IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON SUSTAINABILITY OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) MANUFACTURING FIRMS IN MINNA METROPOLIS

Jimoh Abdulmalik,[1] and Ijaiya A. Mukaila[2]

[1&2] Department of Entrepreneurship and Business Studies, School of Entrepreneurship and Management Technology, Federal University of Technology, Minna, Niger State

Email address: jimohabdulmalik52@gmail.com; mkijaiya@gmail.com

ABSTRACT

This study examines the impact of ICT on sustainability of MSMEs manufacturing firms in Minna metropolis. Electronic marketing, technology and web 2.0 were used as the variable of ICT while increase in market share was used as a measure of MSMEs manufacturing firm's sustainability. The study makes use of quantitative approach where one hundred and nine (109) operating registered MSMEs manufacturing firms were surveyed. The demographic data was analysed using descriptive statistics while multiple linear regressions were explored in measuring the impact of ICT on sustainability of MSMEs manufacturing firms by determining the relationship between both variables. The descriptive analysis showed that 75.2% of the survey respondents were male with a mean age of 40 years. Approximately 63.3% of the manufacturing firms surveyed are micro firms. Regression analysis summary model revealed a positive relationship between ICT and MSMEs manufacturing firm's sustainability with r value of 0.467, r^2 value of 0.180, F value of 7.675 and significant at 0.000. The findings revealed that electronic marketing, technology and web 2.0 have positive and significant relationship with MSMEs manufacturing firm's sustainability. The results of this study notwithstanding, suggested that, the government should create an ICT friendly environment by availing the needed socioeconomic infrastructure and subsidize important ICT infrastructures like electricity good and affordable network services that will entice the adoption and full utilization of ICT in business practice as this can boost their level of sustainability and their survival rate.

Keywords: Information and Communication Technology, Sustainability, Manufacturing firms, Minna.

1.0 Introduction

Manufacturing micro, small and medium enterprises firms are important hub in attaining economic growth and development. MSMEs in Nigeria are faced with short-circuited sustainability. Manufacturing firm's sustainability is pertinent to any economic development, which highly depends on its level of information and communication technology (ICT) (Rocha, 2016). Every country competitively aims to achieve economic growth and development, even the developed nations may find it fiscally challenging but politically submerge to actuate the country forward into a more evincing economic condition (Agbigbe, 2016). Attention has in recent period moved from public driven economic development to private lead economic development and micro, small and medium enterprises (MSMEs) are usually seen as the key instrument for achieving this goal (Rocha, 2016). MSMEs play a crucial part in any economy by producing goods and services of varieties, creating job opportunities, developing regional economies, strengthening competition and innovation, advance research and development, provision of raw materials for industries all of which advance and contribute to GDP in the long run (Sing and Roy 2019; Meng *et al.*, 2021).

The availability of certain variable will not just boost MSMEs productivities and makes them thrive, but also makes them unique in successful competition and economic development (Isah *et al.*, 2019; Sing and Roy 2019). Literatures tag ICT as necessary variables for manufacturing MSMEs sustainability (Yusuf, 2013; Rivera & Kurna, 2015; Abri & Mahmoudzedeh, 2015; Mwantimwa, 2019) ICT shapes every aspect of our lives in the modern world and are forces surrounding social change and bringing the virtual and physical worlds more closely than ever before in a more dynamic fashion (Abri & Mahmoudzedah, 2015). The rapid evolution of ICT is a sign of a promising future in every imaginable sector and field (Mwantinwa, 2019).

ICT is capable of availing new models of E-businesses, save costs, improve the quality and quantity of production and increase the competition in markets. Developing countries MSMEs has lower ICT adoption rates when compared to their counterparts in developed countries (Okundayo & Dywer, 2019). ICT penetration rate in developed countries is 78.3 per cent compared to 32.4 per cent for developing countries (Okundayo & Dywer, 2019). Likewise, the percentage of households with computers in developed countries was 75.5 per cent, compared to 27.6 per cent for developing countries (Okundayo & Dywer, 2019). The low adoption rate of ICT by MSMEs managers or owners in their operation in developing countries such as Nigeria has contributed to a low rate of economic development in these countries (Mwila and Ngoye 2019).

In Nigeria there are high rate of manufacturing businesses registration by the day, but most of these firms do not last to see the light of the day, some either stopped growing or remain small all their lives (Buowari, 2015). The Nigerian government in year 2000 introduces the Bank of Industry (BOI) which houses several other financial institutions with the aim of accelerating industrial development and growth through the provision of short and long-term loans, equity finances and technical assistance to industrial enterprises. Also, in the year 2019 the federal government place barn on the importation of some foreign products into the country with the intention to boost the growth of the indigenous manufacturing firm in Nigeria. All these measures were to create opportunity for firms to grow and flourish in terms of innovative products and high market shear beyond measures but their growth and ability to innovate and compete remain poor, with low quality products and services at sky rocket prices making it unaffordable and uncompetitive even in the domestic market (Chete, Adeoti, Adeyinka, & Ogundele 2021). But the opposite is the case when compared to most countries that were at the same level some few years ago, whose recent contribution to GDP now ranges as follows: Malaysia and Indonesia 28%, Thailand 34%, China 30%, Brazil 35% but Nigeria's contribution is just 20% (Chete et al., 2021), this call for urgent attention into the Nigerian manufacturing industry.

1.1   Gaps Identified

Most studies have examined the impact of ICT on productivity in most industries, but the industry was broken down to similar groups. So, there is a possibility of aggregate error in estimation. In this study, industries have been segregated into services and manufacturing. Also, industry has been divided in to MSMEs and large corporation. Therefore, aggregate error and bias error will be limited when compared to the past studies.

Literatures have studied the impact of ICT on firm productivity in different countries, but its effect on firm sustainability specifically on Manufacturing MSMEs has not been explored. This paper is intended to address these gaps by examining the impact of ICT on the sustainability of MSMEs manufacturing firms in the study area. To achieve this, the following sub objectives were formulated:

- To examine the impact of electronic marketing on the sustainability of MSMEs manufacturing firms in the study area.
- To access the relationship between technology and sustainability of MSMEs manufacturing firms in the study area.
- To analyze the effect of web 2.0 on the sustainability of MSMEs manufacturing firms in the study area.

2.1 Concept of Sustainability

Sustainable development evolves from Brundtland Report in the early 1987, this concept sustainable development has been playing a critical role in policy making of some countries of the world especially the developed countries (Changa, Zuob, Zhaoc, Zillantea, Xiao-Long & Soebartoa 2017). Sustainability of firms evolves from sustainable development since firms are the productive resources of any economy. This is because without support from firms, sustainable development could not be achieved (Chang et al., 2017). There are more than three hundred definitions of sustainability, although all definitions point that sustainability concerns promote the indefinite existence of human systems. It is widely recognized that there are three dimensions of sustainable development, i.e. the economic, social and environmental dimensions (Hugund & Kiran, 2014). This study focuses on the economic dimension of sustainability measured as increase in market shear.

2.1.1 Concept of information and communication technology

Information and Communication Technology (ICT) evolve in the late 1970s and early 1980s, following the emergence of the first minicomputer and, later the microcomputer which evolve into personal computers (Yusuf, 2013). ICTs encompasses all forms of technologies and products for a wide range of software, hardware, telecommunications and information management techniques, applications and devices used to create, produce, analyze, process, package, distribute, retrieve, store and transmit or receive information electronically in a digital form such as computers, email, internet, websites, social networking and other wireless communications devices, networks, broadband, and as well as the various specialized devices and applications associated with them, such as satellite systems and videoconferencing (Rivera & Kurna, 2015; Abri & Mahmoudzedeh, 2015; Mwantimwa, 2019)

Web 2.0 was created by Tim O'Reilly and is relatively new and today marketers are motivated to take advantage of its potential. It was developed to express the new evolving trends of web. It is also been called wisdom web, people-centered web, participative web and read/write web (Yusuf, 2013). Web 2.0 is driven by a range of interrelated web technologies which include social networks (e.g. Facebook, YouTube, Myspace, LinkedIn, and Twitter), blogs, Mash-ups, Podcasts, RSS, Wikis and audio and video streaming. From marketing perspective, creative and intelligent use of Web 2.0 tools can help marketers reach customers, build awareness and manage their image on the web; and refine operational practices to stay ahead of the competition (Ablas, Manen, Boonstra, Dijkstra, & de Vries, 2014).

Electronic marketing has a very broad application and meanings; to some the terms e-marketing, e-business and e-commerce mean the same, to others they are quite different. Fundamentally, electronic marketing is framed in this study as the use of innovative information and communications technology to transact businesses with partners and customers. It is the use of both internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy. Contrarily, some scholars view electronic marketing as the evolution of e-commerce from the perspective of buying and selling over the internet (Meng *et al.*, 2021).

Technology in this study refers to those facilities or tools required by firms to enable it carry out it processes electronically, the presence of some certain tools aid organizational Automation, Transformation, Information and Infrastructure which in the long run benefit organization in terms of revenue generation, cost reduction, achieving stake holders satisfaction, enhancing sales, creating new business models, quality initiatives and creating competitive advantage (Ablas *et al.,* 2014)

2.2 Empirical Review

Cjol (2014) undergo a comparative analysis using descriptive research design to determine the impact of information and communication technology (ICT) practices on operational performance and growth of small and medium-sized enterprises operating in two neighboring emerging country markets of Turkey and Bulgaria. 1000 questionnaires were distributed among Turkey and Bulgaria, 500 questionnaires in each country, using multiple regression analysis the study reveal that there is a significant impact of ICT on the growth of firms in both Bulgaria and turkey.

Another study by Lee, Chang, Lin, & Cheng (2014) qualitatively surveyed 377 chief information officers and senior information system managers. regressively the results indicate that environment capacity fit and a dynamic environment positively affect technology adoption, which in turn directly triggers business processes changes, organizational learning and growth, while indirectly affecting improvement of customer satisfaction and financial performance.

Base on this, Mwila and Ngoye (2019) qualitatively surveyed 60 businesses with no formal business registration and 40 with formal business registration with a response of 76.7% and 87.5% respectively. Results disclosed that ICTs are major aspect in business operations, formally and informally with the major drivers happening to be the reduction in cost and ease of doing business. The major challenges were the expense at which ICTs come with and the poor ICT infrastructure.

Also Oluwafemi, (2015) explore the effects of ICT on Small and medium scale enterprise productivity in Nigeria. Survey was adopted to collect data from 80 respondents. The results indicates that Nigeria improves its processes and products with the use of Information Communication Technology. Furthermore, Information Communication Technology enhances the production process in organizations as a monitoring technology which decreases cost, increase organizational capabilities and also assists to shape inter-organizational coordination.

Furthermore, Gare and Melin, (2011) qualitatively carried out 60 interviews within a geographical region. Empirical data was analyzed and findings revealed that, there are less infrastructure and fewer overhead and support services in SMEs than in larger enterprises. The adoption processes is differ from the ones in larger enterprises in that they rely more on external relations in a public infrastructure f or sense-making in ICT adoption and use.

Finally, Tong, (2012) examines the connection between ICT adoption by a company, and the benefits a company derives from membership in a rural business community, and the success of rural companies. The study base it Analysis on 333 rural businesses located in northern lower Michigan, the result showed a strong relationship between (a) ICT adoption and benefits derived from the membership in business communities, (b) ICT adoption and self-reported business growth, and (c) benefits derived from business clusters and business growth. Although analysis indicates that these relationships may be industry specific, results suggest that ICT adoption by rural enterprises may have advantages for the region's social capital and business growth and may help reduce the digital divide experienced in rural communities.

Methodology

The study adopts Evolutionary theory of sustainability as the pillar upon which the study rest. This is because potential and actual sustainability changes overtime in response to the outcomes of the firm environment (Awan *et al.*, 2016).

Also, this study adopts a quantitative research approach where questionnaires were distributed across the sample size of one hundred and eighteen (118) registered operating manufacturing firms in Minna metropolis which was selected based on purposive sampling technique. The condition upon which the manufacturing firms were selected was based on the following;

Firstly, it must be a manufacturing firm who meet the categorization of manufacturing firm by MAN 2017, it must be operating within the confinement of Minna metropolis, it must be registered with the corporate affairs commission before the time of this research, and it must be in operation as at the time of this research. The unit of analysis is at individual level, where managers or owner managers of registered operating manufacturing firms is expected to respond to each a questionnaire.

3.1 Data Collection Process

The techniques for data collection are through questionnaires formulated and administered on the respondents. The questions were structured base on the objective using likert scale.

The internal reliability of the survey instrument was done with the use of reliable statistical package for social science (SPSS), the cronbach's alpha which reads 0.84 (84%) shows that the instrument is reliable enough. The external reliability of the instrument was done by piloting 10% of the questionnaire. Which are approximately 12 questionnaires that were distributed among individual manufacturing MSMEs owners or employees in Suleja local Government Area. This was done to examine the cursory review of the questions, to confirm the validity of the questionnaires and to determine whether the questionnaire is well understood and relevant for the purpose.

The questionnaire was then coded and analyzed using SPSS version 16.0 where Descriptive statistics was used to give the summary of the demographic data and described the phenomenon in connection with the variables, while multiple linear regression analysis was used to establish the relationship between the dependent variables and the independent variables of the study.

4.0 Discussion of Findings

A total of 118 copies of questionnaires were printed and administered on the respondents out of which 109 questionnaires which is 92% of the summed percentage of the questionnaires administered was received on which the analysis of the data was based to address the research objectives and to test the hypothesis formulated. Tables were used to show the frequency and percentage of responses.

Table 4.1 Gender of the Respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	82	75.2	75.2	75.2
	Female	27	24.8	24.8	100.0
	Total	109	100.0	100.0	

Source: Author field survey 2021

Table 4.1 shows that, 82 respondents are male while 27 respondents are female. Finding shows that there are more male owners or managers of manufacturing firms in Minna metropolis.

Table 4.2 Educational Qualification of the Respondent.

Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	no school attended	3	2.8	2.8	2.8
	primary education	5	4.6	4.6	7.3
	SSCE	34	31.2	31.2	38.5
	NCE/ND	21	19.3	19.3	57.8
	HND/BSc	40	36.7	36.7	94.5
	PGD/MSc/PhD	6	5.5	5.5	100.0
	Total	109	100.0	100.0	

Source: Author field survey 2021.

Table 4.2 shows that 3 respondents has no formal education, 5 respondent attended primary school, 34 respondent attended secondary school, 21 respondent has a national diploma or national certificate in education, 40 respondent has higher national diploma or bachelor of science or technology and 6 respondent has postgraduate degree (masters or philosophy in education). Findings reveal that a significant amount of the respondent has higher national diploma or Bachelor of Science this shows that most owners or managers of manufacturing business in Minna metropolis are highly educated. This means high education is vital in performing relevant function of the organization such as leading, appraising performance and determining relevant factors required to keep the business sustainable (Meng *et al.*, 2021; Chete *et al.*, 2021).

Table 4.3: Respondent Area of Specialization

Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	Food, Beverages and Tobacco	34	31.2	31.2	31.2
	Block Production	20	18.3	18.3	49.5
	Wood and Wood Product	12	11.0	11.0	60.6
	Plastic and Rubber Products	3	2.8	2.8	63.3
	Chemical and Pharmaceutical Product	9	8.3	8.3	71.6
	Textile, apparel and Footwear	14	12.8	12.8	84.4
	Basic Metal, Iron and Steel	12	11.0	11.0	95.4
	Other Manufacturing	5	4.6	4.6	100.0
	Total	109	100.0	100.0	

Source: Author field survey 2021.

Table 4.3 shows that 34 respondent are into food beverages and tobacco, 20 respondent are into block production, 12 of the respondent are into plastic and rubber products, 9 respondent are in to chemical and pharmaceutical products, while 14 respondents are into textiles apparel and footwear, 12 of the respondents are into basic metals, iron and steel and 5 of the respondents are into other manufacturing. Findings reveal that significant amount of the respondent are into food beverages and tobacco this might be because those are everyday consumer products that have highly demand.

Table 4.4 Firms Employees Capacities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-9	71	63.3	63.3	63.3
	10-99	38	32.1	32.1	95.4
	Total	109	100.0	100.0	

Source: Author field survey 2021.

Table 4.4 shows that, 71 respondent has 1 to 9 employees working in their business organization, this number qualify them as micro businesses when related to the definition of SMEDAN 2013. While 38 respondents have 10 to 99 number of employees working in their business organization this number when related to SMEDAN 2013 definition of MSMEs can be qualified as small enterprises. Findings reveal that a significant number of the respondent are micro manufacturing enterprises this means that micro manufacturing firms are the dominant manufacturing firms in Minna metropolis. Findings also reveal that there are no medium or large manufacturing firms in the study area.

4.1 Linear Regression Analysis
This section shows the regression analysis results

Table 4.5 Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	.424ª	.180	.356	2.32658	.180	7.675	.000

Predictors: (Constant), electronicmarketing, totaltechnology, totalweb
Source: Author field survey 2021

Table 4.5 shows the regression analysis amidst information and communication variables and sustainability of MSMEs manufacturing firms. The regression results revealed a significant relationship between ICT and the sustainability of MSMEs manufacturing firms (r = 0.467, r² = 0.180, F value of 7.675 and significant at 0.000). The finding revealed that relationship exist between the variables at 42.4% and significant at P<0.05. Moreover, this shows that the independent variable (technology, electronic marketing and web 2.0) contributes 46.7% of the variations in sustainability of MSMEs manufacturing firms in the study area. This proves that 54.4 of other variables that are outside the scope of this model contribute to sustainability of MSMEs manufacturing firms in the study area.

Table 4.6: Regression Analysis Result

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.839	1.269		3.814	.000
	Electronic marketing	.167	.077	.192	2.177	.032
	Technology	.286	.070	.364	4.103	.000
	Web 2.0	.072	.090	.172	1.295	.029

a. Dependent Variable: MSMEs manufacturing sustainability
Source: Author's Field Survey (2021)

Table 4.6 revealed the regression coefficient that is used in testing the level of relationship between the independent variables and the dependent variable.

H₀: There is no significant relationship between electronic marketing and sustainability of MSMEs manufacturing firms in the study area.
The findings reveal a regression coefficient of 0.192 with a p-value of 0.032 which revealed that there is positive and significant relationship at p<0.05. This means that there is a significant relationship between electronic marketing and sustainability of MSMEs manufacturing firms in Minna metropolis. The two variables, been positively related means that a unit increase in electronic marketing can yield 19.2% increase in sustainability of MSMEs manufacturing firms. Statistical this mean that relationship between electronic marketing and sustainability of MSMEs manufacturing firms, which preempt the null hypothesis which states that: *There is no significant relationship between web 2.0 and the sustainability of MSMEs manufacturing firms in Minna metropolis* is rejected at 0.05 significance level since the p-value is less than 0.05 significance level, while the alternative hypothesis is accepted.

H₀: There is no significant relationship between technology and the sustainability of MSMEs manufacturing firms in Minna metropolis. Findings revealed a regression coefficient of 0.364 with a p-value of 0.000 which is statistically significant at p<0.05. This implies that there is significant positive relationship between technology and the sustainability of MSMEs manufacturing firms. Therefore, a unit increase in technology will yield an increase of 36.4% in sustainability of MSMEs manufacturing firms. In view of this statistical relationship between information and communication technology and the sustainability of MSMEs manufacturing firms, the null hypothesis is rejected while alternative hypothesis which states that: *There is significant relationship between technology and the sustainability of MSMEs manufacturing firm in Minna metropolis* is accepted at 0.05 significance level since the p-value is less than the 0.05 significance level.

H₀: There is no significant relationship between web 2.0 and the sustainability of MSMEs manufacturing firms in Minna metropolis
The findings revealed a regression coefficient of 0.172 with a p-value of 0.029 which is statistically significant at p<0.05. This implies that there a significant relationship between web 2.0 and sustainability of MSMEs manufacturing firms. Therefore, a unit increase in organizational engagement of web 2.0 will yield 17.2% of corresponding increase in sustainability of MSMEs manufacturing firms. Notwithstanding there is a significant relationship between web 2.0 and the sustainability of MSMEs manufacturing firms, the null hypothesis which states that *There is no significant relationship between web 2.0 and the sustainability of MSMEs manufacturing firms in Minna metropolis* is rejected at 0.05 significance level since the p-value is less than 0.05 significance level and the alternative hypothesis accepted.

5. Discussion of Result
The findings from the regression coefficient revealed that electronic marketing has a positively significant effect on the sustainability of MSMEs manufacturing firms. It also shows that the two variables are positively related (regression coefficient = 0.192; p-value = 0.032 at p < 0.05). Based on these findings, the it is revealed that "electronic marketing has a significant effect on the sustainability of MSMEs manufacturing firms in Minna metropolis". This result is in line with Yusuf (2013) and Mwantimwa (2019) who opine that, electronic marketing is a significant factor for manufacturing firm's sustainability. The studies reveal that electronic marketing involves the use of electronic data and applications for planning and executing the conception, distribution and pricing of ideas, goods and services to create exchanges that satisfy individual and organizational goals. It is a process aimed at facilitating and conducting business communication and transactions over networks (Abri and Mahmoudzedeh, 2015). Davidson et al., (2015) claim that electronic marketing gives customers the opportunity to give immediate feedbacks that allow companies to react fast to customers' demands and recognize new market niches which in the long run increase firm market shear and boost manufacturing firm's sustainability.

Result from the regression coefficient revealed that technology have a significant impact on sustainability of MSMEs manufacturing firms, with regression coefficient of 0.070 and p-value of 0.000 at p<0.05 significance level. Base on this finding, it is revealed that "technology has significant impact on sustainability of MSMEs manufacturing firms in Minna metropolis". This result is line with Rivera and Kurna (2015) and Davidson et al, (2015) whose work was he opinion that the adoption of ICT technology aid organizational Automation, Transformation, information and Infrastructure which in the long run benefit organization in terms of revenue generation, cost reduction, achieving stake holders satisfaction, enhancing sales, creating new business models, quality initiatives and creating competitive advantage (Yusuf, 2013; Apiyo and Kiarie, 2018).

Also, findings from the regression coefficient revealed that web 2.0 has a significant effect on sustainability of MSMEs manufacturing firms with regression coefficient of 0.172 and p-value of 0.029 at p<0.05 significance level. In line with these findings, "web 2.0 has a significant effect on sustainability of MSMEs manufacturing firm in Minna metropolis". This result is in line with Yusuf (2013) who posit that Web 2.0 is driven by a range of interrelated web technologies which include social networks (e.g. Facebook, YouTube, Myspace, LinkedIn, and Twitter), blogs, Mash-ups, Podcasts, RSS, Wikis and audio and video streaming. However, the creative and intelligent adoption and utilization of Web 2.0 tools can help marketers reach customers, build awareness and manage their image on the web and refine operational practices to stay ahead of the competition. Information Communication Technology enhances the production process in organizations as a monitoring technology which decreases cost, increase organizational capabilities and also assists to shape inter-organizational coordination (Davidson et al., 2015; Mwantimwa, 2019).

6. Conclusion and Recommendations

Findings from the study reveal a positive and significant relationship between ICT and the sustainability of MSMEs manufacturing firms, this means that an increase in ICT adoption and utilization will cause a unit increase in firm's rate of survival and profitability. Notwithstanding, a firm's attempts at innovation of business processes without the need infrastructures is like trying to turn a wheel that lacks lubricant. Innovative firms must be at the forefront of ICT embracement. Effective usage of ICT tools helps boost business processes and practice. The study concludes that ICT has the potential in fundamental knowledge creation, management and dissemination which has lessening the cost of managing businesses, quickly locate more customers, outsource best suppliers, and most importantly reach suitable business partners worldwide. Hence business leaders should venture into the adoption of ICT into their business process and practice as this has the capacity to not only place them at a high level of competition but also sustain them profitably in the long run.

The results of this study, notwithstanding, the following recommendation was suggested. Most surveyed firms have conceived the importance of ICTs and deployed them for business operations, but the trend of their usage for such purposes is not highly promising, to make ICTs' usage in business processes meaningful, many factors need to be considered.

Firstly, firms need a well-built human resources capacity, an accommodating culture and leadership style that welcome innovation to enable them to adopt and reap the full benefit of ICTs in facilitating business activities. Secondly, the government has to create an ICT friendly environment by availing the needed socioeconomic infrastructure like electricity, good and affordable network services that will entice the adoption and full utilization of ICT in business practice as this can boost their level of sustainability.
Thirdly, the government should subsidize important ICT infrastructures to boost MSMEs adoption and usage of ICTs in business activities as is capable of increasing their competitive ability and their survival rate.
Fourthly, the government should invest and encourage private investors on broadband networks to transform the low bandwidth and unreliable networking service faced in Nigeria to enable effective utilization of ICT in business practice.

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