

## **TECHNOLOGY ADAPTATION STRATEGIES BY SMES IN NIGERIA**

**<sup>1</sup> MBAH PAULINUS CHIGOZIE**

Business Administration Department

Faculty of Management Sciences

Enugu State University of Science and Technology, Enugu, Nigeria

**<sup>2</sup> EKWO RAPHAEL IFEANYI**

Department of Management

Faculty of Business Administration

University of Nigeria Enugu Campus

**<sup>3</sup> OBI NNAEMEKA IRENAUS**

Business Administration Department

Faculty of Management Sciences

Enugu State University of Science and Technology, Enugu, Nigeria

### **Abstract**

*The purpose of this study was to evaluate on technology adaptation strategies by SMEs in Nigeria. The specific objectives include ascertaining the effect of the adaptation of mobile phone on SMEs in Nigeria, to assess the effect of the adaptation of cash tilling machines on SMEs in Nigeria, to evaluate the effect of the adaptation of institutional website on SMEs in Nigeria. The study had a population of 175 staff of Central Bank of Nigeria in Enugu state. The sample size of 122 was drawn using Freund and William's formula at 5 percent error margin. A survey design was adopted for the study. Instrument used for data collection was the questionnaire. A total of 122 copies of questionnaire were distributed while 119 were returned. Three hypotheses were tested using regression, and with aid of Statistical Package for Social Science (SPSS). The findings indicate that there is positive effect of the adaptation of mobile phone on SMEs in Nigeria,  $f(95, n = 122) = 276.613, p < 0.05$ , there is positive effect of the adaptation of cash tilling machines on SMEs in Nigeria,  $f(95, n = 122) = 670.546, p < 0.05$ , there is positive effect of the adaptation of institutional website on SMEs in Nigeria  $f(95, n = 122) = 276.613, p < 0.05$ , The study concludes that the effect of the adoption of mobile phone is significantly influenced by SMEs in Nigeria. With respect to SMEs output performance, as SMEs capital input increases it also increases cash tilling machines on SMEs and evaluate the institutional website in Nigeria. The study recommended that agencies that regulate SMEs should formulate policies that will facilitate the adoption of technology facilities by SMEs because of its possible in improving firm's growth performance.*

**Keywords:** *Technological adaptation, strategies.*

## **1.1 Introduction**

As the years goes by, the business world is leaning more and more toward technology, making it almost impossible to separate the two from each other. Innovation breeds business, and since technology paves the way for it, it can be gathered here that business needs technology to be sustained. Small and Medium enterprises has always existed since the early times of man. Even though it only began with the simplistic barter system, business would not be the same as it is today without the advancements in technology. All the major industries would fall into a catastrophic collapse if one were to take away technology from business, since majority of business operations and transactions somehow involve the use of technology (Saleh and Ndubisi, 2016). Technology adaptation is important for helping businesses. Most methods of adaptation involve some form of technology, which in the broadest sense includes not just material and equipment but also diverse forms of knowledge. Technology is the catalyst of growth for small medium enterprises (SMEs). Chiefly, Information Technology (IT) is believed to be the main driver of the economy, ever since the industrial revolution (Palvia, 2014). With the exception of IT, most technologies either provide minor changes to a broad spectrum of industry, or a significant change but limited to a specific industry. In the context of SMEs, technology facilitates the expansion of new markets, where companies can compete or act as a supply chain partner in a network that has already been designed by international conglomerates.

The technology improvements have occurred through technology development and technology adaptation. There has been technological development from the consumer's point of view. These technological developments are-the new design of new machinery, equipment production processes, materials and methods of organizing production etc. With the development of technology, the consumers need to adopt and adapt those developed technology for specific needs. This is can be achieved by various marketing strategies with keeping the local tastes and preferences. This is known as technology adaptation. Sometime technology adaptations are seen due to the competitive pressure from entrepreneurs using alternative methods/techniques and free exchange of information among the elite society. In some circumstances, even if the technology is adopted but not adapted due to the lack of insufficient information about the technology, lack of availability of land and lack of any perceptible advantage over the traditional bush fallow rotation system as in the case of alley farming in West Africa (Adesina and Chianu 2014). If a technology is not market driven, nor there is clear separation between economics and cultural/belief then adaptation of technology will be difficult or impossible in some cases. For example, Bloomers in Africa didn't adapt to the new technology as they were culture driven compared to North Atlantic nations who were market driven. The non-consideration of socio-economic factors will led to inappropriate targeting of the technology into areas with lower likelihood of adoption. The adaptation of technology can help to alleviate some of the socio-economical problems. For example, availability of water in can have multiplier effects such wider social mobilization, empowerment of women etc. Technology in business made it possible to have a wider reach in the global market. The basic example is the Internet, which is now a common marketing

tool to attract more consumers in availing products and services offered by various businesses.

### **1.2 Statement of the Problem**

The need, necessities and desires of man has led to the invention of technologies, which have made life simple, easy and accessible. For examples, evolution of compact mobile phones, world wide web, airlines, household water purifier etc. While advances/improvements in technology continue with rapid phase, but the usage of these is far lower than the expectations.

Technology adaptation needs constant political commitment, financing, technology transfer and innovation, monitoring progress etc. Overall it is important to understand the user's decision on adoption process from initial adoption to technology adaptation.

Small and Medium Enterprises are yet to view technology adaption strategies as a key contributor to the stability and continuity of their businesses. They have very poor attitude to new technologies like cash tilling machines, institutional websites, use of mobile phones etc. These have led to reduced future opportunities and stunt growth of SMEs.

### **1.3 Objectives of the Study**

The main objective of the study was to evaluate the technology adaptation strategies by SMEs in Nigeria. The specific objectives include to:

- i.** Ascertain the effect of the adaptation of mobile phone on SMEs in Nigeria
- ii.** Assess the effect of the adaptation of cash tilling machines on SMEs in Nigeria.
- iii.** Evaluate the effect of the adaptation of institutional website on SMEs in Nigeria.

### **1.4 Research Questions**

- i.** What is the effect of the adaptation of mobile phone on SMEs in Nigeria?
- ii.** What is the effect of the adaptation of cash tilling machines on SMEs in Nigeria?
- iii.** What is the effect of the adaptation of institutional website on SMEs in Nigeria?

### **1.5 Research Hypotheses**

- i.** There is positive effect of the adaptation of mobile phone on SMEs in Nigeria
- ii.** There is positive effect of the adaptation of cash tilling machines on SMEs in Nigeria.
- iii.** There is positive effect of the adaptation of institutional website on SMEs in Nigeria.

## **2.0 Review of Related Literature**

### **2.1 Technology**

Technology is the process and products that makes life easy and stress free. The modern ways of doing many things today are far easier and faster than they used to be in the past. Technology has been designed as tools and machines that make life easier for us. Technology also helps to improve the standard of living in the society. This means that everybody living in a society should be involved in studying society (Sazali, Raduan and Suzana, 2012). The dynamic nature of technology has contributed to the existence of various definitions and concepts of technology by the previous studies which are related to technology transfer. The discussion on the concept of technology is crucial in getting a clear understanding of the nature of technology and examining what the technology consists of. Past studies have shown that defining the concept of technology is not easy. Therefore technology has been defined from different perspectives. Existing studies on technology transfer and international

technology transfer have attracted researchers from cross-section of disciplines including organizational management, political science, economics, sociology, anthropology, marketing and recently management of technology. Technology as the intangible assets of the firm is rooted in the firms routines and is not easy to transfer due to the gradual learning process and higher cost associated with transferring tacit knowledge (Rodasevic,1999). Valuable technological knowledge which is the intangible assets of the firm is never easily transferred from one firm to another because the technological learning process is needed to assimilate and internalized the transferred technology (Lin, 2013). Technology is comprised of the products and processes created by engineers to meet our needs and wants.

### **2.1.2 Concept of Strategies in Technology Adaptation**

Strategies are a high-level plan to achieve one or more goals under conditions of uncertainty. Strategy is important because the resources available to achieve these goals are usually limited. Strategy generally involves setting goals, determining actions to achieve the goals, and mobilizing resources to execute the actions (Freedman, 2015). A strategy describes how the ends (goals) will be achieved by the means (resources). Strategy can be intended or can emerge as a pattern of activity as the organization adapts to its environment or competes (Simandan, 2016). It involves activities such as strategic planning and strategic thinking.

### **2.1.3 Concept of Small and Medium Enterprises (SMEs)**

Small and medium enterprises are businesses whose personnel numbers fall below certain limits. Small and medium enterprises have been considered as the engine of economic growth and for promoting equitable development. The major advantage of the sector is its employment potential at low capital cost. The labour intensity of the SME sector is much higher than that of the large enterprises. The role of small and medium enterprises in the economic and social development of the country is well established. The sector is a nursery of entrepreneurship, often driven by individual creativity and innovation. SME sector also formed the vanguard of the modern enterprise sector and presents the propelling force of economic modernization and growth in Nigeria. They are important sector that need to be adequately factored into policy making and programme implementation in Nigeria (Makaila, 2016). Ajose (2010) affirm that SMEs are the pivot of economic growth and first point of contact for the business world. SMEs help to mobilize savings for investment and promote the use of local raw materials. They help diversify economic activity and make significant contribution to exports and trade. SMEs are also important for poverty reduction as they tend to employ poor and low income workers and sometimes they are the source of employment in rural areas and poor regions. Furthermore, by producing intermediate products for use in large enterprises, SMEs contribute to the strengthening of industrial linkages. Small business covers a variety of enterprises. It encompasses sole proprietorship or entrepreneurship, family businesses and partnerships, and may be incorporated or unincorporated.

The relative importance of small and medium scale enterprise in advanced and developing countries has led and would continue to lead to a reconsideration of the role of Small and Medium Scale Enterprises in the economy of nations. The development of many countries is often measured by such indices as the level of industrialization, modernization, urbanization, gainful and meaningful employment for all those who are able and willing to work, income

per capital, equitable distribution of income, and the welfare and quality of life enjoyed by the citizenry. There is no doubt that small scale enterprises exist in most economic environment. The small and medium scale industry is seen as a key to Nigeria's growth and alleviation of poverty and unemployment in the country. Therefore, promotion of such enterprises in developing economies like Nigeria is of paramount importance since it brings about a great distribution of income and wealth, economic self-dependence, entrepreneurial development employment and a host of other positive, economic uplifting factors (Aremu 2014). Moreover, in a country like Nigeria with an adverse Balance of Payment situation, the growing contribution of the Small Scale Industries sector in Nigeria's export portfolio goes a long way in generating foreign exchange and smoothening out the adverse Balance of payment situation. The role small and medium enterprises play in the development of country is very important. SMEs have greatly contributed to the Nigerian development in terms of employment, growth and development, and marketing of goods and services (Ayozie 2013). Small and medium Enterprises (SMEs) activities play very important roles in the development of many economies in the world. Findings have shown that more developed countries tend to have large quantity of firms.

Iorun (2014) outlined the challenges facing SMEs in Nigeria are Financial Constraints: Financial constraint is the major challenges facing SMEs in Nigeria. The funding SMEs is not so much the sources of funds but the accessibility. Most of these enterprises cannot access loan on a long term and short term basis. Adepoju (2003), and Osamwonyi (2010), factors inhibiting funds accessibility by the SMEs are the stringent conditions set by financial institutions, the lack of adequate collateral and credit information, and the cost of accessing funds.

Lack of infrastructural facilities: lack of infrastructural facilities is a serious barrier to the routine of SMEs. The challenges of infrastructure ranges from inadequate facilities like power supply, access road network, water supply and solid waste management. Businesses have to provide expensive parallel infrastructures.

Poor personnel management: the root of most employee problems in Nigeria is poor personnel management. Most proprietors are usually more concerned about production, sales and finance, to the detriment of personnel matters.

Poor personnel management: the root of most employee problems in Nigeria is poor personnel management. Most proprietors are usually more concerned about production, sales and finance, to the detriment of personnel matters.

Poor management and low entrepreneurial skill base: lack of trained manpower and low managerial/ entrepreneurial skill base constitute a serious clog in the survival of SMEs.

Lack of strategic planning: regrettably, SMEs do not carry out proper strategic planning in their operation; however, sound planning is a necessary input to a sound decision making.

Poor marketing: entrepreneurs often blame their failure on inadequate sales. However, the real problem lies with ignorance of the need for marketing skills but not just inadequate sales.

Unplanned business ownership: very often, entrepreneurs go into business without taking a realistic view of their strengths and weaknesses, let alone giving a careful consideration to the economic trends or business conditions in that particular sector of activity (Iorun, 2014).

## **2.2 Theoretical Framework**

### **2.2.1 Theory of Reasonable Action**

Theory of Reasoned Action (TRA), behaviour can largely be predicted by the individual's attitudes towards performing the behavior in question, through the intervening effect of behavioral intention. The important attitudes in this process are those that are specific to the specific behavior being studied, it is not sufficient to consider the individual's attitudes more generally (Fishbein & Ajzen 1975). The theory also postulates that a person's intentions about performing a behavior (which ultimately determine whether they will do so) are influenced by social pressures or "subjective norms", which arise from their individual's perceptions of what others will think about them performing the behavior in question (Vallerand, Deshaies, Cuerrier, Pelletier, & Mongeau, 1991). In this theoretical model, both personal attitudes and social or "normative" factors exert a direct influence on behavioral intentions, which are the strongest predictor of actual behavior. The theory of reasoned action tries to elaborate and predict the behavioural intentions. This theory has its roots in psychology. Based on this study theory of reasoned action TRA posits that individual behaviour is driven by behavioral intentions where behavioural intentions are a function of an individual's attitude toward the behaviour and subjective norms surrounding the performance of the behavior. Attitude toward the behavior is defined as the individual's positive or negative feelings about performing behaviour. It is determined through an assessment of one's beliefs regarding the consequences arising from a behavior and an evaluation of the desirability of these consequences.

#### **Actor–network theory (ANT)**

Callon, M. developed in (1986), Actor–network theory (ANT) is a theoretical and methodological approach to social theory where everything in the social and natural worlds exists in constantly shifting networks of relationship. It posits that nothing exists outside those relationships. All the factors involved in a social situation are on the same level, and thus there are no external social forces beyond what and how the network participants interact at present (Carroll, Whelan and Richardson, 2012). Thus, objects, ideas, processes, and any other relevant factors are seen as just as important in creating social situations as humans. ANT holds that social forces do not exist in themselves, and therefore cannot be used to explain social phenomena. Instead, strictly empirical analysis should be undertaken to "describe" rather than "explain" social activity. Only after this can one introduce the concept of social forces, and only as an abstract theoretical concept, not something which genuinely exists in the world. The fundamental aim of ANT is to explore how networks are built or assembled and maintained to achieve a specific objective.

Based on the study, ANT is a theory in that it avoids essentialist explanations of events or innovations (i.e. ANT explains a successful theory by understanding the combinations and interactions of elements that make it successful, rather than saying it is true and the others are false). Likewise, it is not a cohesive theory in itself. Rather, ANT functions as a strategy that assists people in being sensitive to terms and the often unexplored assumptions underlying them. Actor–network theory tries to explain how material–semiotic networks come together to act as a whole; the clusters of actors involved in creating meaning are both material and

semiotic. As a part of this it may look at explicit strategies for relating different elements together into a network so that they form an apparently coherent whole. These networks are potentially transient, existing in a constant making and re-making (Latour, 2005).

### **2.3 Empirical Review**

Olise, Anigbogu; Tonna and Okoli, (2014) conducted a study on determinants of ICT Adoption for Improved SME's Performance in Anambra State, Nigeria. Transaction over the internet has helped in linking-up SMEs to global competitiveness. Specifically the objective of the study was to examine the determinants of ICT Adoption for Improved SME's Performance in Anambra State, Nigeria. The study provides empirical evidence on levels of awareness and adoption patterns of ICT facilities among SMEs; it evaluates factors influencing ICT adoption in the SME sector; and also assesses the impact of ICT adoption on SMEs performance. The study adopted simple percentage; mean, standard deviation, t-test statistics, and regression analysis were used to conduct the various analysis of this study. The study shows that there is significant difference in the levels of awareness and adoption patterns of ICT facilities among SMEs. The study concludes that it is imperative to investigate the determinants of ICT Adoption for Improved SMEs Performance so as to gain an insight into the various factors that influence the adoption of Information and Communication Technology for improved performance of SMEs. The study recommends that agencies that regulate SMEs should formulate policies that will facilitate the adoption of ICT facilities by SMEs because of its potential in improving firm's growth performance. Therefore, improving productivity and competitiveness; to raise productivity and global competitiveness, SMEs owners should invest in ICT and its components because they have been proven to significantly influence organizational performance.

Taimur, Laurel and Valerie (2012) conducted a study on the factors influencing the SME's Intention to Adopt m-Banking in Rural Bangladesh. The study was on the factors that influence the intention of SME owners and managers to adopt m-banking in rural Bangladesh. The study specifically focuses on business oriented m-banking, such as paying suppliers or receiving payments from customers, and on person-to-person use of m-banking. Although over the last ten years a wide spectrum of m-banking frameworks has emerged in various countries, very few research have focused on SMEs m-banking adoption and acceptance of the service. Another rationale for undertaking such a study is that m-banking has not yet been extended to rural Bangladesh. To fill the gap this research surveyed 550 SMEs owners/managers in four (4) rural villages. The survey indicates that poor banking facilities, cost, credibility, gender, education and SME business type are the main factors that significantly influence the intention to adopt m-banking. The analysis focuses on the three factors that have been largely overlooked in prior literature, that are banking satisfaction, m-banking advantages for SMEs, and SME business type. The study recommends that m-banking should provide insights into developing m-banking strategies in Bangladesh.

Iorun (2014) conducted a study on the evaluation of survival strategies of small and medium enterprises in Benue State, Nigeria. The contributions of small business enterprises to any economy globally cannot be overemphasized. They are considered as the engine of growth and development of countries; for their contributions to the manufacturing subsector,

diversification of output, and reduction of unemployment are immeasurable. Above all, their quick adoption and adaptation of technologies and reduced capital intensiveness provide an effective means of mitigating rural- urban migration. The main objective of this paper is to evaluate the survival strategies that will ensure sustained growth of small and medium enterprises in Nigeria. Primary data were applied in carrying out this research work. Chi square method was employed to analyze the data. The results reveal that creativity is a strategy for the survival of small business enterprises in Nigeria. The results also indicate that high risk taking is a strategy for the survival of SMEs in Nigeria. Lastly, the results also show that, areas of opportunities for business are a panacea for the survival of SMEs in Nigeria. It is recommended among others that prospective entrepreneurs should only go into business after taking a realistic view of their strengths and weaknesses and drawing up a well thought out business plan. Also, Government should provide infrastructures necessary to encourage and promote the growth and development of SMEs in Nigeria.

Ugwuoke (2014) conducted a study on the role of small scale enterprises in industrialization of Enugu State, Nigeria. Small Scale Manufacturing Firm, Small Firm, which is a part of small scale enterprises, under the aegis of right framework of industrialisation process, can take this country to an appreciable level of industrialisation. The objectives of the study were to ascertain the effectiveness of Small Scale Manufacturing Firms (SSMF) contribution to employment generation in Enugu State, to know the extent SSMFs are promoting Industrial Initiatives and entrepreneurship in Enugu State. The researcher adopted cross-sectional survey research design. The population of the study was 520 workers of 49 small firms selected within Nsukka metropolitan city. The study made use of only the primary data. A sample size of 226 was determined using Taro Yamane's formula. The primary data analysis was done using simple percentage tables and tables of ranks, means and standard deviations. The tests of hypotheses were carried out using the following statistical techniques: Analysis of Variance was used for hypotheses 1, 2, and 4, while the Z – test was used for hypothesis 3. The study shows that there are contributions made by small firms in the area of employment generation, though not significant. It is observed too that the proprietors are relatively slow in embracing the dynamism found in today's technology. In conclusion, it has been identified that the small manufacturing firms could be used as a tool that can help in advancing the pace of industrialisation in Enugu State. The study recommended that government support programme be intensified and a counter monitoring team be set up to follow up all the policy implementation in Enugu. Export processing zones should be used to sensitize and encourage export in all the zones in Nigeria in a more vigorous way.

Eze and Okpala (2015) conducted a study on the quantitative analysis of the impact of small and medium scale enterprises on the growth of Nigerian economy: (1993-2011). This study is on the quantitative impact of Small and medium scale enterprises (SMEs) on Nigeria's economic growth performance for the sample period 1993 to 2011. The econometric technique adopted for the study was multiple regression method based on ordinary least squares technique. However, in order to avoid the incidence of spurious estimates, evidence from the ADF test conducted revealed that the variables are integrated of order two, 1(2). The Johansen test conducted showed evidence of long run equilibrium relationship between small

and medium scale enterprises and economic growth. The study concludes that poor government policies, on tariffs and incentives, bribery and corruption, non-existent entrepreneurial development centers and poor state of infrastructure act as impediments to the growth and development of SMEs in Nigeria. The recommendations are that governments at all levels should endeavor to establish Microfinance institutions for easy access to credit by SMEs, introduce financial literacy in schools, establish entrepreneurial development centers for capacity building, provide enough infrastructure, especially electricity and road network, and finally establish agencies for control of bribery and corruption.

### 3.0 Methodology

The study was conducted using the survey approach. The survey approach was adopted because the respondents spread all over the Enugu metropolis that makes up the study area hence; the main instrument for data collection was therefore structured questionnaire. The area of study comprised of five SMEs in Enugu State which include: Innoson, Juhel, AC Drugs, Emenite, and Peace Oil. They study covered the period of (2008-2018). The respondents were merely requested to tick (✓) in the boxes with appropriate answers. A total of 175 (One Hundred and Seventy-five) copies of questionnaire were distributed. Two sources of data were utilized in the study. They include primary and secondary sources. The primary sources were personal interview and the administrations of questionnaire to the management and staff that can indicate the effect of Industry analysis in the area. Out of a population of 175 staff, 122 staff was sampled. The sample size of 122 was chosen after using Freund and William's formula, for the determination of enough sample size. The validity of the instrument was tested using content analysis and the result was good. The data were analyzed using *f* –Statistics with the aid of Special package of statistical software (SPSS).

### 4.0 Data Analysis

#### 1. The effect of the Adaptation of Mobile phone on SMEs in Nigeria

##### ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	112.176	2	56.088	276.613	.000 <sup>b</sup>
	Residual	23.521	116	.203		
	Total	135.697	118			

a. Dependent Variable: AMPSMEN

From the result, *f*-calculated {276.613} is greater than the *f*-tabulated {3.8046}, that is, *f*-cal > *f*-tab. Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that there is positive effect of the adaptation of mobile phone on SMEs in Nigeria.

## 2. Effect of the adaptation of cash tilling machines on SMEs in Nigeria

### ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	195.881	2	97.940	670.546	.000 <sup>b</sup>
	Residual	16.943	116	.146		
	Total	212.824	118			

a. Dependent Variable: ACTMSMEN

From the result, f-calculated {670.546} is greater than the f-tabulated {3.8046}, that is,  $f\text{-cal} > f\text{-tab}$ . Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that there is positive effect of the adaptation of cash tilling machines on SMEs in Nigeria.

## 3. Effect of the adaptation of Institutional Website on SMEs in Nigeria

### ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	132.851	2	66.426	395.790	.000 <sup>b</sup>
	Residual	19.468	116	.168		
	Total	152.319	118			

a. Dependent Variable: EAIWSMEN

From the result, f-calculated {276.613} is greater than the f-tabulated {3.8046}, that is,  $f\text{-cal} > f\text{-tab}$ . Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that there is positive effect of the adaptation of institutional website on SMEs in Nigeria.

### 4.2 Discussion of findings

From the result of hypothesis one, f-calculated {276.613} is greater than the f-tabulated {3.8046}, that is,  $f\text{-cal} > f\text{-tab}$ . Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that there is positive effect of the adaptation of mobile phone on SMEs in Nigeria.

From the result of hypothesis two, f-calculated {670.546} is greater than the f-tabulated {3.8046}, that is,  $f\text{-cal} > f\text{-tab}$ . Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that there is positive effect of the adaptation of cash tilling machines on SMEs in Nigeria.

Finally, from the result, f-calculated {276.613} is greater than the f-tabulated {3.8046}, that is,  $f\text{-cal} > f\text{-tab}$ . Hence, we reject the null hypothesis {H<sub>0</sub>} and accept Alternative hypothesis

which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that positive effect of the adaptation of Institutional Website on SMEs in Nigeria.

## **5. Conclusion**

Based on the findings of the study, technology adaptation strategies by SMEs in Nigeria, the factors that influence the technology adoption are identified and it help in formulating policies to improve its adoption level. The study also discovered that the effect of the adoption of mobile phone is significantly influenced by SMEs in Nigeria. With respect to SMEs output performance, as SMEs capital input increases it also increases cash tilling machines on SMEs and evaluate the institutional website in Nigeria. The findings are clear that the influence of technology adaptation strategies by SMEs in Nigeria improved performance of the SMEs. Therefore, improving the productivity and competitive advantage to raise productivity and global competitiveness, SMEs owners should invest in technological and its components because they have been proven to significantly influence organizational performance.

## **6. Recommendations**

Based on the analysis and findings of this study, the researcher therefore recommends that:

1. To raise productivity and global competitiveness, SMEs owners should invest in technology and its components because they have been proven to significantly influence organizational performance.
2. Agencies that regulate SMEs should formulate policies that will facilitate the adoption of technology facilities by SMEs because of its possible in improving firms growth performance.
3. SMEs owners should endeavour to gain registration status as that will facilitate their adoption of technology as proxied by transaction over the internet. This will improve their productivity and competitive advantage.

## References

- Adesina and Chianu A. (2014) Electronic data interchange and small organizations: adoption and impact of technology, *MIS Quarterly*, 19(4), 466-485.
- Aremu, M. A. (2014). Small scale enterprises: panacea to poverty problem in Nigeria, journal of enterprises development, Uyo, Akwa Ibom, Nigeria, *International Research and Development Institute*, I(1) 1 – 8.
- Ayozie, D.O, Jacob.S.O, Umukoro F. & Ayozie V.U.(2013) Small and Medium scale Enterprises (SMEs) in Nigeria the marketing interface, *Global Journal of Management and Business Research marketing*,13(9) 1-12.
- Carroll, N., Whelan, E., and Richardson, I. (2012). Service Science – an Actor Network Theory Approach. *International Journal of Actor-Network Theory and Technological Innovation (IJANTTI)*, Volume 4, Number 3, pp. 52–70.
- Eze, T. C. and Okpala, C. S. (2015) Quantitative analysis of the impact of small and medium scale enterprises on the growth of Nigerian economy, Kano State, Nigeria (1993-2011), *International Journal of Development and Emerging Economics*, 3(1)26-38.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, Mass; Don Mills, Ontario: Addison-Wesley Pub. Co.
- Freedman, L. (2015) *Strategy: a history*. Oxford: Oxford University Press.
- Iorun, J.I. (2014) Evaluation of survival strategies of small and medium enterprises in Benue State, Nigeria, *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(2) 255–263.
- Latour, B., (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford UP.
- Lefebvre,L. Harvey, J. and Lefebvre, E. (2013) Technological experience and the technology adoption decisions in small manufacturing firms, *R&D Management*, 21(3), 241-249.
- Lin, W. B. (2013). Technology Transfer as Technological Learning: A Source of Competitive Advantage for Firms with limited R & D Resources. *R & D Management*, 33 (3), 327-341.
- Makaila, A. (2016) Small and medium scale enterprises as a survival strategy for employment generation in Nigeria, *Journal of Sustainable Development*, 4(1) 1-7.
- Olise, M.C; Anigbogu, T.U; Tonna D. and Okoli, M.I. (2014) Determinants of ICT adoption for Improved SME's Performance in Anambra State, Nigeria, *American International Journal of Contemporary Research*, 4(7) 1-14.
- Palvia, P. (2014) A model and instrument for measuring small business user satisfaction with information technology, *Information & Management*,(31), 151-163.
- Saleh, A. S. and Ndubisi, N. O. (2015) An evaluation of SME development in Malaysia, *International Review of Business Research Papers*, 2(1), 1-14.
- Sazali, A. W; Raduan, C. R. and Suzana, I. W.i O. (2012) Defining the concepts of technology and technology transfer: A Literature Analysis, *International Business Research*, 5(1) 1-12.



- Simandan, D., (2016) *Competition, contingency, and destabilization in urban assemblages and actor-networks*. Urban Geography, 1-12.
- Taimur, A; Laurel, E. D. and Valerie, G. (2012) An empirical study of factors influencing the SME's Intention to Adopt m-Banking in Rural Bangladesh, *Journal of Mobile Technologies, Knowledge & Society*, 4(2) 1-16
- Ugwuoke, C. I. (2014) *Role of small scale enterprises in industrialization of Enugu State, Nigeria*, 1-114.