

SBO RESEARCH

The Narrowing Digital Divide

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Development of ICT is impacting all areas of life from education, health; agriculture etc. ICT is concerned with addressing human and organizational problems through design and development of technologically based systems and processes to enhance efficiency and effectiveness. In development terms, the importance of ICT lies less in the technology itself and more on the ability to provide solutions to people's problems. This paper will reveal the results of an exploratory and secondary data study to better understand the changing digital status of Africa compared to the rest of the world and highlight the implications of this change

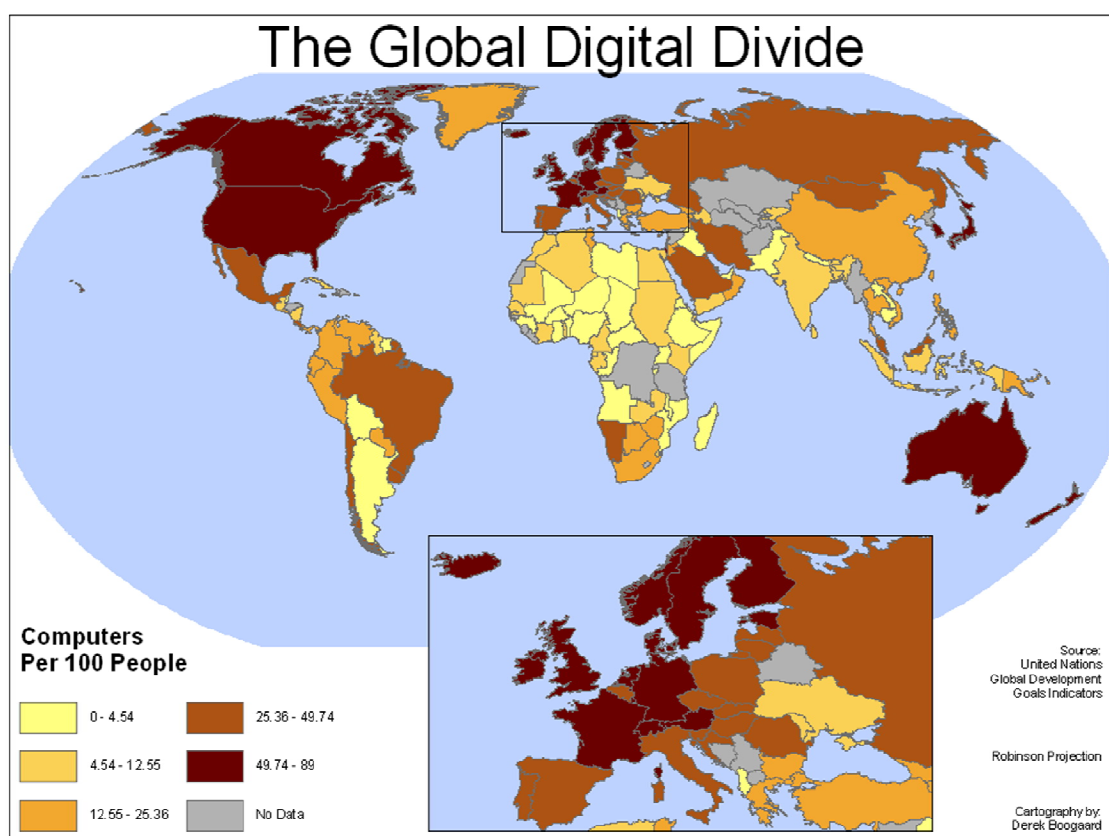
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Introduction to the Narrowing Digital Divide

The global digital divide is a term used to describe “great disparities in opportunity to access the Internet and the information and educational/business opportunities tied to this access ... between developed and developing countries”. Unlike the traditional notion of the "digital divide" between social classes, the "global digital divide" is essentially a geographical division. (Wilson, 2004)

The figure below indicates the global digital divide.



Source : United Nations Global Development Goals Indicators

Within countries around the world there is a gap that exists among those that have access to information and communication technology (Azam, 2007), including computers and the Internet, and those that do not. This term has been coined the “digital divide”. In addition to access, it is noted that the ability to use these technologies, as well as find and produce relevant content, define the “digital divide” as well (Azam, 2007).

Digital Divide: a brief history

- First used by Bill Clinton / Al Gore circa 1995/6

- NTIA (1999) in the paper 'Falling through the Net, in defining the Digital Divide' had its main focus on;
 - **Telephone penetration**
 - **Computer ownership**
 - **Internet access**
- The Digital divide is a long line of
 - **Income**
 - **Race**
 - **Geographic location**

This paper focuses on the digital divide in Africa.

Objectives

This document reports the findings of secondary data review to determine whether the digital divide in Africa is narrowing. The guiding objectives for this information were;

- *To demonstrate Africa's changing digital status compared to the rest of the world*
- *To highlight the implications of this change*

Methodology

The study employed the use of secondary data review and exploratory research;

- *Secondary data review and exploratory research on developments in telecommunication*
- *Recent studies on the digital aspect in Africa versus the world*

Main Findings

The Current Digital Status

“In the twenty-first century, the capacity to communicate will almost certainly be a key human right. Eliminating the distinction between the information-rich and information-poor is also critical to eliminating economic and other inequalities between North and South, and to improve the life of all humanity.” -Nelson Mandela, TELECOM 95, October 3, 1995

Gregory Ferenstein, a freelance journalist who investigates the intersection of technology and society says that because of widespread poverty in Africa, **the technology culture there has followed a different path than the West**. Because computers are so expensive, affordable mobile phones have become the ubiquitous form of communication. Between 2003 and 2008, Africa had the fastest growing mobile phone market in the world. On average, more than one-third of the African population has a mobile plan, with some areas reaching almost two-thirds market penetration.

Recent Statistics of internet users and population statistics for Africa

INTERNET USERS AND POPULATION STATISTICS FOR AFRICA						
AFRICA REGION	Population (2010 Est.)	Pop. % in World	Internet Users, Latest Data	Penetration (% Population)	Use Growth (2000-2010)	% Users in World
Total for Africa	1,013,779,050	14.8 %	110,931,700	10.9%	2,357.3%	5.6 %
Rest of World	5,831,830,910	85.2 %	1,855,583,116	31.8%	420.5%	94.4 %
WORLD TOTAL	6,845,609,960	100.0 %	1,966,514,816	28.7%	444.6%	100.0 %

Source: <http://www.internetworldstats.com/africa.htm>

The table above indicates that Africa has rapid growth compared to the rest of the world. Africa is catching up with the rest of the world rapidly meaning that the digital divide is closing at a high speed.

The international world statistics website reports the following statistics for Kenya, South Africa and Nigeria.

KENYA - 40,046,566 population (2010) - Country Area: 581,787 sq km
3,995,500 Internet users as of Jun/10, 10.0% of the population, per ITU.
864,760 Facebook users on August 31/10, 2.2% penetration rate.

NIGERIA - 152,217,341 population (2010) - Country Area: 923,768 sq km
43,982,200 Internet users as of Jun/10, 28.9% of the population, per ITU.
1,718,000 Facebook users on August 31/10, 1.1% penetration rates.

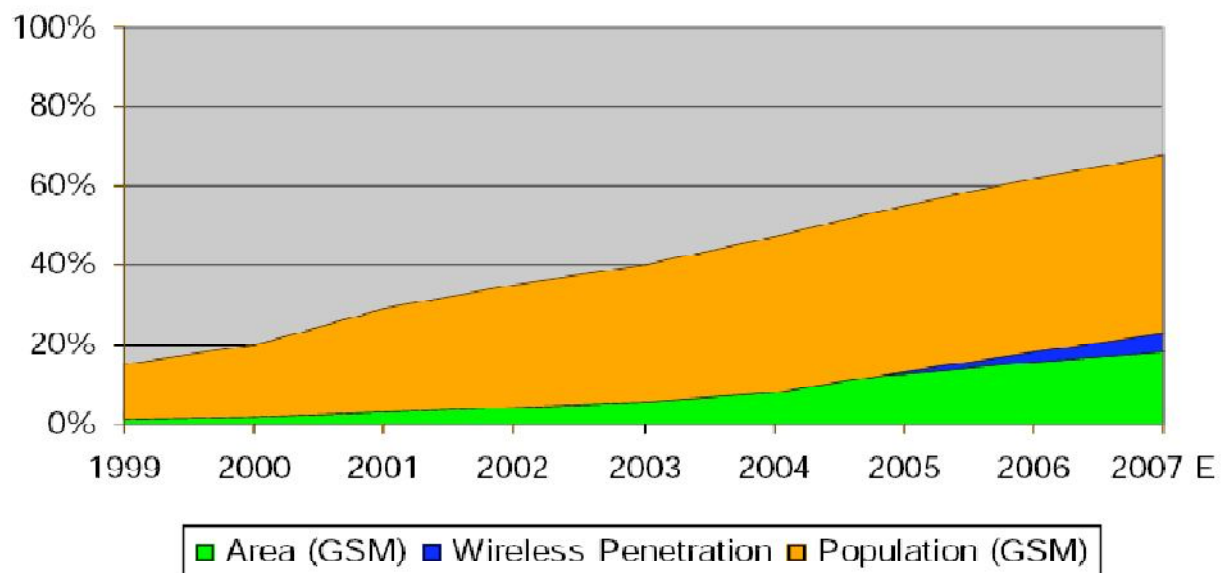
SOUTH AFRICA - 49,109,107 population (2010) - Country Area: 1,219,090 sq
km
Capital City: Pretoria* - population 1,633,569 (2008)
5,300,000 Internet users Jun/10, 10.8% of the population, per WWW.
3,187,180 Facebook users on August 31/10, 6.5% penetration rate.

Top ten African Internet user communities – early-2010

Country	Internet users (million)	Market penetration
Nigeria	44.0	28%
Egypt	16.6	20%
Morocco	10.3	32%
Algeria	4.7	14%
South Africa	4.4	9%
Sudan	4.2	10%
Kenya	4.0	10%
Tunisia	3.5	34%
Uganda	3.2	10%
Zimbabwe	1.4	11%

(Source: BuddeComm based on ITU data)

The African Mobile phone penetration



Across Africa, new information technologies are rapidly changing the lives of a small but growing number of people.

- In **rural Togo** a farmer gets real-time information on market prices in the capital, Lomé, through a cellular phone.
- In **Accra, Ghana**, entrepreneurs who in the past were not able to get a dial tone on their land-line telephones can now connect immediately using Internet telephony, technology that allows phone calls to be made through the Internet.

- And in **Niger**, the Bankilare Community Information Centre downloads audio programmes from the African Learning Channel and rebroadcasts them on local radio.

Commenting on the recent “Africa Connected: A telecommunications growth story” study from Ernst & Young that found that **market penetration of cellphones in Africa is sitting at 37%**, Liebenberg Regional Director for Sub Sahara Africa at Research In Motion (RIM), the company behind the BlackBerry® solution notes that the continent has largely bypassed fixed-line telecommunications solutions in favour of mobile technology. South Africa has cellular penetration of about 98%.

From 2002 until now, Africa has seen its number of cellphone subscribers climb by a compound annual growth rate (CAGR) of 49.3% compared to a CAGR of about 27.5% in Brazil and Asia, according to Ernst & Young. By 2012, market penetration in Africa can be expected to climb to more than 60%.

Says Liebenberg: “It’s clear from these statistics that most Africans have bypassed fixed-line telephony in favour of mobile phones, which coupled with cellular infrastructure, will do as much to bring data services to Africa as they did to bring telephony within the reach of the continent’s people.”

From the information above, it is clear that the future of ICT in Africa lies in the convergence of the mobile phone and the computer, and this offers rich opportunities for development and growth of the African market.

ICT4D & Digital Divide

ICT4Dev concerns itself with directly applying information technology approaches to poverty reduction. ICTs can be applied either in the direct sense, wherein their use directly benefits the disadvantaged population, or in an indirect sense, wherein the ICTs assist aid organisations or non-governmental organizations or governments or businesses in order to improve general socio-economic conditions.

Information and Communication Technologies for Development (ICT4Dev) is a general term referring to the application of Information and Communication Technologies (ICTs) within the fields of socioeconomic development, international development and human rights.

The dominant term used in this field is "ICT4Dev". Alternatives include ICTD and development informatics. (Wikipedia)

ICTD (Information and Communication Technologies and Development) is the application of technological solutions to the problems of the developing world. In theory, it is differentiated from Information and Communication Technologies for Development (ICT4D). ICT4D focuses on using digital technology to deliver specific development goals (most notably the Millennium Development Goals). ICTD looks much more broadly at use of ICTs in developing countries.

ICT is central to today's most modern economies. Many international development agencies recognize the importance of ICT4Dev - for example, the World Bank's GICT section has a dedicated team of approximately 200 staff members working on ICT issues.

The World Bank runs the Information for Development Program (infoDev), whose Rural ICT Toolkit analyses the costs and possible profits involved in such a venture and shows that there is more potential in developing areas than many might assume. The potential for profit arises from two sources- resource sharing across large numbers of users (specifically, the publication talks about line sharing, but the principle is the same for, e.g., telecentres at which computing/Internet are shared) and remittances (specifically the publication talks about carriers making money from incoming calls, i.e., from urban to rural areas).

The "Africa Recovery, United Nations". Report different cases of ICT4Dev at work;

- I. In South Africa, a tele-medicine project at Tygerberg Children's Hospital in Cape Town, launched in 1996, links its medical experts to three hospitals in underprivileged districts. In 1994, the new government inherited a system which directed most public health funds to urban, often whites-only hospitals. District hospitals and clinics -- responsible for primary care in towns and rural areas populated by black people -- were under-resourced. Today, most specialists continue to work in urban areas. Patients requiring specialized treatment must either travel for hundreds of kilometres or be treated by practitioners with only general training and experience.

- II. In Zimbabwe, the Kubatana project, a website linking 230 civil and community-based groups, provides information on new legislation, the electoral system and voter registration procedures, as well as major social issues confronting the country, such as HIV/AIDS. Owners of the website describe their work as "electronic activism." Users say the network is particularly useful given the current clampdown on the media in Zimbabwe. It reaches out to Zimbabweans who do not have computers at home or at work through the growing number of public Internet facilities emerging across the country. During major rights campaigns, members of the network have asked those with computers to print campaign material and hand it out or post it to those without access.
- III. A "friendship tree" -- a contact list of about 100 Zimbabweans -- is activated by owners of the site every time an activist is arrested to ensure that witnesses are available to monitor the court proceedings. "One of the most powerful things we can do in situations of chaos is to become a witness," Ms. Bev Clark, one of the founders of Kubatana, notes in a series of case studies on ICTs conducted by the International Institute for Communication and Development, a non-profit foundation based in the Netherlands.
- IV. In Sierra Leone, more than 200 young people affected by war have participated in a project run by the non-governmental International Education and Research Network. Their multi-media showcase on the Internet includes essays, images and music "that tells of the human toll of our civil war," says Mr. Andrew Greene, a volunteer trainer at the project. He says the inaccessibility of the Internet in his country has been the biggest challenge facing the project. "This exercise is painstaking as we must hire a bus to get access to the Internet" in urban areas. When they cannot hire a bus, the students walk and then often have to queue up for hours waiting for computers at Internet cafés. The project has touched the hearts of many people around the world, says Mr. Greene. He adds, "the UN office of displaced persons is considering it as a potential model for use in four additional parts of the world that have been affected by war," Cambodia, Palestine, Sri Lanka and Uganda.

Public cell phone centre in a poor community in South Africa: Africa's cellular market is the fastest growing in the world.



Photo : ©Getty Images / Per-Anders Pettersson

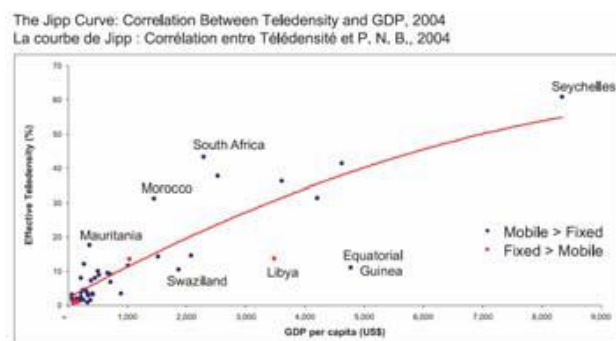
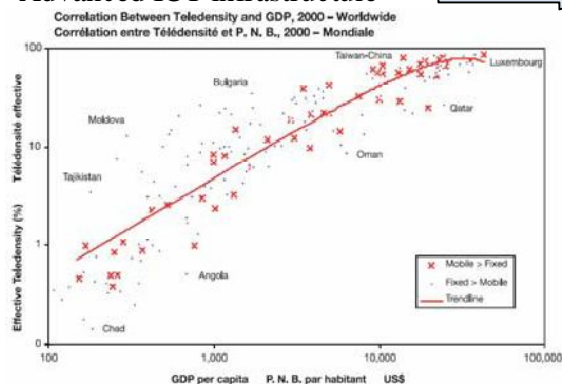


Linking Economic Development to the deployment of ICT

Africa is on the move, and information and communications technologies (ICT) are a powerful tool to boost economic growth and poverty reduction. ICT increase efficiency, provide access to new markets or services, create new opportunities for income generation and improving governance and give poor people a voice. Within the service sector, ICT services have an important role to play – as a sector of the economy as well as an enabler for other sectors. ICT also enable the aggregation of dispersed demand into viable markets. Further, given that informal and formal small and medium enterprises (SMEs) are the backbone of broad-based economic growth, it will be crucial to mainstream the use of ICT for micro, small and medium enterprises. Even economies depending on the production of raw materials and on subsistence agriculture can achieve efficiency improvements through ICT investment.¹

The charts below indicate the Correlation between teledensity & economic growth (Jippcurve)

- High GDP/capita levels enable  investment in networks & services
- Advanced ICT infrastructure  enables social & economic development



The direct relationship between ICT and economic development cannot be ignored as is indicated in the tables above.

According to Indjikian and Siegel (2005, p. 696). **ICT contribute to economic growth** through: (1) increasing productivity across all sectors; (2) facilitating market expansion beyond borders to harvest economies of scale; (3) lowering costs of and facilitating access to services, notably in administration, education, health and banking; (4) providing access to research; (5) development of ICT products and services; (6) contributing to better governance, a prerequisite to growth, through increased participation, accountability and transparency. The use of ICT provides positive externalities, enhancing creativity, learning and problem-solving skills. Its impact on employment, new types of exports, and FDI requires the interplay of a number of factors: “It is the interaction among connectivity, access, network security, capability/skills, market structures and firm governance, as well as the regulatory and facilitation environment, which determine

¹ ICT in Africa: Boosting Economic Growth and Poverty Reduction(<http://www.oecd.org/dataoecd/46/51/40314752.pdf>)

whether firms from developing countries can participate effectively and efficiently in the information economy and compete in global e-marketplaces.”⁵

One of the key mediums through which ICTS have increased economic growth is in the mobile phones. Below are some examples of successful mobile phone applications; Mobile phones can be used for more than simple phone calls. In Africa the diversity of mobile applications is impressive – they are figuratively the PCs of Africa:

- In South Africa, Wizzit allows anybody with a mobile phone to have his/her bank account in his/her pocket. It provides the possibility to make person-to-person payments, transfers and pre-paid purchases without a bank account. There is no monthly fee: people only pay for transactions they execute.
- In Kenya, an SMS job service has succeeded in creating annual revenue of US\$100,000. The service has more than 30,000 subscribers who receive between 150 and 200 job vacancy announcements per week. Using a pre-paid service, they pay per offer they receive 60-70% of the offers are filled by the subscribers which results in much faster results for the employers.
- TradeNet, now operating in 17 countries, provides information about agricultural goods for anyone who wishes to sell or buy commodities. After negative experiences with external funding, the initiators decided to provide the basic information for free but charge for tailored and more sophisticated services in order to be financially sustainable on the long term.

The relevance of mobile phones in African people's lives has also been recognised by Google which announced that it will need to tailor its products to work better on mobile phones – if it wants to make real headway in penetrating markets in Africa.

According to Joe Mucheru of Google, more than 80% of Google's mobile search queries come from outside the US with Kenya showing a dramatic growth in mobile search traffic.

What are the Implications?

Manuel Castells, in *The Information Age*, Vol 3, asserts that Information technology, and the ability to use it and adapt it, is the critical factor in generating and accessing wealth, power, and knowledge in our time

From the various examples above, one is clear that ICT - mobile phone and the internet is the fishing rod in the 21st century. Given the increasing penetration of ICT in Africa, Africa is actually the new Frontier.

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