



ASSESSING NIGERIA'S TECHNICAL READINESS FOR GLOBALISATION

CHAPTER 5

Nigeria and the Information Society: within or apart?

In this part of the Report, the focus will be on human, social and cultural dimensions of globalisation. First, the present state and condition of human development in Nigeria will be reviewed with a view to assessing the progress so far achieved in launching the processes of sustainable human development (chapter 6). This will be followed by situating the country's human development in the global context so as to ascertain the challenge faced in coping with globalisation and in enhancing the capacity to compete in the international community for an increasing share in the world GDP.

In Chapter 1, globalisation was disaggregated into its two principal causal components: technology-driven globalisation and policy-driven globalisation. While both are essential for full participation in the globalisation, unless a country satisfies all the technical prerequisites it cannot be a proactive player in the technology-driven globalisation. Nor can it consequently be a successful participant in the policy-induced globalisation. And this will deprive it of the opportunities which these technologies provide in enhancing governance and in deepening and strengthening the democratisation process. It is indeed imperative that the enabling environment must be provided very urgently, to generously empower the people of Nigeria to master the ICT. Of all the gaps that exist between the developed world and the emerging market economies on the one hand and the underdeveloped countries (of Sub Sahara Africa) on the other hand, none is growing faster than the information gap to the extent that the latter group of countries have been pushed out of the information highway and will have to work hard and fast to get back on it. Nigeria is one of such countries.

The combination of old and new ICT, particularly telecommunications, computers, the digital hardware and software technology, the Internet, CD-ROM, satellite and cable has created an interactive information society. Currently, Nigeria has a plethora of newspapers and magazines and TV and radio stations across the nation. The restructuring of telecommunication and the opening up of the airwaves have stimulated unprecedented growth a new cul-

ture of communications.

In 1992, the **Nigeria Communications Commission (NCC)** was established to ensure the provision of adequate, effective and efficient telecommunications nationwide at affordable price. In the course of the past decade NCC has succeeded in expanding and extending the nation's telecommunications system. But the current inadequate state of the infrastructure remains a threat to Nigeria's effective participation in the information society.

The information revolution is often said to be Africa's last 'chance to catch up'. This is especially true of Nigeria. Therefore special and urgent attention has to be paid to the many areas where Nigeria, because of its low attainment level, is technically separated from the rest of the globalising world:

Nigeria and technology-driven globalisation:

Teledensity divide:

Sub Sahara Africa has the lowest teledensity in the world. According to the International Telecommunications Union (ITU), the whole of Africa at end of the millennium had about 14,500,000 telephone lines as against 183,520,600 in the United States and Canada. And according to the US Internet Council (USIC) report for the year 2000, 136.68 million people are on-line in both countries. The countries of the Organisation for Economic Cooperation and Development (OECD) account for more than 80 per cent of global ICT production. Sub Sahara Africa has about 50 per cent of Africa's telephones.

Thus, Africa with 13 per cent of the world population has only 2.00 per cent of the total global telephone lines; 1.00 per cent of the internet users; 1.2 per cent of the total world internet sites; and, accounts for almost zero percentage of the global ICT production. Its average teledensity is 1.89 per cent. Sub Sahara Africa (excluding South Africa) has an average teledensity of about 0.5 per 100 inhabitants and more than one-half of the lines are located in the urban areas.

Teledensity situation in Nigeria is well below that of Sub Sahara Africa. For a country with an estimated population of 120.0 million, there are only a little over 400,000 telephone lines, about one-half of which are not working.

Of all the gaps that exist between the developing world and the emerging market economies on the one hand and the underdeveloped countries of Africa on the other hand, none is growing faster than the information gap. It is imperative that an enabling environment must be provided urgently to generously empower the people of Nigeria to master the ICT

The real teledensity of Nigeria is one per 600 persons — although nominally it ranges between 0.36 and 0.38 (Table 5.1). This is a far cry from the ITU specification of one telephone per 10 persons. Using this standard, Nigeria should have about 12.0 million telephone lines.

Closely linked with the dearth of telecommunications facilities is the issue of cost. The installation of telephone facilities in offices, firms and households is very expensive and the cost of telephoning per minute is very high indeed by world standard. NITEL's tariff structure is said to be one of the highest in the world.

More often than not, the system is out of order because the equipment in existence are very old and obsolete and, usually, poorly maintained. For instance, the external line plant of NITEL, installed over twenty-five years ago, has not been modified or expanded despite the expansion in telephone. The cellular telephone system is still using the analogue technology, which is prone to cloning.

There is no reason why all this should not change dramatically and for the better when the recently introduced Global System for Mobile Communications (GSM) becomes well established and the cost of acquisition and tariffs of cellular phones are made affordable (Box 5.1). So far, all indications point to the contrary. There is therefore an urgent need for real competition among the licensed companies for the GSM —

providers of GSM — NITEL, MTN and ECONET — must take all measures to ensure that the objective of the average Nigerian owning a mobile phone is achieved now, not in the distant future.

Every step must be taken by the Federal Government of Nigeria and the national Assembly, to reform the country's telecommunications system so that maximum benefits will accrue to the national economy as a result of the introduction of GSM. For this to happen, the degree of competition at the carrier level must be improved, the national carrier (i.e. NITEL) must be demonopolised and the quality of service must be significantly improved. All these are in addition to making the telephones affordable by all income levels.

According to the ITU, in countries whose macroeconomic indicators are similar to those of Nigeria, an additional telephone line has a spiral effect on economic growth. ITU estimates that a one per cent increase in teledensity can lead to as much as three per cent increase in GDP.

Low computer penetration

Coupled with the very low teledensity is the issue of low computer penetration in Nigeria (as indeed in other African countries). With Nigeria, home for 20 per cent of Africa's population having a computer penetration of 0.48 in 1995/

Box 5.1

GSM: pricing beyond reach?

MTN and ECONET, the two successful licensees of the nation's globally-acclaimed mobile telephone bidding want the Nigerian Communications Commission (NCC) to approve tariffs of between N29 and N30 per minute for them. The proposal is said to cover NITEL tariff charge of N3 per minute and the remaining as traffic and operational costs.

If the tariff as proposed is approved by the NCC, then the enthusiasm which the Global System of Mobile (GSM) bidding raised *ab initio* will be a mirage. And the purpose defeated. Before the licensing of the new companies, NITEL which holds sway with its monopolistic hold on the telecommunication industry is characterised by inefficiency and astronomical tariff charges. Simple intra-city call making is difficult. The national trunks are always busy in the case of long distance calls. Rectification of dysfunctional land lines and malfunctioning piers take long to carry out. Indeed, the nation's telecommunication industry is at its lowest ebb.

With these, breaking the monopoly of NITEL became imperative and it was believed that with new companies coming on board to share the market with it, the dark days are over. But, the proposed tariffs point otherwise. Liberalisation engenders competitive prices, and if NITEL charges less than N4 per minute on its landline telephone, and yet its lines are undersubscribed, it will be outrageous for these companies to charge as much as N30 per minute.

Telecommunication has been revolutionised in Ghana and some African countries by the GSM to the extent that taxi drivers own and have access to cellphone. It is not only because of its efficiency, but also because the cost of acquisition and tariffs are affordable.

The two companies must not deny the country the advantages and attendant development which the GSM is expected to bring by pricing it beyond the reach of many prospective users. If anything, their proposals are indicative that a cartel is already in the offing.

It is not advisable to index the tariffs absolutely on the present exchange rate of the naira to the dollar. To do this will not only dampen the morale of prospective users but will reduce patronage. Nigeria has long passed the era where telephone is a luxury; if Ghana, with almost the same per capita income with Nigeria can afford to provide the service at a relatively cheap rate with only a company in operation, why not Nigeria?

The NCC should study the proposals thoroughly and take a decision that will guarantee reasonable returns on the companies' investment as well as ensure that Nigerians take full advantage of the benefits afforded by the GSM.

Source: The Comet April 24, 2001

NITEL, MTN and ECONET so that the prices can go down. There is no doubt that a tariff regime where a wireless telephone unit attracts a connection fee of N25,000, a security deposit of N20,000, a minimum air time deposit of N15,000 with a monthly access charge of at least N4,000 will put the GSM telephones beyond the reach of majority of Nigerians. The licensed

96 and 0.64 in 1998/99 per 100 people, it is not surprising that computer penetration in the continent is less than 3 per 1000. Computers cost much more than telephones and consequently involve heavy cost in foreign exchange. Therefore, Nigeria will need to encourage domestic assembly of computers to remedy, at least in part, this problem. Unless there is a high level

of efficiency, technical know-how and productivity with relatively low wages by international standards, local assembly of computers can boomerang. There are in the country today more than 500 registered computer companies – a little than less of one-half of which are under umbrella of the Micro computer Association of Nigeria (MIVAN). This association was

ment of Nigeria launched in 1988 a programmed introducing computer literacy and education at secondary school. At the university level, the NUC has played a major role in the success in computer literacy programme at the tertiary institutions.

The computer literacy programmes at the university level have, over the years, been directed at

- Establishing and entrenching a computer culture that permeates all activities in the University;
- Producing computer-literate university graduates irrespective of their course of studies and major disciplines;
- Producing Computer Science and Engineering graduates who constitute the core of the professionals in the practice and advancement of Computer Technology;
- Conduction research and developing hardware, firmware, software, and course-ware which will enable the country to attain the latest Computer Technology capability; and
- Ensuring the provision of manpower and other resources required to meet the broad objectives of computer literacy at the tertiary, secondary and primary levels of education and at the societal level.

Apart from the NUC, the National Board for Technical Education (NBTE) has had the specific roles to play in the introduction of Computer Education in the institutions under its jurisdiction;

- Integrating the curriculum for computer literacy at the secondary and tertiary level in the programmes of Polytechnics and Technical Colleges nation-wide.
- Overseeing the development of Computer Education programmes at the Colleges of Education and Polytechnics.
- Monitoring the polytechnics and Federal Colleges of Education (Technical) to ensure they have incorporated tertiary level computer literacy into their general studies programmes, and that they have acquired adequate facilities for this.
- Accelerating Computer Studies' programmes at Technical Colleges level.
- Developing syllabus for a Higher National Diploma (HND) option in Computer Science Technology immediately for adoption by Polytechnics, and encourage the programme Poly-

Table 5.1
National Information and Communication Infrastructure of Nigeria (NICIN), 1995-1999

Major Indicators	1995/96	1998/99
Telephone lines	405.073	415.400
Teledensity	0.36	0.38
Mobile subscribers	13000	18000
Mobile subscriber as percentage of telephone subscribers	3.21	4.16
Computers per 100 inhabitants	0.48	0.64
Radios per 100 inhabitants	19.7	19.7
TV per 100 inhabitants	5.78	6.70
Internet host sites	49	58
Internet service providers (ISPs)	-	12
Internet subscribers	-	3000
Internet subscribers per 10,000		0.25

*Source: International Telecommunication Network
ECA National Information and Communication
Infrastructure Country
Profiles E/ECA/ADF/99/1*

formed around 1987 to promote informatics in Nigeria, especially literacy and usage. Its operations are closely monitored by the Computer Association of Nigeria (COAN). Specifically, its activities include recommending prices for the sale of computer products, monitoring the advancement and development of computer worldwide and creating a forum for the exchange of technological/technical information particularly among its members.

Developing the capacity to integrate computer into the national economy and use them productively to develop intersectoral links depends on skilled people and skilled people are the product of massive investment in education and training. Accordingly, the Govern-

While Nigeria's capacity for technology creation will remain limited, albeit for sometime, it has the great potential for difusion of both old and recent innovations.

technics.

- Reviewing the Polytechnics' Computer Science and Technology programmes period.
- Promoting and funding adaptive research in the polytechnics for the design, and development of computer hardware, software and firmware, power systems, thin-f technology and printed circuit boards
- Integrating the Management Information System scheme into its Computer Education programme.
- Upgrading its in-house Computer capability to a level adequate to the demands of statutory tasks.

One of the unfortunate consequences of low computer penetration is that even presently, many offices in the public and private sectors still depend on obsolete office equipment and technique for carrying out their business. Manual typewriters are still common in use in many offices. The engagement of digital technology is an imperative whenever increased productivity is the objective. From this perspective, modern digital equipment are the souls of business in modern world. Little wonder that the number of computers in a country is one of the indicators for measuring its productivity, competitiveness and human development.

Internet connectivity

Internet connectivity has shown a rapid increase in the continent of Africa. At the dawn of the new millennium virtually all African coun-

tries have local internet access. There are three key indicators of internet development: the number of host sites, the number of users and the number of Internet Service

Providers (ISPs). Table 5.2 provides a summary of internet connectivity in Africa.

94.7 per cent of the host sites are in South Africa; similarly 58.5 per cent of the internet users are South Africans and 100 ISPs out of Africa's total of 400 by 1999 are in South Africa. South Africa's dominance of is overwhelming in contrast to the very high level of underdevelopment of Nigeria, Africa's giant. Although, 38 ISPs have been registered, only 12 are currently active. The country's internet subscribers are 3000 (1998) i.e. 0.25 per 10,000 inhabitants and Nigeria has only 412 sites as against South Africa's 143,761! The extent of internet access and use is a good indicator of the overall status of a nation's level of information infrastructure development. Even the limited facilities are very expensive to access. This is due to the fact that in contrast to North America where local calls are free to the public which gives the public effective permanent access to the internet if they wish, cost of access in Africa is prohibitive.

Technology divide

There is severe internal technological marginalisation in Nigeria. This is partly because the provision of the facilities and the improvement of human capacities are urban-biased. In any case the country has for too long paid only lip service to scientific and technical education. The long-term neglect of research and development (R&D) in Nigeria is largely responsible for the present sorry state

Low computer penetration and low internet connectivity account for the low diffusion of recent technicological innovations in the country.

Table 5.2

Internet Connectivity in Africa

Sub-Regions	Population estimates 1998 ('000)	Internet Host Sites	Host Sites per 10,000 inhabitants	Internet subscribers	Subscribers per 10,000 inhabitant
North Africa	170,439	2,620	0.15	68,200	4.00
West Africa	225,991	996	0.04	31,625	1.39
Central Africa	29,270	71	0.02	3,750	1.28
East Africa	239,749	988	0.04	35,650	1.49
Southern Africa	113,687	143,761	12.65	288,350	25.36
Southern Africa (excluding South Africa)	69,348	3,184	0.46	38,350	5.53
Total Africa	779,136	148,436	1.91	427,575	5.48
Sub-Sahara Africa*	639,733	145,838	2.28	359,375	5.62
Sub-Sahara (excluding South Africa)	595,394	5,261	0.09	109,375	1.84

Source: National Information Communication Infrastructure: Country Profiles (Addis Ababa, 1999)

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of affairs in the field of ICT. There is therefore technology divide between the top urbanised elite (2-3 per cent of the population) and the rest of the population and the country.

Countries that have succeeded in achieving technological breakthroughs are those which have consistently productively invested not less than two per cent of their GDP in R&D. The proportion of GDP so invested could not have been more than the African average of below 0.05 per cent.

The dearth of capital for development and the total absence of venture capital is also largely responsible for the present lack of scientific and technological growth in Nigeria. It is the appalling lack of the will to invest in this vital area in contrast to the determination to put resources on white elephant and non-productive prestige projects that has exacerbated the technological divide.

Unfortunately, wealthy Nigerians are averse to setting aside resources for venture of capital. Granted that this is a high risk area of business with long gestation period, entrepreneurship demands of long-term objective of rapid industrial and technological development makes investment in this sector an imperative. Neither have foreign investors taken such a step even though the 1995 repeal of the Exchange Control Act of 1962 and the Nigerian Enterprises Promotion Act of 1986 threw open access to the Nigerian capital market, for both local and foreign investors (Box 5.2).

Digital divide

Four aspects to the digital divide are worthy of consideration. The first are the **regional aspects** which manifest themselves within each country, including the most advanced countries of the world, in regional disparities in the distribution of amenities. Such regional disparities are particularly very glaring in Nigeria. The unequal access to ICT facilities as between urban and rural people is probably the worst in the world — more than 90 per cent of the ICTs are located within urban areas. Lagos alone has 234,000 out of Nigeria's 400,000 telephones

— i.e. 58.5 per cent. This is also the case with regard to the ownership and distribution of computers.

Secondly, with regard to the socio-economic aspects, given the skewed distribution of income in the country, only members of the elite can afford access to the technical equipment required for joining the ICT order. This means that only a very small and minute proportion of the Nigerian society have access to electronic information media particularly the e-mail.

Although the new technologies, having slashed cost of processing, storing and moving information, should have the potential to help poor people leapfrog some of the traditional barriers to development, this lack of access to e-governance has denied them such opportunities. One hopes that the situation will be ameliorated by the GSM which when it becomes fully effective should through the internet and mobile telephones offer the poor new opportunities.

Thirdly, there are gender disparities. Like the disparities between HDI on the one hand and GDI and GEM on the other, there is a disparity between male and female access to ICTs.

The fourth disparity is the well-known widening gap between rich and poor countries. There is a real risk that the poor countries and the poor people will continue to be marginalised and that the existing educational divide will be compounded by a growing digital divide.

Inadequate provision of electricity – Never expect power at all (NEPA)

The non-availability and undependability of the supply of electricity is one of Nigeria's Achilles heels. In spite of the abundance sources of energy in the country — thermal, hydro, solar and oil — Nigeria is perpetually short of electricity. This perennial shortage and the epileptic nature of the inadequate supply constitute a major constraint to the

Technology and digital divide between the urban and rural areas and population, between the high income elite and the rest of the population and between male and female genders continue to exacerbate internal maginalisation

Box 5.2

Access of foreign investors to the Nigerian Capital market

The Nigerian capital market is a viable avenue through which local and foreign investors can participate in the Nigerian economy. The market has been considerably strengthened particularly in the area of its legal, regulatory and institutional framework as well as market infrastructure. It has also been internationalised as barriers to entry and exit have been removed.

Foreigners are free to participate fully in all spheres of the market without any ownership restrictions or limits. Foreign firms can freely access the capital market for listing and/or capital sourcing while Nigerian companies may do same in the other jurisdictions.

Prior to 1995, ownership limits were imposed on foreign participation in the Nigerian economy. In the same vein, Nigerians could not freely invest in other countries. These were made possible by the repeal of the Exchange Control Act of 1962 and the Nigerian Enterprises Promotion Act of 1986. Efforts at attracting foreign investment and, indeed, of globalising the economy have included the establishment of the Nigerian Investment Promotion Commission (NIPC) as a one-stop shop for foreign investment.

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realisation of the technology-driven globalisation in Nigeria.

Access to electricity is limited to only about one-third of the country's households with considerable disparities between urban and rural areas and among the different states of the federation. Even though majority of the people live in rural areas, only 8.6 per cent of rural households have access to electricity. In five states — Jigawa, Kebbi, Sokoto, Katsina and Taraba — only about 10 per cent of their households have access to electricity while in Yobe, Borno, Bauchi, Adamawa, Akwa-Ibom and Benue states the corresponding percentage is 15. At the other end of the spectrum are Edo, Kwara, Ogun and Oyo states, where more than 60 per cent of the households have access to electricity, even if it is extremely irregular. And topping the list is the Lagos metropolis with a score of more than 90 per cent, even if some pockets within the metropolis (for example, Makoko and Badiya, the special case studies on the incidence of extreme poverty in the **NHDR 1998**) are more often than not without electricity for months (Figure 5.1).

Without doubt, Nigeria still has a long way to go before being in possession of the infrastructure — in quantity and quality — required for full and effective participation in the ICT without which its marginalisation and peripheralisation in the globalisation process will be perpetuated and whatever policy-induced globalisation measures are initiated will end in frustration and failure.

Broadcasting

Broadcasting has traditionally provided the basic information infrastructure for Africa's entry into the information society. Access to radio and television is by far greater, per capita, than access to newspapers, telephones or even computers. It is estimated that over 60 per cent of the population of Africa can be reached through existing radio broadcasting networks. According to UNICEF there were 226 radio sets and 66 television sets per 1000 population in Nigeria in 1997.

With the emergence of many new and independent radio and television stations, their impact has been quite far reaching. But the lack of universal access to electricity limits the coverage of local television. So does the limited ability to produce programmes locally and the high dependence on B-grade US and European re-runs interspersed with outdated documentaries. Although internationally, microwave and satellite-based television services are now available, currently the audience is largely confined to the elite who can afford the equipment and subscription fees.

But in spite of all these limitations, the rapid expansion of radio and television broadcasting in Africa and particularly in Nigeria is to be welcomed and further encouraged while

the new technologies particularly the internet are universalised in the country. The advantage of the internet over the older technologies such as radio, newspapers and video is that it empowers users to send, receive, narrowcast or broadcast their own information, making it a natural democratising tool.

Democratising access to the information society

In other words, Nigerian stakeholders particularly the private sector and civil society have a responsibility to take proactive measures that will democratise access to the information society. Left unchecked, the information society will remain bourgeois and overwhelmingly urban-biased with the information divide becoming stronger and impenetrable. The ICTs without countervailing measures have a tendency to create two very broad social groups in the society — the *information rich* and the *information poor*, the latter group being overwhelmingly dominated by rural and low-income people and communities. All effort must be taken to ensure that the ICT markets do not exacerbate the process of internal marginalisation. The 1998 global Human Development Report has rightly warned that left uncontrolled, the ICT markets can go too far and force out the non-market activities that are so vital for human development. It is not in the national interest, particularly in this fledgling age of democracy, to allow parallel communication system to co-exist — one of those with income and education and the other for those without, with the two blocked by high barriers of time, cost and uncertainty.

In order that a sustainable democratic culture of entrenching certain values and principles in processes and procedures in public policy formulation and implementation can become internalised, the opportunities provided by the information and communications technologies must be utilised to the optimum extent possible through the democratisation of the information society. The advent of such a society will also speed up the emergence of various forms of participatory communications with a view to improving the lives of peoples in various fields of endeavours — food security and agriculture, health, education, governance etc. The potentials of the internet (including electronic communication such as e-mail) in the empowerment of people and communities is indeed very great.

Technologies and Human Development in Nigeria

The global Human Development Report 2001 has focused, most opportunely, on the need to make the new information and communication technologies to work for human development. In so doing, the concept of technology achievement index (TAI) has been introduced.

Nigeria still has a long way to go before being in possession of the infrastructure required for full and effective participation in the ICT

It aims to capture how well a country is creating and diffusing technology and building a human skill base which provides it with the capacity to participate in the technological innovations of the network age.

The four components of the composite index are technology creation, diffusion of recent innovations, diffusion of old innovations and human skills. From what has been written in this chapter it is not surprising that Nigeria has not featured significantly, if at all, in any of these four components. Because the country's investment in R & D is niggardly (0.01 per cent of GDP), technology creation is virtually non-existent. The few that have been created by Nigerians are usually patented abroad as the country's management of patents is still in a rudimentary state. In the perception of many Nigerian scientists and technologists, there is no enabling environment in the country for technology creation. In any case, there is no periodic information available about the number patents (if any) granted to residents nor

data on receipts of royalties and licence fees.

With regard to the diffusion of recent innovations, Nigeria is hardly a beginner as the data on internet connectivity and computer penetration clearly indicate; nor is the country an exporter of technology. The country's teledensity is one of the lowest in the world. Thus access to electronic information media is available to only a very small and minute proportion of the society. Information on efforts to develop human skills and capacity has already been provided earlier in this chapter. Nigeria's enrolment ratio in science, mathematics and engineering at the tertiary level is exceedingly low.

In conclusion, the only category among the four of the technology achievement index (TAI) that Nigeria fits in is the marginalised category. It does not fit even into the category of dynamic adopters not to talk of potential leaders and leaders categories.

Democratising access to information is an imperative for Nigeria to leap frog into the globalisation process.

