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## ACCOUNTANTS AND ICT: BEYOND THE FIGURES FOR SOCIO-ECONOMIC CHANGE

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### Abstract:

*This paper fosters the importance and need of international cooperation for use & promotion of Information and Communication Technologies for economic change in Nigeria among professional accountants. The concept of “Information Society” has made it imperative that no country can develop without involving and focusing on regional and global development perspectives. Collaboration has become the key word. When we talk of integrated socio-economic change, it takes into account many areas which can benefit from faster access and enhanced productivities by using ICT. Some case studies on use of ICT for different initiatives within Nigeria are reviewed and conclusions drawn on how it does support the socio-economic change and development, which may be similar and bear lessons for other developing countries. The supply side of ICTs has increased substantially in Kenya. For example, the number of mobile phone subscribers has more than tripled over the past five years, while FM radio stations have proliferated all over the country. There has been a lot of enthusiasm on internet usage with the landing of three undersea fibre optic cables in Lagos and their subsequent operationalization. Marxs of mobile phone service providers and communication equipment now dot both the rural and urban landscapes, and advertisements for some form of ICTs are common on billboards along major highways and roads.*

**Keywords:** *International Cooperation; Livelihood; ICT Benefits.*

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### 1. Introduction

The term Information and Communication Technologies (ICT) was coined to reflect the seamless convergence of digital processing and telecommunications. A most recent finding is that ICT plays a vital role in advancing economic growth and reducing poverty. A survey of firms carried out in 56 developing countries finds that firms that use ICT grow faster, invest more, and are more productive and profitable than those that do not. Authors have made comprehensive literature references enticing the relationship between ICTs and Socio-Economic Change and Development. They have deliberated on the characteristics and forces in ICTs which can play a pivotal role in the economic growth of a country Dabla, (2004). These results tend to

indicate that to achieve IT induced development, developing countries will have to wait until they cross the hub of per capita income growth and human development. Hence, developing countries like Nigeria are trapped in the vicious circle of low per capita income that leads to a low level of IT diffusion, resulting in turn in low per capita income and growth. ICTs can be used to directly influence the productivity, cost effectiveness and competitiveness in industries, which is the advantage developing countries can build their economies upon. Catching up on developed economies in terms of application of technology and resulting economic benefits had never been that easier. On the other hand, the results for not being able to adopt ICTs can also be disastrous Joseph, (2002). If we look at the opportunities and the threats which exist in the context of globalization, information technology can become a tool of either decreasing the inequalities that already exist in the world or increasing it.

People do not need word processing to survive, but they may want efficient ways of sharing information about livelihoods and employment. ICTs for human development are not about technology, but about people using the technology to meet some basic need. Understanding human requirements takes time and effort. User needs assessments are essential in planning the introduction of ICTs to communities, no matter what their status is. The advantages of previous decades, that is abundant natural resources or cheap labour are no more the advantages in the newly emerging “Information Society” or “Knowledge Economy”. While presenting his ideas on knowledge society, Drucker had already pointed out developing countries can no longer expect to base their development on their comparative labour advantage. The competitive advantage that now counts is the application of knowledge. Unfortunately, the brain drain is the result of non-recognition of the importance of knowledge and knowledge workers by developing countries as a result of which the divides are widening further and some of these least developed nations (LDCs) further losing their competence and to be advantage Tongia, Subrahmanian, & Arunachalam (2005).

Taking an example from ICT strategy of Nigeria, it has shown the comprehensive approach Government has adopted covering all the short-term and long-term growth objectives. The sectoral approach focuses on developing a country’s economy by using IT as a production or sector, hence in short term the human resources as inputs and markets to absorb the outputs are required for success. Both of these are addressed through numerous strategies for industry promotion, incentives for investors, training and development of human resources etc. However, the other approach focuses on the long term goals and objectives of the country which obviously are an economic and prosperous Nigeria. Here the country needs to take up the challenge of raising, feeding, educating and providing economic opportunity for a large population satisfying the targets set under the Millennium Development Goals.

The Digital Opportunities Initiative (DOI) report clearly states that while there are many types of strategies that various countries have evolved to develop ICTs, evidence suggests that an integrated approach to ICT development and deployment is most likely to yield success in human, social and economic development over the longer term. This is called the enabling approach where ICT is diffused into masses at all levels enabling maximization of benefits and welfare. In Nigeria’s case the sectoral approach has been combined with the diffusion or enabler approach to maximize benefits of economic growth in the short term without trading-off the sustainability of the same in longer run. The ICT vision and strategy should focus on people and

not just on technology. For this to happen, it is important to develop both the ICT vision and strategy with people in mind and with the involvement of these very same people. This sometimes in turn will require awareness. While planning and implementing an ICT agenda, it is helpful to take a look at established practice. Should the national ICT agenda be sector driven or should it focus on broader issues and objectives, on benefits for society and the economy as a whole. The main objective of this paper therefore is to evaluate areas which can benefit from faster access and enhanced productivities by accountants using ICT.

## 2. Empirical Review

Information and communication technology (ICT) can improve the activities undertaken by individuals and households in order to generate a livelihood. This is especially relevant when considering the poorest sectors of the population. In these sectors, characterized by low literacy rates and low income levels, cost-reduction strategies are often used for different purposes such as transportation, communications, and job-seeking. Nigeria has Africa's largest mobile market, with more than 148 million subscribers and a penetration of about 107%. The rapid growth has led to problems with network congestion and quality of service, prompting the telecom regulator to impose fines and sanctions. Network operators invest billions of dollars in base stations and fibre optic transmission infrastructure to support the ever increasing demand for bandwidth. Efforts are also being made to encourage infrastructure sharing and to outsource the management of towers to third parties. Much of the remaining addressable market is in rural areas where providing network infrastructure and operations is expensive. In combination with falling ARPU, this is forcing network operators to streamline and to develop new revenue streams from mobile broadband and data services such as m-payments and m-banking. Although the market is one of the most competitive in Africa, the industry regulator is tightening price caps and mandating further reductions of interconnect rates. Following years of delays, Mobile Number Portability (MNP) was finally introduced in 2013, promising to make the market even more competitive. The terrorist group Boko Haram has created difficulties for network provision and maintenance in the northern states, a difficulty which neither the government nor operators are properly positioned to address. Auction for spectrum in the 2.6GHz band postponed for a second time; additional 79 BTS installed under the USPF program; Airtel Nigeria sells 4,800 towers to AMC; Smile Communications extends LTE; government cracks down on substandard mobile devices; CDMA operators stop trading following financial difficulties; Etisalat sells its 2,136 tower infrastructure; tens of thousands of new base stations to be built; major network management contracts signed; mergers and acquisitions among smaller operators; regulator cracks down on poor quality of service; new price caps and lower interconnection rates; Mobile Number Portability introduced; report includes operator data to Q2 2014, regulator's market data updates to June 2015, recent market developments. International union of Telecommunication report that mobile phones have been the outstanding ICT platform in terms of growth and impact in the developing world" (Itu, 2006). In Nigeria, the telecommunication Industry particularly the mobile phone industry has been recognized as the fastest growing employer of labour Balogun (2000). Government treasury has been boosted by payment of over 200 billion Naira in taxes and levies. National productivity has also been enhanced as travel times and associated risks have been reduced, business communications improved and the rural-urban divide narrowed (Ndukwe, 2004). Additionally, family matters, finance and academic matters constitute the topics or subject of mobile communication for a majority of students. Mobile phones limit the

need for students to travel as well as facilitating the exchange of information as the need may arise. GSM activities have increased and promoted competition in the industry resulting in an exponential growth in the number of telephone lines. Along with this growth in lines has come a boom in private investment in the telecommunications sector. This shows that there is rapid growth in mobile phone subscription and usage in the country. “The pervasive growth of GSM in Nigeria is a bold pointer to how much it impacts on life itself. The growth in telephone penetration in Nigeria and the future potential for even more growth and pervasiveness tends to shift the paradigm of thought and maximize the fears of what was once morbidly referred to as the digital divide” (Okoruwa, 2004). Ndukwe (2010) also noted that “subscriptions to telephone services rose to the current level of over 74 million active connected lines

## **2.1. Experiences of Improvement in Livelihoods**

Recently, the extent to which ICTs in general and mobile phones in particular contribute to livelihoods has been widely studied. It is common to assume that mobile phones are part of everyday lives and that they represent a need among other needs in modern societies (Ureta, 2005). In addition, there is an underlying hope related to the contribution of mobile phones to livelihoods and well-being, especially in settings with constrained resources (Donner, 2007); mobile phones are also described as complex and powerful devices that alter and reflect the complex social ties that are the base of societies. Ideas such as these are supported by quantitative and qualitative research. Regarding the former, one of the most known and influential studies is Jensen’s (2007), which shows the impact of mobile phone use at micro-level in the fishing sector in Kerala (India). In this context, the use of mobile phones by fishermen and wholesalers led to a strong reduction in price dispersion, the complete elimination of waste, and near-perfect adherence to the law of one price, benefiting both consumer and producer in terms of welfare.

There is also evidence for the case of transport cost reduction (Bhavani et al., 2008). For itinerant workers in China, the use of a mobile phone can help save 6 per cent of time. In a different setting, Sridhar & Sridhar (2008) find that in the different stages of the agricultural value chain in rural Sri Lanka, there are high information search costs (transaction costs); if farmers had used mobile phones to obtain information, their information search costs would have reduced significantly, leading to creation of incentives to commercialize their agricultural production. Also in a rural context, Barrantes et al. (2011) estimate the effect of mobile phone use in households’ welfare, in Puno, Peru. With an increase of 0.1 in the probability of being a mobile phone user, there is a 7 per cent increase in welfare (measured as per capita monthly expenditure). Also, if a household member has been using a mobile phone for more than two years, welfare, measured by household expenditure, increases by 37.7 per cent. Through a vast review of the literature on mobiles and micro and small enterprises (MSEs) in developing countries, Donner and Escobari (2010) conclude that mobile phone use helps many MSEs become more productive, and the main contribution is found in improvements in sales and marketing and procurement processes. In addition, there is currently more evidence for the benefits mobile phones bring to already existing MSEs instead of new MSEs, amplifying existing conditions and information flows rather than transforming them. From a macro perspective, studies on the impact of both internet and mobile phones have been conducted. Khalil et al. (2009) find that these ICTs boost growth and the effect is higher in developing

countries than in developed ones: an increase of 10 percentage points in mobile phone adoption increases growth in GDP by 0.8 percentage points in a developing country, while the effect is 0.6 percentage points in a developed one. Waverman et al. (2005) finds that in a typical developing country, 10 more mobile phones per 100 people could increase GDP growth by 0.6 percentage points.

Aker & Mbiti (2010) identify five mechanisms through which mobile phones can produce economic benefits to consumers and producers. The first includes the improvement of access to and use of information, which will reduce transaction costs and lead to more market efficiency. Second, the availability of more information will increase firms' productive efficiency by allowing them to manage their supply chains in a better way. Third, due to the increasing demand for mobile-related services, mobile phones help create new jobs. Fourth, mobile phones make communications easier among social networks in the case of shocks, which reduces households' exposure to risks. Finally, mobile applications can be effectively used to deliver financial, agricultural, health, and educational services. After reviewing the relevant literature for the five described mechanisms, the main conclusion is that mobile phones do have the potential to increase consumer and producer welfare, and perhaps broader economic development.

## **2.2. International Cooperation in ICT**

International Cooperation is important in that it helps in making funds & financing available, which is the most challenging part for most of the developing countries. There is also better project management and tracking as against many public sector development projects failure to achieve their objectives for the reasons of bureaucratic lethargy, limited knowledge and skills or corruption. Despite international cooperation's critical role in facilitating the application of ICTs to development problems, the role and contributions of enterprises outside of national boundaries are seldom directly incorporated into national strategies. While international organizations, multilateral and bilateral donors, multinational corporations and NGO's may play important, even indispensable roles in national development programs, most resist long-term commitments that reduce their independence or otherwise link them with domestic political agendas. Often they also insist on special relationships or public profiles that distinguish their involvement from other outside participants. For their part, national leaders are often reluctant to specify roles for outside entities that might suggest dependencies or otherwise add to the powerful leverage already exerted by global enterprises. As a result, while outsiders are eager to give advice or offer criticism of national strategies, they seldom participate as effective collaborators in the formulation of national initiatives."

## **2.3. ICT for Rural Development in Remote Areas**

In 2004, DFRI funded this larger project targeting at use of ICTS for poverty alleviation and sustainable livelihood of locals through access and education about economic opportunities. The project makes special efforts to improve the livelihoods of women and youth in local area, through the provision of specialized health services and more accessible education. It targets at promotion of sustainable livelihoods and extradition of extreme poverty in the remote areas of the nation through action research in the application and integration of ICT. More specifically, the project aims to: Provide access to relevant information through ICTs and the Internet for the

remote populations living in villages; Document the action research experiences of all the partners while implementing the project so that the successful experiences can be replicated in other areas of the region, as well as other parts of the country; Promote ICT benefits experienced in this project among governments, donors, other policy makers and stakeholders by sharing and sending recommendations on best practices to the appropriate parties and; To introduce ICT as a possible means of providing employment exchange services in the remote areas

### 3. Analytical Framework and Methodology

A growing literature stresses the importance of the underlying economic stocks that determine income flows (Carter & Barrett, 2006). We take account of this and make use of the asset-vulnerability framework to identify further dimensions of deprivation. This approach takes account of the ‘asset portfolio’ of households, identifying five forms of capital that make up the portfolio. We include four of these for which we have measures: economic, human, physical, and social, and do not consider natural capital (land, biodiversity, the environment, water, and so forth) as we do not have household-level information on these assets. Due to data limitations, our indicator for most of these capitals is restricted to the number owned by each household rather than their estimated value. We thus first consider the association between household ICT access in both waves and their impact on livelihood, along with a number of control variables and the four other dimensions of deprivation using a binary logistic regression. This proxy ranges from 0 (the dwelling is constructed of impermanent materials and no services are provided) to 5 (the dwelling is constructed of permanent materials and all services are provided).

### 4. Data Analysis and Discussion

Tele-density rose from 6.4 percent in December 2000 to 53 percent by the end of 2009. The growth and advancement in telecommunications has improved the nation’s ICT ranking in the world and have positively impacted in all sectors of the nation’s economy. Oji-Okoro (2006) supported this view by stating that “mobile telephony usage by individuals enables them to communicate with loved ones, clients and business. For large business, it is a means of providing a service that leads to an increase in profits. Revenue is generated through taxes and duties for government. GSM has provided sources of livelihood for many who could have been idle.

Table 4.1: Tele-density (Mobile + Fixed)

Year	Total tele-density
2002	2.80
2003	3.66
2004	4.31
2005	6.25
2006	17.78
2007	21.59
2008	23.07
2009	24.43

The telecom market in the country is facing a continuous expansion at an explosive rate during the past few years. Although typical of a developing country the major contribution comes from

cellular market where the number of subscribers has increased from under 3 million in 2003 has crossed 30 million mark in 2006. The fixed line tele-density is still low although increasing at good rates after the introduction of CDMA-WLL phones by LDI license holders.

Table 4.2: Foreign Direct Investment in Telecom Sector (US \$ million)

Year	Total FDI	FDI in Telecom Sector	Contribution in Total FDI (%)
2008	484.7	6.1	1.26
2009	798	13.5	1.69
2010	979.9	207.1	21.13
2011	1524	494.4	32.44
2012	2224.7	1004.6	45.29

PTCL was privatized in January 2006 and UAE based Etisalat has taken over the management control during April 2006. At the moment, some internet service provider companies in Nigeria are: MTN Nigeria; Glo Mobile (Globacom); Bharti Airtel (formerly Zain, Celtel); Etisalat Nigeria, M-Tel (Nitel); Visafone; Starcomms (Capcom); Multi-Links; Reliance; Intercellular; Megatech Engineering (Zoda Fones); Telkom SA; Econet Wireless. All employ GSM technology. Besides multinational giants like Siemens, Alcatel, Nortel, Ericsson, ZTE, Huawei Technologies are present in the country and very actively contributing to the design and deployment of next generation technologies for the new entrants. ZTE is into active research on NGN technologies with huge R&D centre in the country. At the end of first phase of de-regulation the issuance of many new mobile licenses, 12 Long Distance and International (LDI), 76 Fixed Local Loop (FLL) and 92 Wireless Local Loop (WLL) licenses has been completed. 2G, 2.5 & some 3G services are widely being used in the country including WAP, SMS, and GPRS. As anticipated, the model shows positive and significant associations between all the dimensions of financial status and ICT access except for social capital in 2007/08. The odds of gaining access to ICT are more than doubled (2.228) by a unit improvement in the logarithm of the financial status score. Stronger results are found for our proxy for human capital (we use education). The odds of a household with ICT access containing a member with secondary education are around four times those of households without this asset. The odds of having ICT access in urban areas are just over 1.5 times those in rural settlements.

## 5. Conclusions and Recommendations

The creation of Digital Opportunities within all sectors as a long term approach is essential for socio-economic development of a country or region. International Cooperation and efforts in these directions over the past years have stated to bring the results by narrowing the digital divide in Nigeria and other developing countries. It has been quite rapid because of the benefits attained from sharing the knowledge and collaborating. Reliability of data collected and disseminated in all sectors for better planning. It is obvious that these may be the areas which do not directly contribute to the economic growth but indirectly these are the areas which will help in eradicating poverty, creating and accessing economic opportunities and at the same time sustainability and adaptation, which is the key for success in the Knowledge Economy Hameed (2008).

## References

- [1] Aker, J. and Mbiti, I. (2010) 'Mobile phones and economic development in Africa', *Journal of Economic Perspectives* 24 (3): 207–32 <<http://dx.doi.org/10.1257/jep.24.3.207>>.
- [2] Balogun, J. (2000). Impact of GSM on economy and development. Paper presented at center for culture and technical interchange between East and West. Gwagwalada. Abuja.
- [3] Bhavani, A., Chu R.W-W., Janakiram, S., and Silarszky, P. (2008) *The Role of Mobile Phones in Sustainable Rural Poverty Reduction*, Washington, DC: World Bank, ICT Policy Division, Global Information and Communications Department  
<http://Siteresources.Worldbank.Org/Extinformationandcommunicationandtechnologies/Resources>
- [4] Carter, M.R. and Barrett, C. (2006) 'The economics of poverty traps and persistent poverty: an asset-based approach', *Journal of Development Studies* 42 (2): 178–99.  
<http://dx.doi.org/10.1080/00220380500405261>.
- [5] Dabla, A.(2004) "The role of IT Policies in promoting social and economic development: The case of the state of Andhra Pardesh, India," *EJISDC* 19, 5, 1-21
- [6] Donner, J. (2007) 'Research approaches to mobile use in the developing world: a review of the literature', *The Information Society* 24 (3): 140–59.  
<http://dx.doi.org/10.1080/01972240802019970>.
- [7] Donner, J. and Escobari, M. (2010) 'A review of evidence on mobile use by micro and small enterprises in developing countries', *Journal of International Development* 22 (5): 641–58  
<http://dx.doi.org/10.1002/jid.1717>.
- [8] Hameed, T.(2008) ICT as an enabler of Socio-Economic Development Online available at:  
<http://www.idrc.ca/IMAGES/ICT4D/PanAsia/PAN/chap4.html>
- [9] Khalil, M., Dongier, P. and Qiang, C.Z.-W. (2009) 'Overview', in *Information and Communications for Development. Extending Reach and Increasing Impact*, Washington, DC: World Bank [http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D\\_2009\\_Overview.pdf](http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D_2009_Overview.pdf) [accessed 5 September 2015].
- [10] Ndukwe, E. (2004). Welcome address delivered at the international telecommunication union/ economic commission for Africa validation workshop on universal access at Bolingo Hotel & Towers Abuja on Tuesday 28th Sept.
- [11] Ndukwe, E, (2010, February 16). Ndukwe lists measures for sustainability of telecom revolution. *Daily Independent*
- [12] Oji-Okoro, M. (2006). Mobile telephony and sustainable livelihoods in Nigeria: Case studies from south east Nigeria. In C.C.Iyoha (Ed.) *Mobile telephony: leveraging strengths and opportunities for socioeconomic transformation in Nigeria* (p.54). Lagos: Ezcell Communications Ltd.
- [13] Okoruwa, C. (2004, August 4). Three Years of GSM. *The Guardian Newspaper*, p.5.
- [14] Sridhar, K.S. and Sridhar, V. (2007) 'Telecommunications infrastructure and economic growth: evidence from developing countries', *Applied Econometrics and International Development* 7 (2): 37–61.
- [15] Tongia, R. ,Subrahmanian, E. and Arunachalam, V.(2005) "Information and Communication Technology for Sustainable Development , Defining a global research agenda, Bangalore, p.13
- [16] Ureta, S. (2005) 'Variations on expenditure on communications in developing countries: a synthesis of the evidence from Albania, Mexico, Nepal and South Africa (2000–2003)', London: London School of Economics, Media and Communications Department  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.104.9318&rep=rep1&type=pdf> [accessed 20 September 2015].
- [17] Waverman, L., Meschi, M. and Fuss, M. (2005) 'The impact of telecoms on economic growth in developing countries', in *Africa: The Impact of Mobile Phones*, Vodafone Policy Paper Series

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