

# CONNECTING AFRICA BY INCREASING ACCESS TO TELECOMMUNICATIONS ON THE CONTINENT.

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## **1. INTRODUCTION:**

The need for increasing access to telecommunications on the Africa continent has become more urgent in view of the widening disparities between the advanced and industrialised countries on one hand, and the developing and least developed countries on the other. This is more so when we considered the fact that majority of about 80% of the population of Africa that live in the rural areas, do not have access to basic telecommunications services. **Thus, connecting Africa implies taking service to the rural areas.**

The deficiencies in telecommunications services on the Africa continent can be traced to neglect of the past and the lack of adequate infrastructures and facilities, resulting from long years of state ownership and control of economic activities. However, following global trends in the last two decades, countries in Africa have created, and are adopting national policies that are private sector driven, and aimed at delivering services to communities throughout the countries. In the telecommunications environment, these policies have made some positive impact on the human and economic development of the continent. In Africa, the story is now more exciting than was the case before the dawn of the new millennium. Though the Continent still has a long way to go as far as development of telecommunications and IT infrastructure is concerned, there has been remarkable progress in the installation and uptake of subscriber lines in the last four years. Revolution is truly taking place in telecoms in Africa with the continent becoming the fastest growing region in the world for mobile communications (The ITU, 2003)

However a lot more could have been achieved if not for a number of factors including, the lack of adequate infrastructures and appropriate technologies. Consequently, the challenges to achieving increasing access to telecommunications on the continent will include ensuring deployment of appropriate infrastructures, and adequate connectivity within countries and across the continent.

In the light of the above synopsis, this paper discusses ways of increasing access to telecommunications in the African continent. Perspectives on the state of telecommunications development in the continent, relative to other regions of the world were undertaken.

## **2. PERSPECTIVES ON TELECOM DEVELOPMENT IN AFRICA**

As indicated earlier, a significant percentage of the population in Africa live in areas that can be described as rural, and largely without basic infrastructures, including telecommunications. These

deficiencies reflect a lack of adequate facilities to meet developmental needs, especially in education, health care, and other sectors of African economies.

In terms of the availability of basic telecommunications services, the continent of Africa has, over the years recorded the lowest teledensity (i.e. the number of telephones per 100 inhabitants) when compared to other regions of the world. According to the ITU, while the overall world average teledensity in 1997 was about 14, the overall average teledensity in Africa was 2 lines per 100 persons, compared to 31 in the Americas, 7 in Asia and 36 in Europe. Out of the 55 African economies cataloged by the ITU in 1997, only 17 had teledensity above the average of 2.

However, from 1999, the trend has shown some improvements because many African countries have privatised state monopoly operators, liberalised telecommunications markets, promoted competition, and established independent regulatory bodies.

The wave of Market liberalisation sweeping across the world has no doubt, positively impacted the continent with several countries opening up to foreign investment in the telecommunications sector. It is reassuring to note that it is now widely acknowledged that Africa currently represents a most fertile ground for Telecom investment. Notable success stories have been recorded since several African countries embraced market liberalisation, thus encouraging others to move in the same direction.

In the last few years most African countries, nay developing countries, have been part of the revolution propelled by the provision of Mobile Services and the Pre-paid billing platform. The growth of these services, where competitive operators have been licensed, has been geometric. For instance in Nigeria over 2 million lines are rolled out every year since 2001 and the annual growth rate is predicted to increase substantially over the next 5 years.

It is also note worthy that developing countries are now taking the lead in worldwide telecommunications growth (especially in Asia).

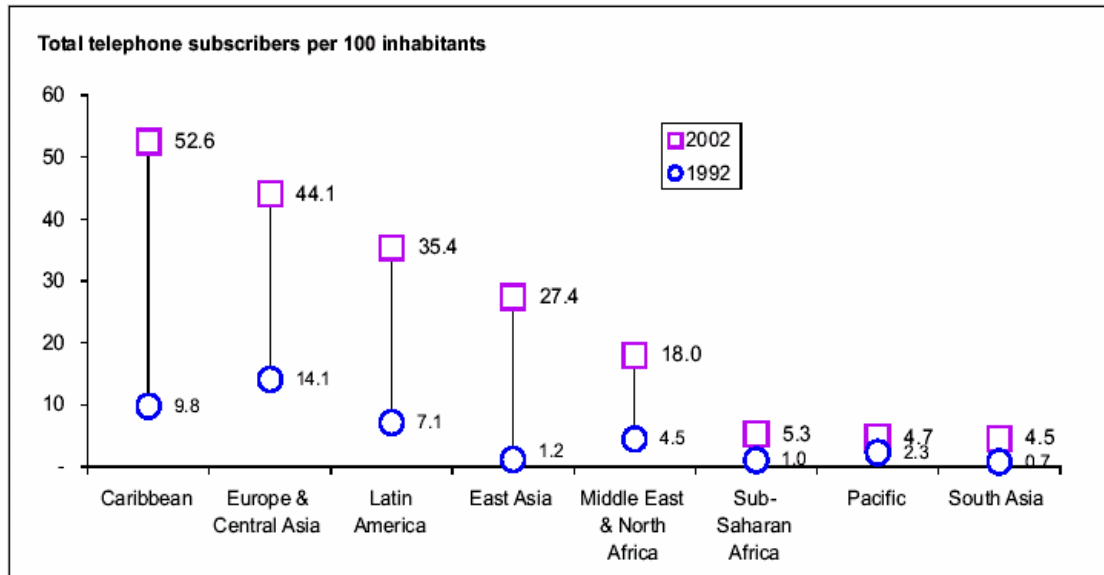
**Table 1:** Teledensity in Africa and Other Regions

REGION	POPULATION (million) 2002	TELEDENSITY ( <i>Telephone lines per 100 People</i> )	
		1995	2002
World	6,096.97	12.29	21.63
Europe	796.87	33.27	54.79
Americas	845.06	28.71	37.45
Asia	3,615.96	5.42	14.01
Oceania	31.34	38.81	49.14
<b>Africa</b>	<b>807.74</b>	<b>1.77</b>	<b>5.40</b>

**Source:** ITU World Telecom Development Report, 2003

Despite these successes, the continent of Africa still occupies an unenviable position in the provision of access to telecommunications. While the teledensity for the northern African countries (with the Middle East) increased from 4.5 in 1992 to 18.0 in 2002, the teledensity in the Sub-Saharan Africa increased from about 1.0 in 1992 to 5.3 in 2002.

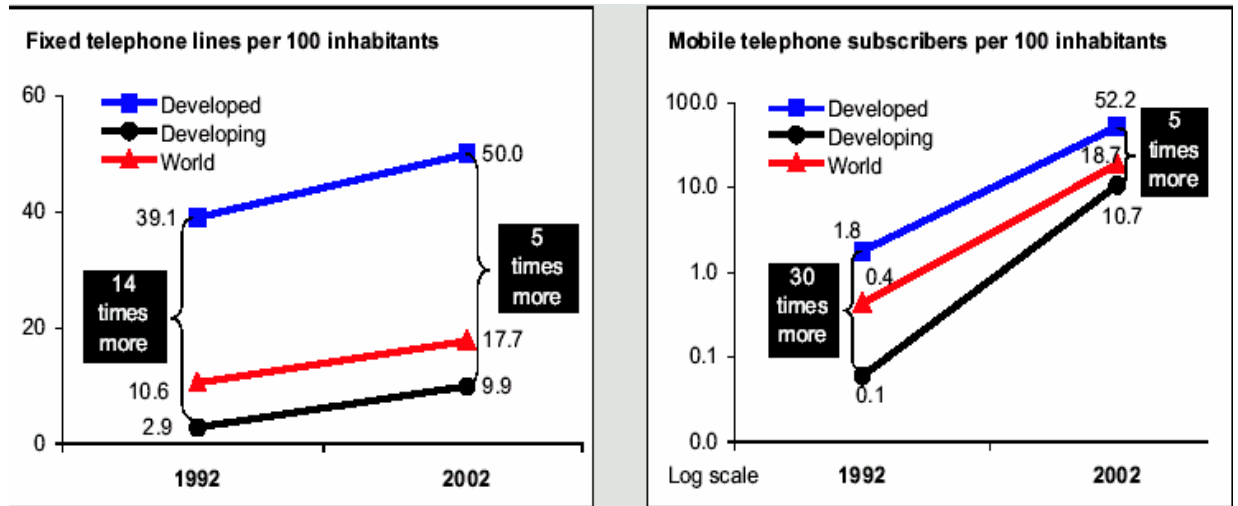
**Fig. 1:** Total Teledensity (main telephone and mobile telephone lines per 100 inhabitants) in developing regions.



**Source:** ITU World Telecommunications Indicator Database

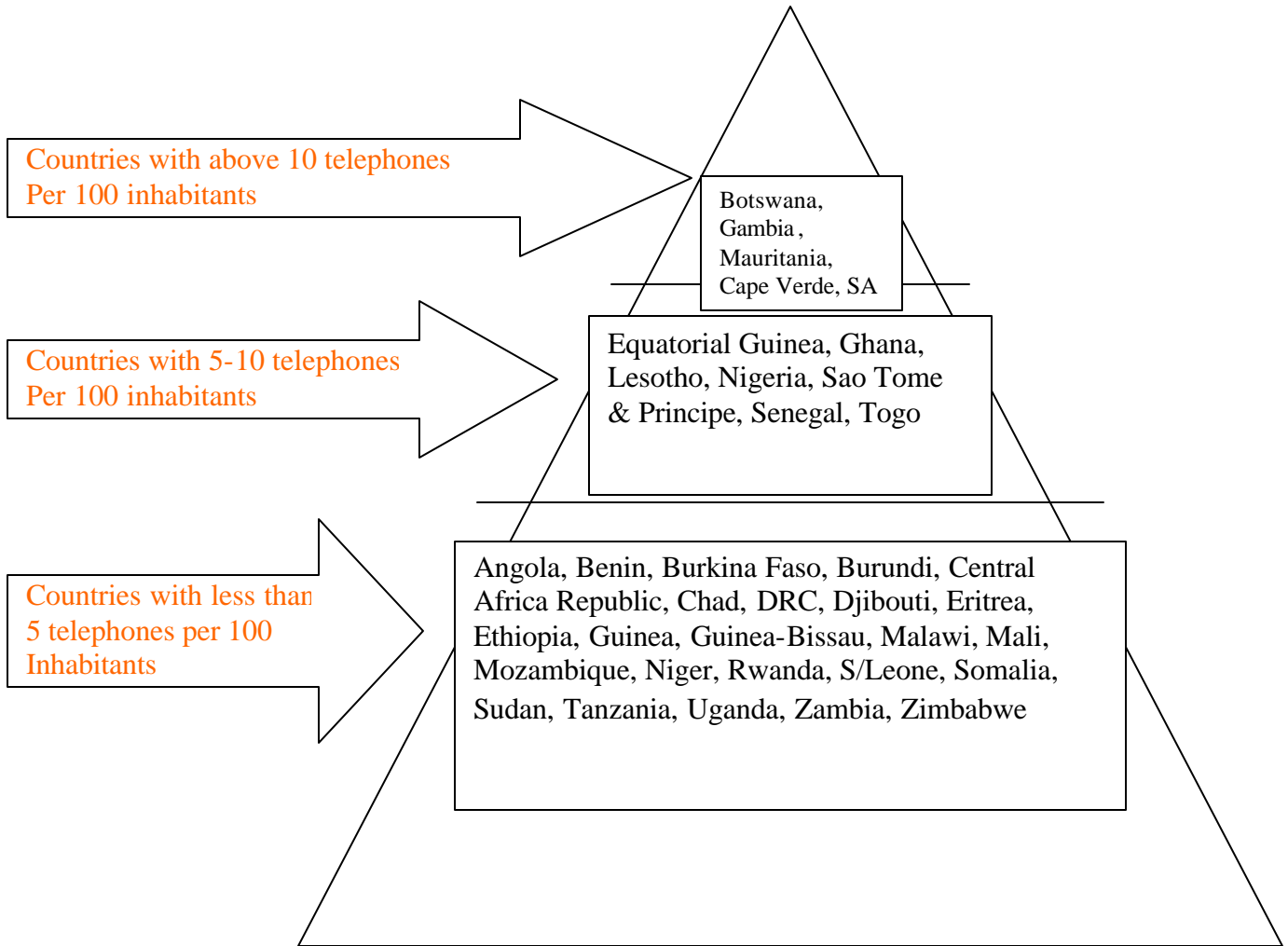
Globally access to telephone networks (fixed and mobile) tripled in the ten-year period 1993-2002 from 11.6 subscribers per 100 inhabitants to 36.4. The most rapid growth occurred in the subscription to mobile phones due to the evolution towards second-generation wireless systems, liberalization of mobile telecommunication markets and introduction of prepaid billing platform. By the end of 2002, there were more mobile subscribers than fixed telephone lines in the world. Growth has been particularly strong in Africa, the first region where mobile overtook fixed and where almost all countries now have more mobile phones than fixed telephones. Developing countries now account for almost half (49 per cent) of total telephone subscribers in the world, up from just 19 per cent in 1990.

**Figs. 2.1 & 2.2:** Growth in Fixed and Mobile Telephones in Developed and Developing Countries.



However, while a number of African countries like South Africa, Egypt, Botswana, and lately Nigeria record teledensity above 5 telephone lines per 100 persons, this does not reflect the high disparity within the different population settlements of the countries. For instance, although Nigeria records a national teledensity of about 5.2%, some of its urban settlements record as much as 25%, while most of its rural settlement record teledensities as low as 0.1%. In fact, telephone coverage is less than 45% of the geographical space of the country. This is even worse for Internet services. A second example is South Africa, where in spite of its high national teledensity of about 46.7%, the many of its rural areas record as low as 5.2%. The inference to be drawn from this phenomenon is that access to basic telecommunications for historically disadvantaged areas continues to be a major issue.

**Fig. 3:** Status of Teledensity in African countries



**Table 2:** Access to Telecommunications (2000).

COUNTRY	TELEDENSITY (Telephone lines per 100 people)		
	<i>Largest City</i>	<i>Rest of the Country</i>	<i>Over all (National)</i>
High Income	57.49	54.83	55.21
Upper Middle Income	30.77	21.10	22.94
Lower Middle Income	24.84	7.30	8.77
Lower Income	9.26	2.15	2.54
<b>World</b>	<b>25.25</b>	<b>9.20</b>	<b>10.35</b>
Europe	48.24	30.19	31.98
Americas	21.72	11.39	13.65
Asia	25.97	6.94	7.84
Oceania	45.97	36.77	38.38
<b>Africa</b>	<b>6.42</b>	<b>1.39</b>	<b>1.99</b>

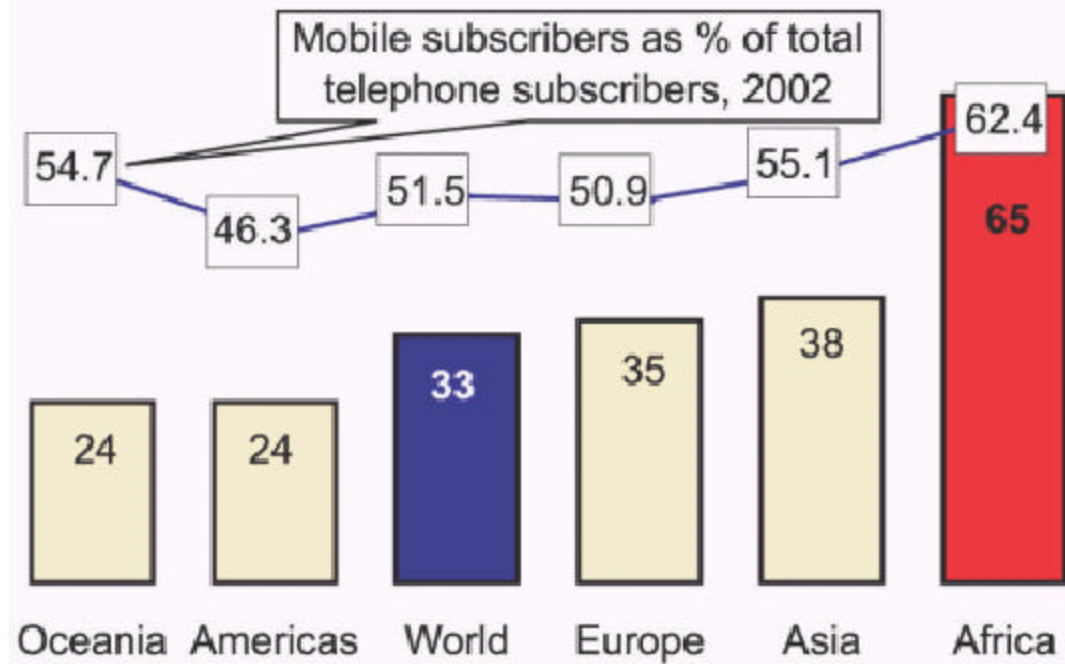
**Source:** ITU, World Telecom Development Report, 2002

### **3 POTENTIALS AND ANNUAL GROWTH RATES OF TELECOM IN AFRICA**

Recent developments in Africa indicate that the continent is the fastest growing mobile market. According to statistics from the ITU, mobile subscribers in Africa have increased by over 1,000% between 1998 and 2003 to reach 65 million, representing about 62% of total telephone subscribers. Thus, mobile lines have exceeded fixed lines, which stood at 25.1 million at the end of 2003.

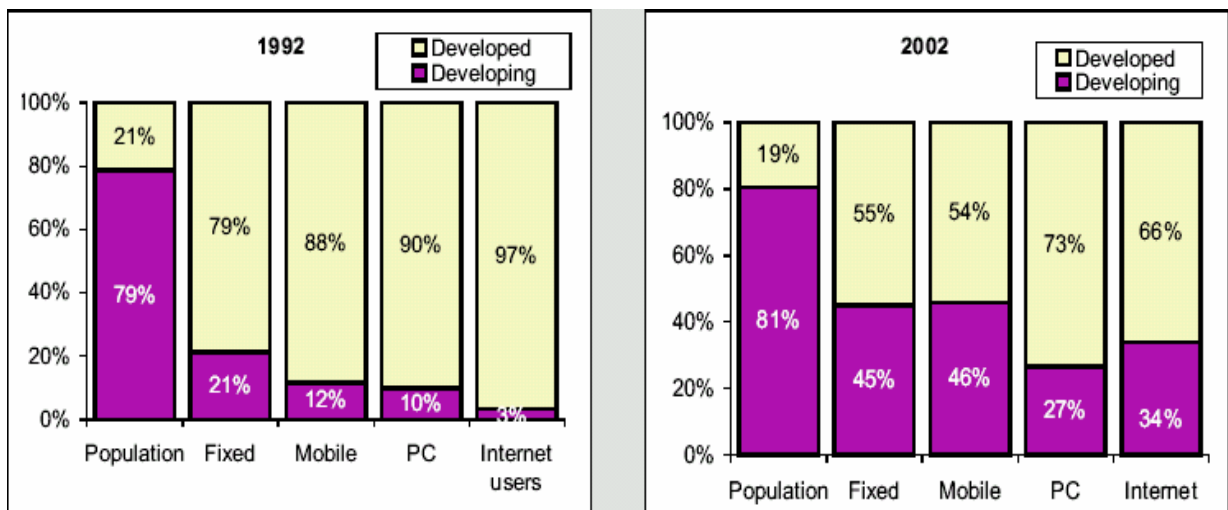
**Fig. 4:**

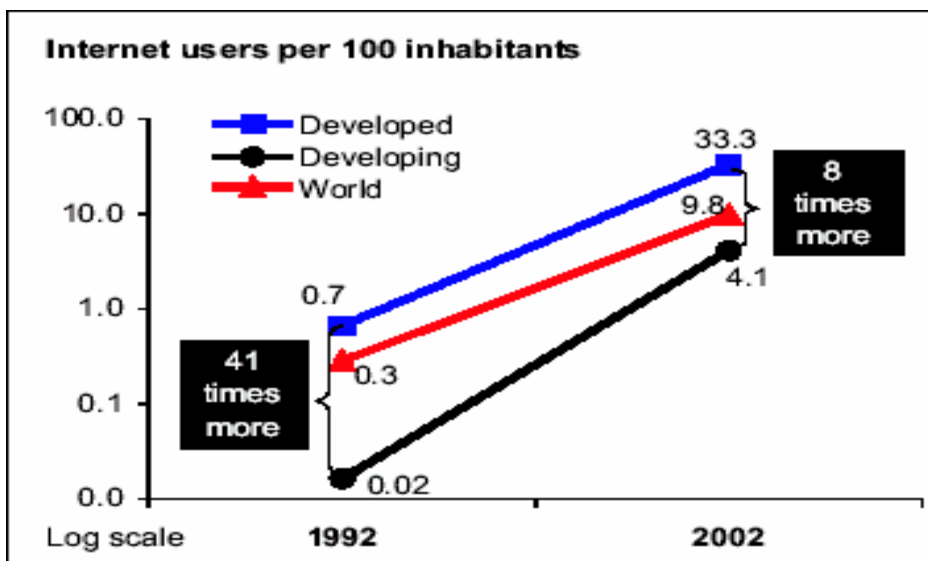
**Annual average growth rate in mobile subscribers, 1998-2003**



**Source:** ICT Stakeholder Forum – Special Focus on LDCs by Cosmas L. ZAVAZAVA, July 2004.

**Figs. 4.1 – 4.3:** Growth in Telecom in Developed and Developing Countries.





Source: ITU World Telecommunications Indicators Database

#### 4 MEASURING THE DIGITAL DIVIDE: TELECOM DEVELOPMENT IN AFRICA AND OTHER REGIONS

All over the world, there have been great disparities in the availability and use of ICTs among different population segments. Since the readily discernible factor is the level of economic prosperity of the countries, the nature and complexity of the disparities thus vary from one community to another, country-to-country, and region-to-region. At each population level, there exist different barriers to access to ICTs. While some countries have continued to benefit from the use of ICTs, most countries of the world have not been so endowed due to a number of factors. As at today, it has been proved that every country possesses certain factors that could facilitate its access to and use of ICTs, which implies that what has been adjudged to be digital divide is not simply that of developed versus developing worlds, but that of the inability of many countries to tap into the opportunities offered by the developments in ICTs.

Table 3: World ICT Disparities (2002)

Region	Population (Million)	GDP Per Capita (US\$)	Telephone Subscribers		Number of Internet Users per 100 Inhabitants	Number of PCs per 100 Inhabitants
			Total	Per 100 Inhabitants		
World	6,096.97	5,388	2,250,220	36.91	10.22	9.91
Europe	796.87	12,821	733,975	92.10	21.64	21.40
Americas	845.06	15,633	546,078	64.62	25.76	28.95
Asia	3,615.96	2,312	882,776	24.41	5.85	4.45
Oceania	31.34	15,174	27,975	89.27	36.98	42.42
<b>Africa</b>	<b>807.74</b>	<b>686</b>	<b>59,416</b>	<b>7.36</b>	<b>1.23</b>	<b>1.30</b>

Source: ITU, World Telecom Development Report, 2003.



Not long ago, a study on the state of “e-readiness” of countries of the world was carried out. The study assessed how ready a country is to participate in the information and knowledge economy for its national economic growth and development, noting that no country or business can really prosper without the basic facilities and for communication. In particular, the “e-readiness” project measures the extent to which a country’s business environment is conducive to the opportunities offered by ICTs, and in particular the Internet. It took cognisance of a wide range of factors, primary amongst which were the state of telecommunications infrastructure, level of literacy and the populations’ awareness levels to the use and potential benefits of the relevant facilities and services.

The outcome of the study shows that, apart from South Africa and Egypt, which belong to the group of “e-business followers”, with e-business readiness of 4.74 and 3.88 respectively, the rest of African countries belong to the group of “e-business laggards”. The states of e-readiness of these other African countries, including Nigeria, were found to be less than 3. One of the primary implications of this is that whereas countries with high rate of “e-readiness” could be on faster pace to economic prosperity, countries that are less ready however have the opportunity to learn and leapfrog to higher levels of readiness.

**Table 4:** Internet Users and Population Statistics for Africa

<b>AFRICA REGION</b>	<b>Population ( 2004 Est. )</b>	<b>Internet Users, Latest Data</b>	<b>Use Growth (2000-2004)</b>	<b>Penetration (% Population)</b>	<b>% of Users</b>
<b>Total for Africa</b>	893,197,200	<b>12,253,300</b>	171.4 %	1.4 %	1.5 %
<b>Rest of the World</b>	5,496,949,669	<b>782,239,096</b>	119.5 %	14.2 %	98.5 %
<b>WORLD TOTAL</b>	6,390,146,869	<b>794,792,396</b>	120.2 %	12.4 %	100.0 %

NOTES: (1) Internet Usage and Population Statistics for Africa were updated on July 31, 2004. (2) Population numbers are based on data contained in [gazetteer.de](http://gazetteer.de). (3) The most recent usage comes mainly from data published by [Nielsen//NetRatings](http://Nielsen//NetRatings) , [ITU](http://ITU) , and other local sources. (6) Data on this site may be cited, giving due credit and establishing a link back to [InternetWorldStats.com](http://InternetWorldStats.com) .

**Source:** [InternetWorldStats.com](http://InternetWorldStats.com)

Although it has been observed that there is no one-size-fits-all prescription to get countries to be “e-ready”, there are however certain trends, policies and procedures that could help the disadvantaged countries to achieve appreciable levels of “e-readiness”, required for their national economic growth and development. These basic requirements include:

- (a) Making “e-strategy” a national priority, with government as “driver” and user;
- (b) Ensuring connectivity that guarantees easy access to networks at affordable rates;
- (c) Encouraging shared access to facilities;
- (d) Ensuring reliable supply of electric power;

- (e) regulatory and legal frameworks;
- (f) Promoting public-private partnerships;
- (g) Ensuring security of facilities and personnel;
- (h) Ensuring security of information and intellectual property rights; and,
- (i) Creating the enabling conducive environment for competition;

## The Economist Intelligence Unit/Pyramid Research e-readiness rankings

E-readiness ranking (of 60)	Country	E-readiness score (of 10)
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### E-business leaders

1	US	8.73
2	Australia	8.29
3	UK	8.10
4	Canada	8.09
5	Norway	8.07
6	Sweden	7.98
7	Singapore	7.87
8	Finland	7.83
9	Denmark	7.70
10	Netherlands	7.69
11	Switzerland	7.67
12	Germany	7.51
13	Hong Kong	7.45

### E-business contenders

14	Ireland	7.28
15	France	7.26
16 (tie)	Austria	7.22
16 (tie)	Taiwan	7.22
18	Japan	7.18
19	Belgium	7.10
20	New Zealand	7.00
21	South Korea	6.97
22	Italy	6.74
23	Israel	6.71
24	Spain	6.43
25	Portugal	6.21

### E-business followers

26	Greece	5.85
27	Czech Republic	5.71
28	Hungary	5.49
29	Chile	5.28
30	Poland	5.05
31	Argentina	5.01
32	Slovakia	4.88
33	Malaysia	4.83
34	Mexico	4.78
35	South Africa	4.74
36	Brazil	4.64
37	Turkey	4.51
38	Colombia	4.24
39	Philippines	3.98
40 (tie)	Egypt	3.88
40 (tie)	Peru	3.88
42	Russia	3.84
43	Sri Lanka	3.82
44	Saudi Arabia	3.80
45	India	3.79
46	Thailand	3.75
47	Venezuela	3.62

### E-business laggards

48	Bulgaria	3.38
49	China	3.36
50 (tie)	Ecuador	3.30
50 (tie)	Iran	3.30
52 (tie)	Romania	3.20
52 (tie)	Ukraine	3.20
54 (tie)	Algeria	3.16
54 (tie)	Indonesia	3.16
56	Nigeria	2.91
57	Kazakhstan	2.76
58	Vietnam	2.76
59	Azerbaijan	2.72
60	Pakistan	2.66

## 5. **INITIATIVES FOR GROWTH OF TELECOM IN THE CONTINENT**

### ***The AU (NEPAD) Initiatives:***

The New Economic Program for Africa Development (NEPAD) has established an e-Africa Commission to promote its ICT Program, for the purposes of accelerating the development of ICT infrastructure, as well as the use of the infrastructure for ICT services and applications to bridge the disparity among African countries and between Africa and the rest of the world.

Pursuant to achieving its objective, the focus of the e-Africa Commission include formulating appropriate e-policies and strategies for infrastructure and human development, local content, R & D and Space applications, e-applications for and in governance and commerce, Internet and Software developments, as well as public e-awareness.

The main priority projects of the Commission include:

- To provide an submarine fibre optic cable to link East African countries;
- To provide broadband fibre optic links from landlocked countries to submarine cable landing stations to connect all 54 countries, and with the rest of the world;
- To provide an overlay satellite network to connect outlying areas where NEPAD projects require telecommunications links;
- To develop a rationalised system of terrestrial fibre optic cables that provides an economic yet robust network;
- To establish an e-Learning project in association with African Virtual University, which result in the transformation of all primary and secondary schools in Africa into e-schools within 10 years, i.e. by 2015.

### ***SAT-3/WASC:***

SAT-3/WASC links up Portugal, Spain, Canary Islands, Senegal, Ivory Coast, Ghana, Benin, Nigeria, Cameroon, Gabon, Angola and the Republic of South Africa (see map above), allowing all of them to be connected to Europe and to benefit from a high capacity link well adapted to new telecommunications applications, such as the Internet. It will also be linked with a network spanning from South Africa to South-East Asia via India.

This network consists of a core backbone with various diversions radiating out to other countries. This is made possible due to the integration of special equipment - branching units. They allow either a fiber pair or the required number of wavelengths to be diverted, depending on the capacity requested by the end destination.

**6. THE PANACEA FOR IMPROVING NATIONAL TELECOMMUNICATIONS GROWTH AND REGIONAL CONNECTIVITY**

The urban areas in the African continent have been experiencing significant improvements in telecommunications services as a result of privatisation of state monopoly operators, market liberalisation and competition, as well as the establishment of independent regulators. However, the rural areas, with about 70-80% of the continent’s population, continue to lack the necessary telecommunications infrastructure, and they are economically marginal, which makes them unattractive to foreign investments.

Whereas the a number of African countries, have achieved teledensity rates of more than 5 telephone lines to 100 inhabitants, the actual teledensity rates for most of the rural areas are typically less than 1 telephone line to as much as 1000 people, and the people are in most cases separated by long distances to the nearest telephones.

In terms of investment, efforts and resources are concentrated in the urban areas to the disadvantage of the larger rural areas. Records show that less than 5% of investments in telecommunications connectivity and services are provided for the rural areas.

**Table 6:** Regional Population and Investments in Telecom Connectivity & Services

REGION	POPULATION (million) 2002		INVESTMENT IN TELECOMMUNICATIONS (US\$ million) 2002	
	Total	%	Total	Per Inhabitant
World	6,096.97	100.00	182,763.5	31.1
Europe	796.87	13.06	61,011.8	76.4
Americas	845.06	13.86	47,156.1	57.8
Asia	3,615.96	59.31	65,972.5	18.5
Oceania	31.34	0.51	5,067.9	168.5
<b>Africa</b>	<b>807.74</b>	<b>8.89</b>	<b>3,555.3</b>	<b>5.4</b>

**Source:** ITU, World Telecom Development Report, 2003

**7. THE BROADBAND CHALLENGE**

As Africa struggles to extend access to telecommunications in the continent, another big challenge will be that ensuring that the region is not left behind the broadband revolution that is sweeping across the world. By 31<sup>st</sup> March 2004, the total broadband connections had reached 111.7m lines. The world’s biggest or “G7” economies are now in the broadband “top ten”.

Broadband is accelerator of social and economic development in the modern world with its applications enabling economic and social benefits such as Public Safety, National Security, Telemedicine, E-government, distance learning, utility applications etc.

There is already a major broadband divide between Africa and the rest of the world. There is therefore an urgent need to initiate national policies aimed at promoting ubiquitous broadband deployment.

## **8 HUMAN CAPACITY CHALLENGE**

African countries must take human capacity development very seriously. There must be conscious efforts for skill development intervention through training and re-training of technical and managerial personnel. Establishment of national or regional training institutions is therefore essential.

The expansion of telecommunications facilities must go side by side with the development of the human resource capacity that will support the industry. We must develop knowledge, skills and competencies to understand, plan and deploy the complex networks of wireless systems, fiber optics, satellite systems, computers, Internet webs and a host of other telecommunications and information technologies.

Let me also quickly add that manpower requirements for ICT infrastructural development extends beyond well trained engineers and technicians. Skilled personnel in other specialist areas such as financial planning, law, accountancy consultancy services, business management, personnel management, etc, are also be required. Such skilled staffs, which are mostly needed in the middle and upper management levels, need to be well trained and up-to-date.

## **9 CONCLUSION**

Connecting Africa depends largely upon the establishment of:-

- Pervasive transmission Infrastructure
- Modern and affordable access networks
- Enabling legal and regulatory environment;
- Human capacity development
- Private Sector Investment

With the prevailing state of connectivity and access to telecommunications in Africa, we could not agree less with William Kennard of the FCC, who in August 2000, said that “Africa needs infrastructure; it needs the telecommunications highways, the wireless towers, and the fibre optic footpaths that link its villages to its universities, and its manufacturers to the world markets. But this infrastructure will not be built by government; it will be built by the private sector, and the only way to attract private investment is to have fair and independent regulatory bodies that support

competitive markets, and that give investors the confidence and predictability they need to make their investments”.

Telecommunications is an essential infrastructure of the information economy and therefore countries that lack sufficient access to modern telecommunications networks, will find it difficult to be effectively integrated into the global economy.

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 Africa leapfrog into the circle of the world's information-rich economies. Africa immediate requirement for local access to the telephone network is enormous and the required capital and time investment needed to effect adequate capacity deployment is daunting. Market reform and ensuring open telecommunications market has helped to accelerate investment flow into this vital sector globally, resulting in rapid roll out of networks.

The sector today requires massive inflow of Private investments for infrastructure upgrade and expansion. These investments are inherently tied to well structured sector reform initiatives. Half-hearted market liberalization measures have denied many African countries access to investment dollars that could have been available to the sector from both within and outside such countries.

It must also be emphasized that governments should never too protective of incumbent operators to the detriment of establishment of truly competitive markets. Regulators therefore have to provide the right environment that will attract serious investors and for market forces to thrive. All aimed at attracting new sources of capital, accelerating network expansion, improving pricing, enhancing quality of service and introducing of new technologies.

To increase access to telecommunications in the continent, African countries who are yet to do so, need to open up their markets to sector reform and competition.

**THANK YOU.**

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