

A Model of Knowledge Economy through ICT in East Africa

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Abstract: Telecommunications services square measure the foremost necessary parts within the new information society. Information and Communication Technologies (ICTs) represent a major challenge in terms of productivity, growth and jobs. Ethiopia is a land of cultural diversity. It is the part of tropical region of Sahara and Sub-Sahara continent. Eighty percent of the population in Ethiopia is living in remote and rural areas, where there is a very little basic facilities are available for daily needs. Ethiopia is the part of African Union and situated at east Africa and referred as horn of Africa. The AU and its Member country should quickly adopt rapidly-developing ICT so as to bridge the e-skills gap and be in a very position to form a true knowledge-based economy. The beginning of the telecommunications market to competition had the impact of a catalyst in a various sector formerly reserved oligopolies. To enhance these developments, the Africa union decision-making authorities have adopted legislation to synchronize with technological and current market requirements.

Keywords: Africa Union, Information Communication Technologies, Knowledge Economy.

I. INTRODUCTION

Information and communication technologies (ICT) aren't any longer a luxury for developing countries and that they square measure already making new ways that of act, doing business, and delivering services. Through extending access and use of ICTs, the World Bank aims to stimulate property economic process, improve service delivery, and promote smart governance and social answerability [1]. Technological progress could be a substantial thrust behind economic process. ICT infrastructure specially has attracted abundant investment, and generated vital fiscal revenues and employment opportunities in developing countries. The amount of mobile phone subscriptions in developing countries has inflated from two hundred million in 2000 to 3.7 billion in 2010, and also the range of net users has grown up over tenfold [1]. With net penetration at a turning purpose as well as within the least connected region, Africa, and with seventy percent of the population in developing countries having access to fasten or mobile phone services, ICT networks currently represent a far-reaching service delivery and national participation platform [2].

ICTs are often used as a vehicle to extend responsibility, and might remodel and extend the reach of service delivery to the underserved in innovative, fast, and efficient manner. Key remaining challenges and opportunities for developing countries include:

- Rising Affordability* so as to succeed in the tierce of the population of the poorest countries WHO presently live on the far side the ICT networks;
- Widening Access* to additional advanced ICT services love broadband for high-speed internet;
- Investing the new ICT infrastructure* to boost the delivery of services and to build on it as a supply of economic growth;
- Developing and orienting individual's skills* relevant to the knowledge Technology enabled Services (ITeS) industries and information economy.

A number of terms in current use emphasize connected however totally different aspects of the emerging world economic order. The knowledge Society intends to be the foremost encompassing therein economy could be a set of a society. The knowledge Age is someway limiting, therein it refers to a thirty year amount between the widespread use of computers and also the information economy, instead of rising economic order [3]. The knowledge era is regarding the character of the content, not the socioeconomic processes by which it'll be listed. The pc revolution, and information revolution check with specific revolutionary transitions, instead of the top state towards that we have a tendency to area unit evolving. The knowledge Revolution relates with the standard terms agricultural revolution and age [4].

The information economy and also the information economy emphasize the content or intellectual property that's being listed through a data market or information market. Electronic commerce and electronic business emphasize the character of transactions and running a business, severally, exploitation the web and World-Wide Web [5].

The digital economy focuses on mercantilism bits in computer network instead of atoms in physical house. The network economy stresses that companies can work conjointly in webs or as a part of business ecosystems instead of as complete units. Social networking refers to the method of collaboration on large, international scales. The net economy focuses on the character of markets that square measure enabled by the net [6, 7].

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Knowledge services and information worth place content into an economic context. Knowledge services integrates information management, inside information organization, that trades in a very information market, so as for people to receive a lot of information, surveillance is employed. This relates to the employment of Drones as a tool so as to collect knowledge on different people.

Although apparently similar, every term conveys quite nuances or slightly completely different views of constant factor. Every term represents one attribute of the likely nature of economic activity within the rising post-industrial society as an alternative, the new economic order can incorporate all of the on top of and different attributes that have not nevertheless totally emerged.

One of the central paradoxes of the knowledge society is that it makes information simply duplicable, resulting in a spread of freedom/control issues relating to property. Basically, business and capital, whose place becomes that of manufacturing and mercantilism data and data, looks to need management over this new resource in order that it will effectively be managed and oversubscribed because the basis of the information economy [8]. However, such management will sway be each technically and socially problematic. Technically as a result of copy protection is commonly simply circumvented and socially rejected as a result of the users and voters of the knowledge society will prove to be unwilling to just accept such absolute commodification of the facts and knowledge that compose their atmosphere.

II. INFORMATION AND COMMUNICATION TECHNOLOGIES FOR DEVELOPMENT (ICT4D)

The notion of the knowledge-based economy (KbE) has featured conspicuously in industrial and policy discourse over the past few years. In part, this is linked to the EC's efforts to stress the increasing role of analysis and knowledge based inputs for the longer term aggressiveness of European business. Many national and Europe industrial and policy initiatives have emphasized the potential of the digital media industries as vital new sources of jobs and wealth creation into the first twenty first century Information and Communication Technologies for Development (ICT4D) refers to the employment of knowledge and Communication Technologies (ICTs) within the fields of socioeconomic development, international development and human rights. The theory behind this is often that a lot of and higher data and communication furthers the development of a society.

Aside from its reliance on technology, ICT4D conjointly needs associate understanding of community development, poverty, agriculture, healthcare, and basic education. Richard Heeks suggests that the in ICT4D is expounded with "library and knowledge sciences", the C is related to "communication studies", the T is connected with "information systems", and also the D for "development studies". It's geared toward bridging the digital divide and aid economic development by fostering evenhanded access to trendy communications technologies. It's a robust tool for economic and social development.

Other terms may be used for "ICT4D" or "ICT4Dev" ("ICT for development") like ICTD ("ICT and

development", that is employed in an exceedingly broader sense) and development scientific discipline. ICT4D will mean as managing deprived populations anyplace within the world, however it's additional seen with applications in developing countries. It issues with directly applying data technology approaches to poorness reduction. ICTs is applied directly, wherever in its use directly edges the deprived population, or indirectly, wherever in it will assist aid organizations or non-governmental organizations or governments or businesses to boost socio-economic conditions.

The field is associate knowledge domain analysis space through the growing variety of conferences, workshops and publications. This is partially because of the requirement for scientifically valid benchmarks and results, that can live the effectiveness of current comes. This field has additionally made associate informal community of technical and scientific discipline researchers that rose out of the annual ICT4D conferences.

The motor of this incessant force of artistic destruction is technological amendment. Digital data and Communication Technologies fulfill those needs and therefore represent a general purpose technology which will rework a whole economy, resulting in a contemporary, and additional developed variety of socio-economic and political organization usually said because the post-industrial society, data society, digital age, and network society, among others [9],[10], and [11]. The declared goal of ICT-for-development is to form use of this current transformation by actively victimization the enabling technology to enhance the living conditions of societies and segments of society. As in previous social transformations of this kind (industrial revolution, etc.), the ensuing dynamic is associate degree interaction between associate degree enabling technology, normative guiding policies and methods, and also the ensuing social transformation.

ICT for Development policies and comes are aimed toward the promotion of normatively desired outcomes of this transformation, the reduction of negative effects, and also the removal of ultimate bottlenecks. In essence, there are two varieties of interventions: regeneration (incentives, projects, financing, subsidies, etc. that accentuate existing opportunities); and feedback (regulation and legislation, etc.) that limit and tame negative developments.

III. IMPACT OF ICT4D

3.1. ICT for Education in Ethiopia

ICT for Education (ICT4E) may be a set of the ICT4D thrust. Globalization and technological amendment square measure one among the most goals of ICT. One of its main sectors that ought to be modified and changed is education. ICTs greatly facilitate the acquisition and absorption of knowledge; providing developing countries unprecedented opportunities to boost instructional systems, improve policy formulation and execution, and widen the vary of opportunities for business and also the poor.

One among the best hardships endured by the poor, and by several others World Health Organization sleep in the poorest countries, is their sense of isolation. Education is seen as an important input to addressing problems with impoverishment, gender equality and health. Given restricted education budgets, the opposing demand for exaggerated investment in education against widespread deficiency of resources puts intolerable pressure on several countries instructional systems. Meeting these opposing demands through the standard expansion of education systems, reminiscent of building colleges, hiring academics and militarization schools with adequate instructional resources are going to be not possible during a standard system of education. ICTs provide alternate solutions for providing access and equity, and for cooperative practices to optimize prices and effectively use resources.

ICT has been used in several comes and researches for education the globe over. The outlet within the Wall (also called minimally invasive education) is one among the projects that focuses on the event of laptop acquisition and also the improvement of learning, alternative comes enclosed the use of transportable technology to enhance educational outcomes.

Since the education sector plays an important role in economic development, Education System in developing countries ought to align with the quick evolving technology as a result of technological acquisition is one among the specified skills in our current era.

ICT will enhance the standard of education by increasing learner motivation and engagement, by facilitating the acquisition of basic skills and by enhancing teacher training which is able to eventually improve communication and exchange of data that will strengthen and build economic and social development.

3.2. ICT for Agriculture in Ethiopia

ICT For keep Agriculture is that the most significant sector for ICT intervention most importantly that majority of the population round the world rely on agriculture to measure sustainably. Dr. Alexander G. Flor, author of the book ICT4D: data and Communication Technology for Development, agriculture provides our most elementary human wants that are food, consumer goods and shelter [9], [10].

Ever since individuals have this natural means of thinking on however they will survive and make a living by gathering crops used for food and fiber, raising placental appreciate cow, sheep and poultry that produces animal product like wool, farm and eggs, catching fish or any edible marine life for food or available, biological science and work to grow and harvest timber to make shelter. With agriculture, individuals learned and bought information through sharing data with one another however in fact this can be not enough as there are also changes and developments in agriculture. Farmers ought to be ready to take hold of updated data like costs, production techniques, services, storage, processing and the like. Evidently, updated data with the modification and developments in agriculture are often addressed by the effective use of ICT.

Poor families within the rural areas have restricted or no access the least bit to data and communication technology.

However, these individuals additionally wants access to ICT since this technology would facilitate reduce their expenses on their resources like time, labor, energy, and physical resources, thus, would have a larger positive impact on their livelihoods and incomes. The lives of the agricultural poor may be eased through the appliance of information and communication technology through the following:

- a. By supply data to tell the policies, establishments, and processes that affect their keep choices.
- b. By providing access to data required so as to pursue their keep strategies, including:
- c. monetary Capital – on-line and mobile banking can enable rural poor to have larger access to banking facilities and supply a secure place for cash deposits and remittances.
- d. Human Capital – victimization ICT can enable intermediaries or information providers impart updated information, techniques and new developments in technology to the locals.
- e. Physical Capital – service suppliers are ready to monitor access to local services.
- f. Natural Capital – access to data concerning handiness and management of natural resources are increased. Also, market access for agricultural product are implemented. Lastly, ICT may give early warning systems to scale back the hazard to natural disasters and food shortages.
- g. Social Capital – property, social networking, and make contact with for geographically disparate households are strengthened.

United Nations agency identified farmers have higher access to ICT have higher lives due to the following:

- a. Access to cost data – farmers are going to be knowing of the correct current prices and also the demands of the merchandise. Hence, they'll be ready to competitively talk over within the agricultural economy and their incomes are going to be improved.
- b. Access to agriculture data – In Ethiopia there's a necessity for coordination and streamlining of existing agriculture information sources, each internationally and among the developing African countries. The information provided is typically too scientific that farmers cannot comprehend. Therefore, it's important that the native data to be relayed to the farmers should be simplified.
- c. Access to national and international markets – Increasing the extent of access of farmers is incredibly important so as to alter contact between the sellers and also the buyers, to publicize agricultural exports, facilitate on-line commercialism, and increase the awareness of producers on potential market opportunities together with consumer and worth trends.
- d. Increasing production potency – thanks to many environmental threats akin to climate amendment, drought, poor soil, erosion and pests, the living of farmers are unstable. Thus, the flow of knowledge concerning new techniques in production would open up new opportunities to farmers by documenting and sharing their experiences.

- e. Making Associate in nursing contributing policy surroundings – through the flow of knowledge from the farmers to policy manufacturers, a positive policy on development and sustainable growth of the agriculture sector are going to be achieved.

3.3. ICT4D for E-Business in Ethiopia

Governments, international organizations and therefore the non-public sector square measure inspired to promote the advantages of international trade and e-business; stimulate non-public sector investment, foster new applications, Content development and public/private partnerships; and adapt policies that favor help to and growth of SMMEs within the ICT business

To stimulate economic process and job creation. A specific sector that has received some attention has been touristy. Roger Harris was maybe one among the primary to showcase the potential edges. His work centered on a far off location in Malaysia and highlighted a number of the chances of little tourism operator's exploitation the web. Others have shown the chances for tiny tourism operators in exploitation the web and ICT to enhance business and native livelihoods.

3.4. ICT4D for E-Health in Ethiopia

ICTs will aid in cooperative efforts to make a reliable, timely, prime quality and affordable health care and health data systems, and to push continuous medical coaching, education, and analysis. WSIS conjointly promotes the utilization of ICTs to facilitate access to the world's medical information, improve common data systems, improve and extend health care and health data systems to remote and underserved areas, and supply medical and humanitarian help throughout disasters and emergencies.

3.5. ICT4D for E-employment in Ethiopia

The e-employment action arrange includes the event of best practices for E-workers and e-employers; raising productivity, growth and well-being by promoting new ways in which of organizing work and business; promotion of telecommuting with specialize in job creation and trained worker retention; and increasing the amount of ladies in ICT through early intervention programs in science and technology.

3.6. ICT4D for E-environment in Ethiopia

The government, civil society and personal sector square measure inspired to use and promote ICTs as instruments for environmental protection and therefore the property use of natural resources; to implement inexperienced computing programs; and to determine observance systems to forecast and monitor the impact of natural and artificial disasters.

3.7. ICT4D for E-Science in Ethiopia

The arrange of action for e-science involves cheap and reliable high-speed Internet affiliation for all universities and analysis institutions; electronic business, differential valuation and open access initiatives; use of peer-to-peer technology for knowledge sharing; long-run systematic and economical assortment, dissemination and preservation of essential scientific digital data; and principles and data

standards to facilitate cooperation and effective use of collected scientific data and information.

3.8. ICT4D for E-security in Ethiopia

The number of current crimes on-line and offline, native and international (terrorism and acts to it) has crystal rectifier to the inflated development of arsenals (including ICT) to preempt and enforce correct security measures that cause it and place public security, peace and order variety one priority.

IV. CONCLUSION

Information and communication technology (ICT) offers the promise of fundamentally dynamic the lives of abundant of the world's population. In its varied forms, ICT affects several of the processes of business and government, however people live, work and act, and therefore the quality of the natural and designed surroundings. The development of internationally comparable ICT statistics is crucial for governments to be able to adequately style, implement, monitor and valuate ICT policies. Ethiopia as a developing country have a great need to implement the ICT4D for the knowledge economy through implementing the ICT models for various sectors for the sustainable growth and development of the nation.

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