

Information and Communication Technology (ICT) Investment as a Determinant of Job Creation in the Niger Delta Development Commission (NDDC), Nigeria.

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Abstract: *The advent of ICT has profoundly changed almost all aspects of human society. It is central to how people communicate, interact, make decisions and do business including the way governments operate and deliver services. This study examined the interaction between Information and Communication Technology (ICT) investment and job creation in the Niger Delta Development Commission (NDDC), Nigeria. The study adopted the survey research design. 440 out of the population of 879 employees of the commission was used for the study. Data analysis was done using descriptive and inferential statistics such as percentage distribution, mean and standard deviation as well as regression analysis. The findings revealed an overall moderate extent of ICT investments in the Niger Delta region of Nigeria, it shows that ICT investment was a significant predictor of Job Creation ($F_{1, 306} = 171.637, P < .05$). Key challenges in the area includes youth's unemployment, lack of continuity of projects, illiteracy among residents, and inadequate management support as well as lack of funding from government. The study concluded that, ICT investment had a significant influence on job creation. It was recommends that the authority of NDDC should invest more in ICT infrastructure as well as employ more ICT expertise to help providing more ICT skills to the populace in the area so as to encourage global interaction in the area.*

Key Word: *Information, Communication, Technology, Job creation*

I. Introduction And Review Of Related Literature

The ICT Infrastructure is a physical asset which is designed as a system to provide crucial public service needed to improve quality of life of citizens at all levels. The infrastructures include ICT and telecommunication and others. The advent of ICT has profoundly changed almost all aspects of human society. It is central to how people communicate, interact, make decisions and do business including the way governments operate and deliver services. ICT plays a key role in social and economic transformation. It makes possible the transformation of government services and its business operations and enables open engagement with communities. Several studies have identified ICT infrastructure and in particular mobile telephony, as a key enabler of economic development through different channels including increasing price efficiency and reducing travel costs as well as increase job creation (Fafchamps & Minten 2012).

Elena (2016) examined factors influencing adoption of ICTs in accessing information by Small and Medium Enterprises in the hospitality industry in Kenya. His findings show that lack of adoption of ICT is harming industries as firms are losing the benefits of ICT utilization in business. In Europe and the United States, ICT firms were the first to realize the gains from new ICT applications and investments (Aker, 2010). In those countries, ICT innovations are created in firms, universities and research institutions for improve service delivery. In a related study, Georg and Quresh (2017) stresses that the use of innovative ICTs can bring about development. The open source software movement for example offers new opportunities for innovation and increasing job creation. In particular, the use of such platforms can enable entrepreneurs in low resource environments to access and use needed software to support their new businesses. The experience is similar in Nigeria where both the citizens and policy makers have embraced the centrality of ICT in sustainable development (UN Broadband Commission 2011).

The Federal Government of Nigeria has initiated several related policies and laws aimed at guiding the development of the ICT sector and harnessing its huge potential for national development. Unfortunately, Nigeria, like other nations, faces the inevitability of the fast technological and market convergence of the global ICT industry and must therefore continue to evolve new ICT policy frameworks to accommodate convergence and maximize the potential of ICT tools for national development. As stipulated in the Nigerian national ICT policy, the reality of ICT convergence has not yet been reflected in the country where the institutions that regulate and/or develop the ICT sector still function as distinct actors in the industry, without much coordination.

The rapid innovation and diffusion of ICT over the past few decades has brought about tremendous changes in the economy especially in the industrialized countries (Khayyat, 2017). The continuous decline in the price of ICT equipment and software led to increase in the ICT investment and diffusion in Nigeria. As a consequence, industries have witnessed significant transformation in their production structure. For the industrialized countries the ICT has become an essential part of their economy. Almost all firms and consumers use computers and Internet access for economic purposes, such as providing consumers with more diversified and customized products, improving product quality, and selling goods and services.

It has been reported that gaining access to ICT leads to higher rates of economic growth as ICT presumably has large positive spill over to other aspects of the economy and lead to higher skill and education levels among the workforce (Khayyat, 2010). Competitiveness among industries in the new world of globalization is linked to the ability firms have to innovate and how fast they can make this innovation real. The intensity of market demand and competition forces organizations to continually search for improvement and offer better services. Thus, the ICT usability becomes a matter of concern for industries to survive. ICT has contributed to redesign, simplification and innovation in work processes, making industries more responsive and active in the implementation of innovations and their insertion in the global market (Khayyat 2010). It has been debated that the fast paced growth of ICT services can be explained by a number of factors such as price decline of ICT equipment, advancements in technology, market liberalization, and privatization (GESI 2012, Khayyat et al, 2016). The output of the world's economy has also been growing at a faster rate during that period. In particular, many developing countries and transition economies have experienced rapid growth. Development in ICT is considered to be one of the driving forces of globalization and the rapid growth of the world's economy (GESI, 2012).

As ICT becomes less expensive, more portable, better integrated and interconnected, and embedded in a wider variety of devices, new applications in these fields and whole new industries such as interactive multimedia systems for business, home entertainment, and communications purposes are likely to evolve and to have profound effects on industries' structures, employment and economic growth.

The magnitude of the investment in ICT in the past decade has raised a lot of questions about payoff for both the nation and individual enterprises. Because ICT is often used to automate processes (that is, to perform tasks that might otherwise require substantial human intervention), and because automation is popularly associated with efficiency and cost reduction, questions about payoff have usually centered on productivity, as the latter is a concept that relates the level of outputs to the level of inputs used in the production. In particular, some economic studies have suggested that the large investment in ICT by the service sector has not been associated with substantial gains in productivity as measured by national macroeconomic statistics (Khayyat 2010). The ICT is considered a driving engine of green growth because of its effects on raising resource and energy efficiency (Ishida, 2015). ICT offers various functionalities such as the direct substitution of virtual process for physical process, system monitoring using censoring tools, data transmission and processing, driving and control of equipment (Schulte, Welsch & Rexhäuser 2014).

Although there has been much debate about the potential benefits of ICT investment to business organizations, it has been argued that undue reliance solely on the ICT investment is not sufficient to bring positive value to firm performance. Improper management of ICT investment not only can affect the business operational performance but can also lead to significant losses for businesses. It is contended that ICT can only be beneficial for companies if its implementation is accompanied by other resources (Chukwunonso *et al*, 2011) in order to ensure that all decisions related to ICT is properly governed by strong and independent board (Peansupap & Walker, 2005) to meet the strategic direction (Zhang & Chulkov, 2011).

Failures in ICT investment is often debated due to the inability of board of directors in ICT matters (Cohn & Robson, 2011; Nolan & McFarlan, 2005). One of the critical issues that have been highlighted in the current corporate governance practices is related to board diversity in ICT (Deloitte, 2015; Leblanc, 2012). As companies confront various ICT challenges in today's business environment, they should broaden the element for board diversity grounded in ICT expertise.

Previous studies have highlighted diverse convincing factors why companies choose to invest in ICT. ICT is seen more as a support function rather than a strategic tool (Willcocks & Lester, 1996) that can help companies to streamline and optimize their business processes (Kvochko, 2013), to increase their business profitability to better reflect firm performance (Gunasekaran *et al.*, 2001). In many organizations, the ICT investment made is intended to contribute to the performance of an organization, in line with Gunasekaran *et al.* (2001) that ICT investment made is for the purpose of business operational improvement in an effort to reduce costs and increase profitability of the company. Recent studies have shown that investment in ICT has led companies to better performance either in terms of their profitability (Arabyat, 2014; Makinde, 2014; Zhang *et al.*, 2011), productivity (Liang *et al.*, 2010), efficiency (Romdhane, 2013; Liang *et al.*, 2010) and innovation (Spyros & Euripidis, 2014; Jesudasan *et al.*, 2013; Chukwunonso *et al.*, 2011).

ICT investment through the acquisition of ICT equipment also helps companies to increase their competitive advantage. Some studies have argued that depending solely on ICT is not enough to cater for the sustainable advantage unless its implementation is complemented by other strategic business resources (Chukwunonso *et al.*, 2011). As the acquisition of ICTs need a huge amount of investment (Meliville, *et al.*, 2004), it is important for companies to ensure that all decisions made for ICT including its direction, strategy and investment is successfully governed so as to align with their strategic direction (Zhang & Chulkov, 2011).

According to the IT Governance Institute (ITGI), board of directors and executives play an important role in governing ICT to ensure that company's ICT sustains and extends its business's strategies and objectives (ITGI, 2003). It has been argued that ICT will be managed more effectively if it is accompanied by both board of directors and management, strive together in order to ensure that ICT can streamline their business operations and sustain their company's growth.

Literature have shown that the involvement of management in conducting ICT businesses has reduced the control weaknesses in a company (Boritz & Lim, 2007) led to increase in business effectiveness (Jamba, Tsokota, & Mamboko, 2013; Ali *et al.*, 2009; Ali and Green, 2005).

II. Research setting

The environment of this study is the Niger Delta region of Nigeria. The area which is described as the Niger Delta region of Nigeria lies between latitudes 4o and 6o north of the Equator and 4o and 8o east of the Greenwich. It comprises the states of Akwa Ibom, Cross River, Edo, Imo, Rivers, Bayelsa, Delta, Abia and Ondo, making it coterminous with all of Nigeria's oil producing states. Stretching over 20,000 km² of swamp land in the littoral fringes of the country, it embraces one of the world's largest wetlands, over 60% of Africa's largest mangrove forests, and one of the world's most extensive (Eyinla & Ukpo, 2006). The Niger Delta region in Nigeria is well-known for its huge presence of crude oil, the exploration of which has contributed to the nation's gross domestic products (GDP) on a large scale for the past six decades. In addition, more than 80% of the nation's infrastructural investments in the various sectors of our national economy depend largely on the income generated from the sales of oil exported from the Niger Delta Region. However, the deplorable state of the region led to the creation of the Niger Delta Development Commission (NDDC) as an agency of government in 2000. Its mission is to facilitate the rapid and even development of the well-endowed but highly beleaguered Niger Delta region of Nigeria (Ughakpoteni, 2012). This study is set out to examine the extent of investment in ICT infrastructure and has this has increased employment generation in the area. The study has the following specific objectives which are set to:

1. ascertain the extent of ICT investments in the Niger Delta region by NDDC;
2. establish the influence of ICT investment on job creation activities by the Niger Delta Development Commission;
3. find out the challenges to job creation in the Niger Delta region by NDDC.

Research questions

1. What is the extent of ICT investments made in the region by NDDC?
2. To what extent is knowledge management practiced in the region by NDDC?
3. What are the challenges to job creation in the Niger Delta region by the Commission?

III. Methodology

This study adopted the survey research design. The method is considered appropriate in order to specify the accurate description of how the independent variables (ICT investment) interact with (Job creation) in the Niger Delta Development Commission, Nigeria. The population for this study is made up of all staff in the head office and those in branches of the commission cutting across the directorates, the management staff, the senior non-management staff and junior staff across the various departments of the Commission. In determining the sample size, a proportionate stratified sampling technique was used to obtain a representative sample from each level (management, senior-non management and junior staff) in the commission. Thereafter, 440 out of the population of 879 employees of the commission was used for the study. The main instrument for data collection was a structured questionnaire. Ensuring face and content validity of the questionnaires involved a pilot study which was conducted among 30 Officers of the ministry of labour and productivity, Edo State. Reliability of the instrument was determined using a Cronbach's alpha of 0.7 and above was considered adequate for inter-item consistency among the items in the research instrument. The data collected was analyzed using descriptive and inferential statistics such as percentage distribution, mean, median and standard deviation. Regression analysis was used to establish the influence of the independent variable on the dependent variable. Specifically, regression analysis was used to test the hypothesis statement in the study. Statistical Package for Social Sciences (SPSS version 20.0) was used to analyze the collected data gathered in the course of the study.

IV. Results and Discussion

The extent of ICT investments in the Niger Delta region of Nigeria

The findings of this study (Table 1) indicates that the overall extent of ICT investments in the Niger Delta region by NDDC was moderate with a mean of 2.37 on a scale of four point. Areas of investment in the region by NDDC includes: Business Dimension (i.e. ICT investment in the business sector) (mean = 2.42), ICT infrastructure (mean =2.38), Inclusive Development (mean =2.31). The finding of this study agrees with a study by Verma and Kumar (2018) which identified the 21st century as a technological era that presents a revolution and innovation that uses Information technology for massive job creation in virtually every industry and in all fields. Our findings identified the use of Information technology investment as a strategic tool for job creation and as a tool for enhancing e-business development, inclusive development and improving business process improvements in organizations. This agrees with the study of Rashid (2017) on the case of information and communication technologies fostering 'inclusion' in developing countries. The study revealed that information and communication technologies are essential tools for fostering 'inclusive development in developing countries. Also that investment in ICT is an investment that provides inclusive development, job creation and economic development in organizations and in most economies of the world.

ICT investment on job creation activities by the Niger Delta Development Commission

Table 2 indicated that ICT investment was a significant predictor of Job Creation ($F(1, 306) = 171.637, P < .05$). It reveals that 35.7% of the variation in job creation is accounted for by the ICT investment ($F(1, 306) = 171.637, P < .05$). In addition, it indicates that ICT investment ($\beta = .564, p < .05$) significantly influenced job creation in Niger Delta region by NDDC. This is in consonant with the study of Kalra and Jain (2018) who examined e-banking and e-business. Their findings indicates that ICT investment enables e-banking reduces the work load as well as the resources involved as all the good and services in the sector. In a related study, Georg and Quresh (2017) reported that innovative use of ICTs can bring about development and economic growth. Other scholars have proven that telecommunication technology is a powerful tool for exchange information among economic agents (Masood & Marmefelt, 2012).

The challenges to job creation in the Niger Delta region by NDDC

Table 3 reveals that the challenges of Job creation in the Niger Delta region is quite high having a grand mean of 2.86. It was discovered that youth's unemployment in the region is worrisome. Other challenges includes lack of continuity of projects, illiteracy among residents, and inadequate management support as well as lack of funding from government among others. Overpopulation was also a major challenges of job creation in the Niger Delta.

Table 1: Extent of ICT investments in the Niger Delta region by NDDC;

Extent of ICT investment	Very high extent	High extent	Moderate extent	Low extent	Mean	SD
Business Dimension						
Provision of new e-commerce facilities on the region	77(25.0)	71(23.1)	83(26.9)	77(25.0)	2.4805	1.11968
Provision of ICT devices as enabler of business growth and development in the region	44(14.3)	103(33.4)	95(30.8)	66(21.4)	2.4058	.97905
Provision of funding and grants to operators to boost business productivity	58(18.8)	85(27.6)	87(28.2)	78(25.3)	2.3994	1.06144
Development of innovative technologies for business process improvement	62(20.1)	75(24.4)	95(30.8)	76(24.7)	2.3994	1.06756
Development of expert clusters for training of youths on entrepreneurship and small scale business development	41(13.3)	95(30.8)	117(38.0)	55(17.9)	2.3961	.93026
Average Mean Score = 2.42						
ICT infrastructure						
Provision of e-learning facilities	41(13.3)	106(34.4)	114(37.0)	47(15.3)	2.4838	.90766
Provision of telecommunication devices and equipment's	41(13.3)	114(37.0)	106(34.4)	47(15.3)	2.4610	.89248
Provision of computer information systems	34(11.0)	102(33.1)	120(39.0)	52(16.9)	2.3831	.89296
Provision of broadband technology to enhance internet connectivity in the region	38(12.3)	76(24.7)	147(47.7)	47(15.3)	2.3409	.88270
Provision of broadcast technology	27(8.8)	89(28.9)	127(41.2)	65(21.1)	2.2532	.88830
Average Mean Score = 2.38						
Inclusive Development						
ICT skills development and trainings for youth empowerment	34(11.00)	118(38.30)	111(36.00)	45(14.6)	2.4578	.87389
Provision of e-health facilities in the region	31(10.1)	102(33.1)	106(34.4)	69(22.4)	2.3214	.93289
Provision of e-agricultural facilities	39(12.7)	83(26.9)	117(38.0)	69(22.4)	2.2987	.95590

Provision of educational facilities to boost learning in the region	36(11.7)	85(27.6)	110(35.7)	77(25)	2.2597	.96388
Provision of e-government facilities in the region	31(10.1)	102(33.1)	81(26.3)	94(30.5)	2.2273	.99525
Average Mean Score = 2.31						
Grand Mean = 2.37						

Table 2: Influence of ICT Investments on JOB Creation in the Niger Delta region by NDDC

Model	unstandardized coefficients		standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1 (constant)	19.802	1.592		12.438	.000
ICT investment	.564	.043	.599	13.101	.000

R² = .359,
Adjusted R² = .357,
F (1,306) = 171.637, P < .05

Dependent Variable: Job creation

Table 3: Challenges of Job Creation

Challenges Of Job Creation	Percentage (%)
Lack of continuity of projects	154(50.0)
Lack of open innovation	146(47.4)
Change in government policies	136(44.2)
Lack of integration of IT systems and technical	141(45.8)
Inadequate mentoring programs	135(43.8)
Overpopulation in the region	130(42.2)
Lack of extra-organizational knowledge	131(42.5)
Insurgency and militancy in the region	124(40.3)
Lack of knowledge sharing culture	132(42.9)
Lack of incentives for innovation	127(41.2)
Inadequate ICT deployment and infrastructural deficit	122(39.6)
Lack of creative ideas	120(39.0)
Inadequate innovation policy	105(34.1)
Lack of funding from government	98(31.8)
Inadequate management support	92(29.9)
ICT illiteracy among the staff/residents	82(26.6)
Grand Mean = 2.86	

V. Conclusion and Recommendations

The outcome of this research indicates a moderate extent of ICT investments opportunities in the Niger Delta region of the federal republic of Nigeria. The study concluded that ICT investment had a significant influence on job creation from the perspectives of business dimension, ICT infrastructural development and inclusive development to create jobs in the region. The study recommends that the authority of NDDC should invest more in ICT infrastructure as well as employ more ICT expertise to help providing more ICT skills to the populace in the area so as to encourage global interaction in the area.

Limitations

Notable limitation came from two main sources:

First, the staff of the commission was located in nine different states which made data collection very expensive and involved a lot of travelling. However, the limitation was managed with the determination to complete the study within the stipulated time. Second, gaining access to the management staff of the commission was a big problem because of the security threats in the region. Nevertheless, this barrier was managed by involving the senior non-management staff and the junior staff who was very close to those at the management level in securing their participation in the study.

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