

Digital Divide Between Developed and Less-Developed Countries: The Way Forward

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ABSTRACT This paper examines the imbalances in the availability and usage of information technology infrastructure between developed and industrialized countries of the North and the less – developed countries of the South. The term ‘digital divide’ and the factors responsible for it were exhaustively discussed. The developed countries of the North were known for their level of wealth, advanced information, communication and technological innovations as well as stable governance. On the other hand, we have under-developed countries of the South, which are geographically located in Africa and most parts of Asia that have not shown much improvement on most fronts of development, especially when considered on a global scale. To avoid marginalization, various factors to assist African countries to face the challenges of the information society were extensively discussed. Various efforts in Africa finally gave birth to African Information Society Initiatives (AISI). This later resulted in the development of the National Information and Communication Infrastructure (NICI), which is an action framework to build African information and communication infrastructure. The paper finally recommends policy guidelines and strategies for establishing infrastructure frameworks for 21st century Informatics Technology.

INTRODUCTION

The disparity in the availability of information technology infrastructure between Western industrialized countries of the North and the developing countries of the South has always been recognized by various agencies, like the World Bank and United Nations Development Programme. The modern world is undergoing a fundamental transformation as the industrial society of the twentieth century rapidly gives way to the information society of the twenty-first century. This dynamic process promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, business practices, political engagement, media, education, health, leisure and entertainment. The speed of global technological and economic transformation demands urgent action to turn the present digital divide into digital opportunities for all. It has also been written about extensively (Crede and Mansell, 1998; Lynch, 2000; Braga and Alberto, 1998; Persaud, 2001; De Boer and Walbeek, 1999; Rodriguez and Wilson, 2001, Sehr, 2004). It is popularly tagged as the “digital divide”.

Before discussing the concept of digital divide, the use of the term “developing countries”

in this paper needs to be discussed, as it can have different meanings depending on the context and the focus of the discussion. Also, referring to a group of countries as ‘developing’ automatically implies that some countries are ‘developed’ (often called ‘Western industrialized countries’ in this paper). It is important to explain this division of the world into blocks and how it affects our thinkings about them. Sometimes, the western industrialized countries are referred to as the ‘North’, while the rest of the world is called the ‘South’. Also, there has been a division of the world into the ‘First’, ‘Second’ and ‘Third’ worlds. Korpela (1994) argues against all these divisions, and concludes that it is erroneous to simply divide the world using colour, culture, geographical locations or even economy, as most explanations to support these divisions are based more on convention than on any theoretical evidence. The modernization theory attributes the reasons why some countries are developed and why some others are not due to a “missing factor” which has created a gap between them. But it must be realized that the existence of the division is not questioned, and there is general consensus about inequality and the superiority on certain measures of some countries compared to others. The main

contention among the theorists concerns the selection of criteria for grouping countries, and which countries belong to where.

In our contemporary world, many countries, which incidentally are geographically located in Europe, North America and parts of Asia, are highly industrialized, and they have an edge in modern science and technology. They also show patterns in level of wealth, with a stable governance structure. On the other hand, we have many countries, which are geographically located in Africa and most parts of Asia, that have not shown much improvement on most fronts of development, especially when considered on a global scale. They are characterized by war and famine, and corruption is seriously affecting the development and functioning of the public infrastructure. However, countries in each category still maintain differences and exhibit their own particular characteristics and culture. This view is similar to that of the World Bank (2002), where low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; it is not intended to imply that all economies in the group are experiencing similar development or that other economies have reached a preferred or final stage of development. Classification by income does not necessarily reflect development status.

At the beginning of the 1990s, the leading economies of the world began to realize the importance of information and knowledge as valuable resources, both nationally and within organizations. A national information infrastructure was formulated to provide foundation for an information economy. The launching of the United States' plan for national information infrastructure was followed by the European Union; with its Bangemann report (Bangemann Commission, 1994). With this trend, the shape and use of information infrastructure has been

transformed in to an issue of industrial policy (Hanseth and Monteiro, 1997). The United Nations' Economic Commission for Africa with the support of other development agencies also launched the African Information Society Initiative to build Africa's Information and Communication Infrastructure.

In order to assist African countries to face the challenges of the information society and thus avoid their marginalization, the United Nations Economic Commission for Africa (ECA) has elaborated the African Information Society Initiative (AISI), as requested by member states. This initiative is an action framework to build Africa's information and communication infrastructure, and was adopted during the ECA's twenty-second meeting of African Ministers in charge of planning and development (held in May 1996) under resolution 812 (XXXI) entitled "Implementation of the African Infrastructure Society Initiative (ECA, 1996). These efforts led to the development of the National Information and Communication Infrastructure (NICI), which policies, plans and strategies could be used to enhance the role of information and communication technologies (ICTs) in facilitating the socio-economic development process. Although these efforts addressed the information infrastructure issue of several countries in Africa, they also reveal its low status in African countries, and especially in sub-Saharan Africa (see Table 1).

At organizational level, information infrastructure is generally referred to as IT infrastructure. The national information infrastructure greatly influences the organizational information infrastructures. All these efforts by United Nations Economic Commission for Africa were to make African countries not to lag behind as far as Information Technology Economy is concerned.

It is the objective of this paper to evaluate

Table 1: Sampled statistics of Sub-Saharan African and high income countries (The World Bank, 2001).

<i>Series</i>	<i>Sub-Saharan Africa</i>	<i>High Income Countries</i>
Gross National Income per capital, Atlas method (current US\$)	490	26,440
Export of goods and services, % of GDP (1998 est.)	29.0	21.6
High-technology exports, % of manufactured exports	8.8	21.6
Telephone mainlines, per 1,000 people (1998 est.)	13.6	572.4
Personal computers per 1,000 people	8.3	345.8
Internet hosts, per 10,000 people	2.3	603.5
Telephone, average cost of local call (US\$ per 3 minutes)	0.07	0.10
Electric power consumption, KWh per capital (1998 est.)	453.6	8,350.2

the effect of ICT and the globalization process and examine the emerging concept of 'Digital Divide' between the developed and under-developed countries of the world with reference to Africa and Nigeria in particular. In addition, the paper will highlight the factors responsible for this concept of digital divide; examine the global IT trend and challenges facing developing countries. It will also address possible areas of cooperative advantages that can propel developing countries into being a respectable player in the global IT revolution and enhance its status in what is widely known as the 'new economy'. Strategies of minimizing the concept of 'digital divide' and creating a level playing field in the Information Technology and 'new economy' arenas will be carefully articulated in this paper.

GLOBALIZATION AND ICT – MEANING AND IMPACTS

Globalization has been referred to as the process by which the world is being made in to a single place within systemic properties (Robertson and Lechner, 1985). This "single place" has also been referred as the global arena (Robertson, 1992). Globalization also raises some ethical concerns (Avgerou, 2002), especially about non-economic implications and risks, the erosion of local culture (through the influence of global companies), and the possible widening of the gap between the poor and the rich. Economically, globalization is supposed to enhance the convergence of income levels and consumption patterns between countries (industrialized, developing, emerging etc.), and enable increasing interdependence between these countries. However, it has been argued that globalization benefits only the western industrialized countries, at the expense of developing ones. Many of us are aware that we live in a rapidly changing world. But most of us are still not conscious of the speed of change and the interconnections between the many technological and other changes that are affecting our daily lives and that will have a profound effect on our future. And, without this consciousness, it is going to be difficult to fully understand our present predicament and proffer effective solutions that will ensure that we have at least a standing place in a future world.

Information and communication technology (ICT) on its part, has been defined as the hardware, software, telecommunication techno-

logy, human skills and intellectual content that enable the study, design, development, implementation, support, management or use of intellectual expressions. This includes data, knowledge, and language, in all digital, print, audio, and visual formats. ICT is one of the primary influences on globalization, and it is increasingly playing an important role in organizations and in society's ability to produce, access, adapt and apply information. They are being heralded as the tools for the post-industrial age, and the foundations for a knowledge economy, due to their ability to facilitate the transfer and acquisition of knowledge. These views seem to be shared globally, irrespective of geographical location and difference in income level and wealth of the nation. ICT may not be the only cause of changes we are witnessing in today's business and educational environment, but the rapid developments in ICT have given impetus to the current wave of globalization. The use and production of ICT plays an important role in the ability of nations to participate in global economic activities. Notably, the ICT of the Internet is playing a significant role in socio-economic development. The Internet could have an impact on economic productivity, health, education, poverty alleviation and empowerment, democracy and sustainability development (Madon, 2000; Nath, 2000). In all these aspects, developing countries could benefit in many ways. Apart from facilitating the acquisition and absorption of knowledge, ICT could offer developing countries unprecedented opportunities to change educational systems, improve policy formulation and execution, and widen the range of opportunities for business and for the poor. It could also support the process of learning, knowledge networking, knowledge codification, tele-working, employment, and science systems. ICT could be used to access global knowledge and communicate with other people.

However, in many parts of the developing countries ICT is available only on a very limited scale, and this raises doubts about developing countries' ability to participate in the current ICT-induced global knowledge economy. There has also been concern that this unequal distribution of ICT may in fact further contribute to the marginalization of poor countries by the developed ones, and to disruptions of the social fabric (Avgerou, 1998). The main challenges

facing developing countries on effective utilization of ICT include the issues of awareness, advocacy and policy formulation, connectivity (i.e. affordable and equitable access to telecommunications infrastructure, ICT hardware, software and networking facilities), capacity and institution building. The wide gap in the availability and use of ICT across the world, and the influences ICT exerts on globalization, raise questions about whether globalization entails homogeneity for organizations and societies in developing countries. It also raises question about the feasibility and desirability of efforts to implement the development of ICT through the transfer of best practices from western industrialized countries, and whether organizations can utilize ICT in accordance with the socio-cultural requirements of the contexts.

From a development perspective, the potential of ICT to achieve development goals, such as access and control over information, empowerment, employment creation and democracy, is often linked to knowledge and it remains as their main focus. Knowledge can be linked to improved quality of life, which is the ultimate goal of development activities. Approaching development from a knowledge perspective can vastly improve the quality of people's lives. In a broad sense, access to right information at the right time gives people greater control over their destinies. IT infrastructure can be viewed as a term used to embrace the collection of computers, operating software, communication equipment and links, which collectively form the platform for assimilating and delivering information products and services to the organization, its suppliers and to its customers. Telecommunication infrastructure consists of wireless, and satellite telecommunication networks, telecommunication software and applications. A reliable IT infrastructure can also ensure the success of any future technological endeavours. During the 1990s, the focus was expanded from computing infrastructures to information infrastructures.

Technological innovation has contributed to globalization by supplying infrastructure for trans-world connections. As pointed out by Ajayi (2000) the revolution-taking place in information and communication technologies have been the central and driving force for the globalization process. The global village has removed geographical barrier and led to the

shrinking of the frame. The ICT constitutes a tremendous force for integrating people and nations into the global economy. Relevant studies have shown that the greatest impact of the ICT revolution will revolve around the 'digital divide' equation. The most important aspect of the ICT challenge is the need to plan, design and implement a National Information Infrastructure as the engine of economic growth and development.

There is no doubt that the opportunities of the information and knowledge economy facilitated by ICTs are one that both developed and less-developed countries cannot afford to miss out on. These technologies will be creating new winners and losers, within the emerging new global economic order. Although a number of new winners may include a number of today's developed nations, the loser will also include those developing countries, which will fail to seize the opportunity to embrace these technologies to support their socio-economic development. In practice globalization benefits those with technology, resources, contacts, information and access to markets. It has a negative impact on the poor. The prediction is that the gap between the new winners and losers within the world economy order dominated by Information and Knowledge Economies will be much larger than the development gap that now exists between the advanced and the less developed nations. African countries are at the risk of been further marginalized if they fail to embrace these technologies to transform their economies. A computer connected to the Internet is a veritable interface between the user and the global ocean of information. ICT holds the key to national prosperity in education, training, continuing professional development and other forms of capacity building activities. In addition the ICT provides avenue for optimal utilization of human resources in the educational and industrial sectors. Expertise can be shared amongst the universities, polytechnics, research institutes, etc. ICT can be used for on-line repatriation of knowledge, expertise and experience of Nigerians abroad thereby converting brain drain to brain gain.

NORTH-SOUTH DICHOTOMY

In this paper, the term North and South is used to depict the western industrialized

countries and the developing countries respectively. According to Korpela (1994), the division of the world into two large blocks is intuitive rather than obvious, between the predominantly industrialized, rich North and the traditionally less developed, poor South. This distinction is gradually fading as more developing countries are joining the ranks of developed countries, and globalization is blurring the boundaries. Needless to say, this unevenness of globalization has important implications for social power relations. People with connections to supranational spaces have access to important resources and influence that are denied to those who are left outside. In this regard, some commentators have deployed "global apartheid", as manifested in the so-called 'digital divide' and other inequalities. It is the Industrial Revolution that created the Industrial Divide, which is translated to the Rich and Poor Nations, and the Information Revolution will without any fear of contradiction create a 'Digital Divide'.

According to Mazrui and Andrew (1991), the most obstinate line of demarcation between the North and South is not income (criteria of wealth), but technology (criteria of skill). Consequently, several reports have been written on the technological gap between the North and the South. The use of the term "South" to refer to developing countries collectively has been part of the shorthand of international relations since the 1970s. It rests on the fact that all the world's industrially developed countries (with the exception of Australia and New Zealand) lie to the north of its developing countries. The term does not imply that all developing countries are similar and can be lumped together in one category. What it does highlight is that although developing countries range across the spectrum in every economic, social and political attribute, they all share a set of vulnerabilities and challenges. In spite of recommendations from various organizations like the World Bank that the countries in the South should improve their technology infrastructures, the gap still continues to widen (Braga and Alberto, 1998; Crede and Mansell, 1998; The World Bank, 1999).

With the information revolution and knowledge based economy being driven by information technology, there is a vital need for countries in the South to provide infrastructures that enable access to information technology and support its usage. While the countries in the

North are characterized by good infrastructures, advanced technology and adequate human resources, most developing countries are characterized by poor infrastructure, basic technology and insufficient IT workforce (Odedra et al., 1993; Moyo, 1996). While per capita income in most of the world has increased steadily over the last four decades, in Africa it has declined. The various transformations of the world in the last 25 years have not changed the basic concerns of developing countries. Equitable participation in the world economy and building greater capacity to deal effectively with range of severe internal problems remain their twin objectives. The most significant aspect of globalization that concerns the developing countries is the fact that it has led to unprecedented inequalities in the distribution of benefits between the developed countries and the less developed.

Present day globalization is not new because history shows that a similar trend was witnessed in the 19th century and the earlier part of the 20th century. What are different are the intensity and the magnitude of the inequalities that it generates. In all these development, there is the underlying assumption that globalization is good for all and that its benefits are shared out, even if not equally, all over the world. It is hardly realized that globalization benefits different countries differently; the more developed countries taking the best part of the benefits while the least developed tend to be impoverished and bypassed by the benefits. The lack of evolution in the basic positions of developing countries reflects the fact that the nature of the problems they face - rooted in the gross inequalities between the world's rich and poor - have not changed. Furthermore most countries in the North according to Okunoye (2003) have developed their national information infrastructure in regards to the requirements of a wide sector of the population. Therefore the North is considered as an example of where infrastructure problems are continually addressed and the South is an example of where things are still at developmental stage and where people have a lot to learn on the practice in the North with proper adaptation and consideration for the local factors.

The new impact of globalization should be considered, while "borderless" world has been universally accepted as consequence of globalization (electronic world), the developing

countries must tackle the new emerging trends. The Western countries have started to recruit beyond their border, their immigration laws have been changed to open their doors to well trained talented IT professionals from anywhere especially developing countries like Nigeria. This has a lot of implications for us in the developing countries. We have to pay attention to training and research to be able to survive in the information age. Policies should be modified in various areas accordingly. It must be realized that ICT is not a luxury but a tool for economic and social development, and the countries that have already fallen behind in economic and industrial development could fall much further behind by being cut off from the new opportunities provided by the transformation into the information society and knowledge-based economy. It is necessary to highlight certain pertinent issues that must be addressed in any discussion on globalization.

UNDP (1999), reproduced figures to show that the gap between the richest and the poorest countries in per capita income terms was only 3:1 during the dawn of the Industrial Revolution in 1820, rising to 11:1 by the first episode of globalization in 1913. More recently, it grew to 35:1 in 1950, rising slightly to 44:1 by 1973. After the commencement of the present round of globalization, this figure has acquired a staggering magnitude of 72:1 (Adeboye, 2002). Accompanying this widening gap is the grave human cost in terms of malnutrition, morbidity, and mortality (Murshed, 2000). It is estimated that those living in abject poverty number over 700 million, the majority of whom are in sub-Saharan Africa and East Asia. Adeboye (2000) concludes that this is a most conclusive evidence of the marginalization of some groups and nations from the process of globalization. That is why it is important for Nigeria and other developing countries to be aware of the implications, prepare to avoid the most telling consequences, and prepare to meet its challenges. It must be realized that the digital revolution offers Nigeria and other African countries the unique opportunity of actively participating in the world's latest developmental revolution. The information age has created new wealth and sustains one of the largest and unbroken growths in some economies notably in North America and Europe.

The biggest beneficiaries have always been countries that are quick to identify the strategic

relevance of IT in the rapid transformation of national economic development. It has contributed significantly in dramatically developing and establishing the economies of Asia in the league of Newly Industrialized Economies. Nigeria has the choice to either convert its largely educated and English speaking population plus its low-wage economy into a strong IT powerhouse in global terms (as a net producer of IT products and services) or it could once again dash the hopes of the black race by sitting on its hands and ending up as merely a large market for the consumption of IT products and services that in turn feeds the already booming economies of wiser countries. This will obviously amount to self-inflicted digital slavery which will further condemn Nigeria, the beacon of the black race, into another painful century of unshackling itself from the effects of slavery whose devastation would be far greater than the earlier one (Mirilla, 2000). Indeed the rapid and unprecedented growth in telecommunications and information technology elsewhere in the world, which is reaching saturation point, has shifted attention to Africa as one of the last emerging markets. It is therefore necessary for African nations to plan for and create the policies and enabling environment to enjoy the full benefits of this new scramble for Africa, in other to tap into the opportunities that the information revolution has created for the industrialized and intermediate economies. Therein lie the telecommunication challenges for Nigeria in the 21st century.

THE WAY FORWARD

There are overwhelming hindrances to a viable take off of technological information in the developing countries like Nigeria. For instance, energy problem is one of the greatest factors working against meaningful and sustainable industrial growth. Information economy is depended on an adequate and efficient supply of energy. It is obvious that National Electric Power Authority (NEPA) cannot be positioned to guarantee adequate power supply for the whole country within the next couple of years. At present, centralization of power distribution, low capacity power generation, unacceptable management and work ethics are some NEPA's huge limitations. The next limitation is tied to another one of our national dinosaurs – NITEL and telephone infrastructure. Low telephone line

density and penetration of telephone services makes ubiquitous access to the Internet impossible. For the information communication economy to succeed, one needs access anytime, anywhere, with various types of equipment at all the time. For Nigeria or any developing country to move forward, all the above limitations must be rectified. Also, ubiquitous computing in Nigeria and other developing countries will be greatly enhanced if computer hardware and software are produced or manufactured locally. This implies that we should not only assemble PCs, but also produce their circuit boards and software. Production of software locally is not really that hard because we have many engineering graduates roaming the streets.

Our national goal should be to channel their energies and brain towards an IT revolution. This could mean joint partnership between banks or government and the IT professionals to ensure funds are available. This will minimize the so-called 'digital divide'. Manufacturing of computer hardware and software locally will create jobs, reduce the cost of computer products and encourage a wide use of computers at home, offices and institutions. What therefore are required are policies that would make this possible. In most industrialized countries, professionals, banks, and institutions drive the IT revolution. Nigerian engineers must provide leadership in this regard. Nigerian banks should play their parts and make loans easily available to citizens to start new companies. Government's role should be mainly to regulate the industry and provide policies for healthy industrial competition and growth.

Apart from these, training of computer, IT and telecommunication professionals needs an urgent attention. Training of professionals in any society is a joint effort between government and industry. Industrial training establishes practice and experience. Tertiary training of technical professionals in Nigeria at the moment is far from what is needed to sustain IT industry, let alone compete internationally. The state of infrastructure in most universities is deplorable. For instance, some universities teaching computer science have inadequate computer laboratories or none and insufficient number of computers. To survive this digital divide, all the above anomalies in Nigeria and other developing countries must be rectified. The exodus of professionals to foreign countries due to

crippling military governments in Nigeria and poor funding of universities and polytechnics means that we are not really ready to start on IT revolution. We could be ready if there are stable economic and political conditions to encourage our professionals abroad take up appointments at home or come home on short and extended visits to help train professionals.

According to Agbinya (2000) there are at least five million Nigerians abroad, most of them professionals. Of this figure, 1.2 million are in the US alone and close to 5000 of them are medical doctors. There are at least 250,000 of our best engineers outside the country. Of this figure, at least 10,000 of them are IT professionals, gainfully employed in cutting edge industries. Despite this knowledge, lecturers remaining in our institutions are not enabled through provision of amenities, infrastructure, contacts and lucrative salaries to settle down to train. Most lecturers are being sidetracked through poor salaries to struggle to make a living. For developing countries especially Nigeria to survive this 'digital divide' all the above anomalies must be rectified. To sustain an IT economy, our universities and polytechnics should be re-equipped to a world standard. There is need to accelerate extension of computer literacy training to the primary and secondary school levels to create interest in our children while they are still young. This is done in all developed countries. It must be realized that the global village as revealed by Owolabi (2000) has room for all countries but has no patience for any country that fails to board the ship. It does not wait for countries to get their acts right or sort their problems. It has no pity for countries that cannot board the ship. It has become necessary to declare access to ICT services as a fundamental human right of every Nigerian. The government should encourage Nigerians in diaspora to actively participate in ICT development. Government should also review the current educational curricula to include computer education at all levels.

CONCLUSION AND RECOMMENDATIONS

The world is going through a quiet revolution in telecommunication that we have now come to call information technology. This has drastically changed many facets of the human life, from education, industry, economy, librarianship and

politics to entertainment. The diffusion of ICT into Africa has been at a snail speed, such that the gap between the information-rich developed countries and Africa continues to increase every day. It is disheartening to note that Africa has 13% of the world population, but only 2% of world telephone lines and 1% of Internet connectivity measured in terms of number of Internet hosts and Internet users. Consequently, Nigeria and most of the African countries have not been able to reap the abundant benefits of the global information society and the information economy in areas such as education, health, librarianship, commerce, agriculture, rural development, etc. As a result of these anomalies, the conference of African Ministers in 1996 approved the African Information Society Initiative (AISI) with the basic objective of ending Africa's information and information technology gap by bringing it into the Information Age. AISI calls for the elaboration and implementation of National Information and Communication Infrastructure (NICI) plans in all African countries and the pursuit of priority strategies, programmes and projects, which can assist in sustainable build up of an information society in member states. AISI has therefore become a focal point and central theme of Information Infrastructure development in Africa with the support of international agencies such as the World Bank and UNESCO. As a result of the NICI programme, over 10 countries in Africa have completed the National Information Communication Infrastructure policy, plans and strategies, while many countries are at the advanced stages of the development of the NICI policy.

In Nigeria and even in many other African countries, there is the need to develop and intensify National Information and Communication Infrastructure policy, plans and strategies to propel the socio-economic programmes of the countries into the next millennium. The existing National Information Policy (NIP) and National Telecommunication Policy in Nigeria have to be re-examined in view of the new world global information era. The National Information and Communication Infrastructure must be developed for integration into the Global Information Infrastructure (GII). It must be emphasized that the preparations for the transition of Nigeria to an information society require particular attention to critical issues such as the setting up a comprehensive national information and

informatics infrastructure and the national vision on the impact of information and communication technologies on individuals, communities and the society as a whole. ICT is now recognized as a utility such as water and electricity. Several studies have shown that the benefits of an information age will not accrue to countries with an inadequate National Information and Communications Infrastructure (NICI). The National Information Infrastructure (NII) must be connected to and in operation with the emerging Global Information Infrastructure. With the low telephone density in Nigeria, every effort must be made to increase the teledensity by further liberation of the sector. New technologies utilizing the satellites such as the VSAT system, optical fibre system and wireless techniques using spread spectrum technique should be adopted.

The United Nations System has been instrumental in bringing global problems into focus and providing a framework for planning and coordinating joint action. Cooperation among developing countries has played a unique role in this context. Countries facing similar challenges have shared experiences and learned from one another, and they have pooled their strengths in dealing with the rapidly changing realities of a globalizing world. The importance of such cooperation cannot be overemphasized. First as the political awakening of Africa, Asia and Latin America was one of the globally transforming processes of the 20th century, the economic and social development of the "global south" is now a basic component of a refashioned world. How this will affect and be affected by the phenomenon of globalization will decide whether generations to come will inherit a planet in deep crisis or one where life realizes its full potential. The United Nations initiative, COPINE (Cooperative Infrastructure Network Linking Scientists, Educators, Professionals and Decision Makers in Africa) naturally provides a springboard for this project. To minimize the effects of 'digital divide' in Nigeria, ICT should be declared as part of the national priority for the socio-economic development of Nigeria. A National Commission on ICT, charged with the responsibility of ensuring that Nigeria is surely part of the global society should be set up. It must be pointed out that a National ICT Initiative as in other countries is imperative.

Also, a National Information Communication Backbone with large bandwidth for connecting

Nigeria to the global information super-highway should be established. The first phase should consist of 3 VSAT terminals in each of the six geo-political zones of Nigeria and the national satellite hub in Abuja. Efforts should be geared towards the establishment of a National Centre for Information and Communication Technology Development under the Federal Ministry of Science and Technology. All the above suggestions are necessary for Nigeria to take her rightful position in the global information society. The government should declare access to ICT services as fundamental human right of every Nigerian; establish a timetable and guarantee-enabling environment for attracting the right level of investments. To discourage this 'digital divide' governments in Nigeria and other African countries should enhance the integration of rural areas with the global information network. The government should establish an enabling environment for the local manufacture and assembly of computers and accessories, as well as encourage software development by the public and private sectors.

DEVELOPMENT OF NICI PLANS IS NOT ONLY A SERIES OF PROCEDURES AND TECHNICAL PRESCRIPTIONS BUT IT SHOULD ALSO BE SEEN AS A NEW PHENOMENA AND CULTURE FOR INFORMATION SHARING TO REDUCE THE INFORMATION GAP BETWEEN DIFFERENT PARTS OF THE POPULATION. HENCE, ADHESION OF DECISION MAKERS AND ALL STAKEHOLDERS TO THE INFORMATION SOCIETY CONCEPT IS ESSENTIAL FOR THE SUCCESS OF THE NICI PLANS TO BE DEVELOPED IN MEMBER STATES BECAUSE THOSE PLANS ARE GLOBAL IN NATURE AND EMBRACE ALL WALKS OF LIFE BE THEY ECONOMIC, SOCIAL, CULTURE OR TECHNICAL. IN ORDER TO INCLUDE ALL STAKEHOLDERS, AFRICAN COUNTRIES ARE REQUESTED TO ESTABLISH NATIONAL TEAMS RESPONSIBLE FOR THE DEVELOPMENT OF NICI POLICIES, PLANS AND STRATEGIES, THE IDENTIFICATION OF PRIORITIES AND THE SETTING-UP OF MECHANISMS AND PROCEDURES FOR FOLLOW UP AND IMPLEMENTATION. TO SUPPORT OTHER SECTORS OF THE ECONOMY AND ENSURE RAPID ECONOMIC DEVELOPMENT, MASSIVE INVESTMENT IS URGENTLY REQUIRED FOR THE EXPANSION OF OUR TELECOMMUNICATION NETWORK.

TODAY, NIGERIA CAN EASILY ABSORB OVER 3 MILLION TELEPHONE LINES WITHIN A PERIOD OF TWO YEARS. TO BE ABLE TO ACCESS THE INTERNET AND BE PART OF THE REVOLUTION SWEEPING THE GLOBE TODAY THE BASIC REQUIREMENT IS THE PROVISION OF ADDITIONAL AND FUNCTIONING TELEPHONE LINES. THE CONCLUSION IS THAT CERTAIN STEPS HAVE TO BE TAKEN

in order to access the benefits of globalization while minimizing the destabilizations, dislocations, disparities, disruptions and distortions associated with the current global trends. In other words, nations and enterprises are not powerless in determining their response to its risks and challenges. Developing countries must develop mechanisms and instructional arrangement for creating awareness and understanding of the nature, pace, consequences and implications of the changes resulting from globalization. Special focused teams involving representatives of the government, academia and the private sector must be formed to monitor, analyze and disseminate information on the trends, structure, consequences, and implications of globalization and recommend policy actions to all concerned.

It is necessary for the developing countries to raise their level of preparedness in order to minimize the risks and take advantage of the vast opportunities that the globalized environment confers. They should use all sources of information, especially the Internet to educate the youths and children to ensure that they do not miss the train of this global trend. Also governments must make the management of information a central focus of their policy. In addition, they must put in place policies that enable their people to get on-line, both in terms of infrastructure and individual devices for access. Computer access for all levels of the education system must be pivotal if Nigeria and other developing countries are not to be left out of the knowledge revolution that drives competitiveness in globalization.

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