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Internet Penetration in Africa Compared to the Rest of the World

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Abstract Though the Internet has been around for quite a few decades, the continent of Africa had indisputably lagged behind the rest of the world rather abysmally in the past due to very poor infrastructural development. However, today the tottering continent of Africa is making a gradual climb onto the information superhighway which has reduced our world to a global village courtesy the World Wide Web (WWW). But the question arises as to how Africa can sustain and improve upon the current growth statistics so as to keep pace with the rest of the world where the number of Internet users (netizens) keep rising at a far rapid pace with each passing day. The days are long gone when one had to always rely on snail mail, for instance, for purposes of communicating with friends and family both far and near since e-mail has now almost wholly taken over the duties of snail mail much as regular person to person communications are concerned. This paper talks about Internet statistics in Africa and proffers suggestions as to the remedial measures that need to be taken for improvement. It also talks about how the upsurge in mobile phone usage in Africa has brought the Internet to the doorsteps of the average African.

Keywords Internet, E-mail, Africa, World Wide Web (WWW), Netizens

1. Introduction

According to the log as released by the CIA World Factbook as of the second quarter (Q2) of 2012, China had 538 million netizens. The USA followed with 245 million people[1].

Of Africa's 54 independent countries, Nigeria topped the chart with an impressive 48, 366,179 netizens accessing the Internet in one way or the other such as on a daily intense basis, several times a week, fortnightly, once in a month or several times a month etc. This on the average gives a ratio of one out of every four people accessing the Internet in Nigeria-the population of Nigeria is roughly 160 million. This impressive statistic placed Nigeria 11th overall on the world chart of Internet penetration in various countries[1][2]. Egypt also comes in 20th on the global chart and second in Africa with also an impressive figure of 29,809,724 netizens which is about one out of every three out of the total Egyptian population of about 82,000,000. At the 29th position on the global ranking and third in Africa is Morocco of which out of a total population of 32,309,239 about 16, 477,712 of them representing an overwhelmingly impressive ratio of one to two use the Internet in one way or the other [1][2]. These figures and ratios given above when compared to similar statistics a little over a decade ago show how far Africa has come in relation to the rest of the World much as Internet penetration is concerned. For instance, from data available in December 2000, the number of netizens in Nigeria was 200,000, that of Egypt were 450,000 and that of Morocco were 100,000. Compared to the data of June 2012, Internet users in Nigeria have increased roughly 242 times, that of Egypt by roughly 66 times and that of Morocco also by roughly 165 times.

It is no doubt that Africa is one of the fastest growing markets for telecommunications and Internet connectivity. The statistics given above amply support this assertion. At the end of year 2011, Africa had 139 million netizens in total. However, the figure was just 4.5 million in the year 2000. This translates into a whopping 2988.4 % growth[4]. Further still, within the second quarter of 2012, Africa's Internet population had grown to over 167 million (Table 1)-i.e. just within six months. Thus we can safely say that Africa has become one of the fastest growing markets looking at the figures posted in the last decade. However, in comparison to the rest of the world, there is still a very long way to go. The fact that with a population of 15 % of the world total, Africa accounts for only 7 % of Internet users worldwide means that more remains to be done (Table 1).

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Table 1. Internet Usage Statistics for Africa

Internet Users and Population Statistics for Africa						
AFRICA REGION	POPULATION (2012 Est.)	Pop. % of World	Internet Users, 30-June-2012	Penetration (% Population)	Internet % Users	Facebook 31-Dec-2012
Total for Africa	1,073,380,925	15.3%	167,335,676	15.6%	7.0%	51,612,460
Rest of World	5,944,465,997	84.7%	2,238,182,700	37.7%	93.0%	924,331,500
WORLD TOTAL	7,017,846,922	100.0%	2,405,518,376	34.3%	100.0%	975,943,960

Source: WWW (worldwideworx.com), ITU, the Nielsen Company, and Facebook

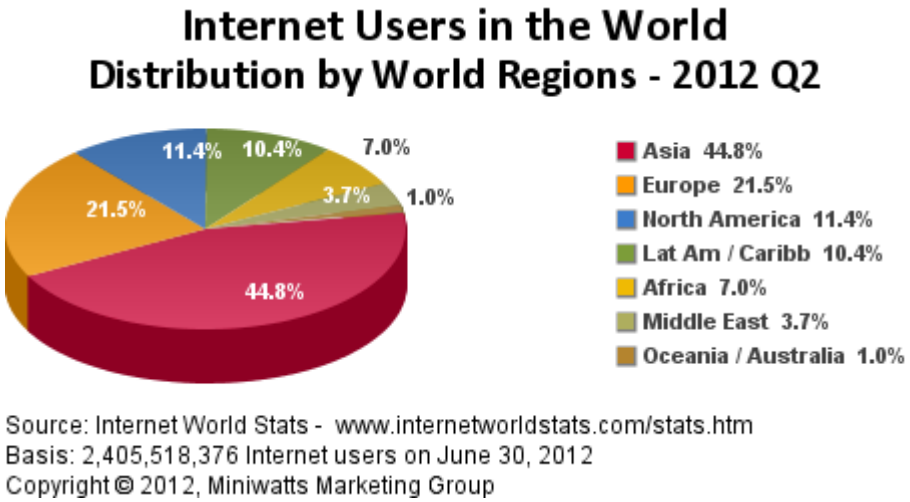

Figure 1. Pie chart showing internet users (%) by geographic regions

2. What do Users Use the Internet in Africa for?

In Africa, just like all the other geographic regions of the world, people have various reasons for using Internet services. These include[16]:

- Searching/Education- this involves looking up a word in a dictionary or looking for formal and informal educational content on the web.
- Public services- those who get information from or about government or about public services such as tax and health.
- Media and Entertainment-downloading music or movies and also reading online news and magazines.
- Ecommerce- this involves getting information about products and services, online shopping and banking.
- Social networking- this has to do with using services such as Facebook, Twitter, and LinkedIn

A survey conducted as part of this research work among undergraduate students offering computer engineering and computer science at the University of Ghana as to their Internet usage habits, produced responses that were quite revealing. The responses are presented as below (Table 2).

The results as revealed (in Table 2) amply demonstrate the fact that the youth of Africa are also very much into social networking which takes a big chunk of their time when one would have expected that as students, their responses would rather have been more biased towards education.

Table 2. Responses of 86 undergraduate computer science/computer engineering students on their Internet usage habits

Type of response	Number of respondents	Percentage of respondents
Social networking	53	61.6 %
Education	15	17.4 %
Entertainment	12	14.0 %
News& current affairs	6	7.0 %

However, in a similar research survey done to also gauge their responses, 35 graduate students in the same university in a cognate field, also provided the following responses (Table 3).

Table 3. Responses of 35 graduate students in a cognate field on their Internet usage habits

Type of response	Number of respondents	Percentage of respondents
Social networking	6	17.1 %
Education	20	57.1 %
Entertainment	4	11.4 %
News & current affairs	5	14.3 %

The results obtained by this survey (Table 3) contrasts sharply with that of Table 2. This presupposes that African graduate students on the average focus the use of the Internet more on academics rather than social networking and entertainment etc. Thus one can safely assume that on the average, among African intellectuals, Internet usage habits vary depending on the age range and academic levels.

Statistical results obtained among a group of people of various age groups who frequent an Internet café within a neighborhood in Accra, Ghana, also produced these revealing responses (Table 4).

Table 4. Responses of 20 people on their Internet usage habits at an Internet café in Accra, Ghana

Type of response	Number of respondents	Percentage of respondents
Social networking	14	70.0 %
Education	2	10.0 %
Entertainment	3	15.0 %
News & current affairs	1	5.0 %

The results above (Table 4) affirms the fact that most people both young and old who are computer-literate and normally frequent Internet cafes are very involved in social networking like so many people in other parts of the World. Among these respondents, the majority were usually logged on to Facebook, Twitter, LinkedIn, and Instagram. The reasons most of them assigned for their preference of spending most of their Internet time on social networking sites was to reach friends from school days and also childhood days who they had not seen in many years. To them, the advent of these social networking sites had suddenly brought such cherished ones virtually to their doorsteps and thus presents them with the chance to do a lot of catching up given the many years that have gone by during which they remained incommunicado. Some also gave reasons such as the chance to make new friends and potentially meet their future marriage partners online.

3. Impact by Mobile Phone Growth

Mobile phones have come to stay in Africa. Since the 2000s, mobile telephony has experience an exponential growth in Africa and has overtaken fixed line telephony by far[14]. Given that in Africa a greater portion of its populations live in rural areas where fixed line telephony is unavailable because of poor infrastructure, the mobile phone has become the best source of accessing the Internet by such rural folks[9]. The mobile advertising network Twinpine in conjunction with the Kenya-based iHub Research, carried out a research on Ghana, Nigeria, and Cote d'Ivoire. The study revealed that mobile subscription in all three countries has doubled in the period from 2007 to 2011. Africa currently has over 600 million mobile phone lines and these three countries alone account for over 130 million of those line. Much as the Internet is concerned, the study further revealed that mobile Internet usage in West Africa had grown so significantly such that it had reached penetration levels almost equal to the fixed line Internet usage. In Nigeria, the study revealed that fixed Internet usage had a penetration of 28 % whilst that of the mobiles had reached 26 % and in Ghana, the figures were 10 % for fixed Internet usage and 9 % for mobile usage[10]. This way of accessing the Internet has become so popular among ordinary folks more so because it requires less ICT skills, less financial resources, and does not depend on electricity at home compared to computer or laptop and generally fixed-Internet access[6][7]. From these revelations, one can optimistically say that by the end of 2013, mobile Internet usage would have become the primary means of going online[8][13].

A survey also carried out as part of this research work also revealed that among mobile phone users, Internet users varied depending on whether they were technologically savvy enough to even identify whether they have an Internet-enabled phone to use in accessing the web, and e-mail or not. The responses obtained from 147 such people are reproduced below (Table 5).

Table 5. response obtained from 147 people on whether the access the Internet on their cellular phones

Question	Do you use your cellular phone to access the Internet?
Responded YES	103
Responded NO	44
% YES	70.1
% NO	29.9

The results above invariably tally with the claim that presently most Africans have become very accustomed to cellular phone services and given the less stress involved with accessing the Internet on phones, most people have taken to it. If this trend is to continue, then eventually it will surpass Internet access using fixed technology.

However, of the 103 people who responded "yes" to the questionnaire, their usage habits also quite varied as shown below (Table 6).

Table 6. Responses of 103 people on their Internet usage habits using a cellular phone

Type of response	Number of respondents	Percentage of respondents
Social networking	25	24.3 %
Education	8	7.8 %
Entertainment	15	14.6 %
News & current affairs	55	53.4 %

The responses as obtained above speak to the fact that most of the people in Africa who will use the mobile phone to access the Internet will on the average be working class adults who hardly will have enough time to themselves as to spend time in a café or even at home behind a computer to access the Internet. Usually adults are more interested in news and current affairs than in social networking and entertainment etc. However, the conclusion one draws from these responses is that generally people are getting enlightened with each passing day and are thus taking advantage of the Internet on their mobile phones to reach friends and family and also to pursue things that interest them. This therefore proves that today, the Internet is gradually been served to people right on the go in Africa and bit by bit they are buying into it.

4. Analysis and Projections

The question that arises is how does Africa catch up with the rest of the world? Each passing day, innovative developments crop up and this makes Internet usage even all the more easier in most especially the developed world. Take for instance, the case where now almost all cell phones built have Wireless Markup Language (WML) enabled interfaces such that one can easily access the Internet with such facility such as was unheard of a few years back. Things have so eased up such that even when in your bed, washroom, or at the airport, to mention just these few examples, one can still access the Internet on say a mobile telephone. Most especially, people who own I-phones respond immediately to e-mails whilst on the move thus reducing the time elapse between communications to the barest minimum. From statistical data available as at June, 2012, Africa accounts for only 7% of netizens on the globe. This is a woefully small figure given that Africa has nearly 15% of the world's population. The Internet Corporation for Assigned Names and Numbers (ICANN) also affirms that among more than 1,000 Domain Name Registrars worldwide, Africa has only five accredited Registrars[3]. Therefore there is so much potential that as yet remains untapped in Africa. One critical observation also is that the low literacy rate in Africa has a direct impact on the numbers who can even erase the myth of what a computer is let alone touch it and if possible access a service such as the Internet on it. However, in other parts of the world, especially America and Europe, the rate of literacy is relatively very high such that people are trained in computer literacy right from a very early stage so that being able to access services offered by the Internet such as e-mail and the WWW suddenly become no-brainers. In America for instance, some kids as young as five years impressed me a lot in a community library quite a number of times as they sat confidently behind a desktop computer using yahoo chat messenger to communicate with friends and family with the help of parents. This, otherwise impressive scenario, I have never seen in Africa, although I can be sure it could be happening in a handful of homes and communities mainly inhabited by the elites. The fact is that given its huge potential, Africa can cross the information and technological gap that exists between it and the developed world.

5. How the Challenges can be Tackled?

If Africa is to overcome her shortcomings and hopefully catch up with the rest of the world, a total paradigm shift will be required.

Firstly, the fact that even desktop computers are so lacking in many places in Africa, even in schools, is the foremost factor hindering the rapid growth in the Internet market in Africa. At this present time of overwhelming computer literacy in the developed world, in Africa, most rural areas lack in this basic requirement which is a precursor for using the Internet. Children sometimes finish high school still computer illiterate so that it eventually becomes a problem when one has the chance suddenly to access the Internet later in life. Under such a situation, one has to start from the basics and this in no small way negatively impacts on the rate of Internet usage. As a remedy, if possible, the various governments of Africa, should as a policy try equipping schools and colleges with Information and Communications Technology (ICT) facilities and make ICT training mandatory in schools in order to prepare school graduates very well for the job markets which are now heavily ICT dependent[5].

Secondly, if a major infrastructural upgrading could be carried out perhaps in phases, improvements will happen with time. The fact that even in these contemporary times, you can visit an Internet café in Africa and be met with a dial-up Internet service, though this is very rare nowadays, indicates that the kind of futuristic infrastructures that are used in developed jurisdictions have not yet fully been integrated into the African system[12]. The various multilateral companies that have succeeded in developed countries can also expand into Africa which is still a virgin territory for ICT services. If these companies do set up in Africa as well and improve on infrastructure to very efficient broadband services such as voice over internet protocol (VOIP) that can inure to the benefit of consumers and they have to pay a little more extra, they will be more than contented to do that. Again, nowadays, cellular handsets are almost all interfaced to the Internet via WML and therefore if the cost of these mobile phones is made very affordable, the educated people who otherwise would not have the time or resources to frequent a café or have Internet service installed in their homes, will be willing to try the Internet on their phones.

Thirdly, the African market should be much more liberalized. For instance, if various governments could offer incentives such as tax rebates to multinational companies that choose to set up in Africa, then ICT spread will gradually occur. If this is done, enough competition will be created among service providers such that Internet service subscription fees will reduce drastically thus enticing more people from less privileged backgrounds to also subscribe to Internet services. The fact is that, in Africa, most people are poorly paid so the resources to pay for utility services are not easy to come by.

6. Conclusions

Given where Africa has come from in the last 20 years since the WWW was invented, one could confidently say that Africa has indeed come a long way even though there is still room for improvement. The growth of the Internet in Africa shows no signs of slowing down. Africa is a virgin territory much as the information superhighway is concerned and one can only see a major technological revolution overwhelming the continent in the next 10 years. The unique case of Morocco as it is now is where the whole of Africa should be striving to reach in a decade from now. Morocco is arguably the most advanced telecommunications market in

Africa at the moment. It has the highest penetration as well as some of the lowest broadband prices on the continent[11].

An alternative to achieving this goal of enhancing Internet connectivity in Africa is to combine satellite and wireless services. Even though Africa is already highly dependent on satellite, there is a need to do a vigorous expansion such as installing more affordable VSATs for willing customers. This way, the rate of spread of Internet connection will move faster than solely relying on only one technology. If the two technologies could move in tandem like Siamese twins with each other through expansion, Africa will achieve a high degree of connectivity in no time and hopefully erase the digital divide that exists between her and the rest of the World.

Also, various donor agencies should take cognizance of the fact that ICT spread into the heartlands of various African countries will positively impact on the socio-economic development of African countries which will eventually affect the global economy as well.

The various telecommunications companies operating in Africa should further reduce prices of their services so that they will be similar or even lesser than the prices they charge in the developed countries. This way, more Africans can afford the Internet services and then the service providers will accrue more income to expand their infrastructure so that they can reach a wider customer base.

One other critical area that services providers would do well to tackle to help boost Internet penetration in Africa is the power sector. Africa indeed has a very erratic power supply system which does not augur well at all for enjoyable usage of the Internet. Thus, the various telecommunications providers can build their own power systems to supplement that provided by governments so that connectivity will be almost uninterruptible.

It has also been established that mobile Internet has become the preferred medium of Internet access and in some cases, the only option available. Thus, we can say that mobile Internet is a very likely tool that can be used to bridge the digital divide in Africa by providing Internet services to those who otherwise would not have.

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