmartworld.com	40. quicksell.com.ng	65. 3al.com
16. gafunk.com	41. sabunta.com	66. buyology.enownow.com
17. gamestores.com.ng	42. scuupng.com	67. easyshop.com.ng
18. goodlife.com.ng	43. sellbuynigeria.com	68. stylerebirth.com
19. iqrabooks.com.ng	44. shop-ng.com	69. 1500naira.com
20. ishopinlondon.com	45. shop.verbeelen.ng.com	70. liberaldesigns.com
21. kamdora.com	46. shopaholicng.com	71. Jumia.com
22. kasuwa.com	47. shopkolo.com	72. Paga.com
23. konga.com	48. sisime.com	73. Quickteller.com
24. kuuzar.com	49. smartbuy.com	
25. laternabooks.com	50. smartbuy.com.ng	

The top five developed countries ranked by B2CEC sales as at 2013 are the United States, China, United Kingdom, Japan and Germany, and they are experiencing a pressure on more B2CEC sales which are gradually taking over traditional retail sales in all kinds of services and products.

2.3 Technology Adoption

The Cambridge advanced learner's dictionary defined adoption to mean accepting or starting to use something new and also choosing or taking something as your own. Adoption may be a state of absorbing (Hall and Khan, 2002). Adoption is a process in the utilization of technological innovations in between innovation and implementation stages, which is a point where decision is made about the adoption of technological

innovation. Thong (1999) described the adoption of an Information System as the use or utilization of computer hardware and software applications to support operations, management and decision making in the business.

Technology adoption just like adoption means different things to different individual or organization and it takes place everywhere at every time, which further underscores its importance in all spheres of human endeavours. The process of adoption described by (Rogers, 1962) is based on psychological learning theory, social psychology and empirical research by rural sociologists. Mulbradon (2008) highlighted the various technologies overtime that have been adopted since 1900 and shows the importance of adoption and its impact on the consumers.

More recently, there have been various technologies that have been adopted one way or the other and this is evident in recent studies in a developing economy especially the ones concerning SMEs, it shows the adoption of ICT in public sectors and private sectors and its continued influence (Premkumar, 2003; Fong, 2011; Oliveira and Martins, 2011; Foster and Rosenzweig, 2010) . It has been recommended that, firms should invest in ICT capabilities and resources in order to perform in this global digital world or be left behind (Wambu and Irungu, 2007). Foster and Rosenzweig (2010) also addressed the need for firms in low-income countries such as Nigeria to adopt technologies such as B2CEC. The viewpoint of choice (selection), use and application of B2CEC by an adopting unit (e-tailers) in delivering commercial services and also the rate and influence of the technology on potential and eventual adopters (consumers) is taken for this work.

It is better for consideration in the course of this work to state that there are many theories of adoption but little or none regarding the determination of the level of adoption of any technology. However, the rate of adoption theory by Rogers (1995) provides some searchlight, although, the authors approach to the current circumstances of B2CEC is different and novel in the hope that it will provide measurements and empirical results as a step towards the determination of the level of adoption of B2CEC in different parts of the world.

2.3 The Rate of Adoption Theory

The rate of adoption theory evolved after earlier theories by Bass (1969) and is also one of the generally used theories (Rogers, 1995). It identified five variables that can be attributed to as the perceived attributes of a technology used to determine the rate of adoption, relative compatibility with existing product values that can sway potential adopters, complexity such that the technology is easy to understand, and “trialability” of a technology innovation to the extent of saturation, and “observability” , the stage where the technology is to be communicated to others.

III. Research Model

The variables considered for determining the level of adoption of B2CEC in Southwestern Nigeria derived from extensive research in to the literature are absorptive capacity (AC) (Cohen and Levinthal, 1989), Government e-Readiness (Molla and Licker, 2005), market e-readiness (Molla and Licker, 2005) and change in productivity (Ciarli and Rabelotti, 2007). Figure 1 shows the research model employed for this research

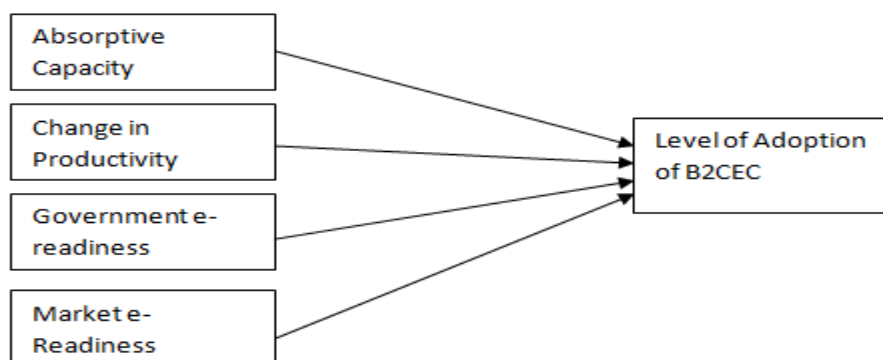


Figure 1: The Research Model.

In this research, the above variables were used to measure the level or intensity of adoption from the organizational point of view. The assumption taken for this research is that the B2CEC merchants engages in activities that have fully utilized the technology and begins to make impact on national economy, business activities, and individual benefits, etc. This is also the stage of full adoption of B2CEC effectively taking place and is successful, effective in use and practice.

The ranking method used is the Relative Importance Index (RII) for the determinant variable factors considered. The RII is a coefficient on a scale of 0 to 1 that measures the importance of each influential factor

depending on the responses on the factor and the weight attached to each response as harvested from consumers in the survey.

3.2 Study Area

This research was conducted in Southwestern Nigeria which is one of the six geo-political zones of Nigeria. The study area comprises six of the thirty-six states and Federal Capital Territory (FCT) in Nigeria and lies to the south and to the west of the River Niger in Nigeria. The Southwestern geographical zone was considered for an in-depth study and analysis, and the zone consists of six states: Lagos, Osun, Oyo, Ondo, Ogun and Ekiti States.

3.3 Data Collection

The respondents were senior staff of the B2CEC merchants. The merchants were surveyed to know the structure of the industry, and the present level of adoption

3.4 Population and Sampling

The population of the study comprised of all B2CEC merchants in the Southwestern zone of Nigeria.

3.4.1 Online Merchants

There is no association specifically or agency that can provide adequately the population of B2CEC merchants in Southwestern Nigeria. A survey of websites registered by Nigeria Internet Registration Association (NIRA) did not help in providing the population details of B2CEC merchants. The Nigerian Online Business Directory (2013) claimed that 75 B2CEC merchants existed in Nigeria. However, a recent survey carried out by Chiejina and Soremekun (2014) revealed that there are presently about 105 online merchants in Nigeria with about 73% of them fully operational. A list of over 70 merchants was subsequently harvested from online repositories and was purposively sampled in the zone. A total of 10 merchants were purposive sampled from over a hundred merchants, out of which seven (7) responded. The respondents were each from managerial positions who could speak on the items as stated in the questionnaire. The choice of purposive sampling was based on qualities of the authors in the subject area in order to make judgments that are relevant and in line with the study.

3.5 Research Instrument

The study relied on primary data collected through survey questionnaires, administered face-to-face. A set of questionnaire were administered to the B2CEC merchants. For easy analysis, the questionnaire was grouped into four related sections A to C. Section A asked questions about personal and demographic information of the B2CEC merchants. Section B asked questions on structure of B2CEC industry in the Southwestern Nigeria. Section C elicited information on the level of adoption of B2CEC and was evaluated on the factors /determinants such as absorptive capacity, changes in productivity, market e-readiness, and government e-readiness.

The questionnaire was administered to determine the level of adoption of B2CEC in organizations in Southwestern Nigeria. The variables measured included Absorptive Capacity (human and capital knowledge, education and training, staff and manpower development, technological opportunities, technological expertise and innovation), Change in Productivity (productivity , rate of productivity, continuous improvement, sufficiency of budget allocations, market survivability, increasing customer base, operation cost, profitability and investment, Market e-Readiness (Consumer and supplier readiness, other stakeholder readiness, affordability and accessibility cost, increasing use and acceptable mode of payment) and Government e-Readiness (readiness, support and contribution, enabling environment, availability of technology infrastructure to benefit from and local content creation).

3.6. Validity and Reliability of questionnaire

In order to ascertain the validity of the research instrument, a pilot test was conducted by administering questionnaire on a B2CEC merchant named Egole in Lagos State of Nigeria. Egole was not considered in the overall list of 7 merchants that provided data for this research.

During administration, the merchants' responses were observed closely to check for signs indicating problems such as respondents not understanding or unable to answer, and on the length of the questionnaire and completion time.

Reliability test was carried out to check the internal consistency of the research instrument. The reliability of the measurement scales was carried out using the Cronbach Alpha reliability test and it was discovered that major items that addressed the research were reliable measures of the variables of interest to the researcher. The Cronbach Alpha obtained is 0.745 for the adoption level factors as shown in table 2. This is

within the acceptable values because an alpha of 0.7 and above indicates significant reliability. It was concluded that the measurements scale used in this research are acceptable and reliable.

3.7 Data Analysis

Data collected were coded and analyzed using different descriptive statistics using SPSS 20.0 statistical package. The descriptive data analysis involved measure of frequency counts, percentage distribution, factor analysis, Relative Importance Index (RII) and weighted averages.

Table II. Reliability Test

Parameters	Number of Items	Cronbach Alpha (CA)
Level of Adoption of B2CEC in organizations (merchants)	26	0.745

IV. Discussions and Findings

4.1. Socio-Demographic Characteristics of Merchants

Table III shows the socio-demographics of the merchants in terms of gender, age, and highest educational qualification, and work experience in the B2CEC industry. About 71.43% of the respondents were within the age range of 20-39 years while the remaining percentages (28.57%) were within the age range of 30-39 years. All (100%) of the merchants have a minimum of university degree or equivalent. The table also shows that more than 70% have less than two years experience as merchants while slightly above 25% have more than two years experience. The result further shows a fair proportion of respondents for the merchants regarding age, academic experience, sex and years of

Table III: Socio-Demographics of Merchants.

Respondents' Characteristics	Frequency	%
Sex		
Male	4	57.14
Female	3	42.86
Total	7	100
Academic Qualification		
NCE/OND	0	0
HND/B.Sc	7	100
PGD/M.Sc/MBA/M.Tech	0	0
Ph.D	0	0
Total	7	100
Age(Years)		
16-19	0	0
20-29	5	71.43
30-39	2	28.57
40 and Above	0	0
Total	7	100
Work Experience		
1-2 years	5	71.43
3-4 years	2	28.57
Over 4 years	0	0
Total	7	100

Experience. This may be due to the B2CEC industry being an evolving one in Southwestern Nigeria.

4.2 Level of Adoption of B2CEC among Merchants in Southwestern Nigeria

Questionnaire was administered on ten B2CEC merchants in Southwestern Nigeria, out of which seven were retrieved. A few of the merchants were not willing to give needed information and reported that they have been made to sign non-disclosure agreement of their company activities to third parties. This unwillingness was traced to the intense competition among the B2CEC merchants in Southwestern Nigeria. However, they agreed that they would not be quoted after reading the ethics followed in conducting this work, and sufficient responses were offered thereafter.

4.2.1 Absorptive Capacity

Absorptive capacity is defined as the B2CEC merchants' overall ability to assess technological opportunities in or around its field of activity in terms of products and production techniques depending on the endowment of human and capital knowledge (Cohen and Levinthal, 1990). The result in Table IV shows the presence of a very high level human capital and knowledge to sustain the B2CEC industry in

Southwestern Nigeria which is supported by the works of King and Lakhani (2011) that, prior experience with both adoption and invention can indeed improve the capacity to adopt..

However, this work discovered that the B2CEC merchants do not engage their staff in constant training and current approaches which is hindering growth and development of human capacity and in turn lower the level of adoption of the technology. However, the result shows the existence of adequate technological expertise in the industry to improve the level of adoption of B2CEC as highlighted by Easterby-Smith et al (2009) that, the presence of key sources of information within the walls of an organization and the ability of an organization to absorb the knowledge depends on factors such as internal such as existing internal expertise and experience.

Table 4: Distribution of Respondents by Level of Adoption of Web-based Electronic Commerce in Organizations

S/ No	Statements	Level of Agreement (%) [n=7]						Mean
		Very High	High	Low	Very Low	Indifferent	No Response	
	Level of Adoption							
	Absorptive Capacity							
1	Human and Capital Knowledge	4	3	0	0	0	0	4.57
2	Constant Training	0	0	5	2	0	0	2.71
3	Staff and Manpower	4	2	0	0	0	1	4.14
4	Technological Opportunities	1	2	0	1	1	2	2.29
5	Technological expertise	4	2	0	0	0	1	4.00
6	Innovation	0	3	2	1	1	0	3.00
	Change in Productivity							
1	Increasing Productivity	3	2	0	0	0	2	3.29
2	High Rate of Productivity	1	3	0	0	0	3	2.42
3	Continued Improvement	3	2	0	0	0	2	3.29
4	Adequate Budget Allocations	0	0	4	1	0	2	2.00
5	Existence of Wider Markets	5	2	0	0	0	0	4.71
6	Increasing Customer Base	4	2	0	0	0	1	4
7	Operating Cost Limiting Revenue	0	3	2	1	1	0	3
8	Investment worthy	5	2	0	0	0	0	4.71
	Government E-Readiness							
1	Government Readiness	4	2	0	0	0	1	3.38
2	Government Contribution	0	1	3	2	1	0	2.57
3	Conducive environment	0	1	2	2	1	1	2.14
4	Right Infrastructure is in Place	0	0	2	2	1	2	1.57
5	Encouraging Local Content Creation	3	2	1	0	0	1	3.71
	Market E-Readiness							
1	Consumer willingness	4	2	0	0	1	0	4.14
2	Supplier willingness	0	3	0	1	1	2	2.14
3	Affordable Cost	0	3	1	1	2	0	2.71
4	Accessibility	0	1	2	1	2	1	2
5	Increasing Rate of use	4	2	0	0	1	0	4.14
6	Acceptable Payment Mode	1	4	0	0	1	0	3.14

Consequently, the result shows that B2CEC merchants have what it takes in terms of human and capital knowledge to sustain B2CEC in operation. This is believed will greatly help to raise the level of adoption in B2CEC organizations and in turn bring about innovations. Narula (2003) concluded that the relationship between absorptive capacity and innovation in adoption of technologies is not linear and that the benefits that accrue from marginal increases change over time. It is advised that B2CEC merchants should improve more in the area of research and development as this will fully help to harness the potentials in the industry

4.5.3. Change in Productivity

Change in productivity describes productivity, rate of productivity, continuous improvement, and sufficiency of budget allocations, market survivability, increasing customer base, operating cost, revenue base, profitability and investment (Ciarli and Rabelloti, 2007). Table IV shows that the merchants have fears regarding the positive effect of B2CEC on the productivity of their organization. The result also shows that merchants need to make provision for budget allocations for continued improvement of B2CEC. This work discovered that investing in B2CEC is highly profitable for any investor in Southwestern Nigeria.

On the overall, the result shows that productivity is currently low and this may be as a result of low budget allocations in sustaining human and capital knowledge, local technological opportunities and there is no innovation as a result of low concentration of efforts on research and development amongst the B2CEC merchants. The merchants can increase the level of B2CEC adoption to a top level if research and development is sustained whilst they leverage on the wide market that is currently available at their disposal.

4.5.4. Government E-Readiness

Government E-readiness refers to B2CEC merchants assessment of the readiness of the government to support, promote, facilitate and regulate B2CEC (Molla and Licker, 2005; Shemi, 2012). The result in table IV shows that merchants expect government to do more in this current B2CEC boom. It is important that government provides an enabling environment for the B2CEC merchants to thrive and be effective in achieving maximum gains. Consequently, the involvement of government in the adoption of B2CEC will directly or indirectly impact on the level of adoption among B2CEC merchants and further strengthen the B2CEC industry. Government therefore has a strong role to play in promoting and contributing to the B2CEC industry by the creating right technological infrastructural supports and an enabling environment.

4.5.5. Market E-readiness

Market E-readiness refers to the assessment of a B2CEC merchant's customers, suppliers, rivals and competitors allowing the conduct and transaction of business electronically (Molla and Licker, 2005). Also, the decision of a B2CEC merchant to adopt the technology might be influenced by some economic factors such as market competitive pressure and the current global acceptance of ICT in business. The result in table IV shows that most of the consumers are willing to allow electronic conduct of business/transactions as a result of high level of awareness of the consumers and their willingness to allow electronic conduct of business/transaction. The result in Table IV concludes that the current mode of payment is not the most achievable and acceptable but this will not deter or lower the rate of consumers that will use B2CEC. However, suppliers of products to support B2CEC merchants are unwilling due to the cost of accessing B2CEC and its affordability by consumers but Al-hudhaif and Alkubeyyer (2011) suggested that market readiness can be enhanced if policies and strategies are developed by the government and stakeholders.

V. Conclusions

In this paper, it was empirically established that absorptive capacity of B2CEC by the merchants in Southwestern Nigeria is high while change in production is low but has opportunity to improve by the availability of wider markets capable of making investment in the technology for the merchants. The result further showed that government is lacking in their support for B2CEC and have not shown any readiness to improve the level of adoption in Southwestern Nigeria. However, it was noted that the level of adoption of the technology is increasing due to market readiness with the opportunities and potentials to achieve change in productivity. Consequently, it was discovered that in order to have improved and better adoption of the technology in Southwestern Nigeria, the government is advised to provide enabling environment with adequate infrastructures. Government need to participate more in the business of monitoring and supporting B2CEC and the industry. This is to be backed up with adequate and effective policies that may ensue as a result of the strengthening of policy and legal institutions to ensure consumer protection and right issues. The B2CEC industry as a result of this work promises to be an active partaker in improving the economy by generating income and enhancing employment opportunities through human and knowledge capacity building.

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