NURTURING INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN AFRICA

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Introduction

It is an undisputable fact that there is an information divide between industrial societies and Africa, in terms of information generation, management and dissemination. The status quo has existed for a long period of time. In our age, the divide threatens to widen even further in the wake of the rapid transition of the world economy from industrial age to what is now referred to as the information age. Human activities are increasingly being driven by the need for information. This need is being satisfied by the expansion of new ways of handling information facilitated by technology. There is an unprecedented revolution in the way information is handled. It has become easier and increasingly cheaper to generate, store, transmit and access information and data remotely, by application of a wide range of Information and Communication Technologies (ICTs). Africa, however, finds herself on the other side of the Digital Divide. She lags behinds the industrial societies in acquisition and application and subsequently the benefits derivable from ICTs.

The role that information plays as an essential ingredient in socio-economic development cannot be over emphasized. A survey of academic research papers, conference reports and many other activities by information professionals in Africa reveals that there is an appreciation, not only of the role information plays in national development, but also that the current state of affairs in terms of infrastructure and modalities are not quite what they ought to be. There is a realisation that there is deficiency and ineffectiveness in the existing information systems and services. This, one would argue, is due to a convergence of many factors, ranging from human to financial resources. There is also a realisation that Africa cannot remain isolated from new challenges arising from application of ICTs and related technologies in information handling activities that are affecting the global village. Africa has to adapt herself to the wave of diverse global changes because it is within this environment that she is struggling to assert herself economically and improve the standard of life for her people.

Information Based Society

Studies in the United States of America have shown that, since the1950s the most rapidly growing sector of employment has been the information sector. Over 50%

of all jobs are related to creating, packaging, repackaging and distribution of information and the information component of all jobs is increasing (Davis & Olson: 55). The information-based economy is characterised by a new set of rules for handling information that are mainly propelled by the convergence of advances in ICTs and globalization. Hundley and others note that in most cases it is difficult, and in some cases impossible, to separate effects of ICTs from those of globalisation (Hundley et. al.: 5). There is a growing trend in globalization, of national issues and corresponding inter-dependence among nations. We are witnessing rapid advances in cross-border integration in many areas of human activities.

As human society is developing, information and communication technology is also developing. The current level of development of ICTs is breathtaking. These technologies have given us the ability to access, manage, store and share large volumes of information on a global scale, which was not possible in the past. The Internet, the Digital Versatile Disc (DVD), direct digital download of text, audio and video, and the commingling of the interactive computer with telecommunications have become new tools of productivity. Today, ICTs have a tremendous impact on cultural, economic, political and social aspects of life everywhere. In business, clients are provided with better and more efficient services. Traditional information institutions such as libraries have had their house keeping activities revolutionised through automation. Electronic technologies such as CD-ROM and DVD have tremendous impact on information storage and space. Hypertext enables storage and simultaneous retrieval of multimedia – text, graphics and sound. The number of home-based services available is growing all the time – home banking, home shopping, e-learning, etc. Looking at the current trend in ICTs, it is apparent that these technologies will continue to develop to new heights. Future computers will become faster and cheaper, they will enable storage and access of even more information than is possible with present day machines, new and versatile products will emerge, the Internet bandwidth will increase. Newer variations of the technologies are also expected to emerge.

Developmental efforts require data and information to enable planners and decision makers to select the best option in a given context. A major application of information is in resolving uncertainties in decision-making and problem solving. Everybody in society needs information – planners, decision makers, researchers, professional and semi-professionals, technicians and the population at large. All these categories of people need and use information in one way or the other, in both official and private endeavours. The need for information is ubiquitous, meaning that there is no sector or economic activity that can function effectively without information. For information to be meaningful to individuals, programmes and activities involved in diverse ways in socio-economic development should have timely access to systematically captured, recorded, processed and organised data and information. Such information should also be relevant and reliable (Neelameghan: 12). It is in this context that ICTs capabilities should be strengthened in Africa. The role of their potential in socio-economic

development cannot be overemphasized as revealed by the interest the subject is generating at many forums.

Underdeveloped ICTs Capability in Africa

It is clear that lack of properly developed ICTs capability will have profound implication for Africa. Much has been written on the marginalization of Africa in the world's scientific, technical, academic information and more recent indigenous knowledge fields. Surveys of the print media- journals, reference sources and books generated in the developed world show little coverage of African contributions. The same applies to African information content originating from Africa on the World Wide Web. Chisenga notes,

> The web content is entirely dominated by materials produced in the United States, Europe and Asia. As a result, information consumers in Africa are on the receiving end. Information for solutions to a large number of African problems and situations is sought and accessed on databases and electronic networks developed outside the continent. Some of the information available on the web bear no relevance to the needs of African people. (Chisenga: 16)

Much of the information generated in Africa has remained in grey form and yet ICTs, and more specifically the Internet offers Africa a great opportunity to make a major contribution to the development of the information content on the Web.

The use of ICTs has become part of the economic development activity of the world and is changing the world within which Africa is struggling for survival and growth. The changes cannot be ignored if Africa is to survive in the information age. As mentioned earlier, the capacity to generate over 90% of economic, scientific and technological information rests with economically advanced countries and a major proportion of this information is in demand in Africa. Such information is increasingly being produced in electronic formats. To access and make use of the information, Africa needs to move along with the wave of development in ICTs. Subsequently this could enhance national and international networking and information exchange. At the pace changes are taking place, lack of consolidation of capabilities in Africa will mean widening the digital divide and consequently the information divide – the gap between information rich societies and information poor Africa.

Among the issues being addressed by the growing body of literature on ICTs in Africa are the constraints militating against effective application of the technology. A survey of the literature reveals that there is shortage of skills and experiences as they relate to ICTs (Inganji, 1990, Kaul, 1988, UNECA, 1992). The shortage is increasingly being experienced as more ICTs are introduced in both private and public sectors. Training problems have been compounded by inadequate and/or lack of training facilities in many African countries. Training has been restricted in some cases to certificate and

short courses by a few institutions, both private and public, and by various computer vendors found in these countries. In the last few years, however, there has been introduction of first degree courses in computer science and related technologies and postgraduate courses for information scientists in some countries. Training African personnel in the developed world requires foreign currency, which is in short supply in the majority of African countries.

Almost all African countries are experiencing the scarcity of foreign exchange to purchase/import computers and a wide range of related technologies form other countries. The fact that the industry is not developed in Africa makes ICTs imports to compete with other pressing needs such as food, medicine and capital goods. Development of a broad based ICTs infrastructure is dependent upon an efficient telecommunication infrastructure as it facilitates transmission and exchange of data and information over networks. Telecommunication infrastructure in Africa is underdeveloped. Transmission lines are confined to urban areas. Hence transmission of data and information to rural areas is very poor. Over 75% of most of Africa's telephones lines are concentrated in capital cities (Jensen: 1).

Creating an Enabling Environment for ICT in Africa

Africa's disadvantageous position in socio-economic and political arenas is as a result of her underdevelopment in general. The greatest challenge standing in the way of ICTs development in the majority of African countries is the poor state of their economies. After four decades of political independence, economic development is nowhere near the desired goal. The majority of the people live in extreme poverty. The challenges appear to be insurmountable, but sitting back and lamenting over our condition will not stop the ever-speeding train of development in ICTs. Establishing effective and efficient infrastructure, services and products can only happen if there is a deliberate approach to promoting and sustaining the growth and development of this technology. Leaving the growth of the industry to market forces may not result in all-round development. Market forces are profit oriented and often have a tendency of fuelling growth in areas that appear lucrative, leaving out components, which are not so lucrative, but are nevertheless pertinent to the whole.

One way of doing this for African countries is to set up ICTs Coordinating Agencies (ICTCA). Deliberate promotional approaches have been successful elsewhere. For example, the Singapore government launched the first formal ICTs policy with the establishment of the Committee on National Computerisation (CNC) in 1980. The aim of CNC was to utilise the power of ICTs in her economic development. This effort resulted in the successful computerisation of the civil service between 1980 and 1992. The National IT plan was formulated in 1986 to further strengthen ICTs as a competitive weapon in economic development. In 1990 the National Computer Board initiated the Singapore IT2000 plan, which was adopted by cabinet in 1992, its aim is to address the convergence of telecommunications, broadcasting and computer policies. Today Singapore is rated

among the first in the world with advanced nationwide ICT infrastructure (ITU: 31). Chia and others write:

> The Singapore Government has been instrumental in promotion of IT and the Internet. Its participation is not only confined to encouraging more users of the Internet through creating an efficient computerised civil service and enabling everybody to learn to operate computers and networks, but also to provide both infrastructure support as well as financial commitments to building and developing a state of-the-art IT national infrastructure. (Chia et. al.: 104)

ICTs Coordinating Agency (ICTCA)

Building up viable and integrated national ICTs systems and services involves launching new programmes and upgrading existing ones. The question of a mechanism for achieving coordination does arise. The rationale is to avoid unnecessary duplication of effort and also to deal with conflicting issues, which may arise between institutions in their pursuit to provide services. The justification for an ICTCA are highlighted in the envisaged objectives:

- To create a national ICTs system by bringing together public, parastatal and private sectors by establishing institutional links;
- To coordinate ICTs activities for effective administration of national ICTs systems;
- To formulate with the approval of relevant government body, a national ICTs policy; and
- To execute such policy after it has been formulated.

The fact to be examined is, what kind of ICTCA is recommended, in terms of function, structure and position in government. The structure of such a body has three parts: The policy and decision-making arm will be concerned with endorsing the national ICTs policy(ies) based on periodic reviews, evaluation and implementation of reports from the executive. The executive arm will be concerned with translating the policies into activities and programmes through various institutions. The advisory function will be concerned with provision of specialised expertise on ICTs requirements and ways and means of fulfilling them.

To set the groundwork for ICTCA it is necessary to identify a body that would be used as a launching pad. It is further advocated that the ICTCA should be under the authority of the highest government institution (Mortviloff, 1990: 62). A government body that is responsible for science and technology for instance, could be used. Such a government body should be given a mandate to identify a working party or committee, which will be assigned to carry out various activities for establishing the ICTCA. Members of this committee should be drawn from experts representing all sectors of the economy. Their priority is to develop and establish the ICTCA in terms of official designation,

structure, manpower, policy, finance and physical facilities.

National ICTs Policy

After the ICTCA is established, its major responsibility at this stage should be to formulate a national policy on ICTs. A policy of any kind and at any level is designed to give direction to the desired activity and at the same time to be compatible with the organization's objectives. The policy to be formulated should spell out specific goals to be pursued and achieved; the means by which the realisation of goals will be brought about; assign responsibilities for implementation of the means and a set of rules or guidelines regulating the activity. Furthermore, the policy should have action-oriented objectives, rather than mere political declaration (as is often the case in Africa), to indicate that ICTs will be used for economic development. It follows therefore that an appropriate legislative basis should be secured for policy implementation.

Policies are derived from the prevailing situation because that is where factors that necessitate policy are found, such as political stability, and availability of financial, human and other resources. Constraints to the objectives are identified. This is why emphasis and content of policies, though having the same objectives, differ from country to country or organization to organization.

Issues that should be considered in National ICTs policy should relate to acquisition, research, development and application of ICTs. Some of the issues listed below are adopted from Mortvillof (1990: 88) with slight modification:

- The general objective should be the use of ICTs to enhance efficiency of information handling processes;
- Criteria for adoption and application of ICTs;
- Investment in ICTs;
- Franchising for the provision of public and private commercial services;
- Cost and pricing for data transmission;
- Copyright legislation for electronic documents;
- Networking: national and trans-border data flow policies and regulation;
- Storage and distribution of sensitive electronic information and related matters of national security, corporate and individual privacy and confidentiality; and
- Formulation of national ICTs personnel policy that is in harmony with national education policy.

The digital divide between Africa and the rest of the world is very glaring. The implications for this state of affairs are not pleasant for Africa, especially with regard to cultural, political and socio-economic advancement. If not taken into account, this may consequently jeopardise the interest of individuals, organizations and even the state in

information access and provision. Coordinating agencies are suggested here as a solution to enhancing Africa's ICTs capabilities thereby benefiting from the fruits of the technological age. A sound policy environment is necessary to provide guidance for maximum benefits from ICTs.

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