Influence of Information and Communication Technology on Digital Divide

By Ugonna Onochie Aralu

Introduction- Information and Communication Technology (ICT) is a wide term that refers to all computer-based advanced technologies for managing and communicating information. ICT is an umbrella term that includes any communication device or application including radio, television, cellular phones, computer and network hardware and software, and satellite systems, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICT is often considered to be a general purpose technology, much like steam and electricity in earlier eras that has broad economic impact through multiple applications. ICT is broader than Information Technology (IT) which is defined as "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware" (Information Technology Association of America, 2008).

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I. Introduction

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Information and Communication Technologies (ICTs) have changed the way information is stored, disseminated and processed. Information is central in areas of social, economic and political activities. Even though the Internet has brought about freedom, productivity and communication, its uneven distribution and access has led to what refers to as a Digital Divide. The term "digital divide" refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities. The world has slipped from the Industrial Age into the Information Age. This emerging Information Society puts a premium on intelligence; value added knowledge, and the application of knowledge to all processes, products and services. This replaces raw sheer physical strength as an economic asset in today's economy. Information and communication knowledge have therefore become critical components of a successful and prosperous society.

The influence of information technology on social practices is to make information more accessible. The developments in information technologies have influenced the continuity of social attitudes, customs or

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institutions. Social attitudes have changed with the effect that citizens of a society now expect the various elements of that society to be better informed than before. The exclusion leads to a fundamental cleavage to already existing inequality and social exclusion in the society. They also expect to be able to access more information about a specific product, service or organization so that they can make informed decisions with regard to their interactions with that entity. The word institutions can incorporate a wide variety of organizations such as governments, commercial businesses, news and media organizations and educational organizations. Information technology (IT) has the ability to lower coordination cost without increasing the associated transactions risk, leading to more outsourcing and less vertically integrated firms. Lower relationship-specificity of IT investments and a better monitoring capability imply that firms can more safely invest in information technology for inter firm coordination than in traditional investments for explicit coordination such as co-located facilities or specialized human resources; firms are therefore more likely to coordinate with suppliers without requiring ownership to reduce their risk. This enables them to benefit from production economies of large specialized suppliers. Moreover, rapid reduction in the cost of IT and reduction in the transactions risk of explicit coordination makes possible substantially more use of explicit coordination with suppliers. The resulting transaction economies of scale, learning curve effects, and other factors favor a move toward long-term relationships with a smaller set of suppliers. The development in information technology has helped governments to improve on services to their citizens. Advances in Database technology for example have enabled the governments of various countries to collate and monitor statistical information that they can use to combat fraud, manage the economy in a better way. The advances in information technology have heavily influenced commercial businesses in several ways.

II. Societal Impacts of Information and Communication Technology

a) Access to information

The greatest effect of ICT on individuals is the huge increase in access to information and services that has accompanied the growth of the Internet. Computers

and communication technologies allow individuals to communicate with one another in ways complementary to traditional face-to-face, telephonic, and written modes. They enable collaborative work involving distributed communities of actors who seldom, if ever, meet physically. These technologies utilize communication infrastructures that are both global and always up, thus enabling asynchronous as well as synchronous interactions among individuals, groups, and organizations. Some of the positive aspects of this increased access are better, and often cheaper, communications, such as VoIP phone and Instant Messaging. Technological advancement creates dependent platforms on which communication strives. It has brought new opportunities for leisure and entertainment. The facility enables conducive environment to make contacts and form relationships with people around the world. With the development of computer industry and internet networks, the global communication has reached an unprecedented height. It increases the ability to obtain goods and services from a wider range of suppliers. Information technologies have influenced the continuity of social attitudes, customs or institutions. Social attitudes have changed with the effect that citizens of a society now expect the various elements of that society to be better informed than previously. They also expect to be able to access more information about a specific product, service or organization so that they can make informed decisions with regard to their interactions with that entity.

i. *Commercial Perspective*

Advances such as computer aided design; relational database technologies, spreadsheets and word processing software all provide a commercial benefit to the business, as automation of manufacturing processes and as different businesses compete with each other, the commercial advantage one can have over another may depend primarily on its use of information technologies. The Transformations of the 21st Century have brought about immense organizational changes. The economic environment caused by globalization and technology have forced organizations around the world to make significant transformations in order to competitively survive, adapt and achieve success. Knowledge, information and ideas are now replacing traditional key resources of business like capital, personnel and facilities. Organizations are now restructuring and thereby creating global networks. There are new job opportunities being able to extract information as to what the customer needs, e.g. flexible and mobile working, virtual offices and jobs in the communications industry. This extraction of information is facilitated and indeed made possible by the technology used to store, manipulate and retrieve information with sophisticated hardware and software mechanisms which maximizes its commercial

advantage. The use of information technology to monitor a business's performance also enables businesses highlight areas where they are not making the most use of their resources. The use of information technologies increases the businesses income through advertising in the various available forums. Due to the nature of news and media organizations, the information technologies have particular relevance to them.

ii. *Religious perspective*

This has mainly been to the effect of making information about them more accessible. The rapid adoption of the Internet gave rise to a significant body of scholarly research focused on understanding religious practice online. The most aspect of information technologies has influenced the continuity of social attitudes, customs or institutions. For example different religious groups have adopted email for community coordination, projector screen during church services or seminar presentation and websites to read religious materials.

iii. *Educational perspective*

Information and communication technology presents the promise of providing better education to more people more efficiently than can be accomplished without technology. With these developments immense scopes have come to the surface to impart learning in a much more efficient and interactive way. Multimedia technology and internet networks have revolutionized the whole philosophy of learning and distance learning and provided us with the opportunity for close interaction between teachers and learners with improved standard of learning materials compared to what only existed with the printed media. Reflecting in the yester years of ancient learning method where learners line up in single file formations with paper and pencil in their hands; a teacher at the blackboard writing; with learners furiously copying all the that is written and said, memorizing them in anticipation for an examination at the end term. The advent in science and technology has altered learners approach to their studies with an improved access to education, e.g., distance learning with interactive multi-media and on-line tutorials with virtual reality. ICT can be used to help people overcome disabilities e.g. screen magnification or screen reading software enabling partially sighted or blind people to work with ordinary text rather than Braille. ICT in education provides productive teaching and learning in order to increase people's creative and intellectual resources especially in today's information society. Through the simultaneous use of audio, text, multicolor images, graphics, motion, ICT gives ample and exceptional opportunities to the students to develop capacities for high quality learning and to increase their ability to innovate. The nature of education should prepare students to become future workers in a fast changing job market. Access to Internet and the World

Wide Web would enable students to take advantage of the information superhighways. Constant learning and skills acquisition is a necessity to be relevant in a technological dynamic society. Individuals must be equipped with knowledge that will help them transform ideas into serious business ventures. The developments that have occurred in information technology have also had other influences on educational establishments. Educational organizations have a goal to distribute information from a source to the student. The processes by which educational establishments distribute information have become increasingly diverse and the effectiveness of the process has also improved.

iv. *Health perspective*

The influence of ICT on health has contributed immensely to an improved health treatment and diagnosis. Health can be described as the physical and psychological well being of a living thing. The advent of ICT in health care sector has encouraged sustainable development in dispensation, drug administration and dissemination of important health information to the society. It has increased the potency of health information gathering, processing and proffer better solutions in elimination of problems. Healthcare Information System: This is a software solution for appointment scheduling, patient data management, work schedule management and some other administrative tasks related to healthcare.

The digital computer information networking has changed the global economic technological concept with boundless time and space. This phenomenon is called as digital economy or networked economy. The internet integration in developing countries has increased, since it's prevalent among educated individuals, connected to global networks. The development in the Communications field, have bridged the knowledge gaps between the information-rich and the information-poor society that have widen over time. This development has excluded certain parts of the world that have not embraced digital technology from enjoying the dividends of information technology. The changing economic, social and political situations have a direct impact on the individual society members and different business sectors, where organizations have to effectively use and trade in information in order to survive. With the proliferation of the Internet, a medium deemed efficient by many, as a tool enables different parts of the world to interact, carry out business and live side by side in the virtual space. It is proved to be a reality, mainly for the developed world that has access to information technology for decades and therefore mastered the skills for processing, storing and retrieval of information.

III. Societal Importance of Digital Divide

The access to information and communication technologies is the gateway to a sustainable existence in any socio-economic development. The backbone of a nation's socio-economic activities is information driven. The advent and application of digital technologies in social institutions such as banks, businesses, governments, libraries and schools have changed the way the youths relate and interact with social institutions. Timely dissemination of information globally has facilitated an increased level of commercial business activities with small firms being able to register their presence electronically and compete effectively with other businesses across the world. The development of electronic platform has made commerce convenient for individual buyers to carry out transactions electronically. Our technological dynamic society has revealed the scientific advancement in health care, trade, education, and transportation. Digitalization of our society has changed our understanding of economic and social development. The tectonic economics and social change have been characterized by the terms known as "knowledge economy" and "learning society", respectively. This implies the notion that knowledge and learning is core of economic productivity and social development of a nation.

The communication technology infrastructure provides virtual platform through which organization share digital signals, and costs respectively. In a digital networked environment, business organization conforms to an internet based technology, which is an effective and efficient tool in relating with customers and suppliers. The Internet allows scalability in terms of local and global networks. It also allows interoperability, interactivity and flexibility management in branding and customized business networks. This digital interconnection enables businesses to strive globally in conformity with organizational practice. An interactive and networked relationship exists between producers, customers and service providers in cost reduction, increased quality and efficiency. Electronic commerce takes the centre stage in core financial market place which creates greater interdependence in global markets. The dynamism of technology enables an organization to frequently learn the latest trend as to cope with the challenging technological environment. The Profits and products of an organization are based on effective and continual learning of modern technological skills. The acquisition of technological knowledge enables organizations to deal with dynamics of digital word.

The Integration of information communication and technology globally has caused a convergence of economic and social forces, fostering interest and commitments, values and tastes, challenges and

opportunities involving social institutions of the economy. Knowledge and expertise is the base of an organizational culture and traditions. The use of digital technologies increases employees' abilities to produce quality products and services. A dynamic society requires an up-date of products and services satisfy customers need. Information communication technologies are the nervous system of a given society, transmitting and distributing sensory and control information, and interconnecting myriad interdependent units solving complex societal problems of redundancy.

IV. Conclusions

The provision of information technology does not translate into attainment of development. In order to work towards development, skills in processing information are a necessity. Developments such as the Internet and satellite television have created new medium and audiences through which and to which these organizations can disseminate their information.

The distribution of information is not the only concern of educational establishments. For example one of the aims of Universities is to create information. This creation is done by research. Information technologies have enabled researchers to access a wider source of information than previously available through such technologies as the Internet. The Internet and other related technologies such as electronic mail also enable collaborative projects to be undertaken between geographically distant groups. People are only key players in the information society if they are well educated, which enables them to acquire the intellect and character to survive in a new and globalized economy.

The availability of internet infrastructure enables publishers or any individual to get and publish information accessible anywhere across the globe. Given the information gap that exists in the world today, issues concerning the information imbalance need to be seriously and genuinely addressed in order to fight poverty and to achieve development. These technologies consists Electronic Mass Media such as Cable Television, pay Television Services, Interactive Television, Wireless Cable Systems, Streaming Media, Radio broadcasting , Direct Broadcast Satellite, Computers and Consumer Electronic such as Multimedia computers Video Games, The Internet and the World Wide Web, Office Technologies, Internet Commerce, Virtual and Augmented Reality, Home video and Digital Audio and Technology and Satellite technologies. The use of these technologies creates interdependence in continuous assessment of business performances to identify grey areas indicating that resources are underutilized. The creation of vital infrastructure ensures increase in businesses income through adverts in various available fora emerging on information platform.

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