

# CHALLENGES AND BENEFITS OF USING TELECOMMUNICATIONS AND TECHNOLOGY TO DRIVE GROWTH IN AFRICA –BY Nyamodi Ochieng-Nyamogo

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## **Introduction**

Telecommunications technology is a potent driver of development in the world today. Nowhere is development more rapid, and no other agent has the ability to stimulate change today than telecommunications and information technology. Thanks to what is going on today in the sector, African countries have the potential to leap-frog to cutting-edge technology, in place of years of development gap that has characterised African development in the past. In some areas, leading developments have been pioneered in Africa, for example in mobile telephony-led banking and money transfer.

It is in recognition of this central role of communications, in general, and telecommunications, in particular that the United Nations Organization has as its specialised agencies, the International Telecommunications Union (I T U) and the Universal Postal Union (U.P.U). Equally, Africa has her African Telecommunications Union (A T U) and African Postal Union (A P U).

ITU intervention includes World Radiocommunication Conference (WRC), formerly known as World Administrative Radio Conference (WARC), where the international treaty governing the use of radio-frequency spectrum and communication satellite orbits is negotiated. Through these conferences, radio interference within and between countries is avoided.

In its wisdom the I T U commissioned research work that evolved into the African Green Paper (in which I was one of the five (5) international experts), the European and Asian Green Papers and the American Blue Book. These were policy documents intended to guide necessary improvements in the telecommunications arena in the 21<sup>st</sup> century. Further, and to improve the telecommunications infrastructure in Africa, the I.T.U championed the establishment of the Abidjan based Regional African Satellite Communications Organization (RASCOCOM). At this stage, geostationary satellite communication provided what in many countries was the only communication means into the hinterland away from the capital cities. With the proliferation of international submarine cables providing much larger bandwidths, the fibre cables supplement satellite links to open up more regions to quality communication and broadcast channels. The submarine cables make land falls in a number of African countries, which are then connected to the country by fibre cable links.

Telephone technology has the potential to grow African economies in many areas, from agriculture to industrialisation and education. Thanks to the overall technological development and growth resulting from miniaturisation, the unit cost of each circuits has been falling, as has the computerisation costs, and power of personal computers and mobile telecommunications, that more and more capability is possible at costs which are not proportional to capability. As mobile phone capability increases, and smart phone use gets within reach of many of Africa's youthful populations, significant developments are possible with proper education for the youth.

## **Education**

Education is key to development. Telecommunications developments in areas like e-learning can spread education reach for the population faster than brick-and-mortar expansion of education can do. At high school as well as tertiary education, e-learning can widen the reach of tutors to students, expanding education growth much faster.

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With the right emphasis on innovation and research, young students and graduates can develop new applications for the mobile phones, to improve ways of doing business and development of other economic activities.

Development of inter-university networks, such as KENNET in Kenya, which connects universities, and makes possible pooling of resources, is an example of use of telecommunication technology to improve use of available resources. Likewise, information can be accessed from libraries in other countries, to supplement available stock in local libraries. Telecommunications would also aid scholarly research and publishing by accessing developments elsewhere.

At the same time, use of social media has an unintended consequence in literacy level: there is a tendency to adopt the short messaging and twitter-type communication and lose the skills in formal report writing, even at the university level. There is a corresponding fall in standards of literature teaching.

## **Agriculture**

Agriculture remains the backbone of the economy in most of Africa. Thus any input which may influence efficiency or productivity in this sector makes a difference in the overall economic performance in the continent. Traditionally, agriculture was not associated with technology in Africa, apart from a limited level of improvement from mechanisation in the large-scale agricultural sector, such as in cash crop production and livestock. Now there is a change in this area. Mobile telephony and data access are making inroads to the small-scale farmer as well as the larger-scale farmers. Extension workers are able to access and disseminate information to more people in their areas of responsibility.

- ***Climate data***

Farmers are using climate data, including weather forecasts, to decide what to plant, and when. This information is easily available via locally-developed applications, tailored for easy use in relatively affordable mobile phone sets. This is making significant change to the productivity of the agricultural sector in Africa.

- ***Marketing***

Marketing for agricultural sector can be improved and broadened using mobile telephone systems, which are easily available. The applications, which are specially tailored to the needs of local farmers and marketers, will be developed by the youths, leading to new employment opportunities.

On the down side, the same technology may make competition for the available market disadvantage many farmers, who may not be adequately savvy technologically. This is true when good weather improves yield in the sector.

- ***Value chain linkages***

Real economic growth in the agricultural sector depends on access to value chain linkages, including international market access. The primary producers tend to get short-changed in the share of benefits. This is an area where Africa continues to lose out even with the available benefits from telecommunications and technology.

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## **Banking**

- *E-banking and m-banking*

Electronic banking is one of the growing areas of technology application. In Africa, where mobile telephone growth has been phenomenal over the last 20 years, this is making huge differences in growth of banking and operational efficiency leaps. It has led to growth in banking penetration, and this makes economic growth faster.

In a similar growth pattern is the challenge of cyber-crime. The same young tech-savvy applications developers may be equally dangerous in hacking bank data, and illegally transferring funds from banks, leading to major losses to the banking sector. In one recent case in Kenya, one individual was convicted of transferring over US\$ 1bn. from a government-owned entity to his own use. This is a potential major threat to economic gains from the technology.

- *Cash transfer*

Technology is opening new ways of cash transactions.

Kenya has pioneered cash transfer using mobile phones, using M-pesa. This is responsible for over US\$ 10bn annually, which is of the magnitude close to the scale of the annual government budget. Much of this is by people who have no formal banking, and facilitates cash transfer from urban workers to relatives in the rural areas. It has now been expanded to international cash transfer.

On the disruptive side, this can negatively affect formal banking sector, and could have other repercussion in the national economic development. Electronic transactions are notoriously difficult to regulate as legal regimes may not keep up with technological developments.

- *Banking for the un-banked.*

Apart from cash transfer, technological interaction with banking activities now leads to a form of “banking” where people with no bank accounts can save money on their mobile phones, and even participate in small-scale investment in the government bond market for as little as US\$ 50, which is much less than the entry levels of normal bond markets.

## **Trade and Commerce**

- *Market Development*

Economic growth for Africa will depend not just on primary commodities, whether agricultural or extractive products (oil, minerals, uranium, etc.), but on industrialisation and services, including financial services and business outsourcing in data processing. Secondly, marketing of whatever products and services will determine how much our slice of international commerce will grow. Market development will critically depend on telecommunication services in the future.

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- ***Raw Material Sourcing***

As far as industrialisation is concerned, the sourcing of raw materials will be very important for success in industrialisation. The age of telecommunications and data communication makes it possible to grow the sector, and achieve greater value addition to our exports, and therefore, to overall economic growth.

- **REMOTE SENSING**

Probably only Lucifer knows what minerals and quantity thereof stride Africa and it is anybody's guess what economic benefit their exploitation would be to Africa! The need for cutting edge remote sensing technology cannot be gainsaid.

## **Infrastructure Development**

- ***Prioritisation***

Development in Africa will depend on infrastructure development. This is highly capital-intensive, and immediate financial returns are not spectacular. And yet, long term, the development of infrastructure will be the only way to open up all parts of the country will be through infrastructure projects. Prioritisation of these projects will determine how successful the efforts will be.

- ***Co-ordination of Development***

Co-ordination of infrastructure development will depend a great deal on telecommunication availability and efficiency. This will require good strategic and short term planning to succeed.

- ***GPS information access for infrastructure development.***

Luckily, GPS and other satellite-derived data are available today, and can be tapped in the infrastructure planning and development. This includes topographical surveys and resource studies and planning.

## **EFFECTIVE USE OF GEOSTATIONARY SATELLITE ORBIT AS A NATURAL RESOURCE**

- Passes through Africa
- Although Africa cannot by law claim sovereignty over it, it can be however provide cheaper costs for launching satellites dedicated to Africa, both for business and research.
- In addition, new launch pads for geostationary satellites can be built in Africa, giving investment opportunities.

## **UMBILICAN CORD MENTALITY AND OTHER RELATED INHIBITORS**

- “YES, WE CAN”
- Sudi Abdalla, Boko Haram and the Bombay experience or was it inexpensive?! }prejudice
- The Thika Super Highway

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- SG Railways

## **WHITHER AfBA?!**

- The role of law and lawyers in all this cannot be gainsaid
- There will be disputes and need for resolution thereof
- The disputes will be both in areas of jurisdiction and commercial interest, and may be between countries and service providers within given countries (where competition is allowed).
- There will be grey areas requiring home grown interpretations
- The change and ever changing environment will require evolution of desired legal framework

## **Conclusion**

Communication technology has great potential to help Africa develop and be truly the engine of future global growth. To take advantage of this possibility, the African governments have to place an emphasis on education of their youth, and develop a new culture of growing a generation of job-creators rather than job-seekers. The development of new applications for use in telephone gadgets will make young tech-savvy youths emulate the Asian tigers of China, India, Korea, Malaysia and Singapore.

This is the future we need for this continent.

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