

Nexus between ICT and Human Development

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Abstract: This paper examined the nexus between ICT and human development. The study made use of a survey research design in which 105 respondents were selected from the Polytechnic Ibadan, Oyo State, Nigeria. The study made use of cluster sampling technique. A research questionnaire was designed and used as a research instrument for this study. The result of the study revealed that majority of the respondents agree that ICT creates more job opportunities ($X = 2.41$, $SD = 1.01$), ICT enhances growth and development in various sectors such as agriculture, education and health ($X = 2.12$, $SD = 0.97$). Also, majority of the respondents agree that lack of funding ($X = 2.54$, $SD = 0.87$), Shortage of trained professionals ($X = 1.98$, $SD = 0.67$) and unfavorable government policies ($X = 1.88$, $SD = 1.04$) are some of the barriers that affect ICT growth. The result of the hypothesis revealed a positive significant correlation ($r = .685$, $p < .05$) between ICT and Human development. The study recommends that The application of ICT in the Nigerian public sector should be expanded in order to make better use of government funds for national development.

Keywords: ICT, Human development, Technology, Internet

Introduction

ICT is a technological system that fills a communication gap between people and formal systems or structures of development. It is capable of filling the gap left by the structured communication system and assisting people by fostering an inventive environment conducive to the development phase, which eventually influences the level of living standard. The effectiveness and true efficacy of ICT is dependent on appropriateness and positive feelings toward obtaining desired benefits or suitable problem solutions. In recent years, the advancement of technology, particularly information and communication technology, has had a major effect on the economy and other facets of human life. It is difficult to envision an individual, an economy, or a society functioning efficiently without the use of ICT. ICT is essential to academic institutions, the health care system, businesses, homes, and the global economy as a whole. Endogenous growth theories asserted in the 1980s that technological advances were the basis of economic growth and emphasized the significance of human capital investments (Grossman and Helpman 1991). Furthermore, income is only one of the components that lead to the fulfillment of human necessities, based on the human development theory; ICT is thought to have substantial impact on the fulfillment of human needs, even higher than monetary income, since it enhances overall quality of life. People have access to information through ICT, which also allows for social interaction, access to educational resources, and the creation of new business potentials. As a result, ICTs can have direct and indirect impacts on human living standards. Besides, based on a study conducted by the European Parliament (2001), ICT offers incredible opportunities for properly identifying poverty in developing nations. Specifically, ICT can help the poor develop their businesses or enhance self-determination. From the standpoint of equality, ICT can also enable access to education and health care, thereby guaranteeing inclusion. Information technology is accountable for the expansion of people's freedoms and for improved productivity in man - made activities. In the long term, ICT is anticipated to have an even significant effect. This effect is extensively regarded as positive, particularly at the macro level. According to the new World Bank classification of 2020, the impacts of ICT use on human development are examined in high, upper-middle, lower-middle, and low-income nations. The inspiration to distinguish ICT impact between nations with varying degrees of development stems from the fact that the majority of the world's nations are developing countries. There are 27 (12.45%) low-income economies, 55 (25.35%) lower-middle-income economies, 55 (25.35%) upper-middle-income economies, and 80 (36.85%) high-income economies, based on the World Bank (2021). This demonstrates that developing nations account for the majority of the world's economies (63.15%).

Statement of the Problem

The information processing and information sharing capabilities of ICTs, which cut across all industries, enhance their potential for development. For instance, the Internet has evolved into the most effective method for transactions, delivering services and goods, and affecting all human activities. Deploying ICT effectively would enhance fundamental services like health and education, increase revenue, and create more jobs. The Information Age also has an influence on humans through its media and images, which influence our lives, communities, countries, and states and have huge implications for our personalities and creativeness. Because of the digital divide, the utilization and benefits of ICTs are a realization and a strategic plan that are still out of reach for numerous people, but few are truly safe from the effects of ICTs. The communications that take place via these channels do dispersed beyond their initial medium and thus tend to reach much larger audiences. Therefore, this study examines the nexus between ICT and human development.

Aim and Objectives of the Study

The primary aim of this study is to examine the nexus between ICT and human development. The secondary objectives are as follows:

- i. To examine ways in which ICT has contributed to human development in Nigeria.
- ii. To investigate the barriers to the growth of ICT in the society.

Research Questions

- i. In what ways has ICT contributed to human development in Nigeria?
- ii. What are the barriers to the growth of ICT in the society?

Hypothesis

H₀₁: There is no significant relationship between ICT and human development

Concept of ICT

According to the OECD (2017), "ICT refers to different types of communication networks and technologies they use", whereas Sarkar (2012) stated that ICT refers to a wide-range set of technological resources and tools used for communication. According to Pradhan et al. (2018), ICT infrastructure includes electronic phone networks, mobile phones, Internet connectivity, Web servers, fixed broadband services, and other related technologies. As a result, as technology advances, new standards of ICT emerge, clarifying and deepening the relevance and significance of ICT. In the past two decades, the empirical literature has been engaged mainly in the evaluation of the effects of ICT on economic growth (Bollou and Ngwenyama 2008; Farhadi et al. 2013; Toader et al. 2018), but the assessment results do not always show significant and positive effects. Gholami et al. (2010) argue that this is because the ICT effect is not always automatic, but depends, for example, on implementation in different sectors. It is therefore better to study the impact of ICT on education, the health system, human development, or the profitability of firms. Therefore, scholars have begun to relate ICT implementation to different variables that reflect one or more sides of human development, such as health, education, job creation, and overall quality of life. For example, Chege and Wang (2019) studied the impact of information technology on job creation in SMEs, and their results show that technological innovations positively influence job creation in small businesses and act as drivers of economic development. Das et al. (2020) support these findings and suggest that a good technological environment created by governments and institutions leads to SME development and job creation in developing countries.

Human Development

Change is central to development. Making better lives for everyone is the goal of advancement. In an inequitable nation, a better standard of living means first and foremost meeting basic needs like food, shelter, education, health, and a good environment in which all individuals can thrive with respect and equality. According to Gandhi's ideology, development is about more than just money and wealth; it is also about values and morals that all societies hold dear. According to Mowlana and Wilson, "development" is a theoretical foundation for a variety of individual, institutional, national, and international changes is primarily a post-World War II concept. We can also be associated with growth, industrialization, change, democracy, and, at first, was primarily concerned with economic development.

Impact of ICT on Employment in Nigeria

Many unemployed young people now have employment opportunities thanks to ICT. This is accomplished by utilizing cutting-edge technological ideas through the educational system, training centers, and widely available computers. Numerous young people are showcasing their creative thinking in digital media, mobile services, bioengineering, and software. Numerous Nigerians now have small offices with laptops to provide ICT services for sustenance, and this is a fact. Numerous young people can be seen by the side of the road providing internet and online services to customers while sheltering from the elements with umbrellas.

Impact of ICT on Education in Nigeria

One of the most important aspects of human existence is education. Education is supposed to make people more fine tuned and advanced so they can handle more difficult tasks. It is regarded as a means of gaining the knowledge and skills required for a person to perform satisfactorily. As a result, education is regarded as a crucial indicator of national development through human capacity. Numerous researchers concur that education, whether formal or informal, boosts efficiency, promotes health, and lessens negative aspects of life like child labor (Uyanah, Uweh and Okon, 2021). It has the capacity and potential to generate top-notch human capital

that will support national economic development. According to Uyanah et al. (2021), education is a potent tool for the advancement of both the individual and society as a whole. Given its significance, ICT has helped numerous countries around the globe enhance their educational systems. To achieve positive outcomes, academic programs and administration are being digitalized.

Technology Acceptance Model

The technology acceptance model (TAM) is a theory of information systems that describes how consumers come to accept and use technology. The actual system use is the point at which people interact with technology. People use technology because of their behavioral intentions. The attitude (A), which is the general perception of the technology, influences the behavioral intention (BI). According to the model, when consumers are given new technology, a variety of variables affect their decision about how and when to use it, most particularly:

Perceived usefulness (PU) – This was outlined by Fred Davis as "the extent to which an individual believes that employing a specific system would improve their job performance". It denotes whether or not someone considers that technology to be beneficial for the task at hand.

Perceived ease-of-use (PEOU) – This is outlined by Davis as "the extent to which an individual believes that using a specific system will be free of effort" (Davis 1989). If the technology is simple to use, the hurdles will be overcome. No one is going to like it if it is difficult to use and has a complex functionality. Venkatesh et al (2003) developed the theoretical model of unified theory of acceptance and use of technology (UTAUT) in an attempt to bring together the principal competing user acceptance models. This model outperformed every one of the individual models (Adjusted R square of 69 percent).

Empirical Studies

Chege and Wang (2019) examined how information technology affects job growth in SMEs, and their findings demonstrate that technological advancements have a positive effect on employment growth in small businesses and serve as economic growth catalysts. These findings are supported by Das et al. (2017), who contend that governments and organizations can promote the growth of SME's and the creation of employment in developing nations by fostering a favorable technological environment. Ngwenyama et al. (2006) conducted a study on the impact of ICT investments on human development (through the lenses of education and health), and the findings support their contention that joint investments in ICT, health, and education can substantially enhance development. The Human Development Index (hereinafter: HDI) was used by Gholami et al. (2010) to examine the relationship between ICT and human development. Their study's findings demonstrate that ICT has a greater positive impact on human development in less developed nations than in highly developed nations. Bankole et al (2013) evaluated how investments in ICT affect human development. Hardware, software, research and development, and investments in telecommunications were used to make a distinction of ICT in their study; human development was assessed using the GDP per capita, anticipated years of schooling, education levels, and life expectancy.

Research Methodology

In this study, a survey research design was used with the aid of questionnaire that was administered to respondents. The population of this study are employees of the Polytechnic Ibadan. A total number of One Hundred and Five (105) respondents were selected randomly.

Data was collected using a research questionnaire as data collection instrument. Data analysis was done using the Statistical Package for Social Sciences (SPSS). The analysis involve Inferential and Descriptive statistics. The descriptive statistics such as simple percentages, frequencies, measure of dispersion such as mean and standard deviation was used in answering the research questions while the hypothesis was tested using Pearson Correlation.

Data Analysis

Table 1: Ways in ICT has contributed to human development in Nigeria

S/No	Statement	SA	A	D	SD	Mean	Stand. Dev
1.	ICT has helped in creating more job opportunities in the society	52 (49.5%)	53 (50.5%)	-	-	2.41	1.01

2.	ICT has enhanced growth and development in various sectors such as agriculture, education and health	43 (41.0%)	56 (53.3%)	6 (5.7%)	-	2.12	0.97
3.	ICT has improved communication such that people can communicate with each other in different part of the world	55 (52.4%)	43 (41.0%)	7 (6.7%)	-	1.54	0.62

Table 1 shows that 52 (49.5%) strong agree and 53 (50.5%) agree that has helped in creating more job opportunities in the society, 43 (41.0%) of the respondents strongly agree, 56 (53.3%) agree while 6 (5.7%) disagree that ICT has enhanced growth and development in various sectors such as agriculture, education and health. Also, 55 (52.4%) of the respondents strongly agree, 43 (41.0%) agree while 7 (6.7%) disagree that has improved communication such that people can communicate with each other in different part of the world. ICT creating more job opportunities has the highest mean score value ($X = 2.41$, $SD = 1.01$) followed by ICT enhancing growth and development in various sectors such as agriculture, education and health ($X = 2.12$, $SD = 0.97$).

What are the barriers to the growth of ICT in the society?

Table 2: Barriers to the growth of ICT in the society

S/No	Statement	SA	A	D	SD	Mean	Stand. Dev
1.	Lack of funding is one of the main barriers that affect the growth of ICT	21 (20.0%)	68 (64.8%)	13 (12.4%)	3 (2.9%)	2.54	0.87
2.	Shortage of trained professionals is one of the barriers that affect ICT growth	79 (75.2%)	16 (15.2%)	5 (4.8%)	5 (4.8%)	1.98	0.67
3.	Unfavorable government policies is one of the barriers that affect ICT growth	21 (20.0%)	59 (56.2%)	20 (19.0%)	5 (4.8%)	1.88	1.04
4.	Lack of infrastructures is one of the barriers that affect ICT growth	51 (48.6%)	28 (26.7%)	14 (13.3%)	12 (11.4%)	1.44	0.96

Table 2 showed that 21 (20.0%) of the respondents strongly agree, 68 (64.8%) agree, 13 (12.4%) disagree while 3 (2.9%) strongly disagree that lack of funding is one of the main barriers that affect the growth of ICT, 79 (75.2%) strongly agree, 16 (15.2%) agree while 5 (4.8%) disagree and strongly disagree respectively that shortage of trained professionals is one of the barriers that affect ICT growth, 21 (20.0%) of the respondents strongly agree, 59 (56.2%) agree, 20 (19.0%) disagree while 5 (4.8%) strongly disagree that unfavorable government policies is one of the barriers that affect ICT growth. Furthermore, 51 (48.6%) of the respondents strongly agree, 28 (26.7%) agree, 14 (13.3%) disagree while 12 (11.4%) strongly disagree that lack of infrastructures is one of the barriers that affect ICT growth. Lack of funding as one of the main barriers that affect the growth of ICT has the highest mean score ($X = 2.54$, $SD = 0.87$), Shortage of trained professionals as one of the barriers that affect ICT growth has a mean score ($X = 1.98$, $SD = 0.67$) while Unfavorable government policies as one of the barriers that affect ICT growth has a mean score ($X = 1.88$, $SD = 1.04$).

Hypothesis

H₀₁: There is no significant relationship between ICT and human development

Table 3: Pearson Correlations between ICT and Human Development

		ICT	Human development
ICT	Pearson Correlation	1	.685**
	Sig. (2-tailed)		.000
	N	105	105
Human development	Pearson Correlation	.685**	1
	Sig. (2-tailed)	.000	
	N	105	105

** . Correlation is significant at the 0.01 level (2-tailed).

The hypothesis of significant correlation between ICT and Human development was tested using Pearson Correlation. The result of the hypothesis showed a positive significant correlation ($r = .685$, $p < .05$) between ICT and Human development. This indicates that more investment in ICT will enhance human development.

Conclusion

This study is based on the nexus between ICT and human development. The study made use of a survey research design in which 105 respondents were selected using cluster sampling technique. A research questionnaire was designed and used as a research instrument for this study. The result of the first research question revealed that majority of the respondents agree that ICT creates more job opportunities ($X = 2.41$, $SD = 1.01$), ICT enhances growth and development in various sectors such as agriculture, education and health ($X = 2.12$, $SD = 0.97$). This implies that creating of job opportunities and enhancing growth and development in various sectors are some of the ways through which ICT has contributed to human development. The result of the second research question showed that majority of the respondents agree that lack of funding ($X = 2.54$, $SD = 0.87$), Shortage of trained professionals ($X = 1.98$, $SD = 0.67$) and unfavorable government policies ($X = 1.88$, $SD = 1.04$). are some of the barriers that affect ICT growth. The result of the hypothesis revealed a positive significant correlation ($r = .685$, $p < .05$) between ICT and Human development. The result of this study supports the study of Ngwenyama et al. (2006) who reported a positive correlation between ICT and human development. Also, the result agrees with the study of Gholami et al. (2010) who reported that ICT has a more significant positive effect on human development.

Recommendations

- i. The application of ICT in the Nigerian public sector should be expanded in order to make better use of government funds for national development.
- ii. Government should put in place a suitable program for training more hands in the field of ICT so as to have more trained professionals in the ICT field.

References

- Bankole, F. O., Farid S. & Irwin B. (2011). Investigating the Impact of ICT Investments on Human Development. *Electronic Journal on Information Systems in Developing Countries* 48: 1–19.
- Bollou, F. & Ojelanki N. (2008). Are ICT Investments Paying Off in Africa? An Analysis of Total Factor Productivity in Six West African Countries from 1995 to 2002. *Information Technology for Development* 14: 294–307.
- Chege, S. & Wang, D. (2019). Information technology innovation and its impact on job creation by SMEs in developing countries: an analysis of the literature review. *Technology Analysis & Strategic Management*. 32. 1-16. 10.1080/09537325.2019.1651263.
- Das, S., Munshi, M & Kabir, W. (2017). The impact of ICTs on agricultural production in Bangladesh: A study with food crops. *SAARC Journal of Agriculture*. 14. 78-89. 10.3329/sja.v14i2.31247.
- Davis, F. D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, 13 (3): 319–340, doi:10.2307/249008, JSTOR 249008, S2CID 12476939
- European Parliament. 2001. Developing Countries and the ICT Revolution. Available online: [https://www.europarl.europa.eu/RegData/etudes/etudes/join/2001/296692/DG-4-JOIN_ET\(2001\)296692_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/etudes/join/2001/296692/DG-4-JOIN_ET(2001)296692_EN.pdf)
- Farhadi, M. Hadi, S., Mohamed A. E., Masood F., Hadi F., Arezoo A. C. & Nader A.E. (2013). Contribution of Information and Communication Technology (ICT) in Country'S H-Index. *Journal of Theoretical and Applied Information Technology* 57: 122–27
- Gholami, R. & Higón, D. & Hanafizadeh, P. & Emrouznejad, A. (2010). Is ICT the key to development?. *Journal of Global Information Management*. 18. 66-83. 10.4018/jgim.2010091104.
- Grossman, Gene M. & Helpman, E. (1991). *Innovation and Growth in the Global Economy*. Cambridge: MIT Press Cambridge, p.359.
- Ngwenyama, O., Andoh-Baidoo, F., Bollou, F. & Morawczynski, O. (2006). Is There A Relationship Between ICT, Health, Education And Development? An Empirical Analysis of five West African Countries from 1997-2003. *EJISDC: The Electronic Journal on Information Systems in Developing Countries*, ISSN 1681-4835, Vol. 23, 2006. 26. 10.1002/j.1681-4835.2006.tb00150.x.

OECD. 2017. Available online: https://www.oecd-ilibrary.org/science-and-technology/information-and-communication-technologyict/indicator-group/english_04df17c2-en

Sarkar, S. (2012). The Role of Information and Communication Technology (ICT) in Higher Education for the 21st Century. *The Science Probe* 1: 30–40

Toader, E., Bogdan, N. F., Angela R. & Sorin G. A. (2018). Impact of Information and Communication Technology Infrastructure on Economic Growth: An Empirical Assessment for the EU Countries. *Sustainability* 10: 3750.

Uyanah, A. A., Unanam W. J. and Okon, U. I. (2021). Government Policies and Performance of Public Sector; A critical Appraisal of IPPIS IJPAMR Vol. 16 No. 5-2021.

Venkatesh, V.; Morris, M. G.; Davis, G. B.; Davis, F. D. (2003), "User acceptance of information technology: Toward a unified view" (PDF), *MIS Quarterly*, 27 (3): 425–478, doi:10.2307/30036540, JSTOR 30036540, S2CID 14435677