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It is my pleasure to be invited here today as the Guest Speaker at this occasion of the Nigerian Society of Engineers Enugu branch 2001 conference and Annual General Meeting. I totally associate the Nigerian Communications Commission and myself with theme "**Communications Technology in the 21st Century**" considering the fact that Telecommunications is acknowledged as a primary infrastructure of the 21st Century and "passport" into the emerging global information society.

From time immemorial, information and communications have always formed the basis of human existence. This fact has driven man to continuously seek ways to improve the processing of information and communicating such information to one another, irrespective of distance and on real time basis.

Perhaps the greatest legacy that the 20th century scientists have bequeathed to mankind is the "Information Revolution" made possible by rapid development and advances in telecommunications and computer technology.

That no modern economy can be sustained today without an integral telecommunications infrastructure is widely acknowledged; Access to telecommunications is therefore critical to the development of all aspects of a nation economy including manufacturing, banking, education, agriculture and government.

In the 21st century the world will be witnessing an upsurge in the use of telecommunications and information technology in nearly all aspects of human endeavour. The wireless revolution and the internet phenomenon have recently changed the way people live and transact business, and the telecommunications/information technology industry has taken center stage in world affairs and will continue to be so far into the foreseeable future.

Last year the International Telecommunications Union (ITU) confirmed that the world telecommunications and information technology industry was worth US\$ one trillion in market capitalisation and behind in size only to healthcare and banking.

Nearer home in Africa, the story is not as exciting. It was the South African President that was highlighting the dearth of telecommunications infrastructure in Africa and pointed out that there were more telephone lines in Manhattan-New York than in the whole of Sub-Saharan Africa.

At the ITU organised Exhibition and Forum, Africa, Telecom '98 in South Africa which I was privileged to attend, the organisers launched what was called African Renaissance. A conscious attempt to awaken African countries to the need to improve teledensity urgently.

This was backed by tremendous spirit of optimism by all those in attendance including government ministers, speakers, exhibitors, delegates and the worldwide media.

It was also at that forum that Dr. Chasia of the ITU pointed out that whereas Africa had by 1997 installed 14 million lines in the century since the telephone was invented, China installed 20 million lines in 1997 alone! What this showed was that it can be done and we in Africa, can also catch up with the rest of the world very quickly.

Telecommunications and information technology therefore present copious opportunities for the creation of unprecedented wealth for Nigeria. What is required is the political will to create the right environment for investment in this sector.

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 order to tap into the opportunities that the information revolution has created for the industrialised and intermediate economies. There in lies the telecommunications challenges for Nigeria in the 21st century.

At independence in 1960, Nigeria had only 18,724 telephone lines. Since then till today the installed capacity has risen to about 700,000 lines. What

this indicates is that the subscriber base has grown at an average rate of only 10,000 lines per annum nation-wide over the past forty years! The picture is even worse when you realise that only about 400,000 lines are actually connected to subscribers. Also in mid 1980's cellular service was commenced in Nigeria and today the number of cellular lines actually connected is just 20,000 representing an average annual growth rate of 1,250 subscribers per annum. A most regrettable situation.

In fact if we back-step a bit and analyse the present 400,000 connected subscribers-base critically it may be reasonable to assume that at least half of that number are actually lines to corporate and government organisations who have multiple lines. It might in fact be that not up to 200,000 individual Nigerian family units actually have telephone lines in their premises!

The need to improve telecommunications infrastructure urgently has always been in discussion with successive administrations since the 1980's. Perhaps it was in the realisation of this that the Federal Government commercialised the then P&T giving birth to NITEL in 1985. The idea was to run the company as a fully commercialised entity.

Though the network growth rate improved following the birth of NITEL, the rate was, however, too small to compensate for the rate of population growth, It also did not reflect the improved wealth of the nation since the 1970's and the increased demand for telecommunications services. It has been suggested that the economic problems of the recent past are partly traceable to the lack of infrastructure facilities such as reliable electricity supply and adequate telecommunications facilities required to support industrialisation and economic growth.

The Federal Government again in 1992 decided to invite private sector participation in the sector to attract private investment to expand the network more rapidly. The Nigerian Communications Commission (NCC) was consequently set up by Decree 75 of 1992 to regulate the industry, The NCC Board was, however, not constituted until July, 1993, which marked the beginning of the liberalisation of the telecommunications industry.

Since the 7-year life of the NCC, several licenses have been issued to private companies to undertake various services such as,

- (a) Fixed telephony services
- (b) Mobile telephony services
- (c) Fixed satellite services (VSAT)
- (d) Paging services
- (e) Payphone services
- (f) Internet services and other value added services,

Though quite a number of these licenses were issued several years ago only a limited number have commenced business in each of the license categories. Some modest contribution to the nation's installed base have, however, been recorded by the fixed telephony services licensees who have only been able to contribute less than 100,000 lines to the network to date. Questions have therefore been asked on why despite the numerous licenses issued no appreciable impact has been made in the area of growing, the subscriber base in the country quickly.

The reasons may be traceable, to the following:

- Political and economic isolation of Nigeria during the past military era which affected investment confidence. Telecommunications being a very capital-intensive business, international funding was required. Most major network expansion initiatives worldwide -have been facilitated by vendor finance and venture Capital instruments. Because of the political climate in Nigeria during that period it was difficult to obtain offshore finance.
- The timidity of major financial institutions in Nigeria. Despite the fact that economic isolation of the country has been lifted. Surveys have shown that apart from a few, most banks in Nigeria are not in tune with the development in the sector and were therefore unable to package local/international facilities to support competent companies. Most of the banks were quick to lend to traders who import container loads of commodities or cars for sale, in preference to hitech sectors.
- The delay in providing interconnectivity to new operators on a timely basis. Even when connected the operators hardly have enough links to the existing network thereby, causing congestion and degradation of services. This singular factor has in fact imposed limit on how much expansion that can be undertaken by the operator and still maintain an acceptable level of quality of service.

In attempting to propose solutions, let me emphasize that even in an era of private sector-led economy the role of government is still very vital, but largely different from the past. Primary among the role of government is to create the right environment for doing business on a free trade basis. Since the Nigerian market has been liberalized and competition introduced, government's role should be that of an industry watchdog. The over-riding policy objective must be to grow the nation's telecommunications infrastructure rapidly and ensure a competitive environment that will reduce price and make services affordable to most.

To achieve this will require a strong industry regulatory body that will be sufficiently empowered to regulate the industry as a whole. Government initiative to regulate the telecom industry has continued to be positive and the rule books are being made clearer in order to create a structured environment in which all the players and stakeholders know where they stand.

The Nigerian Communications Commission has now been strengthened with the constitution of a Board of Directors in April 2000. With the Board in place the Commission has enjoyed a fair amount of autonomy and has commenced restructuring of the organisation to enable it play the strong regulatory role required of it in the industry.

The Nigerian Communications Commission is committed to providing the right environment that will attract massive investment in the telecom sector. Our vision is to position Nigeria among the information-rich economies of the world within the next five years.

With this in focus we have identified certain key technology areas such as wireless systems and Internet for particular urgent attention.

Digital Wireless and Mobile Communications Systems can help Nigeria leapfrog into the global village as a respectable nation. Nigeria's immediate requirement for local access to the telephone network is enormous and the required capital and time investment needed to complete a full deployment using wire lines are daunting, Wireless systems offer quicker solution to providing network access than traditional copper lines and therefore more desirable.

Today, Internet services are becoming available on even mobile phones making it possible to transact a wide range of services formally only available using a computer device. There is no doubt that the Internet is one quick way of bridging the gap between what are now generally referred to as the "information rich" and the "information poor".

Fixed and mobile wireless systems offer key advantages in making Internet services universally available because of the speed of deployment. Fast deployment means quicker connections to subscribers resulting in faster payback of capital investment. The rapid rate of deployment will also make phones services widely available quicker and thereby accelerate the pace of national economic development and growth.

However, wireless deployment in Nigeria is faced with some problems. Key among them is the unreliable power supply situation in Nigeria. The public electricity power supply situation must improve urgently for Nigeria to enjoy the full benefits accruable from wireless systems deployment. Power backup systems for subscriber terminal in case of fixed wireless systems are suitable for 2 to 8 hours of battery life. A situation where power outages could stretch to 12 to 48 hours and in some cases more, the situation can only be described as unacceptable.

The second problem is the limited funding available locally to finance a massive build out. Without a large deployment there can be no economies of the scale. In a low-income environment, the price per line for the systems must be right to guarantee a reasonable return on investment. Order must therefore be of sufficient size to ensure the vendors can achieve those economies of scale and guarantee affordability for a larger number of people and profitability for the operator.

Therefore in licencing operators for major undertakings such as digital mobile networks, the NCC is targeting reputable organisations with the necessary access to capital with which to build out networks rapidly. We will continue to adopt and encourage competitive regulatory policies in a fully liberalised environment in order to make services widely available and at competitive rates.

NCC is also mindful of the fact that certain sectors of the economy require attention on a focussed basis.

Nigeria is the 8th largest oil producer in the world and oil revenues constitute 95% of the National revenue annually. So in discussing the importance of telecommunications to the national economy, the telecommunications facilities required to support the oil industry and other major sector of the economy should be of concern to NCC.

We will therefore be quite happy to receive suggestions from Engineers assembled here not only on favourable investment policies and incentives that will attract serious telecommunications companies and investors to Nigeria, but also any specific requirements in a particular sector.

NCC as a policy now constantly consults with the industry in pursuance of our policy of participatory regulation.

In concluding let me oncemore thank the organisers of this forum for the invitation extended to me to be part of this workshop.

Thank you.

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