Information Communication Technology and Development in Africa

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ABSTRACT

This paper provides a conceptual framework in x-raying the various components of Information Communication Technologies (ICTs), and examines some perspectives of meanings of development, with particular reference to the third world countries of Africa. It investigates the extent of adoption of ICTs in the African continent, and considers the level of usage of these technologies by citizens as indices and enabler of development. Using secondary data and some theoretical assumptions, the paper argues that socio-economic and regulatory difficulties inhibit citizens' adoption of ICTs in their private undertakings, and recommends that African countries should streamline their communication regulatory policies if Information Communication Technology is to unleash its developmental strides in Africa.
Keywords: Information Communication Technologies, Telecommunications; Computing; Convergence

INTRODUCTION

Man, from time immemorial, has been at work on how to conquer space and time, and improve his standard of life in this planet, Earth. He has, as a result, engaged in numerous exploratory exercises to build his capacity to grapple with the challenges posed by his natural environment. One phenomenal discovery that has brought tremendous transformation in man's capacity to subdue his environment is technology, and at the centre of it is Information Communication Technology (ICT).

Information communication technology is one of the interesting and greatest achievements in the modern times. The evolution of ICTs has ushered in the modern information societies where the exchange of information remains the dominant economic activity and source of power. ICTs have permeated all aspects of human endeavour, changing the way we learn, play, work and do business. They are, in fact, one of the driving forces of globalization.

The term information communication technology (ICT) is presently often used by journalists, industrialists, engineers, and administrators. The UK Department of Industry was quite comprehensive its conceptualization of ICT. The UK Department of Industry defines ICT as the use of microelectronics-based combination of computing and telecommunications to acquire, process, store and disseminate vocal, pictorial, textual and numerical information. ICT can, therefore, be simply defined as the science and activity of storing and sending information by using computers.

[1] appear simple in their view when they described ICTs as "electronic means of capturing, processing, storing and disseminating information". Drawing from many sources, [2] concludes that ICTs are "the group of technologies that is revolutionizing the handling of information and embodies a convergence of interest between electronics, computing and communication".

The potential of these communication technologies becomes more amazing when one considers the impact of digitization of information. For instance, the use of cell phones to download an e-mail, view a video clip and listen to a song, indicate advances in digital technology. This has led to merging of

formerly distinct forms of communication, to create synergies that have now been termed convergence. The digitization of information has created the convergence revolution [3].

ICTS: Different Forms/Components

According to United Nations Economic Commission for Africa (ECA), ICTs cover internet services provision, telecommunication equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network based information services and other information and communication activities.

Indeed, ICTs involve many ranges of technologies that are grouped into two major modes. These are the telecommunications and the computer communications. They include digital and cellular phones (like GSM), telephones, fibre - optics, microwaves technology, satellite communication, transistor, video disc, telex, teletext, digital broadcasting systems, facsimiles, microprocessors, computers, internet, among others. These media technologies have combined to enthrone speedy faster and easier gathering, processing and distribution of news and information around the world [4]. They serve as engines that drive the deployment of knowledge and information.

What is development?

Different perspectives of meanings have been given to development by various scholars. Naturally, such definitions cannot be taken off some basic variables such as ideology, politics, culture, etc. To the third world countries, [5] believes the process of development must be characterized by the following factors:

- ❖ Development should bring change,
- ❖ This change should be for the better,
- ❖ The change should be for the benefit of the majority of the people

- ❖ The process should be participatory, that is, involve the people as closely as possible.

In the understanding of [6], development at the individual level implies increased skill and capacity, greater freedom, creativity, self-discipline, responsibility and material well-being. To social group, it implies an increasing capacity to regulate both internal and external relationships, while economically, society develops as its members jointly increase their capacity for dealing with the environment.

To [6], "development is simply the process of problem solving or responding to new challenges with a view of mastering them." Writing on "Towards a Re-Definition of Development", [7] postulates

> that to the extent that, much of what has taken place in the development process as it pertains to Africa, has been masterminded and executed primarily outside the command and control of Africans, it is only these none-Africans who can legitimately be said to have experienced development, because it is they who have undertaken and undergone these processes of development. Africans then, the inventory of the results of such process notwithstanding, would have been little or more than spectators at the arena of development, observers on the sidelines of history, watching the process of transformation to which they have lent their name, with little or no substantial intellectual, psychological or emotional gain or advancement from the process.

The above underscores the importance of the people of Africa being at the centre of the development process, both in terms

of its execution and benefits. [8] seems to share a similar view, however, with more emphasis on who should drive the wheel of development in the society. He posits that development involves "the desire for changes that will affect citizens positively and the non-allocation of responsibilities for citizens' welfare to nobody but all".

Development is also conceptualized by [9] as "extending the benefits of development to the poorest among those seeking a livelihood in the rural areas." In this work therefore, development refers to the improvement in the standard of living of the citizens of African countries, carried out by themselves for themselves.

THEORETICAL ANCHOR

Technological Determinism theory: This work is modeled after the Technological Determinism theory of Mass Communication. The theory is a society media theory that attempts to explain the link between the dominant communication technology of an age and key features of society. Technological Determinism theory tends to concentrate on the potential for social change of a particular communication technology and to subordinate other variables. The theory presumes that a society's technology drives the development of its social structure and cultural values.

Harold Innis, the major proponent of this theory attributes the characteristic features of successive ancient civilizations to prevailing and dominant modes of communication [10]. In effect, the thrust of this theory is that information communication technology is fundamental to society. It implies that sequence of invention and application of communication technology influence social change and that, communication revolutions lead to societal revolution.

This theory is considered relevant to this study for obvious reasons. The information communication technologies have the capacity to transform the way things are done in Africa for higher productivity. Adopting new communication technologies can improve agriculture, commerce, governance and the general economy of the African countries. Hence, this paper attempts to x-ray the emerging communication technologies and the level of their adoption and usage by both the public and private sectors of African countries.

Diffusion of Innovation theory: The emergence of digital ICTs, viewed from all aspects, has enhanced speedy, faster and easier gathering, processing, storage and distribution of information around the world. It has changed the ways we play, do business, carry out research and entertain ourselves. It reduces emphasis on location and time and tends to homogenize the world into a global village.

[11] in his "Diffusion of Innovation" paradigm explains that the adoption of new technology is not done at the same rate by countries, cultures, regions or continents. It follows some stages, which include: awareness stage, interest stage, evaluation stage and trial and adoption stages. This is why, despite the widespread advantages inherent in ICTs, some countries still lag behind in adopting the new technologies. The slow adoption of ICTs by some countries in the various strata of their economy has continued to be a clog in the wheel of progress in these countries.

For the reason that ICTs function to mediate all development activities in the current information age, knowledge of the extent of adoption and usage of ICTs by citizens is, therefore, an important indicator of the level of development of any society. Here in lies the relevance of this theory. Hence, this paper seeks to identify the level of adoption and usage of information communication technologies in the developing countries of Africa.

The current status of information communication Technology (ICT) in Africa

In their Final International Telecommunication Union (ITU) and African Telecommunication Union (ATU) 2018 ICT Week Presentation, the Secretary General of ATU, Soumaila Abdoulkarim and ITU Regional Director for Africa, Andrew Rugege catalogue a

comprehensive report on the trends of ICT use in Africa. According to the report,

- Strong ICTs growth, particularly in mobile cellular network penetration in Africa is 63.5%.
- Internet users is 16.3%
- Africa has low ICT Development Index score (Highest African Country ranked 70th globally out of 155).
- Mobile: broadband penetration is still below the global average: 10.5%
- Fixed broadband penetration remains very limited: 0.3%
- There is widening of the digital divide in the African region (ITU 2018:4-7).

It is on record that the use of ICTs has grown relatively rapidly in most urban areas in Africa. [12] reports that within the last five years, more mobile cell-phones were deployed in the African continent than the number of fixed lines laid in the last century. Hundreds of new local and community radio stations have been licensed and satellite TV is now also widely available.

The ICT landscape in Africa has changed dramatically over the last few years with the following significant developments:

- One of the early and still most important impacts has been in the use of e-mail to reduce the cost and to increase the speed and duration of international communications. This has allowed many people and organizations to improve management, obtain resources and generally achieve much better communications with their family, friends, colleagues and partners around the world.
- ICT is gaining entrance into governance as many administrations are beginning to streamline their operations and improve internal efficiencies by adopting ICTs. For example, the Government of Lesotho recently declared that all announcements for cabinet meetings would be made only by e-mail [13].

However, the above examples are unfortunately few due largely to "the low level of penetration of infrastructure and supporting environment necessary to effectively use ICTs in Africa" [6]. The digital divide is still at its most extreme in Africa where the use of ICTs is still at a very early stage of development, compared to other regions of the world. Of the approximately 816 million people in Africa in 2001, it is estimated that:

- 1   in 4 have a radio (205m)
- 1   in 13 have a TV (62m)
- 1   in 35 have a mobile phone (24m)
- 1   in 40 have a fixed line (20m)
- 1   in 130 have a PC (5.9m)
- 1   in 160 use the internet (5m) and
- 1   in 400 have Pay-TV (2m) [6].

[5] also notes that the divide between urban and rural areas is even greater. Most of the available services and users are concentrated in the towns, while the majority of Africans are scattered in small communities spread-out across vast rural areas. Even as telecom infrastructure is beginning to spread in Africa, domestic use has, until recently, been largely confined to the small proportion of the population that can afford their own telephone. This is because; the cost of renting a connection averages 20% of GDP Per capita as compared to a world average of 9% and only one percent in high-come countries. (Continental Connectivity Indicators 2006).

Problems of ICT Use in Africa

African countries are now aware of the benefits derived through adoption and use of ICTs but there are many serious challenges which must be addressed, as outlined by [12] and chief among them are:

- Inadequate communication and power infrastructure
- Shortage of ICTs facilities and ICTs skills
- Inadequate institutional arrangements
- Limited financial resources
- Inadequate public private partnership

- Limited data management capacity
- Inadequate horizontal and vertical communication.

Reviewing Africa's ICT challenges, [8] rather examines the internal factors that bedevil the efforts of African countries to effectively adopt ICTs for development. According to him, there is "socio-economic disparities" among African States such that while some African States are marginally ahead in the race to equip themselves with effective ICT infrastructure some others lag far behind. Akin to the above is the concentration of the available ICTs infrastructure in the urban cities, leaving the rural dwellers with no basics. Yet about 70-80% of the African population live in the rural communities. [3] notes this ugly situation and posits that "rural Communities without basics" erode some countries' incentive to develop the ICT sector.

There are also the problems of stability and peace, leadership and political will, brain drain and competing interests in the development agenda within and among the countries of Africa. [9].

Strategies for Ensuring Effective Use of ICTS for Development in Africa

Although technology has certain transformative qualities, it cannot, by itself, bridge the digital divide that is fast consigning analogue machines into obsolescence. The hard work of ensuring conducive policies and regulatory pre-conditions must be undertaken in order to realize the benefits of technology.

Against this backdrop, [9] outlines what it calls "4 Pillars for development of ICTs in Africa" to include:

- ICT Sector Reform: liberation/privatization/co mpetition.
- Acquisition of technology: mobile, wireless and smart terminals.
- Consensus at global, regional and national levels.
- Public private partnership.

Drawing from the above, [1] remarked that the digital divide characterized by highly unequal access to and use of ICTs which manifests itself both at the international and domestic levels needs to be addressed by national policy makers. The adoption of ICT, [3] further stressed, requires a conducive business environment, encouraging open competition, trust and security, interoperability and standardization, and financial resources for ICTs.

Ensuring the availability of minimum supply of ICT infrastructure, roads and electricity (including solar and renewable energy) for remote and rural areas should be considered an important part of the strategies; lowering the cost of personal computers for targeted population groups, relaxation of import duties, tax breaks and assurance that investors can regularly repatriate their investments should be incorporated [11].

CONCLUSION

Availability and use of technology by the citizenry depicts the level of development attained by a country or continent. Information and Communication Technology, therefore, cannot be ignored in any developmental effort given its pervasive nature and the pivotal role it plays in the contemporary information society of the 21st century.

Because of decades of relative deprivation by colonial antecedents and bad leadership, African countries, as outlined in this paper, are in dire need of ICTs to enable them effectively exploit the vast resources in the continent and be positioned on the path of development. But they have to garner the political will in order to overcome the socio-economic and regulatory difficulties that hinder citizens' access and use of the technologies. This is the only way to localize the use of ICTs in African countries and fast-track development in the continent.

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