



E-Banking in Ethiopia and the consequences due to increase in the cyber threats/Crime across the globe: Trends and Concerns

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Abstract: *The internet is penetrating the Ethiopia at the rate of 1.90% and more and the current scenario is, less than 1% population is using internet here. The banking system in Ethiopia is now a day's is computerised and many banks are offering online banking services, but due to the huge scope of internet proliferation and penetration in the society, the scope of cyber threat and crime is also possible here. We are trying to keep a look on the current system of E-Banking here and possible threat for the system due to various reasons discussed in this paper.*

Keywords: *Cyber Crimes, Cyber Threats, E-Banking*

I. Introduction

The world greatest Economist were forecasted that the world's top six fastest growing countries are in sub-Saharan African countries. Their rapid booming sectors are infrastructures and IT services like Mobile Technology and the web based services. As per the reports, the top 50 countries with reference to the economy will be potential countries from African reasons. The African Development Bank are also expecting that there will be a makeable increase in the per capita income of the people across the African countries and consumer paying capacity by within next 15 years, Resulting many MNC's are trying to get a chance to develop IT market in this continent and many of them had already arrived here with great hope and doing their business in this region. The world is focusing on these African countries for their business for the IT enabled services and the Mobile based services, as today world is growing rapidly with the help and support of these services and here there is a great scope to incorporate these features. We must not forget here that every coin has two phases a head and a tail, and hence, the incorporation of the technology also may lead to this region in different directions, we are already known to the positive aspect of the technology implementation in different services across the globe, where it is already in use. Now our study is focused on the side effects of the IT and Mobile based services, which is being used by the banking systems in Ethiopia. We have restricted our study on the services provide by CBE(Commercial Bank of Ethiopia), although there are many banks in Ethiopia but the major banking services are being provided and promoted by CBE here and it is one of the major share holder in banking sector at Ethiopia. In Ethiopia, like everywhere else across globe, progress can be measured with IT, Mobile and technologies in use in the services at different sector in the country (we are only focusing on the banking sectors). In addition to that, technology has its downsides: malware, threats and cyber-crime.

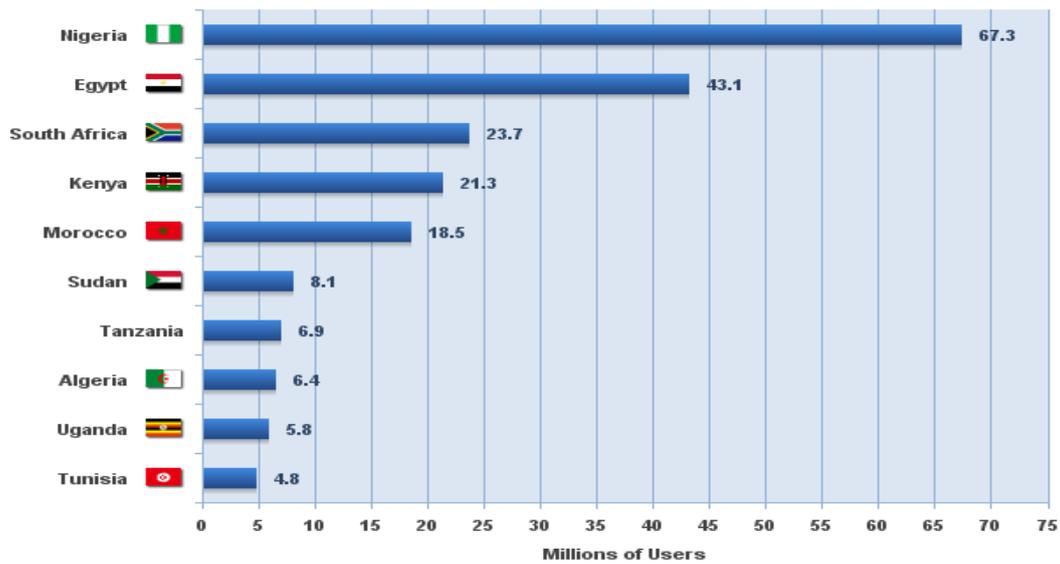
II. Security Issue

The Ethiopia is one of the high potential country, which may go for Internet penetration in coming days, and it is expected to rise the number of internet user exponentially, well this is a good news and a bad news also, as the increase in the number of IT user may lead to the a problem of the cyber threats, crimes, hacking and many more in near future, and hence, it is a matter of great concern also for the services sectors especially.

III. Study of the trends of the IT users in African Regions and in Ethiopia

The Ethiopia is not in the top 10 countries, which is having maximum internet users at Africa,. Now the question is the Ethiopia is lying at which position; the data below is the analysis of all countries across the Africa with their Internet penetration with respect to the population and number of Internet users.

Africa Top 10 Internet Countries 2013 Q4



Source: Internet World Stats - www.internetworldstats.com/stats1.htm
 240,146,482 Internet Users in Africa estimated for December 31, 2013
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AFRICA 2014 POPULATION AND INTERNET USERS STATISTICS FOR 2013 Q4							
		Population	Internet Users	Internet Users	Penetration	Internet	Facebook
	AFRICA	(2014 Est.)	31-Dec-00	31-Dec-13	(% Population)	% Africa	31-Dec-12
1	Nigeria	177,155,754	200,000	67,319,186	38.00%	28.00%	6,630,200
2	Egypt	86,895,099	450,000	43,065,211	49.60%	17.90%	12,173,540
3	South Africa	48,375,645	2,400,000	23,655,690	48.90%	9.90%	6,269,600
4	Kenya	45,010,056	200,000	21,273,738	47.30%	8.90%	2,045,900
5	Morocco	32,987,206	100,000	18,472,835	56.00%	7.70%	5,091,760
6	Sudan	35,482,233	30,000	8,054,467	22.70%	3.40%	n/a
7	Tanzania	49,639,138	115,000	6,949,479	14.00%	2.90%	705,460
8	Algeria	38,813,722	50,000	6,404,264	16.50%	2.70%	4,111,320
9	Uganda	35,918,915	40,000	5,818,864	16.20%	2.40%	562,240
10	Tunisia	10,937,521	100,000	4,790,634	43.80%	2.00%	3,328,300
11	Ghana	25,758,108	30,000	4,378,878	17.00%	1.80%	1,630,420
12	Angola	19,088,106	30,000	3,645,828	19.10%	1.50%	645,460
13	Senegal	13,635,927	40,000	2,849,909	20.90%	1.20%	675,820
14	Zimbabwe	13,771,721	50,000	2,547,768	18.50%	1.10%	n/a
15	Zambia	14,638,505	20,000	2,254,329	15.40%	0.90%	327,600
16	Ethiopia	96,633,458	10,000	1,836,035	1.90%	0.80%	902,440

(Figure -1)

Source: Internet World Stats-www.internetworldstats.com

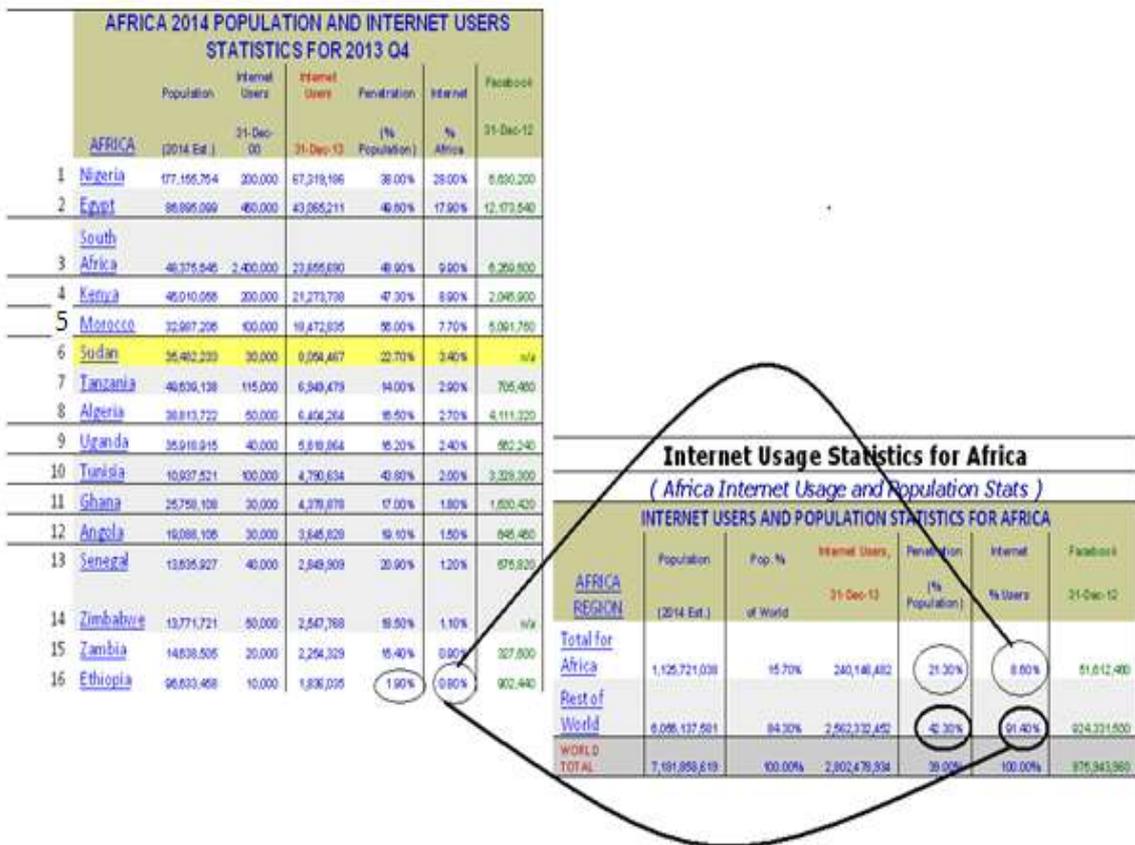
The above figure(Figure-1), showing the result of some African countries in their descending order of their internet penetration and the internet user, there are about 57 countries in the Africa and the Ethiopia is at number 16, based on the number of Internet User and the penetration rate of the Internet user at Ethiopia.

Internet Usage Statistics for Africa (Africa Internet Usage and Population Stats)						
INTERNET USERS AND POPULATION STATISTICS FOR AFRICA						
AFRICA REGION	Population (2014 Est.)	Pop. % of World	Internet Users, 31-Dec-13	Penetration (% Population)	Internet % Users	Facebook 31-Dec-12
Total for Africa	1,125,721,038	15.70%	240,146,482	21.30%	8.60%	51,612,460
Rest of World	6,056,137,581	84.30%	2,562,332,452	42.30%	91.40%	924,331,500
WORLD TOTAL	7,181,858,619	100.00%	2,802,478,934	39.00%	100.00%	975,943,960

(Figure-2)

Source: Internet World Stats-www.internetworldstats.com

Figure-2 shows that the average percentage of the internet users and penetration percentage at Africa and across the globe. We can see the remarkable differences, the average of Africa is at the level of the Internet user is 8.60% and the penetration percentage in Africa is 21.30%, where as rest of the world percentage of the Internet users are 91.40%, almost more than 10 times of the African users and the penetration percentage is 42.30%, which is almost two times of the penetration percentage of the Africa.



(Figure-3)

Source: Internet World Stats-www.internetworldstats.com

Figure 3, shows the competition of the internet users and penetration percentage of the Africa with reference to the Ethiopia, we can see the remarkable difference between the two, the internet users percentage in Africa is 8.60% where as at Ethiopia is 0.80, which is almost 1/11 Of the rest of the African users, and compare to the Internet penetration percentage, at the Africa, it is 21.30% as compare to the Ethiopia, which is having only 1.90%, which is 1/10 of the African Internet Penetration percentage.

IV. E-Banking Services in Ethiopia (CBE)

The good thing is the Internet User percentage and the Penetration percentage is growing at the same speed in Ethiopia with respect to the population, and the other very good news is that there is great scope for the IT and

Mobile based services to be launched here at every service area again there is a great chance for the fraudulent activity too using these services.

Now, as we have focused our study for the same for banking sectors only, And, especially to the CBE, the following services are being offered by the CBE to their customers:

A. Internet Banking

Through CBE's Internet banking, many transactions can be carried out from the comfort of your home or office. The online services include:

1. Viewing account balances and transactions.
2. Making fund transfers between a customer's own current accounts and savings accounts.
3. Effecting payments to third parties, including bill payments to predefined CBE customers within Ethiopia.
4. Viewing and downloading current and saving account statements.
5. Requesting for stop payments on cheques, etc.
6. Applying for a letter of credit...and more...

Using CBE's Internet banking facility, customers will benefit from our personal and Corporate Internet Banking services that are available, 24 hours a day, 7 days a week, from any location.

Source www.combanketh.et, www.cbeib.com.et

Limitations and the threats using Internet banking at CBE:

As per the unofficial records, very few customers are using Internet banking at CBE, due to the following reasons:

1. The less number of Internet users in the country.
2. Less penetration percentage in the country.
3. Lack of awareness program towards the Internet banking.
4. Lack of mobile version site of CBE.
5. Lack of Internet infrastructure to the remote areas, and
6. The most important is to use Internet banking one has to register his/her device.

The biggest drawback among the above is the point number 6, that is, if you wish to use Internet banking and its related facilities then first of all you are supposed to register the device to which you are accessing the Internet, which leads to the restriction of the uses from the Internet banking either form the home or form the office, which is a great limitation in our view.

1. A customer may not have a personal Internet device.
2. The device may be cloned and there may be a chance of fraudulent activities.
3. His/her office may not permit him/her for the financial transactions.
4. The office may not give him the details of the Internet connection for the personal use.
5. The office may put some, DLP devices and his confidential data may lose in the public network of the office LAN.
6. If you lost your device, you will have to do the entire activity of Internet banking once again.
7. The same Internet device may not work to the other countries and hence a customer may not be in a position to use Internet banking, outside the country.
8. Cost of Internet is very high in Ethiopia.

B. ATM

CBE is the pioneer in introducing ATM to the country. With ATM card, you can bank 24 hours a day and 7 days a week.

Enjoy a host of services, including

1. Cash withdrawals
2. Bill payments
3. Forex
4. Fund transfer
5. Mobile top up
6. Balance inquiry, etc.

C. Mobile Banking:

CBE's Mobile Banking services enable you to:

1. Access your bank accounts,
2. Make fund transfers,
3. Payments and balance inquiries as well as

4. Get instant notifications

On all your accounts linked with MB services-using the SMS, XHTML and DOWNLOADABLE application channels".

Mobile Banking and the ATM services are almost on the same platform as compare to the other countries and banking systems, The CBE got membership of the VISA card and the ATM services are same as compared to the other continent banking systems.

D. Threat and Concern to the CBE Internet Banking:

There are many threats and concern to the CBE E-Banking system, but we are only concerned here with the possible cyber threats in and around the country (Ethiopia). The possible threats for the E-Banking across the world are:

1. Phishing
2. Unauthorized use of Internet banking
3. Unauthorized use of Mobile banking
4. Unauthorized use of ATM banking
5. Fund Transfer using cyber frauds, etc.

Now we want to analyze how safe we are, as per the Microsoft Security Intelligence Report 2013, the number and percentage of the system running with real time antimalware software are decreasing day by day, if we look at the study of last 6 months in the year 2013, it dropped from 1.1% to the 0.5% across the globe and undoubtedly the case must be same for Ethiopia.

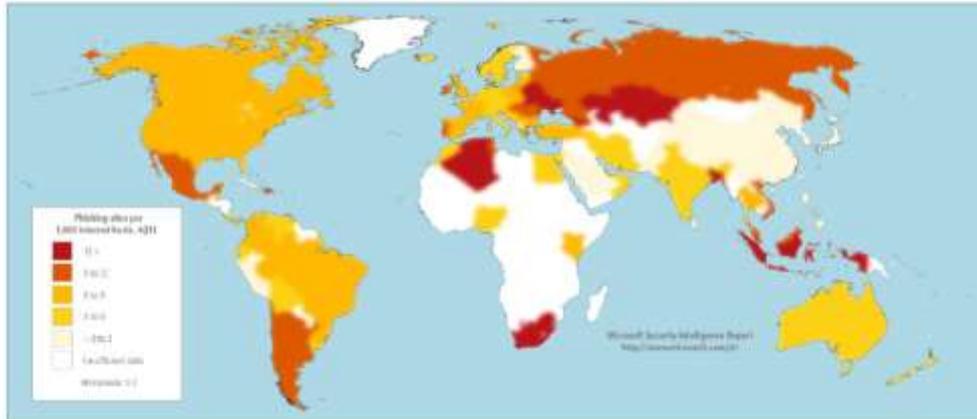


Percentage of computers at Microsoft not running real-time antimalware software in second half 2013 (July-December, 2013)

Now the major concern about the E-banking is phishing, and the hackers are using this tool to steal our valuable data with the help of phishing as one of its hacking tools. The phishing tools and sites are increasing day by day across the globe and it may affected the E-banking and Internet banking across the globe and the CBE should take a note on it and must give a awareness program for their valuable clients/customers. If we took a look at the graph of the phishing sites it has significantly increased during 3rd quarter (July-September) to the 4th quarter (October-December) 2013.



Phishing sites per 1,000 Internet hosts for locations around the world in 3rd Quarter 2013



Phishing sites per 1,000 Internet hosts for locations around the world in 4th Quarter 2013

Country/Region	1Q12	2Q12	3Q12	4Q12
Ethiopia	9.7	10.5	9.1	11.3
Worldwide	6.6	7.0	5.3	6.0

Computer Infection Rate at Ethiopia in the year-2012, all four quarter(Source-MSIR, Vol-14, 2013)

As per the sources (MSIR, Vol-14, 2013) the infection rate of the computer in Ethiopia has raised from 9.7% to 11.3% within a year, whereas the worldwide infection rate has dropped from 6.6% to 6.0% within a year and really it is a serious concern for the Internet users and the Internet based E-banking applications in Ethiopia.

Country/Region	Encounter rate 3Q13	Encounter rate 4Q13	CCM 3Q13	CCM 4Q13
Ethiopia	—	—	24.8	28.9
Worldwide	20.21%	21.58%	5.6	17.8

Ethiopian Encounter and Infection Rate (Source-MSIR-Vol-6, 2014)

If we consider the date (Source-MSIR-Vol-6, 2014), the encounter rate between quarter three 2013 was 20.21% and it raised to 21.58% in the next quarter (4th quarter) 2013 the data of the encounter rate is not known for the Ethiopia, but the CCM at Ethiopia was increased from 24.8 to 28.9 form 3rd quarter 2013 to 4th quarter 2013, which is significantly high as compare to the worldwide average CCM form 3rd quarter 2013 and 4th quarter 2013, which was 5.6 and 17.8 respectively.

V. Conclusion

There is a huge scope and potential of internet penetration and applications related to the internet in Ethiopia, it is penetrating at the rate of 1.90% in the population with the increase in the rate of Internet users, the risk of cyber crimes/fraud are likely to be increased with more rate than the Internet penetration rate in the population. The law for the cyber crime/fraud is either lying at very infant stage or not properly implemented; in that case the Ethiopia can be a heaven for the cybercriminals or may be a safe place for the cyber related crimes and criminals.

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