

FACTORS AFFECTING ADOPTION AND OPERATION OF ELECTRONIC BANKING IN WOLISO DISTRICT OF COMMERCIAL BANK OF ETHIOPIA: THE CASE OF WOLISO TOWN

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Received: 13 August 2026 | Accepted: 25 August 2026 | Published: 27 August 2026

DOI: <https://doi.org/10.5281/zenodo.22161551>

Abstract

Now days, Electronic banking has brought about uprising in the performance of banks as it offers most important opportunities to banks and customers. This thesis aims to assess the factors that affect the adoption and operation of e-banking system from bank perspective. From this general objective, four specific objectives were explored. This study integrated Technology- Organization- Environmental (TOE) model and Diffusion of Innovation theory (DOI) to achieve the objective of the study. Only primary data was used for this study. The data was collected through semi-structured interview from seven management body: five branches managers, one district manager and one IT manager. In addition to this, data was gathered though focus group discussion with six IT department staff and six Bank clerks. The data was analyzed qualitatively .The result indicates that lack of technological knowledge, lack of management support, shortage of training, infrastructural problem, perceived risk and economic factors were found as the key factors hindering e- banking adoption. The study also revealed that government support and perceived benefit influence the adoption of e-banking positively. Finally this study identified loss of power, hardware malfunction, operating system crashes, network partitions, failure of internal controls, human errors, access to systems and negligence arising out of the employees are the most important factors affecting operation of e-banking among different branches . To this end, this study recommended a number of action for various challenges identified in the thesis. These include: government needs to expand ICT infrastructure and improve the existing telecommunications infrastructure at the local and national level

Keywords: Smart E-banking, Adoption, Operation, Technology-Organization-Environmental model, Woliso Town.

1. Background of the Study

Strong financial industries are an essential in all country and put in a major result in sustaining economic growth through well-organized financial service. Banking industries are well-known financial industries that are extremely important in every country and have a significant effect in supporting economic development through efficient financial services (Mohammed, 2014). As per study of Qayyum and Ali (2012), banking industries are one of the famous financial industries that requires to adopt new technology which helps to provides better services to customers and to improve quality of services by using technological innovations. Even though Banking has always been extremely information intensive activity that relies heavily on information technology to acquire, process and deliver relevant information, Banks have been using traditional banking system for a long period of time that significantly affected by the evolution of technology (Emmanuel, 2011). Banking industries had developed from traditional to modern banking system in order to improve the effectiveness of distribution channels through reducing the transaction cost and to increase the speed of services when the computerization of financial institutions gained momentum in 1970 (Zerayehu et al, 2013). To this end, the evolution of e-banking system started from the use of Automatic Teller Machine (ATM) and Finland is the first country in the world to have used with e-banking which offer a sort of benefit for customer, banks as well as general economy (Beza, 2010).

Different empirical investigation recognizes the importance of electronic banking in the various economies of the world. For instance, electronic banking refers to several types of services through which bank customers can ask for information and carry out most retail banking services via computer, television or mobile phone (Nasri, 2011). In its very essential structure, e-banking can indicate the situation of information about a bank and its services via a home page on the World Wide Web (www). As per studies of Nigudge and Pathan (2014), e-banking is also called as fundamental Banking or Online Banking which affords a lot of benefits for both banks and customers. E-banking offers electronic services that allow a consumers to check the balances in their accounts, transfer funds, pay bills electronically as well as apply for loans, download information about accounts into their own computers, Monitor unpaid check and deposit slips (Ayana, 2014). Hence, in recent times, electronic banking has become the way for the improvement of banking system that plays a major role for the world of business especially in banking industries.

Now days, the benefits of e-banking is not over emphasized in Ethiopia since the rapidly growing information and communication technology (ICT) is knocking the front door of every organization in the world, but Ethiopian banking industry were not realized these benefit due to the fact that the concept of modern banking is too late to introduce (Ayana, 2014). Several prior studies, for instance, Gardachew (2010), noted that the appearance of e-banking in Ethiopia goes back to the late 2001, when the largest state owned Commercial Bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. Finally, Even though e-banking was appeared in Ethiopia since 2001, its adoption is extremely less in Ethiopian banking as compared to the rest of the world, where Woliso district of Commercial Bank of Ethiopia in Woliso Town is not exceptional. To this end, as previous research conducted by Mohammed (2014), shows it requires empirical investigation so as sort out what are the important internal factors affecting adoption and operation of e-banking and this will help the researcher as important relevant factors.

Thus, the objective of this paper is to investigate the factors that determine the adoption and operation of e-banking system in Woliso district of Commercial Bank of Ethiopia Woliso Town. In order to achieve the objective of the study, this study was guided by combination of two frameworks. These frameworks were Technology-organization - external (TOE) and Diffusion of innovation theory (DOI). TOE framework shows that the influence of technological- organizational- environmental context to adopt a new technology at firm level. Diffusion of innovation (DOI) theory shows how, why, and at what rate new ideas and technology spread through operating at the individual and firm level.

1.2 .Statement of the Problem

E-banking can bring about various benefits for banks and customers. It is obvious that cost savings, efficiency, improvement of the bank's reputation and better customer services and satisfaction are primary benefits. Despite this importance of e-banking, there are some problems which discourage adoption of e-banking (Nikolas et.al, 2015). Previous researchers acknowledged various factors that influence e-banking adoption. For instance, as per study of (Thulani et al, 2009; Mohammed, 2014; Gardachew, 2011), cost of implementation, security concerns and high initial set-up costs were found as the major barriers that the Banking face to adopt e-banking service.

Furthermore, other study conducted on adoption of Electronic Banking System in Ethiopian Banking industry revealed that, security risk, lack of trust, lack of legal and regulatory frame work and absence of competition between local and foreign banks were identified as main barriers (Ayana, 2014).The study also identified that perceived ease of use and perceived usefulness as a influence positively the adoption of e-banking system. To this end, Beza (2010), studied on assessment of opportunities and challenges for the adoption of e-banking service in Ethiopia. As per study finding revealed that chances of risk, absence of financial networks that links different banks and security concerns are among the major challenges for the adoption of e-banking service.

Finally, Previous studies for instance, Ayana (2014), has clearly studied the influence of external factors and technological factors on the adoption of e- banking but failed to study the influence of an internal factors such as attitude toward change, fear of job security, economic factors, shortage of training and knowledge barriers on adoption of e-banking. Furthermore, in reviewing prior studies as example, Beza (2010), clearly declared factors affect e- banking adoption but fail to study factors affecting e-banking operations.

Therefore, this study fills these research gaps by exploring internal factors, external factors and technological factors. Hence, in light of the problems stated above, it becomes very important and necessary to investigate the factors affecting adoption and operation of e-banking system in Woliso district of Commercial Bank of Ethiopia in Woliso Town.

1.3 .Research Questions

1. What is the influence of internal factors on the adoption and operation of e-banking system?
2. What is the implication of external factors on the adoption of e- banking?

3. How technological factors influence e-banking adoption?
4. Why network failures differently affect the operation of e-banking among branches with in the same district in the same town?

1.4 .Objective of the Study

1.4.1 .General Objective

The General objective of this study is to assess the factors that affect the adoption and operation of e-banking system in Woliso district of Commercial Bank of Ethiopia in Woliso Town, from bank perspective

1.4.2 .Specific Objectives

1. To explore the influence of internal factors (attitude toward change, fear of job security, shortage of training, knowledge barriers, management support and economic factors on adoption of e-banking system.
2. To investigate the implication of external factors (government regulation, network failure) on the adoption and operation of e- banking.
3. To assess the influence of technological factors (perceived use, perceived risk, complexity) toward e-banking adoption and operation
4. To describe why network failures differently affect the operation of e-banking among different branches with in the same District in the same town

2. LITERATURE REVIEW

2.1. Theoretical Literature

2.2.1. Definition of Electronic Banking

There is no universal definition for electronic banking since different authors define e-banking in different angles bur provide the same meaning. For instance, electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Nasri, 2011). E-banking is the modern delivery channel for banking services. Banks have used electronic channels for years to communicate and transact business with both domestic and international corporate customers. With the development of the Internet and the World Wide Web (WWW) in the latter half of the 1990s, banks are increasingly using electronic channels for receiving instructions and delivering their products and services to their customers (Beza, 2010; Talla, 2013; Sarosa, 2012).

On the other hand, according to Nigudge and Pathan (2014), E-banking refers to electronic banking. E-banking is also called as "Virtual Banking" or "Online Banking". E-banking is a result of the growing expectations of bank's customers. Sumra et al (2011), define Electronic banking as using of the internet as delivery mode for the provision of services like opening a deposit account, electronic bill payments and online transfers. According to their definition these services can either

be provided by the banks having physical offices and by creating a website and providing services through that or services can be provisioned through a virtual bank as well.

2.2.2 EMPIRICAL STUDIES RELATED WITH E-BANKING ADOPTION AND OPERATION

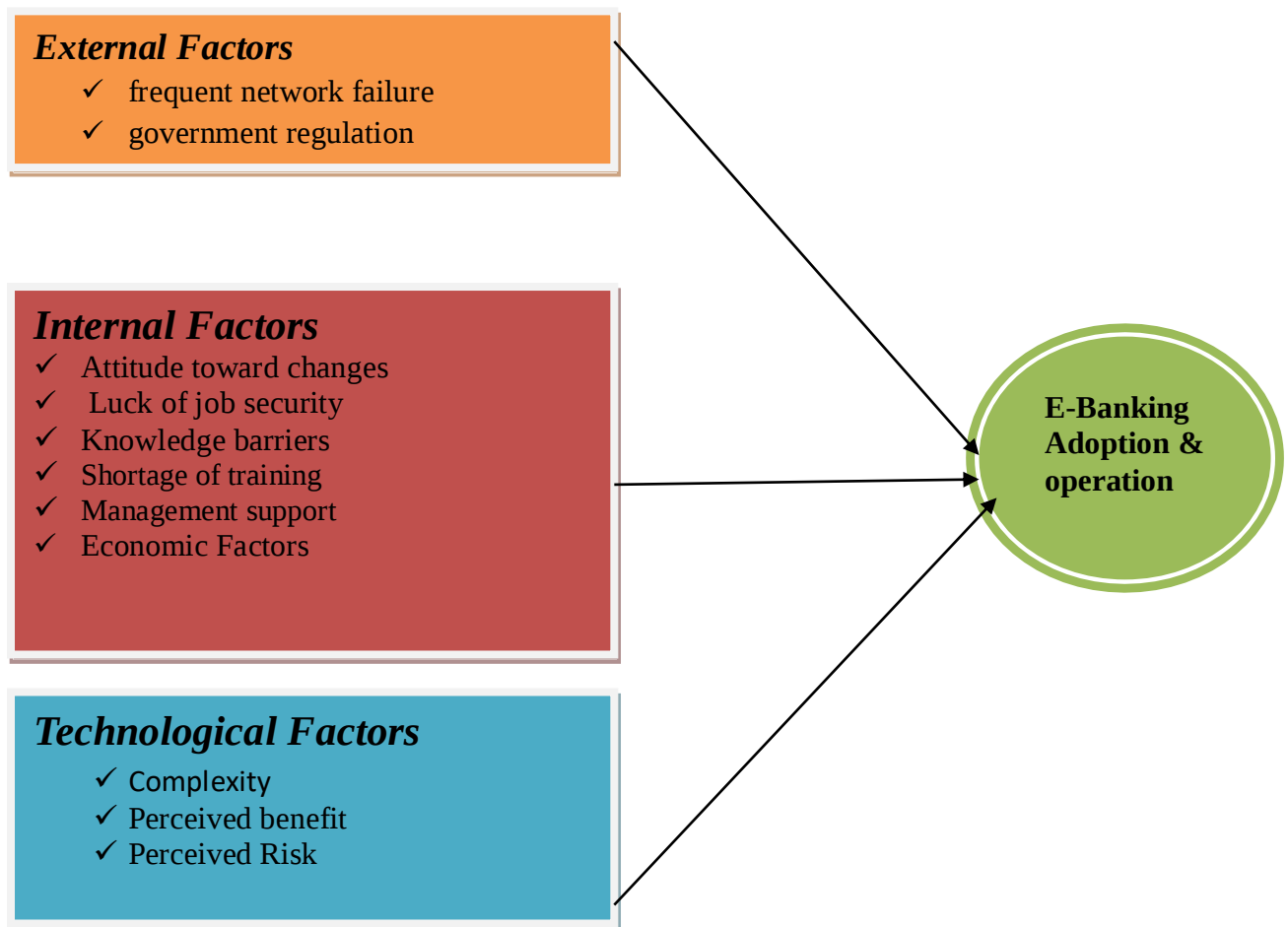
Different literature revealed lot of research was conducted on adoption and operation of e-banking in developed and industrialized countries but the opposite is true for developing countries like Ethiopia. For instance, as per research conducted in Ethiopia by Akbari (2012), on Adoption of e-banking system in Ethiopian Banking industry shows that the main factors banking industry faces to adopt e-banking are, security risk, lack of trust, lack of legal and regulatory frame work, Lack of ICT infrastructure and absence of competition between local and foreign banks. His study also identified perceived ease of use and perceived usefulness as a driver of adopting e-banking system.

According to Al-Smadi (2012), studies which integrates technology acceptance model (TAM) and theory of planned behavior model (TPB) that incorporates five cultural dimensions and perceived risk to propose a theoretical model in order to identify and understand factors that affect bank to implement electronic banking service revealed that uncertainty avoidance has a positive and significant impact on perceived usefulness And Perceived risk has the stronger impact on as the main factors to adopt electronic banking services. Takele and Sira (2013), study on analysis of factors that influence the customers' intention to the adoption of e-banking service. Their study identify that those factors which include organizational readiness, IT readiness; perceived usefulness and perceived risk were significant in affecting banker to accept and implement e-banking service channels.

Finally, this study differs from the previous studies, for instance, Beza (2010), in the following major ways. First, this study does not focus only on factors affecting e-banking adoption but also focused on factors affecting e-banking operations. Second, this study did not focus only on internet banking service, rather it focus on electronic banking services which includes internet banking, Automatic teller machine, Point of sale service, Mobile banking, Debit card and other e-payment service. Third, this study focuses on specific internal variables in addition to external and technological factors. Forth, this study employed the combination of two different frameworks. Namely: technology- Organization - Environment (TOE) and Diffusion of innovation theory (DOI) framework to explain the factors that influence the adoption of E-banking system. TOE framework shows that the influence of technological, organizational, and environmental factor to adopt a new technology at firm level. Diffusion of innovation (DOI) theory shows how, why and at what rate new ideas and technology spread at the individual and firm level.

2.3 .Conceptual Frame work from the literature Review

From the above literature review the researcher tries to drive variables from the above Literature



Source: The researchers own designed from the literature review

3. RESEARCH METHODOLOGY

Based on the objectives of this research and taking into consideration the definitions of the three types of the purpose of a study provided above, this study used mainly exploratory in nature even though, it includes some descriptive and explanatory exploratory element. Thus, for the purpose of this study, qualitative approach is used. Since the aim of this paper is to explore the factors that affect the adoption and operation of e-banking systems, it relies on qualitative approach.

Purposive sampling technique was used in this study to get reliable information regarding the research objective. Accordingly, Commercial Bank of Ethiopia Woliso district and Five Branches of Commercial Bank of Ethiopia Located in Woliso town: Namely Woliso Branch, BurkaMoroda branch, Garasu duki Branch, Arfan Branch and Haro sorga Branches were targeted for this study. Moreover, a purposive sampling technique was used to select sample size. Thus, seven Management body: Woliso district manager, IT Manager, one branch managers from each five branches sited in Woliso town, six IT department staff and six bank clerks were selected as a sample size. The method that is suitable for information gathering while conducting an exploratory research is semi structured interview (Akbari, 2012). Accordingly, inline to the objective of the study, it was decided that interviews followed by focus group discussion are the most suitable methods of data collection for this study. Semi-structured interviews are thought to be the best method for qualitative data collection as it involves an interaction between the interviewer and the interviewee for which the purpose is to obtain valid information (Beza, 2010).

Thus, in this study semi-structured interview was conducted with selected managers to get sufficient and reliable information regarding the research question. In addition, Focus group discussion deemed appropriate for this study for a number of reason. Different previous researchers, for instance, Takele and Sira (2013), recognized that qualitative data is analyzed according to the categories of responses found in the data and results are usually presented as trends rather than as percentages. To this end, in line with the research objective, once the data was collected via interview and focus group discussion, it was analyzed qualitatively based on the nature of the objective.

4. DISCUSSION AND ANALYSIS

4.1 Internal Factors

I. Resistance to Change

In line with this issue, different previous studies (as example, Hannah, 2014; Emmanuel, 2011; Beza, 2010) confirmed that bank staff resistance to accept and implement e-banking service is common phenomenon in banking sector for which Woliso district of Commercial Bank of Ethiopia in Woliso town is not exceptional. For instance, the following statement shows Woliso district manager opinion:-

“The majority of our bank clerks and bank tellers are relatively contented with the way in which the business is being operated; therefore, they do not want the introduction of new technology that would change the way in which their daily activities are performed”.

Finally, majority of branch managers explained that a bank’s decision to adopt e-banking services is also influenced by government policy. For instance, Woliso district manager said that Credit card is still not deployed in Ethiopia banking industry as a whole due to lack of clear government policy .Even though adoption of all e-banking services are not depends on the employee willingness, when judged from the fact that to some extent employee willingness to pass necessary information to customers influence the adoption e-banking.

Thus, the study concluded that success full adoption of e-banking service is basically determined by customers resistance, banks strategic plan, risks associated with technology, impact of technology on earnings and government policy rather than employee resistance which opposed the finding of (Million, 2013; Mohammed,2014).

Consistence with the result of interview, the result of focus group discussion shows that, majority of employees viewed the change from legacy banking to electronic banking as a threat. Appropriately, all participants were aware of the benefits of e-banking in certain circumstance, but at the same time, they raised caution about its suitability in terms of its operation. Furthermore, majority of IT staff participants expressed that, resistance to change is not only from employee side but also as a result of management’s own resistance to change, mainly because they worry about whether they would maintain their current status under a computerized system after the system was adopted.

II. Employee Job Security

The respondents were asked one main semi-structured interview about effect of e-banking on employee **job security**. With this regards, the interview result indicated that adoption of e-banking did not affect employees’ job security. All interviewed explain that e-banking should be seen as an

option to enhance the service delivery of employees in banking sector and cannot be replaced to employees' performance. For instance, Woliso district manager said that, even e-banking will increase employee's job opportunities since technology cannot be effective without human being. In addition, majority of branch managers described that e-banking does not directly lead to loss of jobs and early retirement of employees in our bank. For instance, the following quotations reflect the Woliso district manager opinion:-

“If bank staff primarily believe e-banking as a self-service and suitable channel that decrease costs and its adoption will not affect their positions, then they will support e-banking adoption by providing necessary information for customer .However, if they perceive e-banking as a threat to their job prospects and a way to lose customers, then they will be likely to resist its adoption.

To this end, Majority of participant, for instance, all IT staff and most bank clerks confirmed that as the result of e-banking adoption, employees and manager doesn't lose their regular job. Interestingly, the researcher believes that this difference opinion are due to some separate distinction between the perceptions of staff from different levels of the hierarchy, particularly between managerial level staff who were mainly at the planning and supervision and the clerks who were essentially on the front line.

III. Shortage of Training on E-Banking service

When the respondents asked about employees training and instruction given on electronic-banking, all branch managers and IT manager explain that one of the most key factors affecting a banks to accept new technology like e-banking is shortage of training for employees and customer that limits their level of understanding and attitude toward new innovation and adoptions. In line with this issue, as per Woliso district manager response the main factor associated with the use of e-banking service is perception of users, thus if this perception is overcome by giving adequate training, then there is no reason why our banks cannot provide full picture of e-banking technology facilities in the future. To do so, our banks aggressively providing training for trainers at head office and then who have taken training is just giving on job training to employees of the banks.

Accordingly, Woliso district manager also responded that “our bank is just providing training to majority of staff, but we believes that it is not adequate, thus we are still not confident with the new proposed e-banking systems” .All branch managers agreed that there was a lack of strategic IT training and believed it to be a hindrance to e-banking adoption. Woliso district manager also express about the training on e-banking technologies, our bank is strongly struggling to give adequate training to all staff in order to overcome this problem. With this regard, as explained by the respondents during interview, Banks are providing e-banking training to their employees but the main limitation here is that this training is not given to all employees since training was always given at head office.

Finally, as per district manager response, shortage of training is main factors that causes adoption and operation failure. Thus, to overcome the operation failures, our banks is just giving technical training for those who oversee the key technology controls such as firewalls, intrusion detection and device configuration and Security awareness training for all users, including the bank's e-banking customers.

Thus, the study concluded that success full adoption and operation of e-banking service are influenced by Shortage of training particularly for customer.

IV .Knowledge Barriers

A number of respondents feel that low awareness of mobile banking, Automatic teller machine, Point of sale service, Internet banking and other e-payment service can influence the banks to adopt the service. Accordingly, as one of manager's expression all spare parts of e-banking service are outsource and its maintenance is done only by those who imported this system to Ethiopia due to lack of expertise.

As per the study, successful growth and development of e-banking influenced by limited trained human resources and less awareness regarding new technologies are top challenges. Furthermore, customers view less awareness, illiteracy & computer illiteracy and low levels of income as important challenges for the development of e-banking.

Thus, the study concluded that adoption and operation of e-banking service are fundamentally influenced by technology expertise, lack of technological familiarity and lack of proper technical information which confirms the study of (Sherah et al, 2010; Takele and Sira ,2013).

Consistence with interview results, as finding of focus group discussion revealed that, familiarity barrier is reported by many participants as the key problem. The finding shows that, shortage of awareness of our bank managers and employees about e-banking; especially in relation to IT jargon was raised by the majority of IT department staff as the key factor.

V .Lack of Management Support

Different literature evidence that, one of the basic issue related with the adoption of e-banking is lack of effective leadership, lack of adequate coordination, interaction and cooperation between banks and other decision making centers, change and shift of managers is an essential obstacle (Abukhzam and Lee ,2010;Ayana,2014). If top management is assertive in their decision making regarding e-banking adoption and committed to it, the adoption is likely to take place and top management support is critical issue to e-banking success in order for e-banking to be successful in any institution(Narteh, 2012).

The respondents were asked about the role of management with regard to e-banking adoption in respective bank. Different opinions were raised on the role of management with regard to implementation of e-banking. As per the result of study, managements are responsible for developing the institution's e-banking business strategy, which should include rationale and strategy for offering e-banking services , cost-benefit analysis, risk assessment and due diligence process for evaluating e-banking processing, goals and expectations that management can use to measure the e-banking strategy's effectiveness and accountability for the development and maintenance of risk management policies and controls to manage e-banking risks .

As per result of the interview finding, majority of branch managers and IT manager complied management support particularly top management in relation to be sort of adequate harmonization, interaction and cooperation between banks and other decision making canters is the major factor that a banks face to adopt and implement e-banking system.

Thus, this study confirms the study of (Narteh, 2012; Himani,2011), which state that if top management is assertive in their decision making regarding e-banking adoption and committed to it, the adoption is likely to take place. Hence, lack of top management support is critical to adopt and operate all e-banking service. For instances according to one of IT department staff opinion:

“Management of our bank determined about two years ago to set up automated teller machines to our branch as the first phase of e-banking project. Within a short period of time, they were capable to move up funds to carry out this project”.

Thus, this study concludes that lack of management support is the main factor to adopt and operate e-banking service in respective banks which confirms the result of interview.

4. 2. EXTERNAL FACTORS

I. Government Support

The participants were asked one main interview question, about the role of government toward adoption of e-banking predominantly, IB, M-banking, ATM, Debit card and other e-banking service. Accordingly, Woliso district manager indicated that our government is working in encouraging and promoting the adoption of e-banking.

Majority of branches managers also said that currently government is supporting the change and adopting the latest technology available on the market and providing the complete basic road, provides necessary materials to promote and encourage the use of e-banking technologies, and providing other facility that helps to adopt a new e-banking system. To this end, the study the result revealed that the government was supporting and provides different materials particularly, importing hardware, software and expertise to promote and encourage the use of e-banking technologies.

Thus, study result shows that lack of government support for adoption and operation of e-banking banking was not found as the main barriers in opposing the study of (Ayana, 2014).

Consistent to this, the result of focus group discussion confirm the result of interview. Accordingly, even though some participants were not aware of any government regulations or subsidies that might have helped them in new innovation adoption, majority of bank clerk’s respondent were agreed on the issue that the Government encourages and promotes the adoption of e-banking system. For instance, as one of bank clerks said:-

“ I think presently our government is supporting the change and adopting the latest technology available on the market and providing the entire basic infrastructure needed for its adoption ... our government also provides the costs of importing hardware, software, and expertise to promote and encourage the use of e-banking technologies in our banks that cannot afford such costs”.

To this end, this study consistent with the study of Akbari (2012), government supports has a positive influence to adopt and operate e-banking service.

II. Network Failure

Different literature evidences that, regardless of the recent improvements prepared by Ethiopian government on the nationwide infrastructure, network failure is the basic factor toward the adoption of e- banking due to lack of adequate ICT infrastructure. The respondents were asked the one main

interview question about network frequent breakdown in relation to adoption of all e-banking service such as Mobile banking, Automatic teller machine, Internet banking, Point of sale service and other e-payments.

As raised by all interviewees, successful adoption and operation of all e-banking service without exception needs internet connection. Accordingly, network failure is an essential obstacle to the development and implementation of e-banking technologies. As per Woliso district manager response, although a lot of policy to improve the country's ICT infrastructures, they felt that it was still poor and that incorporation between banks was poor. Therefore, the technological infrastructure in Commercial Bank of Ethiopia Woliso Town was not up to the standard required to support the use of modern banking technologies. Due to lack of broadband internet, Woliso district of CBE Woliso Town cannot deploy e-banking system to all branches. All interviewees identified that a lack of appropriate IT infrastructure is the main technical constraint preventing e-banking implementation in commercial of Woliso Town. For instance, IT manager said that:-

“Still our telecommunication infrastructure is too old and unreliable to achieve the requirement of e-banking system, therefore, without suitable telecommunication systems, e-banking technology is very difficult to achieve”.

Thus, consistent with the findings of (D. Clemes et al ,2012; Mohammed, 2014), lack of public infrastructure, poor quality of telecommunication network service is major problems to successfully adopt and operate all e-banking service for instance, mobile banking, internet banking and automatic teller machine.

Consistence with interview results, focus group discussion revealed that network failure is fundamental obstacle to adopt and operate e-banking technologies due to poor infrastructural facilities. The study revealed that, even though the many plans to enhance the country's ICT infrastructure, many participants felt that it was still deficient and that integration between banks was poor which influence successful adoption of e-banking.

Thus, consistent with the findings of interview, lack of public infrastructure, poor quality of telecommunication network service is a key factor to adopt and operate all e-banking service

4.3 TECHNOLOGICAL FACTORS

I. Factors Related to Complexity

The participants were asked one main interview question about the complexity of e-banking systems adoption. As per result of interview shows that e-banking systems are a complex innovation to adopt in any way and majority of respondents agree on the issue. As per result of majority of Branch manager's complexity was identified as a major issue for the development of e-banking commercial bank of Ethiopia in Woliso town. All interviewees indicated that an e-banking system is a complex and difficult innovation to adopt. As IT manager who is responsible for the implementation of the e-banking project indicated that: “I think the perceived complexity in using e-banking system is the key barrier to adoption of e- banking system”.

Furthermore, the interview result shows that the complexity of e-banking service, for instance, Customer usage of mobile banking service is frequently emerged as the barriers to adopt and operate. The following statement highlights' this issue

For ATM and IB you can just type faster an account number but for mobile phone you have to press the button one by one and if you reset the whole thing you have start from the beginning again.

Absolutely, this is an indicator of possible refusal of any new technology that is complicated to use and makes the job difficult. As per result of interviews with those who responsible for actual implementation of technology, delivering the project and enhancing banking services, complained that the use of e-banking technology in their bank was difficult for them and it lacked security. This implied that the system itself was not properly developed and that those responsible for its execution had no confidence in it due difficulties of the system. Consistence with different empirical investigation, for instance, Roger's diffusion of innovation theory (1995), and this study identified complexity as the key factor to adopt and operate e-banking service.

Thus the study concluded that, adoptions of e-banking systems are determined by complexity of equipment which confirms the study of (Ayana, 2014).

II. Factor Related Perceived Benefit

Accordingly, the interview result shows all e-banking service provide a number of benefit, for instance, Mobile banking was considered advantageous as compared to other banking channels such as ATM and IB because peoples carry mobile phone with them most of the time and mobile banking service is therefore conveniently available in most situations and is more usefully for busy business men who always travels and time is critical for them.

As the study investigation shows that majority of respondents indicated that adoption of e-banking will help us reduce the work load stress in an enormous extent. At the same time, if we didn't have e-banking, we would use more staff to serve the continually rising an amount of customers. So at this time, the adoption of e-banking service avoids us from employing more human powers.

For instance, majority of branch manager states that, they are expecting to cut the number of employees to get better organization effectiveness if the use of our e-banking is continually increasing. This benefit includes cost reduction, organizational efficiency, saving time and there are other benefits. Moreover ,the benefit of e-banking is not limited this ,but also there are different benefits which banking industry can attain from adoption of e-banking system which include ,improving customer satisfaction, through enhancing speed and efficiency, reduce number of customers come to banking hall, increase the productivity of banks, by creating foreign currency, increase reliability and accessibility of banking service ,create better relationship among banks and clients, used as better information control and unlimited time to access bank account and information.

Thus, perceived useful has positive effect on the adoption and operation of e-banking which confirms the study of (Munusamy et al, 2012; Ayana, 2014; Million, 2013).

Furthermore, the result of focus group discussion revealed that, perceived benefit has a positive influence on the adoption of e- banking and it is compatible with their values to be adopted by users. As per the study results, one of the vital benefits considered in the adoption of E-banking service, is that it saves time to accomplish banking activities for banks and customers. Thus, perceived useful has positive effect on the adoption and operation of e-banking which confirms the result of interview.

III. Factors Related To Perceived Risk:

The other important factor to adopt e-banking in banking industry is perceived risk from banking. Perceived risk reflects the extent to which banking industry are uncertain about the consequences of an offering. Banking industry may deem to perceive new technology based service as a threat and would Cause them to reject it. The main issue that worries the banking consumers are the transaction risks while performing Internet banking services and failure of the banks to assure prompt services would be delivered (Munusamy et al, 2012;Beza,2010).

The researcher asked an interview question about the risk associated with using e-banking for instance, ATM, M-banking, POS, IB and other e-payment service? The interview result a bank's decision to offer /expand e-banking service may also base on Security issue which associated with e-banking. Security issues include customer verification and authentication, data confidentiality, detection, effectiveness of security controls and Internal Controls. Accordingly ,Woliso district manager and IT manager were responded that customers were worry that they cannot get any compensation from the banks when transaction error occurs and majority of them did said that the customers hesitation are main factor that can hinder a banking industry from adoption of E-banking. Lastly their findings also indicated that Electronic banking has the chance of data loss which indicates that use of e-banking has the probability of data loss which is transaction risk. As per interview result shows that transaction/operations risk arises from fraud, processing errors, system disruptions resulting in the institution's inability to deliver products or services.

On the other hand, participants were also re- asked risks involved because of adopting /using electronic channels. Accordingly, as per response of majority of respondent's transaction risk is found as the main factor. The study also sought, for instance, perceived risk towards M-Banking in case connection failure is occurred without log out your phone or if you lost your hand phone any one can just use for any payment. As per study finding, perceived risk may be seen from various angles such as privacy risk, financial risk, system risk and physical security risk. These three risks can be described as follows; privacy risk is a possible loss due to fraud or a hacker interfering with the security of a mobile banking user (disclosure of personal and financial information). Financial risk is the potential for financial loss. System risk refers to malfunctions of mobile banking system. Lastly, physical security risk refers to any exposure to attacks and threats to the user of mobile banking that may result to physical bodily harm or injury and loss of money.

Thus, perceived risk is the key factor that bank face to adopt and implement e-banking service that confirms the finding of (Abnet, 2010; Beza, 2010; Qayyum and Ali, 2012; Ayana, 2014).

4.4 FACTORS RELATED TO OPERATIONAL FAILURE AMONG BRANCHES

The Woliso district manager was asked one main interview question why network failures differently affects operation of e-banking among branches with in the same district in the same town? Accordingly, as per interview results indicated that, Woliso district of Commercial Banks of Ethiopia in Woliso Towns deploy different system to different branches in order to check their links and control programs periodically for its accuracy and functionality and to take corrective measures as soon as an operational failure is happened in the system.

Accordingly, the study revealed that once a bank implements its e-banking service, management periodically evaluate the strategy's effectiveness. A key aspect of such an evaluation is the

comparison of actual e-banking acceptance and performance to the institution's goals and an expectation which indicates the success and cost effectiveness of its e-banking strategy include Revenue generated, Website availability percentages, Customer service volumes, Number of customers actively using e-banking services, Percentage of accounts signed up for e-banking services and the number and cost per item of bill payments generated.

The study also revealed that technological infrastructures including hardware, software, databases and communication that used to providing services through the Internet is the main factors that differently affect branches in the same town. This may include internal control: is a set of independent control mechanisms for finding defects and reduce the risk to providing services of e-banking. Data accuracy: collect appropriate measures to protect the coherence and accuracy of data in information of records and transactions in electronic banking. Access to the system: it is a set of procedures that are used to control reliability and availability to access of systems, applications programs and databases of electronic banking.

Table 4.4 Summary of net work failures among branches and e-banking service in Woliso town

CBE	Average Working hours per day	Average network failure per day in hour	Percentage of network failure per a day	Type of E-banking adopted at each branch
Woliso Branch	10	1	8%	ATM,M-Banking,POS,IB
BurkaBranch	10	2	15%	ATM,M-Banking,POS,IB
Harosorga Branch	10	3	23%	ATM,M-Banking,POS,IB
Garasu duki Branch	10	3	23%	ATM,M-Banking,POS,IB
Arfan Branch	10	4	31%	M-Banking,POS,IB
Total	50	13	100	

Source: survey 2021

As shown by the above tables network fluctuation among branches with in the same district is varied even if infrastructures is not a factor as they are located in the same town. For instance, the lowest frequency (8%) average network failure was occurred at CBE Woliso branch followed by BurkaMoroda branch due to different grounds. This is due to the fact that to prevent network failure

from being altered, Commercial Bank of Ethiopia Woliso Branch is using security measures like firewall, secure socket layer (SSL) and Copper Advanced Detection Learning System (ADLS) together with via satellite system which does not depend on power fluctuation. As the study shows Copper ADLS with via satellite control system's network access to specific ports and protocols from specified networks and it can also provide a bank's the opportunity to operate its activities as it create separate network access by using Network Address Translation (NAT). This system provide many features that protect against server failures and deployed to prevent network failure and more secure, efficient and effective way to access control networks when power is off. In addition, Network intrusion detection system (NIDS) software may reside at different points within the network to analyze the message for potential attack characteristics that suggest an intrusion attempt.

Finally, the study conclude that, operation of e-banking systems rely on a number of common components or processes includes:, Firewall configuration and management, Intrusion detection system ,Network administration, Security management, Internet banking server, Internal network servers, Core processing system, Programming support and Automated decision support , Dual-control procedures especially for sensitive functions like encryption key retrieval or large on-line transfers, Reconciliation of e-banking transactions, Suspicious activity reviews and fraud detection with targeted review of unusually large transaction amounts or volumes, Periodic monitoring to detect websites with similar name, maintenance changes are properly authorized and business disruption avoidance strategies and recovery plans.

CONCLUSION AND RECOMMENDATION

5.1 Conclusions

To sum up, the objectives of this study were achieved. The main factors that influence the adoption of e-banking in Commercial of Bank of Ethiopia Woliso Town were identified. These were internal factors such as knowledge barriers, shortage of training, economic factors and lack of management support where as employee resistant and fear of job security is not found as key factors which answer objective number one. With regard to the research objectives two that assess the effect of environmental factors on e-banking adoption; frequent network failure was identified as the key factors that banking face to adopt e-banking while government support was not found as the main barrier. In line with the objective three, perceived risk is the key factors that negatively affect the adoption of new innovation while perceived useful is positively affect the adoption of e-banking. To this end, with regards to objective four network failure is arise as a result loss of power, hardware malfunction, and operating system crashes, network partitions, data authentication, failure of internal controls, human errors, access to systems and negligence arising out of are the most important factors affecting operation of e-banking as the result of network failure among different branches with in the same district in the same town.

5.2 Recommendations

This study came up with a number of recommendations which have both policy implication as well as academic implications. From the above conclusion, the following recommendations are forwarded in order to promote and develop feasible e-banking service in Commercial Bank of Ethiopia Woliso Town.

- The government needs to expand ICT infrastructure and improve the existing telecommunications infrastructure at the local and national level.
- Banks are advised to strengthen its ICT department through providing training to IT personnel and procuring required hardware and software that helps them to deliver efficient and quality service to customers.
- The management of the bank ought to effectively work to ensure their employees that as adoption of e- banking do not necessarily leads to direct loss of jobs and early retirement of employees.
- Banks needs to increase the bank staff and customers awareness of modern banking technologies through various communication channels such as conferences and workshops.
- To control network fluctuation among branches, Banks is supposed to use ADLS satellite, NIDS, NAT, SSL and Bouncer Defense Unit which is the core of the intrusion prevention system and Bouncer Control Unit in all branches which aids to control network fluctuation among different branches.

5.3 FUTURE RESEARCH DIRECTION

Even though this study has achieved its objective, limitation and future research direction are outlined:

- First, this study focused on factors that affect the adoption and operation of e-banking service only from bank point of view. So further research could be conducted a research on this title from both bank and customer point of view.
- This study used only primary data from single bank, so to improve the generalizablity further research could be conducted by using both primary and secondary data on banking industry as the whole.

This study is only limited to asses factors affecting E-banking adoption and operation. So future research could be conducted on impact of E-banking on bank profitability

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