

E-Business: Application of software and technology in selected Ethiopian Banks: Issues and challenges

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Abstract

The application of software and technology is inevitable in the present competitive banking industry. Ethiopian banking system is one of the most underdeveloped compared to the rest of the world. In Ethiopia cash is still the most dominant medium of exchange and Electronic-banking is not well known, let alone used for transacting banking issues. The article tries to examine specific issues and challenges in Ethiopian banking system. The present study further highlights various selecting issues and service quality systems practiced in selected banks. Survey method is used to collect data from practicing managers of banking industry. It further analyzes the present obstacles and hindrances in improving and facilitating the present banking services with application of customize software and technology.

Keywords: *Application software, Information and communication Technology, Security Issues, Electronic-banking system.*

1. Introduction

Ethiopia is the only African country to have without a meaningful colonial past. Still it is one of the poorest countries in the world with an estimated per capita income of just \$203 (IMF 2007 cited by the Financial Standards Foundation). The country's economy is heavily dependent on agriculture (45% according to the CIA World Fact book) but the sector has been buffeted for decades by drought, poor cultivation practices, and a border war with Eritrea. Under Ethiopia's constitution, the state owns all land, providing 99-year leases. This system continues to hamper growth in the industrial sector as entrepreneurs are unable to use land as collateral for loans. While measures have been taken to stimulate private sector enterprise (e.g. simplifying red tape, clarifying the rules that govern business activities and shortening the time required in

obtaining required licenses), the government still maintains a major role in the economy. Indeed, several sectors of the economy are reserved solely for the government. These including banking, insurance, broadcasting, high capacity air transportation, motels, saw mills, movie theatres, travel agencies, domestic baked good, raw coffee export, retail and wholesale trade, brokerage services and shipping. The Ethiopian banking history as whole has a network of 521 branches at the end of fiscal period ended in June 2010. Which is lowest compared to the size of the country (1.1million square km) and number of population (78 million) and this shows that the number of population being served by a single branch stood at around 149,172. Internet is the driving force in the 21st century. Due to pervasive and steady growth of information and communication technology, the world banking industry is entering into new phenomena of unprecedented form of competition supported by modern information and communication infrastructure. E-commerce has become a buzzword for companies over a couple of years with increased awareness about the use of computers and internet. Information and communication technology applications are paramount concerns to the banks in today's business environment and internet has become a major platform for all financial, banking and commercial transactions. Statistics shows Ethiopia is lagging behind in the adaption of E-commerce. The software used in the Ethiopian banking industry is almost same as the rest of the African nations like South Africa, Egypt, and Tunisia. The internet infrastructure only in their major cities, Due to lack of internet facility it is very difficult to engage E-commerce activities in the Sub-urban and rural areas. Now a days some of the banks providing best services to their customers with advanced software and technology, but they are suffering with security Issues. Ethiopian banking system is comparatively good, but the Electronic banking

system is still not at in use. Thus this study is conducted with the following objectives.

- To describe the Historical development of Ethiopian banking system.
- To describe and differentiate between different Software's used in Ethiopian banks.
- To analyze the status of E-banking in Ethiopia.
- To investigate the main challenges and opportunities for software's and E-banking.
- To recommend appropriate actions to be taken to improve software's and E-banking in Ethiopia.

2. Review of Literature

Building software is hard. Building E-business applications even harder. Current E-business represents a hybrid of distributed, client-server, concurrent and networked systems. All these systems require the solving hard problems. Since E-business lays on the front line of modern business, it also requires dealing with scalability, high-availability and fail-over. To perform these operations banking industry need good software. According to Astley (2001) "software executing on distributed systems represents a unique synthesis of application code and code for managing requirements such as heterogeneity, scalability, security and availability". Jensen (2003), feel that most of the developing countries in Africa lacking with Internet infrastructure, so it's difficult to improve E-banking and Mobile banking. According to (ITU4-2006), the ICT itself to commit fraud and other cyber crimes. According to Gradchew Worku (2010), the Electronic banking in Ethiopia is facing lot of challenges due to lack of software, awareness, fear of risk and lack of trained persons in the key organizations. According to Dragos A. Manolescu and Adrian E. Kunzle (2011), they are giving a first step towards the direction of Patterns for E-business application development, will make developers aware of hard problems that they need to deal with and show them ways to solve them. According to Financial security authority (2004), it is very difficult to maintain electronic transactions without proper software. According to Magembe S and Shemi A (2002), Adoption of E-commerce in the developing countries tends to agree with the theory of planned behavior, but attitude seems to weigh more than subjective manner and perceived behavioral control. According to R.K.Mishra and J.Kiranmai (2009), presents case study approach has been used to compare various banks for rendering different internet banking services to its customers. According to Ole hanseth (2002), propose a design theory that tackles dynamic complexity in the design for Information Infrastructures (IIs) defined as a shared, open, heterogeneous and evolving socio-technical system of Information Technology (IT) capabilities.

According to UNCTAD (2004), the recent trends and developments in the area of ICT, e-commerce and economic development, including some aspects of ongoing international discussions on matters such as Internet governance. Specific discussions on e-commerce and ICT in developing countries focus on selected topics such as the use of digital and Internet technologies in the creative industries, in particular in the music industry, and their application to higher online learning. As e-commerce is not the sole domain of private business, the report also looks at government e-commerce applications in e-procurement. Finally, the report looks at the legal issues and challenges of data privacy and its role as a trust-building mechanism for information society development.

3. Historical Background of Ethiopian Banking System

Banking in Ethiopia began in 1905 with the Bank of Abyssinia, a private company controlled by the Bank of Egypt. In 1931 it was liquidated and replaced by the Bank of Ethiopia which was the bank of issue until the Italian invasion of 1936. During the Italian occupation, Bank of Italy banknotes formed the legal tender. Under the subsequent British occupation, Ethiopia was briefly a part of the East Africa Currency Board. In 1943, the State Bank of Ethiopia was established, with 2 departments performing the separate functions of an issuing bank and a commercial bank. In 1963, these functions were formally separated and the National Bank of Ethiopia (the central and issuing bank) and the Commercial Bank of Ethiopia were formed. In the period to 1974, several other financial institutions emerged including the state-owned:

1. The Agricultural and Industrial Development Bank (established largely to finance state owned Enterprises)
2. The Savings and Mortgage Corporation of Ethiopia
3. The Imperial Savings and Home Ownership Public Association (which provided savings and Loan services)

Major Private commercial institutions, many of which were foreign owned, included

1. The Addis Ababa Bank
2. The Banco di Napoli
3. The Banco di Roma

4. Current Conditions

The financial system of Ethiopia is very underdeveloped. There is no stock exchange and of the eleven banks that exist. There is a centralized bank called National bank of Ethiopia, three are state owned banks dominate the sector

and the remaining seven are private banks. The state owned banks are

1. Commercial bank of Ethiopia.
2. Development bank of Ethiopia.
3. Construction and business bank.

The private banks are

1. Dashen bank.
2. Awash International bank.
3. Bank of Abyssinia.
4. Wegagen bank.
5. United bank.
6. Cooperative bank of Oromia.
7. Nib International bank.

There are no foreign banks in the country, and the system remains isolated from the effects of globalization while policy-makers fear that liberalization will lead to loss of control over the economy. The government controls interest rates and sets them below the high inflation rate. Corruption, though strictly sanctioned, remains a concern. The National Bank of Ethiopia is the country's central bank. The state-owned Commercial Bank of Ethiopia is the largest bank in Ethiopia and controls 2/3 of the assets of the entire banking system. Kiyota (2007) describes the Ethiopian banking sector as 88% concentrated versus 59% for Kenya, 67% for Tanzania, 63% for Uganda, and 81% for sub-Saharan Africa as a whole.

Table 1: Value of Ethiopian Bank Assets

Value (Millions of ETB)	1998	1999	2000	2001	2002	2003	2004	2005	2006	1998 % of Total	2006 % of Total
State-owned banks	18,732	19,938	23,417	25,035	25,673	27,687	31,113	35,201	37,646	94%	70%
Commercial Bank of Ethiopia	17,503	17,434	19,828	21,489	22,146	24,200	27,975	33,169	35,849	83%	96%
Development Bank of Ethiopia	2,329	2,502	2,615	2,578	2,569	2,555	4,081	n.a.	n.a.	11%	n.a.
Construction and Business Bank	n.a.	n.a.	974	968	558	942	1,057	1,832	1,797	n.a.	3%
Private banks	1,954	2,040	3,157	4,076	5,234	6,969	9,093	12,253	16,443	5%	30%
Dashen Bank	511	674	865	1,100	1,486	1,991	2,677	3,420	4,546	2%	8%
Awash International Bank	452	536	759	907	1,112	1,401	1,700	2,226	2,954	2%	5%
Bank of Abyssinia	208	388	718	896	1,142	1,333	1,585	2,057	2,834	1%	5%
Wegagen Bank	185	366	514	583	640	689	1,140	1,616	2,259	1%	4%
United Bank	n.a.	76	143	214	314	469	674	1,073	1,599	n.a.	3%
Cooperative Bank of Oromia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	329	724	n.a.	0%
Nib International Bank	n.a.	n.a.	159	336	534	685	1,247	1,732	2,027	n.a.	4%
Total	21,096	23,476	26,574	29,071	30,907	34,686	42,206	47,254	54,089	100%	100%

Source: Reproduced from Kiyota (2007) which gives sources as Annual Report of Individual Banks

4.1 Stock Market

There is no stock exchange exist in the country for trading.

4.2 Other Types of Finance/Financial Markets

The other type of finance market is Micro finance. The formal microfinance industry began in Ethiopia in 1994/1995 with the government's the Licensing and Supervision of Microfinance Institution Proclamation designed to encourage Microfinance Institutions (MFIs) to extend credit to both the rural and urban poor of the

country. By 2005, there were 23 MFIs with almost 1 million clients. Since the government prohibits any foreign national from providing banking services in Ethiopia, MFIs in the country must be established as share companies with capital wholly owned by Ethiopian Nationals or by organizations wholly owned and registered under the laws with a head office in Ethiopia. This has led to lack of transparency in the sector since much of 12 the initial capital comes from foreign donors who must enlist "nominal" shareholders to act as fronts. (MFIs are licensed under the central bank). Gobezie (2005) notes, these shareholders are precluded from selling or transferring their shares and "voluntarily forsake" their claim on dividends, if any, declared by the MFI. Such shareholders do not have a real stake in the organization and would be unlikely to lend it support at a time of financial crisis. Interest rates charged on loans are not fixed, but a minimum interest rate of 3% to depositors is required by law, which sometimes discourages mobilization in hard-to-reach areas (where administrative costs added to the cost of capital make investment too expensive). Such high transactions costs mean that most MFIs operate in urban or semi-urban areas, leaving the rural poor underserved. On the other hand, MFIs are exempt from Income and Sales Tax on their profits. Other than the formally-licensed MFIs, there are NGOs informally involved in the delivery of microfinance. Their practices include subsidized interest rates, charity and lax delinquency penalties, which Gobezie notes may undermine the health of the microfinance industry as a whole.

Table 2: Lending and Deposits at Ethiopian Banks (ETB mm)

	2001/02	2002/03	2003/04	2004/05	2005/06
Lending	21,791	23,393	27,624	26,042	34,245
Central government	8,513	10,275	13,743	8,337	13,220
Other sectors	13,278	13,118	13,881	17,705	21,025
Nonfinancial public enterprises @	1,099	785	1,572	2,447	2,525
Financial public enterprises *	505	449	404	302	275
Cooperatives	317	314	336	817	1,477
Private sector	11,358	11,570	11,568	14,139	16,748
% of Total lending					
Central government	39.1	43.9	49.8	32	38.6
Other sectors	60.9	56.1	50.2	68	61.4
Nonfinancial public enterprises @	5	3.4	5.7	9.4	7.4
Financial public enterprises *	2.3	1.9	1.5	1.2	0.8
Cooperatives	1.5	1.3	1.2	3.1	4.3
Private sector	52.1	49.5	41.9	54.3	48.9
Deposits	24,298	27,095	31,313	37,090	44,380
Demand deposits	12,124	13,396	15,621	18,060	21,587
Public enterprises	4,122	3,637	3,735	4,062	4,234
Cooperatives	393	432	600	789	926
Private sector	3,773	4,392	5,186	6,341	7,813
Central government	1,244	2,215	3,108	4,245	5,984
Other +	2,592	2,721	2,991	2,624	2,631
Savings deposits	11,071	12,529	14,447	17,403	20,688
Public enterprises	37	52	15	42	52
Cooperatives	238	268	378	895	603
Private sector	10,788	12,199	14,039	16,429	19,890
Other +	9	10	15	36	143
Time deposits	1,102	1,170	1,245	1,627	2,105
Public enterprises	119	113	138	165	210
Cooperatives	28	33	52	47	38
Private sector	504	556	616	794	888
Central government	8	8	8	8	8
Other +	444	459	432	613	960
% of Total deposits					
Demand deposits	49.9	49.4	49.9	48.7	48.6
Savings deposits	45.6	46.2	46.1	46.9	46.6
Time deposits	4.5	4.3	4	4.4	4.7

5. Review of Software Technologies, Trends and Services Offered by Ethiopian Banking Systems

Ethiopia is one of the fastest developing countries in Africa. The Ethiopian banking system is still under developing. We will review software technologies and services offered to customers by major banks in Ethiopia.

5.1 Dashen Bank

Dashen bank is one of the private banks in Ethiopia, and it was established in September 20, 1995 according to commercial code of Ethiopia. The website of the company the mission of the bank says "to provide efficient and customer focused domestic and international banking services, overcoming the challenges for excellence through the application of appropriate technology". The bank has 59 share holders, quarter million customers, 34 area banks, 1051 number of employees and it stood 2nd on the market share among other banks in the country. It is the first bank providing ATM cards to customers in Ethiopia.

➤ **Services offered:**

Currently, the bank renders four major services in all of its branches namely.

- Credit Facility
- Saving Scheme
- International Banking
- Fund Transfer.
- MasterCard and Visa cards

➤ **Credit card facility:**

The bank provides a credit facility to its customers in different forms depending on their need and the nature of their business they are to invest on. Some of the credit lines offered include; overdraft facilities, term loans, letter of credit facilities, merchandise loans and personal loans.

➤ **Saving Scheme:**

The other service the bank renders is deposit services including demand deposit, savings deposit, youth savings deposit and time/fixed deposit.

➤ **International banking:**

The bank also renders international banking services providing services like; opening letters of credit for importers, handling of incoming LCs for exporters, purchase of outward bills purchasing and selling of foreign currency denominated notes, receiving and transferring foreign currency payment by swift and handling incoming and outgoing international letters of guarantee.

➤ **Fund transfer:**

Furthermore, the bank is currently offering fund transfer. The bank provides both domestic fund transfer all over the

country and international fund transfer, rendered in cooperation with Western Union.

➤ **Master card and Visa cards:**

Moreover, the bank is providing the customers MasterCard and Visa cards so that they can use it internationally. Dashen Bank has established account maintenance relationship with thirteen correspondent Banks. Overall banking relationship in SWIFT has expanded to 109 banks in 55 cities and 44 countries.

➤ **Technology used in the bank:**

The bank uses various kinds of communication and computing technologies to carry out its day to day activities. The communication technologies range from telephone and fax to dial up internet connections and very fast high speed broadband network. Now the bank is under transition of changing the old system with the new one for all branches. The change includes replacement of old hardware with modern and competent one. All branches in the capital started to work using the new system and other branches especially branches in rural areas are under process (training users, preparing the necessary hardware and equipment...). Wide Area Network (WAN) is another attractive feature of the Bank's technology; customers having a deposit account in one of the area banks can access their accounts from any other area bank in the country. Micro Banker is used as major bank software (UNIX sco version) starting from its establishment 9 years before. The system is decentralized in a sense the servers are distributed to the branches to support the service provision. Those branches are connected by WAN through dial up connection. The software supports different banking activities like customer registration, transaction processing, generating reports to different departments and so on. Micro banker works only in a UNIX environment obligating workstations to use only command lines and prohibiting them to change between applications while using the software. As the need for control and efficiency increases, the bank decides to change the software to new banking software called Flex cube. This system enables the bank to have competitive advantage and more control over the operations. "This system will not only allow the Bank improve its competitive edge but also make a difference by ensuring further capacity as well as providing assured centralized control and centralized database"(Bank President). The new software has a lot more facilities and modules that the previous software does not have. Though currently, the bank uses only some of the functionalities that the banking software provides, it can use more functionalities in the future as more and more services are introduced in the bank. The bank also uses different applications for performing different tasks. For instance, Microsoft Excel and Access for payroll and human resource database respectively.

➤ **Features of FlexCube Software:**

FlexCube software provides an Information Infrastructure. Based on this any system has to qualify the following criteria.

- **Sharable:** in a sense it has to be common resource to all users (of a community)
- **Evolving:** it should exhibit growth in terms of number of users, technological improvement, diversification of services
- **Open:** It should not have limit or boundary to number of users , or groups
- **Heterogeneous:** The different users because it has no limit to group or number of users, the different technological progress and the diversification of service it supports makes it heterogeneous
- **Standardized:** means there must be agreement between different users about the arrangement of the infrastructure in order to be used by all users.

The software is going to provide to their customers better features compared to the previous software. These includes

➤ **Change in services**

The bank is introducing new services to the user community. Services like ATM, MasterCard and Visa cards are introduced to the user community this year.

➤ **Change in technology**

The bank has changed its system from the previous computer system called Micro banker which does not have a centralized database to a new one called FlexCube which can enable centralized database processing as well as distributed one. This means all the branch banks will have their own database of users, which as well be propagated to the central server of the bank. This helps the recovery of data easier than that of the previous system. If the servers at the branches crash the data can be reclaimed from the central database since the data from the branches is synchronized with the central server. The changes have not only affected the software part, but also the hardware that the previous system used to use. This includes the change in computers and network facilities. The workstations at the service end have changed to meet the requirements of the FlexCube client software. To this end, high speed computers with high memory and hard disk capacity have been introduced. Regarding the network, it has been changing over the time from dial-up to broadband technology. As a result the components have changed from

wired network solution to wireless one using the UBR technology which can increase the bank's bandwidth. This has enabled the branches in the regional towns where the infrastructure is not at the level of the one in the capital city benefit from the new improved network.

5.2 Wegagen Bank

The bank, which was established in 1997 with a paid-up capital of 30 million birr, the highest initial capital at the time, has now reached 633.2 million birr. The press statement of the bank also indicated that during the budget year Wegagen has mobilized 3.9 billion birr deposits through its 51 branches and lend 2.5 billion birr to its customers. Its total asset has also increased to 5.7 billion birr (around 346 million US dollars at the current exchange rate) with 1,859 employees. Wegagen Bank has now 2,140 shareholders. Recently, it announced "Agar Visa Card" for their customers for effective banking transactions.

5.3 Commercial Bank of Ethiopia

The leading bank in Ethiopia, established in 1942. Pioneer to introduce modern banking to the country. It has 352 branches stretched across the country. A leading African bank with assets of Birr 73.3 billion as on June 30th 2010. Plays a catalytic role in the economic progress & development of the country. Currently CBE has about 2 million Account holders. It has strong correspondent relationship more than 50 renowned foreign banks and a SWIFT bilateral arrangement with 500 others. CBE combines a wide capital base with more than 9,700 talented and committed employees. Pioneer to introduce Western Union Money Transfer Services in Ethiopia. CBE has reliable and long-standing relationships with many internationally acclaimed Banks throughout the world.

Software used:

Commercial Bank of Ethiopia (CBE), the country's largest bank with more than two million customers, has selected Temenos (SIX: TEMN), the market leading provider of banking software. Founded in 1993 and listed on the Swiss Stock Exchange (SIX: TEMN), Temenos Group AG is a global provider of banking software systems in the Retail, Corporate & Correspondent, Universal, Private, Islamic and Microfinance & Community banking markets. Headquartered in Geneva with 56 offices worldwide, Temenos serves over 1000 customers in more than 120 countries. Temenos' software products provide advanced technology and rich functionality, incorporating best practice processes that leverage Temenos' experience in over 600 implementations around the globe. Temenos' advanced and automated implementation approach,

provided by its strong Client Services organization, ensures efficient and low-risk core banking platform migrations. They announced that to transform its entire operational infrastructure across more than 200 branches. CBE's operational improvement plans will modernize its services to its growing client base in Ethiopia as part of its vision to become a World Class bank in the region. CBE is a government owned bank which offers a range of retail banking services, which has already opened a subsidiary company in Southern Sudan with plans to extend its services to other East African countries. "Temenos' software delivers all the functionality and efficiencies we need to match a world class commercial bank. Its dedicated investment in product development to continually meet the needs of its clients and their customers was a very compelling proposition for us. The lack of flexibility and homogeneity in our current systems impacts product innovation, service delivery, risk management and cost control. Being able to replace all systems with T24 will deliver a single view of the business and customer and therefore provide a better understanding of our customers to improve services, enable us to effectively monitor and manage risk and lower our total cost of ownership. We will have an enormous wealth of functionality and flexibility to develop a wide range of new products, enabling us to strengthen our presence in the retail space, as well as penetrate new markets in the face of increased competition. By using this software CBE is going to provide to their customers better services like E-banking, Mobile banking etc. Temenos' software was benchmarked against solutions from Oracle FS and Infosys and proved to be the most functionally rich platform to deliver end to end operational support and broaden CBE's service offering, such as mobile banking, to enter new markets. Temenos and CBE will jointly implement the software in a phased roll out, with the first stage expected to go live in 2011.

5.4 National bank of Ethiopia

The National Bank of Ethiopia was established in 1963 by proclamation 206 of 1963 and began operation in January 1964. Prior to this proclamation, the Bank used to carry out dual activities, i.e. commercial banking and central banking. The proclamation raised the Bank's capital to Ethiopian dollars 10.0 million and granted broad administrative autonomy and juridical personality. Following the proclamation the National Bank of Ethiopia was entrusted with the following responsibilities.

- To regulate the supply, availability and cost of money and credit.
- To manage and administrate the countries international reserves.

- To license and supervise banks and hold commercial banks reserves and lend money to them
- To supervise loans of commercial banks and regulates interest rates.
- To issue paper money and coins.
- To act an agent of the government.
- To fix and control the foreign exchange rates.

However, monetary and banking proclamation No. 99 of 1976 came into force on September 1976 to shape the Bank's role adoring to the socialist economic principle that the country adopted. Hence the Bank was allowed to participate actively in national planning, specifically financial planning, in cooperation with the concerned state organs. The Bank's supervisory area was also increased to include other financial institutions such as insurance institutions, credit cooperatives and investment-oriented banks. Moreover the proclamation introduced the new Ethiopian currency called 'birr' in place of the former Ethiopia Dollar that eased to be legal tender thereafter. The proclamation revised the Bank's relationship with Government. It initially raised the legal limits of outstanding government domestic borrowing to 25% of the actual ordinary revenue of the government during the proceeding three budget years as against the proclamation 206/1963, which set it to be 15%. This proclamation was in force till the new proclamation issued in 1994 to reorganize the Bank according to the market-based economic policy so that it could foster monetary stability, a sound financial system and such other credit and exchange conditions as are conducive to the balanced growth of the economy of the country. Accordingly the following are some of the powers and duties vested in the Bank by proclamation 83/1994.

➤ Features of Advanced technologies:

Ethiopia uses the advanced software's like Temenos and FlexCube in their banking system, leads tremendous changes and provides more facilities to their customers. These include E-banking and Mobile banking (M-banking).

6. E-banking and Mobile banking

6.1 E-banking

All E-payment methods share a number of common characteristics. These are: independence, interoperability, portability, security, anonymity, divisibility, ease of use and transaction fees. Independence refers to the ability of E-commerce methods to operate without installing specialized software. Interoperability and portability refers to the ability of forms of E-commerce to interlink with

other enterprise applications and systems. Security is an important consideration that encompasses the safety of transfer and the chance of the transfer being intercepted. E-cards offer a number of benefits to the issuing banks and customers of the bank including:

- Dramatically reduce printing, mailing and financial handling costs associated with processing transaction.
- Enhance payment security by minimizing theft or loss.
- Reduce undeliverable payments via electronic delivery to the card account.
- Prevent fraud through automated controls.
- Increase customer satisfaction.
- Improve operational efficiency and profitability of the issuing banks.

6.2 Mobile banking (M-banking)

Mobile banking is a subset of e-banking in which customers access a range of banking products like savings accounts and credit instruments, via electronic channels. M banking requires the customer to hold a deposit account to and from which payments or transfers may be made. M banking reduces the transactions costs of payments because there is an electronically accessible store of value.

6.3 Challenges

In most regulatory regimes, creating account-based stores of value is regarded as banking-related business. The question of who may hold the deposit balance turns out to be a crucial issue affecting the development of mobile banking. Technology and the regulation, in turn, affect the effectiveness of m-banking. The issue relevant to many financial systems particularly in developing societies, soundness, might have concerned many. In other words, M-banking could jeopardize financial stability and prevent economic and financial growth. However, despite the natural conservatism of the banking industry, M banking innovation has proceeded to become a rapidly-growing tool across developing countries.

6.4 Benefits

A major benefit of M banking is drawing in the “unbanked” who generally can’t afford the cost of formal banking services and infrastructure. There is the potential to bank people outside the realm of traditional financial services and the mobile phone is a pervasive device that has fewer barriers to entry than most technologies and has

penetrated some of the poorest economies due to the overwhelming demand for any form of telecommunications. The evolution of the system necessarily started out as a simple transaction to purchase airtime, strictly to make calls. Very soon, people in rural areas in just about every sub-Saharan African country were purchasing prepaid airtime from local vendors in cities and selling it on to merchants in rural locales, who in turn either rented the use of mobile phones to rural dwellers or sold the airtime on to them at a profit.

7. Issues and Challenges

Banking sector in Ethiopia faces numerous challenges to adopt advanced technologies as well as E-banking applications and seize the opportunities presented by ICT applications in general. Key challenges in technology and E-banking applications are:

7.1 New Technologies

Banking sector in Ethiopia it is still under developing. The banks try to use advanced technologies and attract customers. The new software’s requires high configured hardware devices (computers) to maintain centralized servers and individual PC’s and also to use these software’s employee’s needs more skills. Ethiopia is lagging with proper trained persons. Software is failed or error should be occurred, they are unable to rectify it.

7.2 Internet and Telecommunication

Lack of infrastructure for internet and telecommunications impede smooth development and improvements in E-banking and M-banking in Ethiopia. 80% of population they are living in the rural areas of the country, where majority of small and medium business are concentrated, have no internet facilities and thus are unable to engage banking services like E-banking and M-banking. Still today, the whole country is totally depending on only one network called Ethiopian Tele Communication. The government is not allowed any other private telecommunication network with in the country.

7.3 Lack of Suitable Legal and Regulatory Framework for Banking

Ethiopian current laws do not accommodate electronic contracts and signatures. Ethiopia has not yet enacted legislation that deals with E-commerce concerns including enforceability of the validity of the electronic contracts, digital signatures and intellectual copyright and restrict the use of encryption technologies. ICT in Ethiopia is now collaborating with Europe and other countries in the world and developing regulatory frame work for banking sector.

7.4 Political Instabilities in Neighboring Countries

Political and economic instabilities in Somalia, Sudan and Eritrea are threatening traits that do not provide a very conducive environment for to improve banking sector. Political instabilities inevitably disturb smooth operations of business and free flow of goods and services.

7.5 High rates of Illiteracy

Illiteracy we have to consider it as major problem. Banking sector provide proper features like ATM machines, E-banking and M-banking to their customers, they in a position unable to taste the sweetness of these facilities. Most of the customers to the bank, they don't know how to read and write.

7.6 Integration of Different Financial Networks

There is 100% absence of financial networks that links different banks. Banks are not yet automated. Most of the transactions currently taking place use credit and debit cards supplied by visa and master cards. For conducting E-business, the use of credit or debit cards is mandatory, thus requiring the need for specialized systems which are not currently available.

7.7 Frequent Power Interruptions

Lack of reliable power supply is a key challenge for government. Due to this, industrialization is very difficult. This will impact the banking sector, and also difficult for smooth running E-business in Ethiopia.

7.8 Resistance to changes in Technology among customers and staff

- i) Lack of awareness on the benefits of new technologies
- ii) Fear of risk
- iii) Lack of trained personnel in the key organizations.
- iv) Tendency to continue with existing infrastructure.

People and government may resist the new technologies

7.9 Cyber Security Issues

Cyber security is not permitted only to Ethiopia, is a global challenge that requires global and multi-dimensional response with respect to policy, socio-economic, legal and technological aspects. The customers are expecting from

banks well secured transactions. Banks introduces new technologies like E-banking and M-banking in the market, attention should be drawn to the prevention of cyber crimes.

8. Conclusions

Certainly the banking industry in Ethiopia is underdeveloped and therefore there is an immediate need is required to embark on capacity building arrangements and modernize the banking system by employing the state of art technology being used anywhere in the world. Day by day improvements in import and export business, international trading and relationships, the current banking system is little bit short of providing efficient and dependable services. Therefore all operating banks in Ethiopia should recognize the needs and introduce the new software and technologies like electronic banking, mobile banking, international banking services and more ATM machines. The government has to implement new policies and give free hands to their banks and then only it is possible to overcome the challenges. Finally I conclude to Develop a comprehensive regulatory and legal framework for e-commerce and e-payment, Raise public awareness on the use of ICT, e-commerce, and e-Payment, Provide incentives for financial institutions to invest rigorously on ICT and use of e-commerce, and e-Payment, Encourage the current efforts to develop and expand ICT infrastructure.

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