ISSN No:-2456-2165

Sustainable Information and Communication Technology (ICT) for Sustainable Diversified Economy (SDE) in Nigeria: A Narrative Review

Dr Felix. C. Aguboshim
Doctoral Graduate, (Walden University, *Baltimore US)*
Principal Lecturer, Department of Computer Science
Federal Polytechnic, Oko, Nigeria

Joy. I. Onyeje
Principal Lecturer
Department of Mathematics/ Statistics
Federal Polytechnic, Oko, Nigeria

Abstract:- Sustainable Diversified Economy (SDE) is significant in realizing sustainable economic growth in Nigeria. Information and Communication Technologies (ICTs) have made landmark innovational trends in empowering diversified economy globally. Despite these global impacts of ICT on diversified economy, numerous investigations have shown that poor sustainability of ICT in Nigeria has hindered economic diversification. SDE which is the pivot for economic growth, has remained relatively low or unnourished due to: corrupt policies and practices, ignorance, illiteracy, and bad economy that plagued sustainable ICT innovations. In this study, the authors explored a narrative review that focused on the theoretical underpinnings of vast works of literature that revealed significant information on impact of sustainable ICT on sustainable diversified economy, analysis, and synthesis of prior research, and its adoption and sustainability in Nigeria. The authors also used some keywords such as "ICT and SDE", "ICT and diversified economy", "Trends for ICT", and so on, to extract peer-reviewed articles within the last five years from electronic databases. The result of this study revealed that strict adherence to policies, laws and guidelines on the adoption and sustainability of ICT coupled with good formulation and communication of same, are the major impact of sustainable ICT that can leverage SDE in Nigeria. Result from this study may increase understanding, minimize corrupt practices and encourage trust in ICT innovations, ICT adoption, acceptance and sustainability that can positively impact SDE and economic growth in Nigerian.

Keywords:- *ICT, SDE, Adoption, Sustainability, Trends, Trust, Corruption*.

I. INTRODUCTION

ICT can be defined as a tool, and a means for data and information collection, storage, processing, transmission and dissemination (ToAnyakoha, 2005). This definition emphasized two key aspects of ICT: ICT as a tool for data and information collection and storage, and for the improvement of the organization's efficiency information transmission and dissemination. Asabere and Enguah (2012), also defined ICT as the physical devices and infrastructures used for the collection, storage, processing, and disseminating of all forms and formats of data and information, and the required platforms or means for the transmission and disseminating of same. It is the use of diverse set of technological tools to store, process, transmit and disseminate information in diverse formats.

Sustainable diversified economy is of significant importance in realizing or attaining sustainable economic growth in Nigeria (Uzonwanne, 2015). Researchers have noted that a significant relationship exists between economic growth and sustainable diversified economy in Nigeria (Anyaehie & Areji, 2015; Kemi, 2016; Uzonwanne, 2015). On the other hand, Sustainable ICT is what defines SDE (Adeyemi & Esere, 2013; Oladimeji & Foltyn, 2018), and occupies a significant key position in leveraging SDE (Olise, 2010). Sustainable ICT has significant importance in enhancing the nation's capacity and potentials required to effectively cope with society characterized by vigorous activities, changes, and development. Despite the significant importance of ICT technological innovations in Nigeria, its poor adoption, usage and sustainability, worsened by corrupt practices, is ravaging virtually every system in the nation, especially SDE and economic growth in Nigeria.

A. Problem Statement

Our purpose in this study was to identify the challenges of sustainable ICT that negatively impact sustainable diversified economy in Nigeria. Although ICT per se is not a relevant explicative variable for social change, but in context, certainly, ICT is a good enabler of enablers (Laureate Education (Producer), 2012f), and a good derivative of social and economic restructuring *(*Okafor & Ezeani, 2012). This is because sustainable ICTs provides impressively great impact in virtually all areas and services that are ICT dependent. It takes sustainable ICT to bring about sustainable and diversified economy (Yang, et al., 2014). It takes sustainable ICT, evident in individual's and people's ability to use, manage, evaluate and understand, to drive the required SDE. One significant setback of SDE in Nigeria is poor adoption and sustainability of ICTs that significantly define sustainable SDE. The general IT problem postulated in this study was the poor performance or sustainability of the SDE majorly due to corrupt practices and policies that have hindered proper adoption, usage and sustainability of ICT in Nigeria. The specific IT problem is that some ICT policies, laws, guidelines and value system on the adoption and sustainability of ICT coupled with formulation and communication of same, do not favor SDE because such policies and practices are rendered impotent by corrupt practices, ignorance, illiteracy, and bad economy.

The value placed on any technological innovation is measured by its adoption, acceptance and sustainability (Hoffman, Singh, & Prakash, 2015). Acceptance is measured by adoption. And it takes adoption or use of technology to sustain it. Sustenance of technology determines its value. Sustainable ICT therefore plays an important role in SDE tasks (Oladimeji & Foltyn, 2018; Adeyemi & Esere, 2013). This is because ICT is a major enabler of SDE (Toyo & Ejedafiru, 2016). Nigeria should adopt, accept, sustain, and value ICT as key strategic tools for a sustainable SDE, and must genuinely begin to encourage her people to adopt, accept and utilize the ICT technological innovations because of their impressive and great impact on SDE and economic growth in the country. Many developed countries have actualized impressively sustainable SDE and economic self-reliance because of sustainable ICTs.

B. Research Question

What are ICT policies, laws, guidelines and value system strategies used by policy makers to sustain ICT innovations and bring about SDE?

II. LITERATURE REVIEW

The sustenance of ICT determines its value, while it take adoption or use to sustain ICT. Users are motivated to use ICT based on their perceived level of trust (Safeena, Date, Hundewale, & Kammani, 2013). Therefore, failure to value and use ICTs can undermine even the strongest SDE policies (Toyo & Ejedafiru, 2016), because what contributes to non-sustainable ICT innovations has proven to cause or be related to non-sustainable SDE (Cottrell, 2016). Several researchers found that sustainable ICT technological innovations have significant importance in leveraging SDE (Giri, Choudhary, & Verma, 2014). Researchers also have identified major key determinants of sustainable ICT as content and functional value that interacts positively to affect its sustainability, and the implementation of appropriate policies and guidelines that that mediate significantly in users to impact sustainable technology (Bresciani & Eppler, 2015; Olise, 2010). Other determinants of sustainable ICT are perceived value and provision of security facilities that significantly influence its enablement for SDE (Fillion & Ekionea, 2014).

Poor or wrong users' attitudes negatively affect the acceptance and sustainability of ICT. On the other hand, good judgements about value of ICT held by users were found to relate positively to users' perceived trust. (Dastan & Gürler, 2016). This implies that usability impacted by trust and awareness of ICT policies are critical for sustainable ICT (Kaushik & Rahman, 2015). In Nigeria, corrupt policies and practices, ignorance, illiteracy, and bad economy appears to be the major determinants of sustainable ICT. Policies measures, laws, and infrastructures required to handle ICT sustainability are rather relegated to the background. Implementation and adherence to policies, control over policy enforcement, and enterprise definitions are no longer reliable or efficient in sustaining ICT innovations due to corrupt practices in Nigeria.

Technological innovations in Nigeria have been made to be attitudinal, thereby rendering its sustainability impotent. ICT sustainability has been viewed by researchers from multiple perspectives (Narain, Gupta, & Ojha, 2014), ranging from proper implementation, adoption, usability, trust, value (Perez, Branch, & Kuofie, 2014), and compromise on required policies and principles (Taylor & Robinson, 2015). Human adherence to required principles and policies for the adoption of ICTs has been claimed by significant number of empirical researches as the major links the ICT sustainability, while the negligence of same constitutes great risk to the ICT sustainability. (Taylor & Robinson, 2015). This is because it takes adoption or use of ICT to sustain ICT and SDE adopted by administrators (Komatsu, Takagi, & Takemura, 2013). Violations of established ICT policies and safeguards by users especially some of our so-called honorable men in our society have led to non-sustainability of diversified economy. ICT policies, principles, rules and guidelines should be strictly adhered in order to empower most of our sustainable diversified economy programmes (Sahi & Gupta, 2013; Olise, 2010).

A. Conceptual Framework

Sustainable ICT is driven by usability. Usability is driven by how users perceived the ICT innovations as useful, easy-to-use, and how they perceived the risks associated with usability: perceived risk, perceived trust, and environmental risk. Also, users perceived usefulness of ICT innovations are driven by the value users place on the system to allow them to perform the required task with ease. (Safeena, et al., 2013). The Unified Theory of Acceptance and Use of Technology (UTAUT), proposed by Venkatesh, Morris, Davis, & Davis (2003) was adopted as a conceptual framework for this study. UTAUT model claims that the benefits of using a technology and the factors that drives users' decision to use it, is what determines users' acceptance behavior. The theory considers factors: user adoption behaviour toward intention to use ICT, and users' usage behaviour of ICT. According to Venkatesh, et al. (2003), both user adoption and usage of ICT are affected by four constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), and four moderators: gender, age, experience and voluntariness of use. UTAUT model in recent times has been widely adopted (Oye, AIahad, & Abrahim, 2014). Some researchers' attention has been drawn to the usefulness of the model and have adopted the model to investigate adoption of mobile innovations (Loose, Weeger, & Gewald, 2013; Arumugam, Yahya, Rozalina, & Mohd, 2014). UTAUT has been adopted to understand the factors behind future of ICT adoption policies by investigating the consumerization drivers of ICT service adoption for SDE (Bhattacherjee, Limayem, & Cheung, 2012), and the attractiveness of a these programmes for future ICT service adoption (Dernbecher, Beck, & Weber, 2013). UTAUT was adopted as our theoretical foundation to study ICT sustainability for SDE, and the pros and con of its consumerization implications.

B. Existing Systems for Sustainable Diversified Economy (SDE)

Acceleration of ICT transformation is required for sustainable SDE (Olise, 2010). Sustainable ICT is required for triggering any digital transition (Moroz, 2018), and the major enabler of sustainable SDE of any nation (Toyo & Ejedafiru, 2016). Sustainable SDE is exemplified by sustainable ICT policies that are designed to: (a) simplify and make more efficient decision making with minimized asymmetric information, (b) automate many intangible activity connected with SDE, (c) collect, process and use large data sets of various formats obtained from many sources require for sustainable SDE, (d) provide immediate and very cheap communication protocols, (e) launch new sales and dissemination channels (e-commerce) for SDE, and distribute same products as well, and (f) creating new business models and virtual entrepreneurship for sustainable SDE. Therefore, a measure to sustain ICT innovations in Nigeria is a measure to SDE.

The use of ICT has changed the way we work, rest, buy, travel, interact and so on, which in turn translates into the functioning of enterprises and societies including functional and SDE. In Nigeria, ICT has impacted some sectors of the economy by creating opportunities for diverse forms of investment through digital market, improved productivity and the revolution, especially of the Nigerian banking and financial sector. Digitalization imposes a mark on almost every aspect of modern life, SDE are no exceptions. Against this background, transformational (breakthrough) nature of ICT technologies on SDE is evident especially where policies are strictly adhered to.

Other existing systems that may enhance SDE include systems that may mitigate Denial of Service (DoS) or Destruction of Service (DeOS). Sustainable ICT innovations must of necessity, adopt database systems for a sustainable SDE, and for mitigating obvious cyberattacks. Cyberattacks, natural disasters and extreme weather are the three largest threat facing ICT innovations in the world (Hinduja & Kooi, 2013; Dupont, 2013). Attackers come mostly to either lock the systems aside (DoS) or destroy data (DeOS) as part of their attack process. Therefore, Cyber technology that adopts a form of intuitive system or model equipped with near real-time intelligence empowered by ICT is required, without which sustainable SDE are farfetched.

III. METHODOLOGY

A narrative review approach was adopted in this study to review significant information based on the study conceptual framework, existing systems that enhance ICT sustainability. We also reviewed, analyzed and synthesized prior research findings. According to Hill and Burrows (2017), a narrative review is adopted where analysis and synthesis of different and related research findings are required to draw holistic interpretations or conclusions based on the reviewers' own experience, existing theories and models. A narrative study approach is best suited for a descriptive or explanatory study (Bell, 2017), where results from such narrative studies are of qualitative rather than quantitative in nature (Scarnato, 2017). Narrative studies exhibit significant strengths in that they have ability to provide platforms for comprehension of diverse and numerous understanding around scholarly research findings, and the opportunity to make reflective practice and acknowledgement of researchers' views and knowledge (Malcolm, 2017). Researchers with diverse background and views have incorporated the use of narrative reviews or adopted narrative methodology as best suitable for comprehensive studies (Rutherford, 2017). In this paper, we adopted narrative methodology and explicitly explained the methodological commitments of narrative inquiry. We also made our search criteria and the criteria for inclusion explicit by including in our review process, key words and term identification, article identification, quality assessment, data extraction, and data synthesis. Methodological triangulation has been defined as the use of multiple sources of data to gain multiple perspectives, maximize reliability and validation of data and build coherent justification of data interpretation that relates to the study case or phenomenon (Durif-Bruckert, et al., 2014). We adopted methodological triangulation to ensure the reliability and validity of data, and justification of interpretations from the reviews.

IV. DATA COLLECTION

We reviewed research findings that are relevant and related to our study. Many of such findings came from the ProQuest databases, ScienceDirect, Walden University international library databases and peer-reviewed, and other related texts. We also used phrases and terms as key search words in the databases for related literature on ICT sustainability for SDE in Nigeria. Such phrases and terms included *banking ICT sustainability, ICT innovational Trends, Sustainable Diversified Economy, ICT threats, cyber-attacks and security, major determinants of ICT and MGD sustainability, and* many others. Our reviews incorporated 53 references. Fifty-Two (98%) of total references incorporated in the study are peer-reviewed, while (84%) are peer-reviewed journals that are within the last 5 years. This is summarized in Table 1.

Incorporated references	Number
Total reviewed references that emerged in the study	53
Total peer-reviewed references that emerged	52
Total peer-reviewed references that emerged and are within the last 5 years	45
% Peer-reviewed references that emerged in the study	98%
% Peer-reviewed references that emerged and are within the last 5 years	85%

Table 1**:-** Summary of Reviewed Articles Incorporated in the study

ISSN No:-2456-2165

V. ANALYSIS AND SYNTHESIS OF PRIOR RESEARCH

Recently, relevant and wide varieties of important policies and protocols that have made tremendous contributions to the understanding of ICT sustainability and its impact on SDE have been put in place. (Pfleeger, Predd, Hunker, & Bulford, 2010). Also, some technological innovation that may identify ICT sustainability challenges and effectively offer effective technical controls and solutions to impact sustainable ICT and SDE are being identified (Dupont, 2013; Hinduja & Kooi, 2013). Some of such technological innovations include, among others, cloud computing; big data (Dupont, 2013), and other mobile and internet dependent interfaces that are ICT innovation-enablers of SDE (Hartzog & Stutzman, 2013). However, these innovational trends are farfetched in Nigerian technological innovations.

Despite the implementation of ICT innovations in Nigeria, sustainable SDEs have remained weak and vulnerable. This is because there is evidence that suggests that corrupt practices and non-adherence to policies are increasingly exploiting ICT sustainability, and adversely affecting SDE. Some researchers have also noted reasons for non-sustainable ICT that adversely affected SDE to include problems associated with corrupt policies and poor usability of ICT systems (Stewart & Lacey, 2012; Hartzog & Stutzman, 2013; Cristian & Volkamer, 2013), not according required value to ICT by users (GreavuSerban & Serban, 2014), and limited perception of the usefulness and ease of use of ICT Systems or interfaces (de Albuquerque & dos Santos, 2015).

There are some significant statistical facts in literature, as shown in Figure 2, that points to poor ICT sustainability in Nigeria which in turn points to poor sustainable SDE. For instance, report by UNDP (2016) showed that only 40% of Nigerian populace has access to electricity, while 20% or less rural households are covered. Another typical and significant fact that points to poor sustainable ICT and SDE is the poor use of the ATMs and ATM products. According to EFInA (2014), only 7.9% of Nigerians use the ATM, while only 53% of adults who are bank customers use their ATM cards. Another likely contribution to poor sustainable ICT in Nigeria is the fact that about 40.33% of Nigerians aged 15 years and older are illiterates or semiliterate (UNESCO, 2015). This could be a possible reason for ICT usability challenges in Nigeria and may support the findings by EFInA (2014) that Nigerians are among the top population that stores money in their houses. Researchers have also claimed that about 65% of the cash in circulation in the Nigerian economy is outside of the banking system (Emengini & Alio, 2014; Ezeamama, Ndubuisi, Marire, & Mgbodile, 2014; Itah & Ene, 2014). As mentioned above, major reasons for this might be corruption, ignorance and illiteracy. This claim is supported by UNDP statistical report that revealed the fact that 14% of Nigerian adults considered corruption as the major significant challenges militating against sustainable ICT in Nigeria (UNDP, 2016). There is need for awareness and training in the country for people to understand and be able to perceive available technological innovations as useful and easy-to-use. This may bring about sustainable ICT that will leverage economic development and social change.

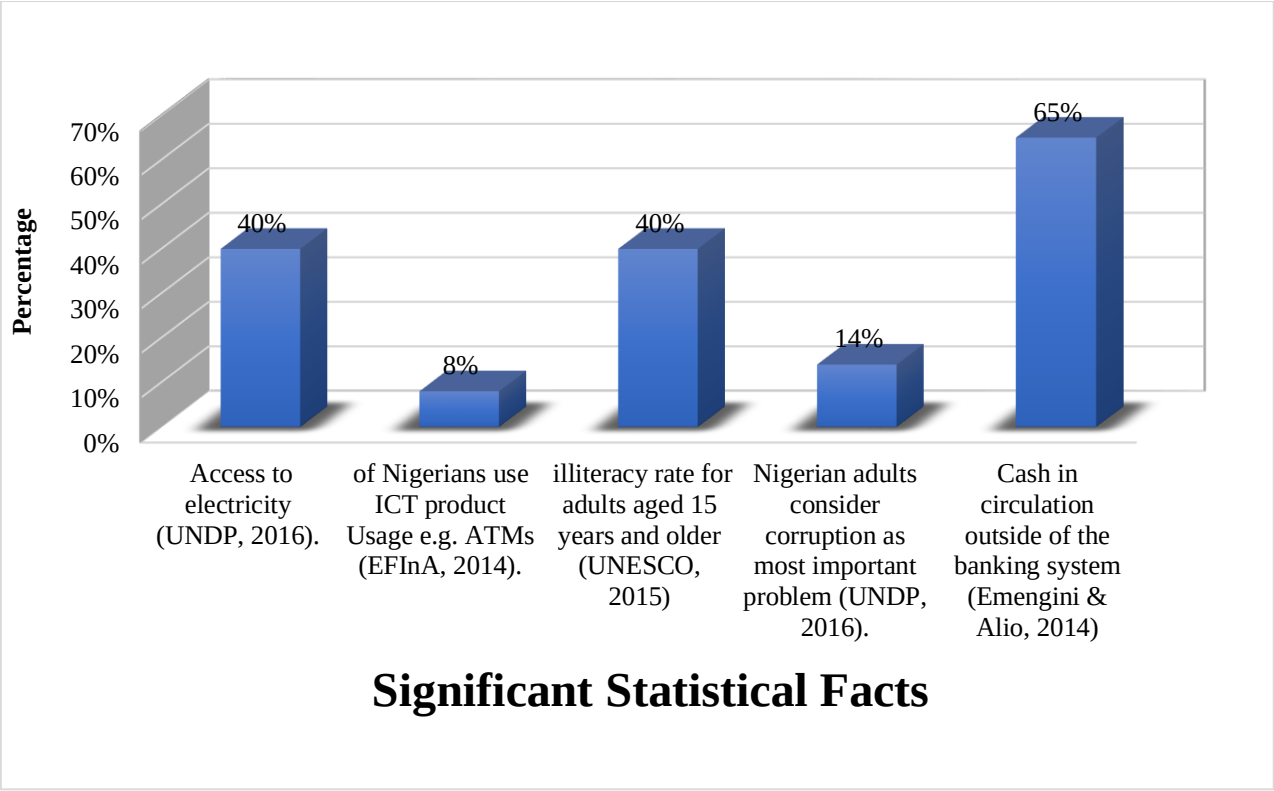

Fig 1:- Some Statistical Facts That Points to Impact of Poor Sustainable ICT on SDE in Nigeria

Contributing to what might be the possible significant challenges of sustainable ICT, Dwivedi, et al. (2015) classified these challenges into four groups: (a) management of ICT processes, policies and guidelines, (b) literacy level of ICT users and how it impacts usage and adoption, (c) well defined ICT project size, goals, performance, robustness, and implementation, and (d) technology failures resulting from ICT use and misuse. On the other hand, Ho, Hsu, and Yen (2015) suggested three major strategies or skills to improve or manage ICT adoption, usage, and sustainability: (a) adherence to usability guidelines and policies, (b) process control, and (c) information and data transmission and dissemination.

VI. DISCUSSIONS AND CONCLUSIONS

ICT projects in Nigeria are failing, despite much enthusiasm and optimism and global trend for ICT and its significant importance for SDE (Ukil, Bandyopadhyay, Bhattacharyya, Pal, & Bose, 2014). Despite these global trends for ICT, the adoption of technology solutions in Nigeria has remained relatively slow, due to: corruption, ignorance, illiteracy, and bad economy (Toyo & Ejedafiru, 2016). The ICT technology market in Nigeria is quite enormous, yet virtually all the large technology providers in Nigeria are foreign, such as MTN, Spectra net, Smile etc. This does not encourage SDE because the huge financial returns generated from such foreign technological services escape our economy to technology providers' respective home countries in form of taxes or business expansions expenditures. The question to be answered is: Why is ICT not making maximum impact in Nigeria as observed in other African countries? These are a few of my observations:

A. Value placed on Technology by the Government

The contribution of any technological innovation to SDE can only be realized when and if the technology is widely diffused and used. The value placed on any technological innovation is measured by its *adoption, acceptance and sustainability*. Acceptance is measured by adoption. And it *takes adoption or use of technology to sustain it. Sustenance of technology determines its value.* Consumers are likely to *adopt, accept and sustain* ICT services and be more satisfied with it if they believe that using the system will increase their performance and productivity (Sahi & Gupta, 2013). It is hypocritical to observe that the various arms of the Government make much noise about ICT while in truth they do not value it because they do not see ICT services as a means to SDE and economic productivity of the nation. They see ICT more as a "corruption-exposer" technology. If we make a critical observation and analysis of our ICT innovations, we can judge for ourselves if we value ICT.

B. Inadequate and Incomplete Implementation of ICT

Most technological innovations in Nigeria lack solid and proper implementations. We witness technology failure all around us regularly. Most technological innovations in Nigeria often end with IT leaving off "information and communication" aspect of ICT. Technological innovations must involve "information and communication", to employ the databases instead of databanks. For instance, traffic lights in Nigeria, are not properly implemented and so are not adequately or properly put to use. Nigeria is about the only country where cameras are mounted on the traffic light with no corresponding machineries to adequately capture, document and book or fine offenders. One cannot run ICT without good documentation, storage and communication. How can you run an automated traffic system without proper documentation of vehicles and their owners?

Instead, we observe police men and other touts being used to check traffic light offenders, when the traffic lights are embedded or supposed to be embedded with monitoring cameras. What a waste of resources. The same is applicable to other establishments such as NRSC, Police, Ministry of Justice etc. Our ICTs are not adequately implemented or used. It takes adoption or use of technology to sustain it (Ogutu, Okello, & Otieno, 2014). The non-sustainability of ICT in Nigeria is the major reason for non-sustainable diversified economy and low economic growth in Nigeria. If our diversified economic ventures are not using the ICT effectively, its sustainability is crossly endangered, especially now that ICT innovations are widely integrated into ambient or ubiquitous environments.

C. Corrupt Practices and Policies

Corruption appears to be the major hinderance to sustainable ICT for maximum SDE. Technology does not have attitude or designed to exhibit attitudinal behaviors. Attitudes comprise of three components: emotions, behaviors and thoughts. ICTs are not designed to have emotions, behaviors and thoughts, but to operate according to the specified programs and protocols. When ICT innovations are subjected and corrupted with human emotions, behaviors and thoughts, they become useless, unimpactful and their outputs nonsensical including the SDE that it intended to leverage.

Some instances:

- The so-called honorable men in the society breaking the traffic light.
- Using the exit door for an entrance
- Using their vehicles with Government registration numbers even when they have left the office
- Some Nigerians, because they in the police, army and others, you do not need to renew their vehicle particulars because the so-called ICT in place has been subjected to have attitudinal behaviour. This is a big slap on the face of technology in Nigeria. This is the major hinderances of sustainable ICT for maximal SDE in Nigeria. Embracing technological innovations in Nigeria would mean embracing transparency, which exposes corruption and enforces maximal SDE.

D. High Cost of Running A Technology Dependent Organization

The Internet and regular electricity supply are good facilitators and enablers of technology dependent organizations. In Nigeria, the cost of Internet is very high when compared to other countries, especially the western countries. Electricity supply is also very expensive, even

though its supply is neither regular nor predictable. These are just a few service costs. The high cost of running a technology dependent organization in Nigeria has made it difficult, if not impossible, for entrepreneurs especially small-scale entrepreneurs to venture into technology dependent businesses. Elsewhere, where these facilities are readily available and relatively cheap, young and positive minded entrepreneurs have ventured into big scale businesses with reasonably small capital. This may not be possible in Nigeria where supply of electricity for sustainable ICT innovations are not constant, predictable or cheap. The high cost of running a technology dependent organization has made SDE farfetched in Nigeria. This has also reduced the probability of releasing any technological hits including sustainable SDE.

E. The Way Forward

ICT innovations are now handled with better interconnected and interdependent facilities because connectivity is widely integrated into ambient or ubiquitous environments through intuitive interface or "smart" interaction. The way forward to overcome the hindrances of SDE is to ensure the effectiveness in the implementation of sustainable ICT. The following are recommended.

- Awareness and good uncorrupt leadership, management of policies are necessary preconditions for creating an effective sustainable ICT initiative. ICT stake holders in Nigeria must recognize and understand the significant importance of sustainable ICT to SEE, and communicate same to both the literate, semi-literate and illiterate groups.
- Existing ICT infrastructures, its usability, procurement and implementation for sustainability goals must be reviewed, and a new system designed to meet the required standards for SDE.
- The is the need for the adoption of ICT international standards in all facets of the Nigeria education and legal system for standardized behaviors and values towards sustainable ICT. There is the need for continuous training and retraining of all users or intended users on computers and ICT skill acquisition.
- Nigerian government must take a courageous move to give constant and affordable electricity and Internet supply for powering ICT infrastructures.
- To fully actualize a sustainable ICT that will effectively leverage sustainable diversified economy, all Nigerians, irrespective of rank or status should learn to respect the law rather than the persons. ICT innovations are being slaughtered on the platform of corruption and lawlessness.

VII. CONCLUSION

Sustainable ICT tools are significant to quality Nation, society, and SDE. Therefore, ICT infrastructures, policies and guidelines should be made available and accessible to all concerned and encourage users to perceive them as useful and easy to use. This approach will encourage usability and sustainability of ICT that will equally bring about SDE and economic growth in Nigeria. Sustainable ICT is a tool that enhances SDE. When ICTs are fully implemented in all required sectors and systems, Nigeria may start to reap the dividends of SDE and economic growth as witnessed in the developed nations with the best ICT facilities. Issues and challenges of ICTs in Nigeria should be given urgent and top priority attention in the national assembly and bills passed on the effective use of ICT for sustainable SEE and economic development in Nigeria, powered by electricity supply that is stable.

REFERENCES

[1]. Adeyemi, I. I., & Esere, M. (2013). ICT and higher educational system in Nigeria. *Academic Journals*, *8*(21), 2021-2025. Doi: 10.5897/err09.044

[2]. Anyaehie, M. C., & Areji, A. C. (2015). Economic Diversification for Sustainable Development in Nigeria. *Open Journal of Political Science, 5*(1), 87-94. doi:10.4236/ojps.2015.52010

[3]. Arumugam, A., Yahya, D., Rozalina, K., & Mohd, R. (2014). Usage of Learning Management System (Moodle) among Postgraduate Students: UTAUT Model. *Asian Social Science, 10*(14), 186-192.

[4]. Asabere, N. Y., & Enguah, S. E. (2012). Use of Information & Communication Technology (ICT) in Tertiary Education in Ghana: A Case Study of Electronic Learning (E-Learning). *International Journal of Information and Communication Technology Research, 2*(1), 62-70.

[5]. Bell, E. E. (2017). A Narrative Inquiry: A Black Male Looking to Teach. *The Qualitative Report, 22*(4), 1137-1150. Retrieved from http://nsuworks.nova.edu/tqr/vol22/iss4/12

[6]. Bhattacherjee, A., Limayem, M., & Cheung, C. M. K. (2012). User Switching of Information Technology: A Theoretical Synthesis and Empirical Test. Information & Management, 49, 327–333.

[7]. Bresciani, S., & Eppler, M. (2015). Extending TAM to information visualization: A framework for evaluation. *Electronic Journal of Information Systems Evaluation, 18*(1), 46-58.

[8]. Cottrell, L. (2016). IoT problems are about psychology, not technology. Retrieved from http://www.tripwire.com/state-of-security/security-data-protection/iot/iot-problems-are-about-psychology-not-technology/

[9]. Cristian, T. M., & Volkamer, M. (2013). Usable secure email communications: criteria and evaluation of existing approaches. *Information Management & Computer Security, 21*(1), 41-52.

[10]. Dastan, I., & Gürler, C. (2016). Factors affecting the adoption of mobile payment systems: An empirical analysis. *Emerging Markets Journal, 6*(1), 17-24. doi:10.5195/emaj.2016.95

[11]. de Albuquerque, A. j., & dos Santos, E. (2015). Adoption of information security measures in public research institutes/adoç'o de medidas de segurança da informaç'o em institutos de pesquisa p'blicos. *Journal of Information Systems and Technology Management, 12*(2) 289-315. doi:10.4301/S1807-17752015000200006

[12]. Dernbecher, S., Beck, R., & Weber, S. (2013). Switch to Your Own to Work with the Known: An Empirical Study on Consumerization of IT. *Proceedings of the Nineteenth Americas Conference on Information Systems*, Chicago, Illinois, 15-17.
[13]. Dupont, B. (2013). Cybersecurity Futures: How Can We Regulate Emergent Risks? *Technology Innovation Management Review, 3*(7), 6-11.
[14]. Durif-Bruckert, C., Roux, P., Morelle, M., Mignotte, H., Faure, C., & Moumjid-Ferdjaoui, N. (2014). Shared decision-making in medical encounters regarding breast cancer treatment: the contribution of methodological triangulation. *European Journal of Cancer Care, 24*(4), 461-472. doi:10.1111/ecc.12214
[15]. Dwivedi, Y., Wastell, D., Laumer, S., Henriksen, H. Z., Myers, M. D., Bunker, D., … Srivastava, S. C. (2015). Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers, 17*(1), 143-157. doi:10.1007/s10796-014-9500-y
[16]. EFInA (2014). EFInA access to financial services in Nigeria 2014 survey. Retrieved from http://www.efina.org.ng/assets/ResearchDocuments/2014-Documenst/EFInA-Access-to-Financial-Services-in-Nigeria-2014-Survey-Key-Findings.pdf
[17]. Emengini, S. E., & Alio, F. C. (2014). Cashless economy and financial statement reporting in Nigeria. *European Center for Research Training and Development, 2*(3), 1-9.
[18]. Ezeamama, M. C., Ndubuisi, N. J., Marire, M. I., & Mgbodile, C. C. (2014). The Impact of Central Bank of Nigeria Cashless Policy in Nigeria Economy. *IOSR Journal of Business and Management (IOSR-JBM), 16*(12), 84-95. doi:10.9790/487x-161218495
[19]. Fillion, G., & Ekionea, J. B. (2014). A comparison of the influencing factors of using a mobile phone: Atlantic Canada vs. Cameroon Africa. *Academy of Information and Management Sciences Journal, 17*(1), 23-154.
[20]. Giri, S., Choudhary, S., & Verma, R. (2014). A comparative study of an automatic teller machine (ATM). *Indian Streams Research Journal, 4*(8), 1-14.
[21]. Greavu Serban, V., & Serban, O. (2014). Social Engineering a General Approach. *Informatica Economica, 18*(2), 5-14. doi:10.12948/issn14531305/18.2.2014.01
[22]. Hartzog, W., & Stutzman, F. (2013). Obscurity by design. *Washington Law Review, 88*(2), 385-418.
[23]. Hill, C., & Burrows, G. (2017). New voices: The usefulness of a narrative approach to social work research. *Qualitative Social Work: Research and Practice, 16*(2), 273-288. doi:10.1177/1473325017689966
[24]. Hinduja, S., & Kooi, B. (2013). Curtailing cyber and information security vulnerabilities through situational crime prevention. *Security Journal, suppl. Special Issue: Security in a digital world: Understanding, 26*, 383-402. doi:10.1057/sj.2013.25
[25]. Ho, L., Hsu, M., & Yen, T. (2015). Identifying core control items of information security management and improvement strategies by applying fuzzy DEMATEL. *Information and Computer Security, 23*(2), 161-177. doi:10.1108/ics-04-2014-0026
[26]. Hoffman, D. D., Singh, M., & Prakash, C. (2015). The Interface Theory of Perception Psychonomic. *Bulletin & Review, 22*(6), 1480-1506. doi:10.3758/s13423-015-0890-8
[27]. Itah, A. J., & Ene, E. E. (2014). Impact of Cashless Banking on Banks? Profitability. *Asian Journal of Finance & Accounting, 6*, 362-376. doi:10.5296/ajfa.v6i2.6268
[28]. Kaushik, A. K., & Rahman, Z. (2015). Innovation adoption across self-service banking technologies in India. *The International Journal of Bank Marketing, 33*(2), 121-96. doi:10.1108/ijbm-01-2014-0006
[29]. Kemi, A. O. (2016). Diversification of Nigeria Economy through Agricultural Production. Journal of Economics and Finance (IOSR-JEF), 7(6), 104-107. doi:10.9790/5933-070603104107
[30]. Komatsu, A., Takagi, D., & Takemura, T. (2013). Human aspects of information security. *Information Management & Computer Security, 21*(1), 5-15. doi:10.1108/09685221311314383
[31]. Laureate Education (Producer). (2012f). CIO interview: Setting policies [Video file]. Retrieved from https://class.waldenu.edu
[32]. Loose, M., Weeger, A., & Gewald, H. (2013). BYOD – The Next Big Thing in Recruiting? Examining the Determinants of BYOD Service Adoption Behavior from the Perspective of Future Employees. *Proceedings of the Nineteenth Americas Conference on Information Systems*, 1-12
[33]. Malcolm, P. M. (2017). Peer support in mental health: a narrative Review of its relevance to social work. *Egyptian Journal of Social Work, 4*(1). 19-40. doi:10.21608/ejsw.2017.8725
[34]. Moroz, M. (2018). Acceleration of Digital Transformation as A Result of Launching Programs Financed from Public Funds: Assessment of The Implementation of The Operational Program Digital Poland. *Foundations of Management, 10*(1), 59-75. doi:10.2478/fman-2018-0006
[35]. Narain, S. A., Gupta, M. P., & Ojha, A. (2014). Identifying factors of "organizational information security management. *Journal of Enterprise Information Management, 27(*5), 667-644. doi:10.1108/jeim-07-2013-0052
[36]. Ogutu, S. O., Okello, L. J., & Otieno, D. J. (2014). Impact of Information and Communication Technology-Based Market Information Services on Smallholder Farm Input Use and Productivity: The Case of Kenya. *World Development, 64*(1), 311–321.
[37]. Okafor, E. E., & Ezeani, F. N. (2012). Empirical Study of the Use of Automated Teller Machine (ATM) Among Bank Customers in Ibadan Metropolis, South Western Nigeria. *European Journal of Business and Management, 4(7)*. Retrieved from file:///C:/Users/Test/Downloads/1811-3782-1-PB.pdf
[38]. Oladimeji, T. T., & Foltyn, G. B. (2018). ICT and Its Impact on National Development In Nigeria: An Overview. *Research & Reviews: Journal of Engineering and Technology, 7*(1), 1-10.

[39]. Olise, F. P. (2010). Information and Communication Technologies (ICTs) and Sustainable Development in Africa: Mainstreaming the Millennium Development Goals (MDGs) into Nigeria's Development Agenda. *J Soc Sci*, *24*(3): 155-167.
[40]. Oye, N. D., AIahad, N., & Abrahim, N. (2014). The history of UTAUT model and its impact on ICT acceptance and usage by academicians. *Education and Information Technologies. 19*(1), 251-270.
[41]. Perez, R. G., Branch, R., & Kuofie, M. (2014). EOFISI Model as a Predictive Tool to Favor Smaller Gaps on the Information Security Implementations. *Journal of Information Technology and Economic Development, 5*(1), 1-20.
[42]. Pfleeger, S. L., Predd, J. B., Hunker, J., & Bulford, C. (2010). Insiders Behaving Badly: Addressing Bad Actors and Their Actions. *Information Forensics and Security, IEEE Transactions on, 5*(1), 169-179. doi:10.1109/tifs.2009.2039591.
[43]. Rutherford, J. S. (2017). Monitoring teamwork: a narrative review. *Anaesthesia, 72*(1), 84-94. doi:10.1111/anae.13744
[44]. Safeena, R., Date, H., Hundewale, N., & Kammani, A. (2013). Combination of TAM and TPB in Internet Banking Adoption. *International Journal of Computer Theory and Engineering, 5*(1), 146-150. doi:10.7763/ijcte.2013.v5.665
[45]. Sahi, G. K., & Gupta, S. (2013). Predicting customers 'behavioral intentions toward ATM services. *Journal of Indian Business Research, 5*(4), 251-270. doi:10.1108/jibr-10-2012-0085
[46]. Scarnato, J. M. (2017). The value of digital video data for qualitative social work research: A narrative review. Qualitative Social Work: Research and Practice, doi:10.1177/1473325017735885
[47]. Stewart, G., & Lacey, D. (2012),"Death by a thousand facts", *Information Management & Computer Security, 20*(1), 29-38. doi:10.1108/09685221211219182
[48]. Taylor, R. G., & Robinson, S. L. (2015). An information system security breach at First Freedom Credit Union 1: what goes in must come out. *Journal of the International Academy for Case Studies, 21*(1), 131-138.
[49]. ToAnyakoha, M. W. (2005). Information and Communication Technology (ICT) in library services. *Coal City Libraries, 2*(1&2), 2-12.
[50]. Toyo, O. D., & Ejedafiru, F. E. (2016). Utilization of Information and Communication Technologies (ICTs) for Sustainable Economic Development in Nigerian. *International Journal of Ergonomics and Human Factors, 12*(2), 22-34.
[51]. Ukil, A., Bandyopadhyay, S., Bhattacharyya, A., Pal, A., & Bose, T. (2014). Lightweight security scheme for IoT applications using CoAP. International Journal of Pervasive Computing and Communications, 10(4), 392-372. doi:10.1108/IJPCC-01-2014-0002
[52]. UNDP (2016). UNDP Nigeria 2016 Annual Report Compiled and edited by Lucky Musonda. *UNDP Nigeria 2016 Annual Report_web.pdf*. Retrieved from http://www.ng.undp.org/content/dam/nigeria/docs/CO%20Docs/UNDP%20Nigeria%202016%20Annual%20Report_web.pdf
[53]. UNESCO (2015). Data center. Retrieved from http://www.uis.unesco.org/DataCentre/Pages/country-profile.aspx?regioncode=40540&code=NGA
[54]. Uzonwanne, M. C. (2015). Economic Diversification in Nigeria in the Face of Dwindling Oil Revenue. *Journal of Economics and Sustainable development, 6*(4), 61-67
[55]. Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User Acceptance of Information Technology: Toward a Unified View. *Management Information Systems Quarterly, 27*(3), 1-12.
[56]. Yang, H., Lee, J., Park, C., & Lee, K. (2014). The Adoption of Mobile Self-Service Technologies: Effects of Availability in Alternative Media and Trust on the Relative Importance of Perceived Usefulness and Ease of Use. *International Journal of Smart Home, 8*(4), 165-178.