Harnessing ICTs for Development in Ghana:

A Research Agenda

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ABSTRACT

The revolutionary transformations, dispersion, and convergence of information and communication technologies (ICTs) in the past few decades, especially since the 1990s, have generated radical changes in the methods of communication within countries and across international borders, in social interactions, and in doing business. The phenomenon has also had major impacts on the transmission and reception of news and information of diverse nature as well as on development processes, social, economic, political, and cultural change. Since the early 1990s, a considerable amount of attention has been devoted to the role and functions of ICTs in international, regional, and national discourses and conferences. The increasing prominence of ICTs in discourses on communication, socio-economic change, and development is also reflected in the increased number of research and publications on that topic in recent decades, particularly since the beginning of the 21st Century. It is in this context that the present paper examines the implications and applications of ICTs in socio-economic development process in Ghana. It briefly looks at the broad landscape of ICTs in Africa with a focus on Ghana. It highlights some initiatives in the ICT sector, including selected studies carried out on ICTs and their applications. The paper makes a case for more research to examine the contributions of ICT to Ghana's socio-economic development, with a focus on ICT availability, accessibility and, utilization as a crucial and necessary enabler for development.

Introduction

Currently, there is no uniform or universally accepted definition of ICT. The term is generally accepted to mean all devices, networking components, applications, and systems that combined and allow people and organizations to interact in the digital world. It signifies any product or process that enables the storage, retrieval, transmission, or receiving of information electronically in a digital form, using personal computers, digital television, mobile phones, email, robot etc.

ICT is now often defined to include the production of telecommunication equipment, computers, and other electronic equipment as well as the provision of software, telecommunication and computer serviceshttps://en.wikipedia.org/wiki/Information_and_communications_technology (downloaded on 31st October 2017).

The ICT industry had, by the late 1990s, become the most important and fastest growing industry in the world (Hamelink, 1999:25).The revolutionary transformations, dispersions, and convergence of information and communication technologies (ICTs) in the past few decades, especially since the 1990s, have generated radical changes in the methods of communication, worldwide.The phenomenon has also had major impacton the transmission and reception of news and information of diverse nature as well as on development processes, social, economic, political, and cultural change. This is particularly so in developed societies with high penetration of ICTs and such social media platformsas Facebook, Twitter, Instagram, Linked-in,WhatsApp, etc.

Since the late 1990s, a considerable amount of attention has been devoted to the global role and functions of ICTs indaily human discourses and conferences on communication for social change and development. The increasing prominence of ICTs in the discourses on communication, socio-economic change, and development is also reflected in the increased number of research and publications on that topic in recent decades. In their studyof scholarly articles appearing in peer-reviewed online and offline journals dealing with communication and development during the 10-year period of 1998 to 2007, Ogan, Bashir, Camajet.al.(2009)found a shift from the traditional mass media to ICTs in the published studies analyzed. It is in this light that the present paper examines the applications of communication and information technologies in socio-economic development process in Ghana. It briefly looks at the broad landscape of ICTs in Africa with a focus on Ghana. It highlights some initiatives in theICT sector in the country and discusses some studies carried out on ICTs and their applications. We also note some pressing issues which demand further research scrutiny for empirical data and information requisite for policy reformulation, strategic actions and practice to ensure effective and efficient harnessing of ICTs for socio-economic development in the country.

ICT landscape in Africa

Some authors have attributedthe unprecedented and rapid innovations in ICTs and their spread into various world regions tosuch factors astechnological integration and convergence of computers, broadcasting, telecommunications, and consumer electronics as well as globalization (Sesharigi, 1999).Defined as the production of telecommunication equipment, computers and other electronic equipment as well as the provision of software, telecommunication and computer services, the ICT industry had, by the late 1990s, become the most important and fastest growing

industry in the world, as noted byHamelink (1999:25). The world community has seen pervasive and diverse applications of ICTs in such areas as commerce, banking, agriculture, health, education, transportation, publishing (newspapers, magazines, journals, books), governance, and administration. These technologies have had tremendous impact on socio-economic processes and made significant contributions to GDP growth,especially in theindustrialized societies in Europe, North America, and Asia. Thesocio-economic impacts of ICTshave been well analysedby ICT and development scholars, researchers, social scientists,and others (see, for example,Hamelink, 1999;Weigel&Waldburger, 2004;Broadband Commission, 2015; and Winseck, 2016). For example, in its report on the state of broadband in 2015, the Broadband Commission for Digital Developmentnotes that broadband (and other ICTs) constitute "... a vital enabler of economic growth, social inclusion, and environmental protection" (p. 8). However, other critics have pointed out that ICTs also contribute to widening the digital divide and social inequities between and within countries.

ICTs are gradually becoming daily realities in the lives of segments of the national populations in Africa. Although the penetration and use of ICTs in the region is not as pervasive as in the industrialized societies, there are indications that these technologies are increasingly being used, especially by those in urban communities and among the educated youth. A report by the International Telecommunication Union (ITU) estimates that by mid-2016, there were 772 million mobile or cellular phone subscriptions in Africa and about 25% of the population used Internet (ITU, 2016). An earlier report by the ITU and UNESCO noted that the region was the fastest growing and second largest market for mobile phones, although the region has the lowest mobile penetration (ITU & UNESCO, 2012). As the report notes, "... for the first time in its history, a large number of African people can communicate with each other over distance, receive information and access services via mobile devices. As a result, mobile telephony has significantly impacted on the way people communicate, socialize, play, pay for things, and interact with government" (ITU & UNESCO, 2012: 13). However, it is worth noting that the spread of ICTs in Africa is uneven and there are wide disparities within and among countries. With specific reference to Ghana, a 2012 ITU report estimated that about 15% of Ghanaians had access to Internet and that mobile broadband penetration was about 23% (ITU, 2012). A recent 2017 study by the Groupe Special Mobil Association indicated that Ghana has 67% mobile penetration with gender gaps in access and utilization (Ghanaian Time 25th October 2017 last Page).As elsewhere in the African region, the technologies are being applied in commerce, trading, banking, agriculture, education, health, transportation, and other social fields and are facilitating electronic transactions and services in the country.

Initiatives to promote ICT in Ghana

A number of policy and capacity building initiativeshave been implementedto support, promote and encourage the use of ICTs in socio-economic processes in Ghana.

Policy Initiatives

Given that the spread and effective use of technologies in society may falter in a policy and strategy vacuum, one may argue thatthe most crucial actions taken in the country have been the formulations of policies and regulations,the most significant of which is theGhana ICT for Accelerated Development Policy. Formulated in June 2003, thepolicy wasdesigned to "... address Ghana's developmental challengesand accelerate the nation's socio-economic development process to improve the socio-economic well-being of its people through the development, deployment and exploitation of ICTs within the society and economy" (the Government of Ghana, 2003:8). Analysis of the policy document shows that the policy-makers saw ICTs as crosscutting catalyst for development in the various sectors of society and the economy (education, agriculture, health, governance and administration, social, public and civil services, business and commerce).However, there is little evidence indicating that the Ghana ICT for Accelerated Development Policy has been consistently implemented in the four-yearly phases (starting from 2003 to 2022) envisaged. In addition, there no certain indications of the effectiveness and impact of roles played by key implementation agencies, partners and stakeholders in each of the sectors. Similarly, there is limited clarity on the kinds of institutional arrangements, financial resources, enabling environment, and critical success factors for an effective implementation of the policy. Also, not evident are the outcomes of the periodic reviews of the policy which, as envisaged in the policy document, are necessary "... in relation to its key elements to meet changing developmental objectives and priorities as well as changes in the global economy and advances in the technological environment" (the Government of Ghana, 2003:81). Such periodic revisions were expected to have taken place in 2006 and 2012 (see Kunteh, 2012). In this regard, it is perhaps an indication of inadequate information, awareness and knowledge among different segments of the Ghanaian population, including some government officials, of the existence of the Ghana ICT for Accelerated Development Policy that the then Deputy Minister of Communication was reported to have announced at the opening of a sub-regional information technology conference in Accra that the government had planned to come out with policies and regulations to enable people to realize the full benefits of ICTs as a tool for national development(Wemakor, 2015).

In the operational realm, indications abound of the applications of ICTs in such socio-economic sectors as education; agriculture; provision of health care; banking services (verifying account balances, transfer and deposits of funds as well as cash withdrawals); transportation; and commerce with the establishment of a number of e-commercial enterprises/online shops such as Jumia, Heel The World, Carmudi,eShop Africa and Zoobashop where a variety of items including artefacts, clothing, electronics, cell phones, lap-tops, and home appliances are offered for sale on line (Tawiah, 2015). Despite the above, what is not so apparent is the impact of such applications of ICTs on socio-economic development and growth in the country.

Capacity Building Initiatives

Several capacity building initiatives have also been undertaken in education and training in ICTs with the setting-up of ICT learning centres and training institutions such as the IMPC IT Learning Centre. The most prominent of these centres is theAdvanced Information Technology Institute (Ghana-India Kofi Annan Centre of Excellence in ICT) which was established in 2002 to stimulate

the growth of the ICT sector in Ghana and other ECOWAS countries through teaching and learning as well as practical research on the application of ICT4D in Africa.With a few exceptions such as the Savana Signatures (Savign) Training Centre in Ho andTamale, the training programmes, seminars and forums organized by the ICTs training centres tend to be generally technical in nature and scope (computing, web design/development, database technology/creation, innovations in ICTs, networking, business IT, business simulation modelling, e-leadership, e-procurement, etc.).A few of the public and private tertiary educational institutions also offerprogrammes and courses on ICTs, some of which are oriented to ICTs for development. In addition to these educational and training efforts (which generally focus on the more literate segments of the population), there are occasional and sporadic training workshops for other social groups.However, there is need for empirical evidence onthe extent to which these educational and training programmescontribute to effective use and applications of ICTs by individuals, especially in rural communities and among socially-disadvantages groups, in their efforts to improve theirin socio-economic status.As noted by participants in the first World Congress on Communication for Development (Rome, Italy, October 2006), "the potential of ICTs is not realized through access to ICT or ICT-enabled services alone but through people's ability to use the technology and services effectively to address their needs and to allow them to dialogue, to be heard, to learn, to participate in community life and democratic processes and ultimately to improve their livelihoods" (the Communication Initiative, FAO & the World Bank, 2006: 105).

In recent years, a number of studies have been undertaken on ICTs in the Ghanaian society.For our purpose, we present a brief review of three such studies (Frempong, 2012; Ntibrey, 2012; and Boateng, 2012).Frempong's study (2012) reviews the performance of Ghana's ICT sector with a focus on regulatory frameworks, pricing trends of telephony and broadband services, access to and uses of ICT services among households and individuals. Among other issues, the study produced interesting and revealing findings on the penetration of ICTs, the costs of ICT services, as well as the purpose and patterns of usage of computers, mobile phones and internet among households and individuals in the Ghanaian society.The most pertinent of Frempong's recommendations worth noting here are that (i) lower tariffs in the mobile telephony market be sustained to enable more people, especially those living below the poverty line, to effectively utilise mobile telephony services and (ii) there is need for an in-depth study to identify the operational problems of internet public access venues (both private-sector-run and government-established) to inform policy measures that can help support growth of ICTs in the country (p. 51). Frempong's findings and recommendations are interesting and relevant, although the published report lacks clarity about the sample size, the extent of the coverage of the survey and the locations of the respondents. Such studies are important and necessary not only to understand the broad landscape of the ICTs in Ghana but also to provide data needed for policies and strategic actions in harnessing ICTs for socio-economic development in the country.

Ntibrey'sstudy (2012)assessed the effect of policies and regulations on universal accessibility, affordability, and availability of ICT services in Ghana from 2006 to 2011.Ntibrey's analysis led him to what appears to be an overly optimistic conclusion that "... Ghana is sufficiently advanced in the fore front of ICT. The ICT market can be said to have exploded in Ghana. However, more services need to be developed to rake in the huge potential revenue derivable from ICT, both through local market services and international online ICT services. The ICT sector can be said to have taken an explosive stand in the present Ghanaian economy" (p. 21). Such over-optimism has not been adequately borne out in the five-year period since 2012. Although there has been some growth in the ICT sector, especially with regard to the penetration of mobile telephony, it is doubtful if the sector as a whole has seen an "explosive" growth. The shortcomings of Ntibrey's study

include its over-reliance on official government documents and data collection methods which were insufficiently rigorous. Frempong's survey of Ghanaian household and individual ICT access and uses in 2012 found that only 8.5% of the surveyed Ghanaian households had a computer at home, and only 3% of those computer households had internet connectivity via the home computer; the country also had generally poor scores on broadband services.

On his part, Boateng (2012) asserts that ICTs play such roles and have contributed to socio-economic development in rural communities in Ghana as (i) improving communications, (ii) enhancing decentralization, (iii) attracting small and micro enterprises, (iv) enabling automation of rural banks, (v) enhancing distance learning, (vi) delivery of health services, and (vii) facilitating information gathering for development. However, his study on the role of ICTs in rural development in selected communities in six regions of Ghana provides only scanty data to support the assertions. Further in-depth research is required to produce more convincing empirical data regarding those important roles of ICTs in development at the rural community level.

Concluding Remarks: a research agenda

Further research undertakings are needed to build up a body of thought, knowledge and understanding about the penetration and applications of ICTs in socio-economic development and growth as well as facilitate evidence-based reformulation of policies, strategic actions and practice in Ghana. It is in this context that we propose an agenda for systematic, consistent and regular research and critical examination of ICTs in the country. In an environment where we are witnessing gradual inroads of ICT paraphernalia, consistent and regular research and analysis are required to determine and assess the impact of the technologies socio-economic development and growth in Ghana. Such research can also contribute tore-fashioning policies and regulations to enhance and promote the acquisition, access to and effective applications of the technologies in the society. The research agenda can equally generate evidence to guard the formulation of and practical implementation of strategic actions to ensure that the acquisition and applications of ICTs in the country contribute to addressing the challenges of sustainable socio-economic and human development in the country.

The agenda for researchscrutiny and critical examinationis designed to generate more empirical dataand propose strategic actions to address such issues as (i) the political, social, economic, structural and institutional factors which facilitate or inhibit the growth, spread, and use of ICTs in the society; (ii) awareness, knowledge, and understanding among different segments of the Ghanaian population of policies and regulations which have been formulated in the ICT sector; (iii) how existing educational and training programmes contribute to effective use and applications of ICTs by individuals, especially in rural communities and among socially-disadvantaged groups, in their efforts to improve their in socio-economic status; (iv) the information needs, degree of access to, and usage patterns of ICT facilities among social groups such as youth from disadvantaged and marginalized backgrounds, women in rural communities and people with disabilities;(v) the most appropriate ICTs and modes of applications which can significantly contribute to improvements in the economic and social lives of greater proportions of the national population; (vi) the impact of the applications of ICTs in agriculture, provision of health care, banking services, transportation and commerce on socio-economic development and GDP growth and rural development in the country; (vii)the dynamics of interactions among traditional communication systems and modes, conventional mass media and social media at the community

level, (viii) the role of ICT as an enabler for social mobilization and community engagement during disasters and humanitarian emergencies, and (ix) the impact of ICT capacity building initiatives in the rural areas.

The issues and areas proposed for the research agenda are by no means exhaustive but rather suggestive. They are meant to stimulate and encourage consistent and research undertakings on ICTs and socio-economic development and growth in Ghana among ICT for development researchers, students, and practitioners. Indeed, Ordóñez (2015) proposes a set of questions which need to be explored in ICT for development research, particularly research which "focuses on finding policy options and understanding the factors that may affect them and successfully implement them" (p. 79).To ensure and enhance the value, relevance, and utility of ICT research questions, findings and outputs for both policy and practice, Harris (2015) also suggests, among other things, interactions between researchers and stakeholders at various levels as well as sharing and publishing experiences of how research results have been used for policy-making and practice. Ultimately, the value and relevance of the research agenda proposed here reside in the extent to which it contributes to building a body of thought, knowledge, and understanding of the ICT landscape and produce empirical data for evidence-based policy reformulation or adjustments of policies, strategic actions, and practice to effectively harness ICTs for socio-economic development, growth, and well-being among the population of Ghana.

This paper has examined the aspects of the literature on the role of ICT in socio economic development. The review indicates that ICT policy and capacity building initiatives play a critical role in the socio economic development process and concludes that there is a strong case for further rigorous research agenda that will examine this further so as to contribute to the knowledge, theory, research, policy, practice on the effect of ICT on socio-economic development.

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