CHAPTER ONE

INTRODUCTION

Introduction and Background to the Problem

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1.0 Introduction

Information Technology (IT) is an important factor for success decision makers often consider Information Technology as a main strategic tool in work development and to achieve competitive advantages over other competitors .

Information Technology is a continuous process. Every day has iterations as well as it introduces new innovations in many life aspects. The technological revolution undergone in developed countries, in fact have changed many aspects of life.

Many Technological innovations were faced by a spectrum of reactions, for instance some people see these technological innovations as a mean to make life easy and interesting, while others see them as a source of risk and fear .

E-banking is one of the outcomes of the technological revolution. It introduces many opportunities for both banks and customers (Khrewesh, 2011).

Recently, the E-banking Services started to find its way in the Sudan society . Several Sudanese banks offer E-banking services . This research aims to study factors influencing E-banking adoption in Sudan, moreover, to help in developing a Model which can help to adopt E-banking Services in Sudan.

1.1 Research Problem

- Banks to increase E-banking adoption by customers; it is important to identify factors that influence E-banking adoption in Sudan. Therefore we aim that could help banks spreading E-banking services acceptance in Sudan.
- We did not find other studies identify the factors that influence E-banking Services by customers. Furthermore, banks lack any strategic plans that aim at spreading E-banking Services among their customers.
- The researcher concluded that most of the technology acceptance models have been extensively tested in the developed countries such as (Poon, 2008). More specifically, the IT literature lacks technology acceptance adoption models in the Arab world such as (Khrewesh, 2011; Baraghani, 2007). Therefore, it is vital to conduct study in terms of E-Banking services adoption in Operating Banks in Sudan.
- Research in the field of E-Banking suggests that demographic characteristics such as gender, age, and experience). Impact the intention to use certain E-Banking services such that the effect will be stronger for men and particularly for younger men at early stages of experience. previous study reported that males were moved likely to adopt or accept E-Banking (El-Qirem, 2013). However, other researchers reveal that level of experience is factor capable of impacting the intention to use E-Banking services (Sathye, 1999; Jaruwachirathanakul & Fink, 2005; El-Qirem, 2013).

1.2 Research Questions:

This research aims at answering the following questions:

1. What are the factors influencing adoption of E-banking by Sudanese banks customers?

2. What is influence of the intention to adopt on actual usage of E-banking Services in Sudan?

3. What is influence of factors such as (Perceived usefulness) on intention to adopt E-banking is moderated by Demographic Characteristics such as (gender, age, and experience)?

1.3 Research Hypotheses:

The research aims to test the following hypotheses:

H1: There is a positive significant relationship between Factors and intention to adopt E-banking.

H1.1: There is a positive significant relationship between Perceived usefulness and intention to adopt E-banking.

H1. 2: There is a positive significant relationship between Trust and intention to adopt E-Banking.

H1.3: There is a positive significant relationship between Perceived ease of use and intention to adopt E-Banking.

H1.4: There is a positive significant relationship between Subjective norms and intention to adopt E-banking.

H1.4: There is a positive significant relationship between Fees & Charges and intention to adopt E-banking.

H2: There is a positive significant relationship between intention to adopt a E-banking and the actual usage.

H3: Demographic Characteristics (gender, age, experience) moderate the relationship between Perceived usefulness and intention to adopt

H3.1: gender moderate the relationship between Perceived usefulness and intention to adopt E-banking .

H3.2: age moderate the relationship between Perceived usefulness and intention to adopt E-banking .

H3.3: experience moderate the relationship between Perceived usefulness and intention to adopt E-banking .

1.4 Research importance:

- Identify the factors that influence adoption of E-banking.
- Identify the intention to adopt and actual usage toward E-banking Services in Sudan.
- Identify the influence of factors such as (Perceived usefulness) on intention to adopt E-banking is moderated by gender, age, and experience**.**

1.5 Research Objectives:

1. Document current usage and knowledge of E-banking by customers in Sudan.
2. Find the correlations between factors that influencing E-banking adoption in Sudan.
3. Introduce E-banking Adoption Model in Sudan.
4. Help researchers and bankers to know the most important factors influencing E-banking Services in Sudan.

1.6 Research Scope:

The research will primarily focus on the factors that influence E-banking adoption in operating banks in Sudan . And therefore we aim in this research to introduce a Model that could help banks spreading E-banking services acceptance in Sudan, however investigate of the factors that influence (Perceived usefulness, Perceived ease of use, Trust, Subjective norms and Fees and Charges) on E-banking services adoption.

1.7 Terms Definition:

For clearer understanding of the terms used in this research, below are their meanings:

E-banking: "The use of Computer, Telephones, Internet, Mobiles, and ATMs to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or other financial services provider remotely via a telecommunications network" (Yang ,1997, Daniel, 1999).

Extension Technology Acceptance Model (TAM): TAM requires extension and adjustment in order to comply with the specific characteristics of technology under consideration and also modified the value component (from perceived usefulness) and added two components: trust and perceived ease of adoption (Venkatesh, et al., 2003).

Theory of Planned Behavior (TPB): TPB is a model that explains the factors influencing the intention to use technologies. According to theory of planned behavior, attitude, subjective norms and perceived behavioral control are directly influencing the intention to use new technology (Ajzen, 1989).

Perceived usefulness (PU): The degree to which a person believes that using a particular system would enhance his or her job performance (Baraghani, 2007).

Perceived ease of use (PEOU): The degree to which a person believes that using a particular system would be free from effort (Baraghani, 2007).

Trust (TT): Trust is associated with issues of security, privacy, fulfillment and confidence (Baraghani, 2007).

Subjective norms (SN): SN are related to by psychological dimensions such as anxiety, prior beliefs, traditions and image to perform specific behavior (Laukkanen, et al. 2008)

Fees & Charges (FC): The Cost and financial expenses of E-banking services influence E-banking adoption (El-Qirem, 2013).

Behavioral Intention: Behavioral intention to adopt/accept E-Banking services measures a user's relative strength of intention to perform a behavior. It is an indicator of a person's motivation to perform specific behavior (El-Qirem, 2013).

Actual Usage: Davis considered that the actual use of a system is a behavior. Actual use of behavioral usage is usually measured by amount of time using, frequency of use, actual number of usage and diversity of usage (El-Qirem, 2013).

SPSS: Statistical Package for the Social Sciences software. SPSS is a computer program used for statistical analysis. SPSS can provide several statistics and empower researchers to achieve their purposes (DeCoster, 2004)

1.8 Research Organization

This research contains five chapters, a list of references, and appendices, the five chapters include: introduction, review of literature, methodology, analysis and findings, discussion and conclusions.

Chapter one is introduction, it addresses the background for the study and rationale, the research importance, the research questions, and definition of key terms. Chapter two contains the review of the related literature, concept of E-banking, theoretical framework. Chapter three provide the methodology of the study, population of sample and Statistical Techniques Used. Chapter four discusses the data planning, a data analysis, descriptive, correlation analysis and hypotheses testing, and analysis of the results. Finally in chapter five, discussion of the results, conclusions is drawn from the measurement, followed by recommendations and limitations and theoretical and practical implications.

CHAPTER TWO

LITERATURE REVIEW

Chapter two

Literature Review

2.0 Chapter Overview

This Chapter aims to discuss the research conceptual framework and the previous literature concerning E-banking. This chapter is divided into two parts, the first one discuss E-banking and ICT terminologies. While the second part of this chapter discusses the scientific studies related to E-banking adoption, user acceptance models. In this chapter, we will introduce the Research Model and presenting the research hypotheses.

2.1 E-banking Discussion:

2.1.1 Introduction:

On the light of the current global markets, people have the ability to access all markets around the world. The direct results show that economy is becoming more and more a global issue that affects the international investments availability. In this global atmosphere, we can see that Products and services could be accessed from anywhere in the world. As results, E-commerce becomes a basic and strategic need for all organizations. This in turn helps in spreading products and services among the world (Akinyele and Olorunleke, 2010). Moreover, ICT help in increasing productivity and customer's sharing with low cost. This integration requires new knowledge, information, ideas, and new strategies (khan, 2009).

The development and the increasing progress that is being experienced in the Information and Communication Technology have brought about a lot of changes in almost all facets

of life. In the Banking Industry, it has been in the form of online banking, which is now replacing the traditional banking practice. Online banking has a lot of benefits which add value to customers' satisfaction in terms of better quality of service offerings and at the same time enable the banks gain more competitive advantage over other competitors. There are some associated risks identified in the study that seem to hinder the success of e-banking services and thus constitute major concern to both financial institutions and customers. if customers' choice of banks is influenced by the quality of e–banking services provided (Khrewesh , 2011).

2.1.2 Definition of E- banking Services:

E–marketing is described as the achievement of marketing objectives through the use of electronic communications technology. It is further identified that the key success factors in e–marketing is achieving customer satisfaction through the electronic channel in terms of the ease of use, performance and quality of service (Smith and Chaffey,2001). This idea of e–marketing concept is seen as broader in scope. An alternative perspective was provided on e–marketing by Chaffey et al. (2006) by the term "Internet Marketing"; which they described as the "Application of the Internet and related digital technologies to achieving marketing objectives".

Digital marketing is another term which has similar meaning to "electronic marketing" and now increasingly used by Specialist Marketing Agencies (Chaffey et al, 2006).

Therefore, the terms E–Marketing, Internet Marketing and Digital Marketing can be described as synonymous.

Many scholars' efforts were aiming at defining the concept of E-banking. for some researchers, regard E-banking as a form of online banking, others add extra banking services in order to meet the scope of become E-banking.

Daniel (1999) defined E-banking Services as banks introduction of services and information to its customers through Computers, Telephones, Internet, and Mobiles. By this definition, E-banking is considered as the means being used in establishing connection between banks and customers to perform different financial issues (Daniel, 1999).

In his definition of E-banking Daniel (1999) concludes that E-banking includes systems that enable financial institutions, customers, individuals or businesses to access their accounts, their transactions, or obtain information about their financial services through a public or private network. He adds that Customers can access E-banking services by using intelligent electronic devices such as personal computers (PCs), personal digital assistant (PDA), automated teller machine (ATM), or Touch Tone telephone.

Yang (1997) gave E-banking another definition with a another dimension that include the “the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or other financial services provider remotely via a telecommunications network”.

Internet banking is defined as the use of the Internet to deliver banking activities such as funds transfer, paying bills, viewing current and savings account balance, paying mortgages and purchasing financial instruments and certificates of deposits (Singhal and Padhmanbhan, 2008).

Internet banking is also called Online banking, e–payment and e–banking (Ozuru et al, 2010; Singhal and Padhmanbhan, 2008; Beer, 2006).

2.1.3 E-banking Channels:

From the previous definitions of E-banking, we can conclude that E-banking Services consists of several channels. These channels may be considered on the light of E-banking as a set of tools that customers use such as:

Internet Banking (Online Banking): Internet banking is the most common and prevalent channel of E-banking. In this channel, Customers can perform their financial transactions via Internet anytime and anywhere.

Customers can access their accounts, transfer money, and buy products or services online (Sathye, 1999).

This form of E-banking can be seen in two popular methods: in the first form, customers access their accounts and perform their financial transactions by banks' websites. While in the other form, banks establish virtual branches available via Internet by which they introduce Internet banking services. For example, Arab bank has many branches which are providing all traditional services for customers. In addition it deals with E-banking services like Internet banking. In contrast, some banks do not have physical branches (customers cannot visit banks' branches); all customers' transactions should occur electronically.

TV-Base Banking: Karjaluoto (2001) explain another channel of E-banking by the use of satellite or cables to deliver account information to customers TV's. In this channel there could be a connection to Internet infrastructure (karjaluoto, 2001).

Mobile Banking: Mobile banking is considered to be the latest E-banking services technology by which customers access their accounts and perform their financial transactions using Mobile Devices. Customers can communicate with banks' servers through Short message service (SMS), Internet connections (WAP), or high speed 3rd generation mobile connection which is also Internet based (Bank Negara Malaysia, 2011).

PC Banking: in this channel of E-banking, Customers use their personal computers to connect with their bank's accounts. PC banking requires special software to be installed on the customer's computer which interacts with bank's servers. This channel of E-banking differs from Internet banking in that customers need special software to access their accounts. While in Internet banking, customers access their accounts without prerequisites .

Telephone Banking: This channel helps customers to access their accounts any time by calling specific number, and then enter their usernames and passwords to perform their financial transactions. Customers can listen to the answer machine and follow orders to access and perform their financial transactions (Andam, 2003).

Automated Teller Machine (ATM): ATM enables customers to withdraw, deposit, enquiry accounts, etc. without needing to interact with banks' employees. ATM is usually found near branches or in malls. ATM is connected with banks' servers by several networks like VPN, leased line, etc. Customers can access ATM anytime by having special cards and passwords (Olatokun et al., 2009).

Smart Cards: Smart cards are plastic cards contains microchips which enable data to be saved on them. Smart cards are used for several activates such as purchase through the Internet, purchase products and services from markets, withdraw or deposit cash money.

There are several channels of smart cards like visa, visa electron, master card, union cards, etc.

2.1.4 Benefits of E-banking:

E-banking Services is intended to develop banking sector, as well as to meet customers' needs. E-banking Services has a lot of benefits related to society, banks, and customers. Therefore, E-banking has spread rapidly in all over the world (Mattila et al., 2003).

E-banking Services is appropriate solution for quality problems in banking services. Service Quality is defined as the difference between customers' needs and expectations about specific service and the actual features of this service that was introduced to customers (Akinyele and Olorunleke, 2010).

E-banking has benefits for both banks and customers:

Benefits for Banks:

Banks are adopting E-banking Services to achieve strategic goals like competitive advantage, increasing their market share, get super position in the market, and increase their profits. Furthermore, banks receive daily benefits of E-banking Services such as saving time; banks' employees do not waste their time in performing financial transactions for customers (Jayawardhena and Foley, 2000).

Using E-banking Services can save the cost of resources (checks, papers, ink, human recourses, etc.) which are needed for traditional banking services. Furthermore, E-banking Services enables people from all over the world to access banks' services, so banks can have new customers (Green, 2005).

E-banking Services improves the image and reputation of banks, because E-banking has excellent services. By E-banking technology, banks can satisfy all customers and meet their needs in rapid and convenient manner (Aladwani, 2001).

Banks can control their overheads and expenses. Repetitive tasks become fully automated. E-banking empower banking sector to enlarge their customers base, and then increase their volume of credit creation as well as achieve better economic conditions (khan, 2009).

Benefits for Customers:

Customers save their time when they use E-banking services, because they do not need to visit banks' branches. In addition, customers can perform their transactions at any time outside official working hours.

Customers can access their accounts and perform their financial transactions from anywhere. Customers can access several services concurrently, as well as they can access services which are not found in the banks' branches (Baraghani, 2007).

Customers do not need to carry cash money which may be lost. All services can be done virtually; nothing appears on the ground. In addition, Customers will get quick response to their complaints; their complaints reach directly to bankers via E-banking channels without passing through intermediate processes. Therefore, customers will be satisfied and meet their requirements (Brogdon, 1999).

2.1.5 E-banking Challenges:

E-banking Services faces challenges and difficulties influence the adoption of this technology.

Yang et al (2007) explain the most important challenges that impeding the spread of E-banking Services among banks' customers:

Security concern is the most important challenge which influences E-banking technology. Customers have concerns about accessing their accounts online . Banks should protect their channels and servers from unauthorized access, as well as they should create accurate procedures to be sure of customers' identity.

E-banking requires new technological tools like computers, software, cards, etc.; these technological tools may cost customers a lot. Customers are not interested in paying a lot of money to access E-banking technology. In addition, customers have concerns about E-banking fees which may be more than traditional services fees.

E-banking Services has difficulties with delivery speed and delivery reliability which cause many interruptions. For example, if the network connection has slow speed then customers cannot perform financial transactions correctly and rapidly (interruptions will occur) and then E-banking systems will become impractical.

In general, customers are not familiar with technological solutions; it is not easy to accept new technologies without having success stories about them. Furthermore, people resist any change in their lifestyles.

2.2 Information and Communication Technology in Banking Sector:

Information and Communication Technology (ICT) canceled the constraints of time and distances. Communication networks made the world a small village. The Financial sector is not an exception; ICT encourage banks to evaluate their technology and assess their electronic commerce and E- banking strategies (Andam, 2003).

Banking sector in the 21st century operates in a complex and competitive environment characterized by changing conditions and highly unpredictable economic climate. ICT is the core of global change. (Jesu´ S Marti´Nez-Fri´ Centre for Astrobiology, 2003) Information Systems have critical role in contemporary organizations. Therefore, financial services should be modified to remain viable in time of changes.

The most significant trend in banks is grasping the importance of technology, as well as integrating technology with their strategic plans.

Banks apply ICT to their operations to survive and prosper in the new world. Therefore, banks should re-examine their services and their delivery systems in order to properly position them within ICT (Laudon and Laudon, 1991).

Information and Communication Technology must have strong infrastructure to serve banking sector. ICT infrastructure should have these primary issues:

• **Appropriate Networks**

To achieve the goals of technology usage; it is important to find a strong communication network that integrates all areas with each others, and empower all people to access the network easily and quickly (World Bank, D.C, 2001).

• **Security**

ICT should have security systems to protect people from any transactions loss. TCT should be protected from hackers, viruses, and wastage by using specific techniques like encryption, Authentication, Integrity (it is impossible to change transactions during transmission process), repudiation (transactions cannot be rejected during transmission process), and confidentially (transactions cannot be accessed by unauthorized people) (Chellappa and Pavlou, 2002).

• **Privacy**

Customers' information should be protected from unauthorized people. Banks should get customers' permission to access their data. In this way, customers will trust ICT and E-banking Services (Federal Reserve Bank of New York, 1999)

2.2.1 Sudanese' ICT Background

The world Summit on Information Society(WSIS) Geneva 2003 with its eleven action lines, defined its objective "as to build an inclusive information society it put the potential knowledge and ITC , at the service of development, to promote the use of information and knowledge for the achievement of internationally agreed development goals , including those contained in the Millennium Declaration and to address new challenges of the international society at the national , regional and international levels" .

The Tunis phase of 2005 focused on the following areas and their respective issues , maenly internet governance and funereal mechanism. In addition the Tunis phase addressed universal access to information and knowledge ,democracy, development , freedom of exploration and free flow of information.

The Tunis agenda stressed that the implementation of the WSIS at the international level should be organized in accordance with the themes and action lines originally set at the Geneva .POA .

Sudan's experience in the last two decades in building and capitalizing on ICT as a gateway for custom development is bend mark in the country's history . The institutional, legal and regulatory frameworks ware formed to advance ICT as a strategy for integrating the economy into the global market However the full potential of ICT is greatly impeded by the incapacity for Sudanese communities to make full use of its recourses : UNDP is

intervening to assist the government through the ICT institutions to promote ICT for human development .

ICT National Policy :

In June 1999, the Sudanese national ICT strategy was formed along with a high-level ministerial committee formed to oversee it implementation . The program focuses on four major areas : technology, infrastructure human resources development , software industry development, and the inclusion of Arabic content in geo-information dissemination Based on the knowledge and recognition concerning the importance of public and private collaboration in enhancing any development process , the Sudanese government is consistently seeking to implement the national strategy, including government projects, development of an electronic smart city distance learning and telemedieene.

The general Ministry of Education Information is the entity responsible for the development of a robust ICT information network . National policies promote the use of ICT to reform local policies towards the complete integration of ICT in education and training at all levels . development of school curricula , teacher training, the management and organization of educational institutions and the promotion and nurturing of cultural attitude of lifelong learning . ICT training programs to satisfy the educational needs of employees working to reform afore said areas. In 2004 ICT was introduced in to secondary education curricula . About 50% of secondary schools were provided with compactors . The country is planning to have computers available at all education levels by the years 2015 as agreed at the ICT Summit in Geneva .

In the last two decades Sudan has built and capitalized on ICT , specifically in the area of telecommunications.

Licensing was granted to new investors employing advance technology in hopes of increasing the spread of, access to, and affordability of ICT products .

In spite of the promising efforts and policies made by the government and other parties there are certain constraints which include :

1. Outreach to rural and remote areas still poses a considerable challenge. Poverty, lack of resource and political unrest deprioritize ICT for basic needs in most areas of Sudan.

2. Political unrest and civil war impeded nationwide implementation .

3. Skilled and trained staff who are well acquainted with the ICT tools are very limited tending to prefer the private sector over government positions.

4. Financing and donor interest in Sudan remains limited . Especially in the number of embargoes that have been posted .

5. Between rural and urban areas , especially in relation to computer literacy , access to telecommunication infrastructure nationwide remain alarmingly low .

6. Arabic electronic content greatly lagsbehind . Educational material and curriculum need to be restructured and rebuild. With materials that meets the needs of a modern society .

7. Political instability in Sudan is a great hurdle that impedes the development process

8. Female perturbation in public life, education , and in this workforce particular remains fairly low due to longstanding culture attitudes (Abdel Mahmoud, 2006).

2.3 The Banking Sector in Sudan

Bank of Sudan was established in 1960 to supervise the banking sector that had a few branches of foreign banks. In 1972, one Sudanese bank was established then the government nationalized the banking sector. The first Islamic bank (Faisal Islamic Bank) was established in 1977. The major shift for the banking sector took place in 1983 when a decision was made to conform all financial transactions to Islamic principles. Since 1983 several Islamic banks entered the Sudanese market, e.g. Tadamoun Islamic Bank, Sudanese Islamic Bank, Albaraka Bank, but it has been quite difficult to transform all financial operations in the economy at once. In fact, the serious financial changes took place since 1992 in line with the effort to stabilize the economy and accelerate growth. Since 1992 the financial sector is built entirely on Islamic principles and any financial transaction that is not compatible to Shariah is not allowed.

The institutional structure of the banking sector was stable in the 1990s. the total number of banks was in the range of 25-29 in the 1990s where two insolvent banks have been liquidated, three (public) banks have been merged into Khartoum Bank to form the largest bank in Sudan, and in 1993 the merger of El-Nilein Bank and the Industrial Development Bank created the second largest bank. Currently, the Sudanese banking system consists of two investment banks, four specialized banks, and 17 commercial banks (3 foreign, 7 state-owned, and 7 jointly owned banks). As in several developing countries, the Sudanese financial sector is dominated by a few banks. For instance, the largest two banks (Omdurman Bank and Bank of Khartoum) are government-owned banks with a 25 percent market share. Three banks hold 45 percent of the total banking deposits while 60

percent of the total assets is held by six banks. In fact, the seven commercial banks owned by the state have more than 50 percent market share .

There has not been major changes in the distribution of bank branches in Sudan over the 1990s. that is 50 percent of bank branches network is concentrated in the capital (Khartoum) and the Middle region where 35 percent of the population live.

2.3.1 E-banking Services in Sudan

The Sudanese banks are using two E-banking services include ATM and SMS banking service.

The customers of Sudanese banks are using ATM service in high percentages ,while are using SMS banking service has the lowest usage compared to ATM service.

2.4 Factors Influencing E-banking Adoption:

There are many International studies discussed E-banking technology, information and communication technology (ICT), and the factors that influence the adoption of E-banking. Those studies provide theoretical and empirical background about E-banking technology.

Therefore, it is very important to explore those studies to understand, analyze, and highlight the factors that influence E-banking technology. In addition, those studies give a good chance to compare our findings with others.

Four main factors are influencing the acceptance and implementation of E-banking technology. These factors are customers' acceptance, organizational features, technological abilities, and environmental determinants (Sohail, and Shanmugham, 2003, Calisir and Gumussoy, 2008).

Customers are the most important factor for applying new service or product. Without customers' satisfaction, organizations cannot achieve any profits. Customer satisfaction is important to spread new technologies and innovations. Therefore, organizations should meet customers' needs and expectations (Akinyele and Olorunleke, 2010).

E-banking Services depend on transferring financial transactions via Internet and others techniques. Customers will think deeply to use it, because they will deal with new technology, with communication channels, and with their money. This feature distinguishes E-banking services from other E-commerce services; No one accept any risk toward his\her financial issues. From this point, we should study carefully and deeply how customers think toward E-banking, as well as, we should know the factors that influence customers to adopt E-banking Services (Yiu et al., 2007)

New technology needs special resources to be adopted, especially E-banking which should be implemented with zero errors. From this point, there are organizational factors influencing E-banking Services (Shah and Siddiqui, 2006).

Technological aspects are the significant factors that influence E-banking Services by customers and banks. E-banking needs specific technological solutions like software, hardware, networks, security …etc.

Therefore, technology "plays" the main role in E-banking adoption (Aladwani, 2001).

Social systems, cultural values, norms and habits, beliefs, economic scale, legal regulations, political and governmental issues are influencing the adoption of new services like E-banking (Haghighi et al., 2010).

2.4.1 Factors Influencing Customers to Adopt E-banking Technology:

Several studies like El-Qirem (2013) and Baraghani (2007) focused on E-banking adoption by customers, and explored many factors that influence E-banking adoption by customers.

Perceived usefulness is defined as “the degree to which a user believes that using the system will enhance his or her performance" (Dillon and Morris, 1996). Perceived benefits and perceived usefulness influence customers to adopt E-banking Services (Yiu et al., 2007).

The use of e–banking has brought many benefits amongst which include: there are no barrier limitations; it is convenient; services are offered at minimal cost; it has transformed traditional practices in banking; the only way to stay connected to the customers at any place and any time is through internet applications; it results in high performance in the banking industry through faster delivery of information from the customer and service provider; customers prefer the use of e–banking because it saves time; it makes possible the use of innovative product or service at a low transaction fees and it encourages queue management which is one of the important dimensions of e–banking service quality (Singhal and Padhmanbhan, 2008).

E-Banking provides three major advantages: convenience, speedy service and accessibility compared to traditional retail banking services. Indeed, the rationale behind the establishment of E-bank Services in the first place is to enable bank account holders to conduct transactions with higher degree of convenience and speed, and to access internet banking services at all times and places (poon, 2008). Accessibility and

availability of E-banking services are important factors influencing the adoption of E-banking (Daniel, 1999; Gerrard & Cunningham, 2003). The competitive advantage of E-banking services over traditional services that E-banking empowers customers to perform their transactions anytime from anywhere in efficient and effective manner (Tan and teo, 2000). Obviously, both bankers and clients would be satisfied with a service delivery that is convenient, quick and easily accessible.

Perceived ease of use is another important factor influences customer's adoption. Davis (1989) defined perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort". Customers prefer simplicity in E-banking systems. Customers do not like complicated systems because they fear from mistakes (Calisir and Gumussoy, 2008). Simplicity is defined as the betterment of tools that enables the provider of services to deliver the benefit that satisfies an unspoken consumer's need by inserting better pictures and finding better ways of sharing to their potential customers (EL-Qirem, 2013). And suggests that in order for a web site to be truly appealing and attractive to customers, it should be designed in such a way as to deliver the maximum benefits as perceived by end-users themselves (Tan and teo, 2000).

Perceived usefulness and perceived ease of use are the components of Technology Acceptance Model, which will be discussed later in this section.

Trust in banks is an important factor influencing E-banking adoption. As many bank account holders are concerned with the risk associated with E-Banking transactions, the perceived lack of financial and non-financial security is definitely a stumbling block . Financial security is about conveying financial information online (e.g. an account number, account statement, transfers, etc.), whereas non-financial security is related mainly to showing personal information (e.g. e-mail, telephone number, etc.).

Security was the most significant factor influences customers' decisions to adopt E-banking Services (Tan and Teo, 2000)

Customers influence by information and communication security to ensure reliability of their transactions. Information and communication security includes authentication, encryption on circuits and servers, firewalls, call back modems, etc. These security techniques should be implemented to prevent any access on banks' networks. Customers also influence by legal support issues that save their rights when unexpected events happen by hackers or viruses (Khan, 2009).

Security is defined as the protection of data against accidental or international disclosure to unauthorized persons, or unauthorized modifications or destruction (Alireza, et al., 2009). Furthermore, bank account holders often fear that their personal information might be leaked to unauthorized circles via the internet (Davis, 1993; The study suggests that various measures should be put in place to ensure more security such as installation of encrypted software, verification system of customer's identification cards, frequent change of password, examining test questions and using mixed password such as the use of alphanumeric amongst others. The study concludes that e –banking has become important phenomenon in the banking industry and it will continue as more progress and innovations are made in information technology. Clients are also concerned about the trust ability of the E-bank's privacy policies. Other studies show that security and privacy are associated with trust in the sense that trust is often invoked by the academia to synchronize the issues of security, privacy, fulfillment and confidence (Lynch & Lundguist, 1996). Privacy of data and connections influences customers to adopt E-banking technology. If E-banking services pass through intermediate stages, customer

will not trust this technology. No one should access customers' accounts except the authorized people (Khan, 2009).

Subjective norms are related to banks' image, banks' reputation, banks' employees, and all banks' services (Aladwani, 2001). A study by Laukkanen, et al. (2008) reveals that psychological dimensions such as anxiety, prior beliefs, traditions and image are even greater sources of resistance to E-Banking Services than other factors. The term anxiety is most often used to describe unpleasant emotional state which characterized by tension and apprehensive (Abu Shanab et al., 2008). The anxiety motivates users to avoid condition that produce anxious feelings Reliability refers to the extent to which a user believes that he or she can rely on the E-banking service provided and feel satisfied with it (Lee, 2009). In this sense, both reliability and anxiety might be regarded as constructs impacting the intention to use E-Banking services (EL-Qirem, 2013).

Fees and Charges It has been empirically found that customers will be more likely to accept new technologies if the advantages gained from the use of such technologies exceed the costs incurred (Davis, 1989).

Cost savings have enabled internet-based banking to offer E-Banking services at lower or no service fees, and to offer higher interest rates on interest-bearing accounts than traditional banks (Poon, 2008). Even though internet banking users largely perceive that the service fees are acceptable, for some non-adopters the relative advantage of internet banking may be poor due to the fact that a great deal of expenses will be incurred in buying a computer and getting online (Karjaluoto, et al., 2002).

Cost and financial expenses of E-banking services influence E-banking adoption (EL-qirem,2013). Banks should introduce incentives and promotions to encourage people to

use E-banking services. In addition, the cost of computers and Internet connection influence customers to adopt E-banking Services (Yang et al., 2007).

Customers would realize the benefits of E-banking and get positive attitude toward E-banking Services through good communication channels, good customer service, good marketing and advertising strategies. Information is the basic process to achieve customers' attention (Sohail and Shanmugham, 2003).

2.4.2 Factors Influencing Banks to Adopt E-banking Services :

Banks' decision to adopt E-banking Services is the first step toward the use of E-banking Services . Many factors are influencing bankers to make this important decision. We will highlight the most important factors that influence banks to adopt E-banking Services in the following discussion.

Image of organization is an important factor influences banks to adopt new technology. Good image creates a mutual trust between customers and banks. Therefore, customers will accept new solutions from their banks. It is very important for banks to build Brand Name and be superior in their services, treatments, technologies, and workforces to adopt critical technology like E-banking. Reputation is competitive advantage for any bank to achieve customers' loyalty (Kuisma et al., 2007).

Bank's Strategies influence E-banking Services . Appropriate strategy should be formulated by top level management to adopt and implement E-banking services. Top management should motivate all departments to work toward achieving this technology, and should encourage workforces to introduce perfect services for customers (Toufaily and Daghfous, 2009).

Relationships and communication channels among employees is an important issue for banks to adopt E-banking Services . E-banking Services needs coordination from all divisions in the bank. Therefore, banks need strong relationships among their employees to spread their strategies and goals (Khalfan et al., 2006).

Skills, abilities, and well trained employees are required to adopt E-banking Services. Banks are influenced by the availability of information, communication channels, and Internet specialists. Banks need specialists in security, reliability, privacy, encryption, etc. In addition, marketing specialists are needed to influence people to adopt E-banking Services (Haghighi, et al., 2010).

Budget availability is needed to cover all expenses of E-banking Services . Information Systems, security, specialists, Internet, websites, etc. need appropriate budget. Returns on investment and financial resources influence the adoption of E-banking (Toufaily and Daghfous, 2009).

Banks are competing each others to increase their market shares by introducing new innovations for customers. E-banking services create new markets; E-banking enables customers to access their accounts and performing their financial transactions from all over the world (Tan and Teo, 2000).

Forward integration with customers influence and encourage banks to implement E-banking Services . Relationship between banks and customers is important to get benefits from E-banking services. Good pricing, quality, and good marketing policy will achieve customers' loyalty (Khan, 2009).

2.4.3 Technological Factors Influencing E-banking Adoption:

Customers and banks are influenced by technological factors like security, privacy, reliability and Internet speed to adopt E-banking Services (Khalfan et al., 2006).

Network's security is most important factor influences customers. In the time of globalization, there are many risks which can destroy all Ebanking technology. Therefore, advanced infrastructure should be implemented by telecommunication ministry, communication and Internet companies, and banks to protect all financial transactions (Yiu et al., 2007). E-banking adoption in Arab world is influenced by Arabic Language. Arabic language makes E-banking systems easy to use (Aladwani, 2001).

Technical / technological equipments should be environmental friendly. These equipments should not harm customers and environment to be accepted by society.

2.4.4 Environmental Factors Influencing E-banking Adoption:

Norms, habits, culture, and social systems influence banks and customers to adopt E-banking Services . If cultural values agree with traditional banking services and not trust communication channels, then E-banking Services will not be adopted in the society (Laukkanen et al., 2009).

Good economic situation means good standard of living and good investments. In this case, banks have good budget to adopt new technology like E-banking (Al Nahian et al., 2009).

Legal factors are important to support customers and banks to adopt E-banking Services .

Without governmental support and protection of telecommunication infrastructure, banks and customers cannot adopt advanced technology like E-banking. Government should

apply regulations to protect banks and customers form unexpected events (Lippert and Govindarajulu, 2006).

From previous discussion, the main four factors (customers' acceptance, organizational features, technological abilities, and environmental determinants) are connected to each others. Each factor influence and be influenced from other factors. E-banking should be studied from all its aspects to achieve wide adoption (Haghighi, et al., 2010).

2.5 User Acceptance Theories and Models:

To achieve research purpose, it is important to discuss user acceptance theories and models.

Acceptance terminology is defined as "the demonstrable willingness within a user group to employ Information Technology for the tasks it is designed to support" (Dillon and Morris, 1996).

Most theories and models used social psychology frameworks to study knowledge, beliefs, thoughts, perceptions and behaviors of people.

Furthermore, User acceptance models and theories studied technology features and their effect on customers' behavior (Baraghani, 2007).

There are several user acceptance theories and models such as:

Innovation Diffusion Theory, Theory of Reasoned Action, Technology Acceptance Model, and Theory of Planned behavior.

2.5.1 Innovation Diffusion Theory:

It is a basic theory in technology adoption process; it deals with user acceptance and organization acceptance for new technology. This theory moves from the innovation stage to the actual use by customers and organizations (Green, 2005).

According to Rogers (1983, 1995), there are five categories that influence the spread of innovations. These five categories are:

- Relative Advantage: New innovations should introduce benefits to all people.

- Compatibility: The consistency of innovation with norms, habits and social systems are form the compatibility of innovations.

- Complexity influences the spread of any new technology.

Technology should be easy to use as much as possible.

- Trialability: People always need to try new innovations before make their decisions.

- Absorbability: The output and results from innovation should be clear, obvious, and can be noticed from all people without ambiguity.

All these categories should complement each other to achieve high diffusion for new innovations.

2.5.2 Theory of Reasoned Action:

Theory of Reasoned Action (TRA) is the basic theory for user acceptance models, other theories are derived from it. TRA adopt generalized framework for technology acceptance. Intention influence the human's behavior to adopt or reject new innovations.

Intention influenced by attitude and subjective norms according to this theory. Subjective norms is influenced by beliefs and motivation, whereas attitude is influenced by beliefs and evaluations (Fishbein and Ajzen, 1975).

2.5.3 Technology Acceptance Model:

The Technology Acceptance Model (TAM), firstly proposed by (Davies, 1986), was conceived to predict (Fishbein & Ajzen, 1975), and explainan individual's IT/IS acceptance (Hu, et al., 2008).

The Technology Acceptance Model (TAM) is an extension of the Theory of Reasoned Action (TRA).The premise of TAM is that people behavioral intention to accept and actually use a certain technology is determined by two constructs namely; perceived usefulness and perceived ease of use (Davis, 1989), Perceived usefulness (PU) This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". Perceived ease-of-use (PEOU) - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort". User′s attitude and belief as proposed by TAM is perceived to be an important factor which influences the use of new technology. A person whose attitudes toward information technology are positive will have higher acceptance of the use of technology in question, compared to another person whose attitudes toward that technology are negative. Many empirical researches (e.g. Davis, et al., 1989; Venkatesh, et al., 2007) have shown support for TAM. Thus, the technology acceptance model is generally referred to as the most influential theory in IT and Information Systems (Benbasat & Bark, 2007).

However, TAM has been criticized for not being able to fully reflect the specific influences of technological and usage-context factors which may alter user acceptance

(Quan, et al., 2010; Davis, et al., 1989). Others (e.g. El-Qirem, 2013;Venkatesh, et al., 2003; Chau & Hu, 2002; Moon & Kim, 2001;) argue that TAM requires extension and adjustment in order to comply with the specific characteristics of technology under consideration. They further point out that although the findings of TAM′s application have been shown to be valid, it is not possible and feasible to apply them to the evaluation of factors affecting the voluntary acceptance of certain E-services by individual end users or customers. This is simply because TAM findings are oriented toward the adoption of technologies in companies. Thus, a number of researchers have adjusted and extended the TAM, either by adding new constructs to it, or making certain constructs redundant. Besides, Venkatesh, et al., (2003) proposed an extended TAM which unifies eight popular models and combined them to the unified theory of acceptance and use of technology to illustrate how information systems are accepted, and to highlight the factors impacting intention to use them (Venkatech, et al., 2003). The Unified theory of acceptance and use of technology (UTAUT) represents a shift from fragmented view of IT adoption or acceptance to a unified integrated single theory (Abu Shanab, et al., 2010). Kaasinen, et al., (2002) and Keat and Mohan (2004) modified the value component (from perceived usefulness) and added two components: trust and perceived ease of adoption.

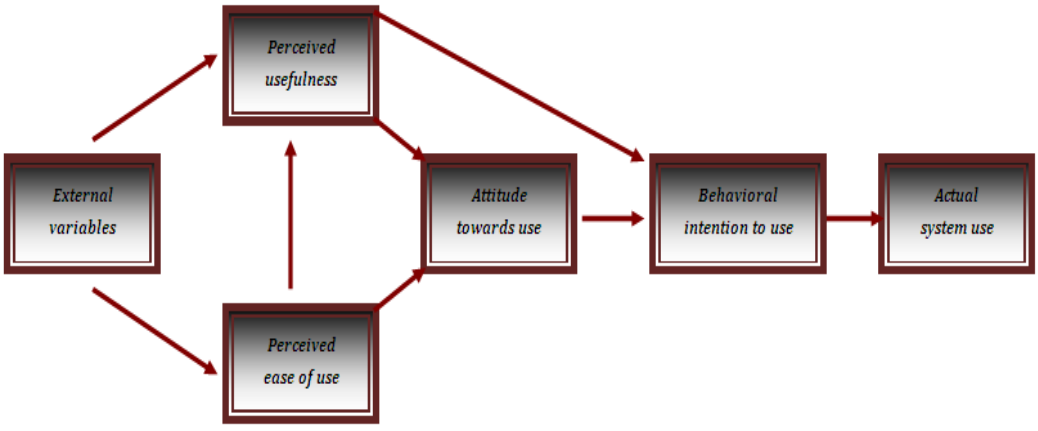


Figure 2-1 : Technology Acceptance Model, source : (Khrewesh, 2011)

2.5.4 Theory of Planned Behavior:

Theory of Planned Behavior (TPB) is also derived from TAR. TPB added new factor on TAR model which is perceived behavioral control. According to theory of planned behavior, attitude, subjective norms and perceived behavioral control are directly influencing the intention to use new technology (Ajzen, 1991).

Taylor and Todd (1995) created Decomposed TPB to explain technology acceptance by people. Attitude is influenced by perceived usefulness, perceived ease of use and compatibility. Peers and superiors influence subjective norms. Self-efficiency, technology facilitating conditions, and resources facilitating conditions influence perceived behavioral control (Taylor and Todd, 1995).

The following diagram explains TPB and its extensions.

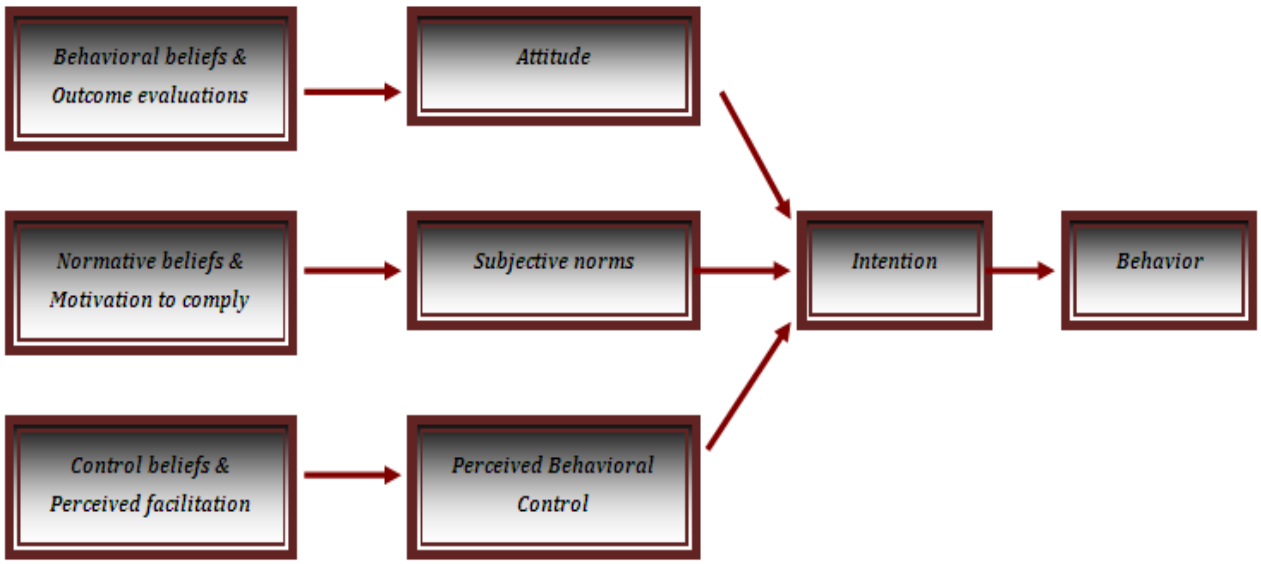


Figure 2-2: Theory of Planned Behavior, source: (Khrewesh, 2011)

The following tables explore specific International Studies to summarize the factors that influence E-banking adoption, as well as to explore the models and theories which are used in these studies.

Table 2-1(a): International Studies of Customer Adoption of E-banking

Study	**Study Title**	**Model**	**Significant Factors**
El-Qirem (2013)	Critical Factors Influencing E-Banking Service Adoption in Jordanian Commercial Banks	Extension to TAM	Convenience, Accessibility and Quick E-Service Delivery E-Security, Privacy and Trust Content, Design and Simplicity of the Banking Web Site Anxiety and Reliability Fees and Charges Demographic Characteristics: Gender, Age, Income Behavioral Intention Actual Usage
Lee (2009)	Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit	TAM & TPB	Security /privacy Financial risks Perceived benefit Perceived usefulness Perceived ease of use Subjective norms
Poon (2008)	Users adoption of E-banking services: The Malaysian Perspective.		Convenience, Accessibility, Feature availability, Bank management and image, Fees and Charges, Security, Privacy, Content, and speed.
Baraghani (2007)	factors that influencing the adoption of Internet banking	Extension to TAM & TPB	Trust Perceived Usefulness Ease of Use Attitude Subjective norms Perceived behavior control Intention

Source: International Journals, Khrewesh (2011)

Table 2-1(b): International Studies of Customer Adoption of E-banking

Study	Study Title	Model	Significant Factors
Pikkarainen et al. (2004)	Customer Acceptance of Online Banking: an extension of technology acceptance model	TAM and Focus groups	Perceived Usefulness Ease of Use Perceived Enjoinment, Security and Privacy, Quality of Internet Connection
Suh and Han, (2002)	Effect of Trust on customer acceptance of Internet banking	TAM	Trust Perceived Usefulness Ease of Use Attitude Intention to use
Tan and Teo (2000)	Factors Influencing the Adoption of Internet Banking	TPB, diffusion of innovations theory, decomposed TPB	Design Speed Security information content Customer support service Ease of use

Source: International Journals, (Khrewesh, 2011)

2.6 Research Model:

Based on previous literature, theories and models, we managed to identify the most important factors that influence E-banking adoption. The factors include extended TAM , TPB that account essential factor influence E-Banking services adoption in the Sudanese commercial banks.

TAM was used to identify the acceptance factors of E-banking Services by customers in sudan. Moreover, TPB model could help in understanding and analyzing the determents of E-banking Services acceptance.

Both of TAM and TPB complement each other. And they could significantly predict E-banking acceptance and determine the factors that influence E-banking adoption (Lee, 2009).

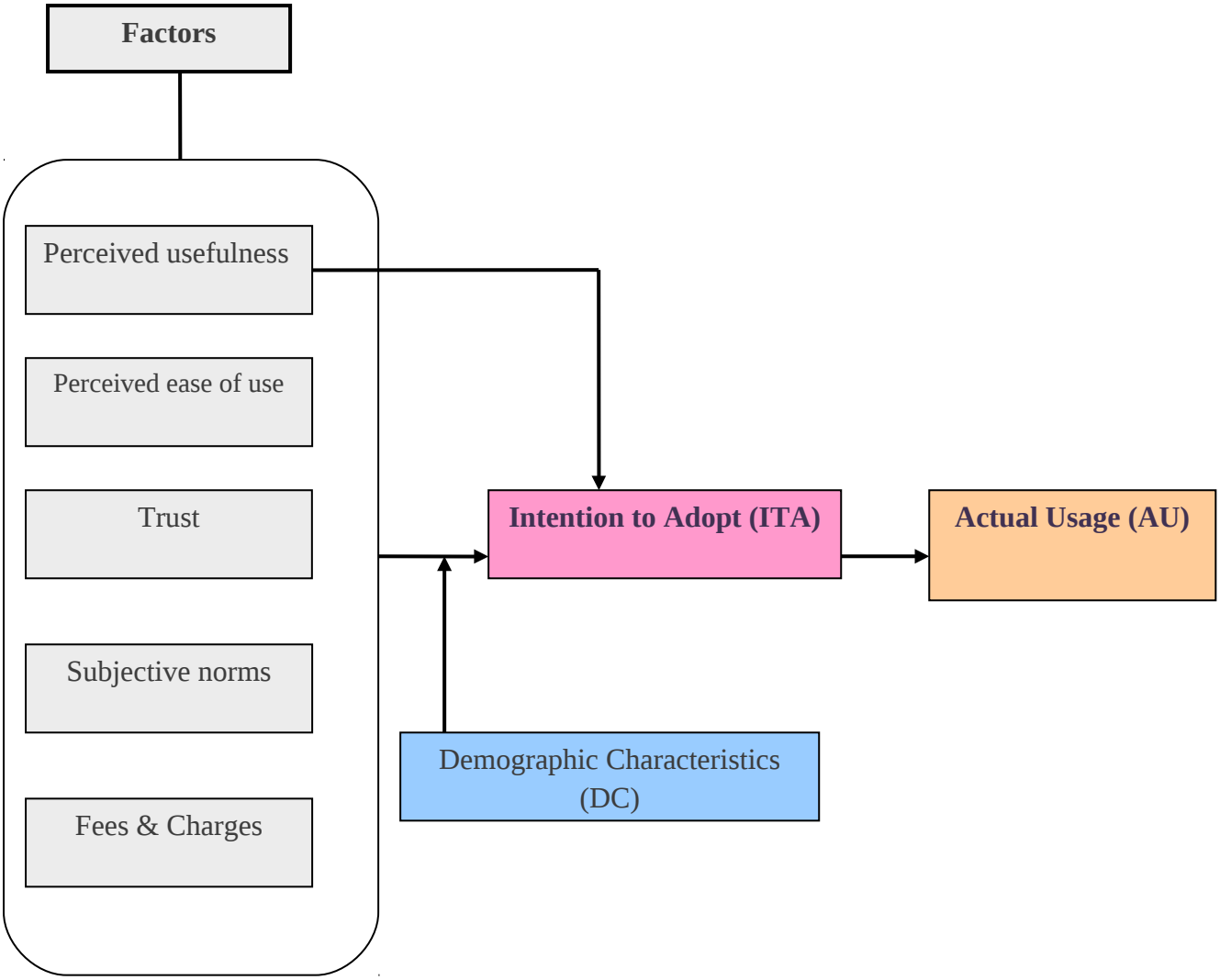


Figure 2-3: Research Model

Source: Compiled in light of literature review and exerts comments

2.7 Research Hypotheses:

H1: There is a positive significant relationship between Factors influencing and intention to adopt E-banking.

H1.1:There is a positive significant relationship between Perceived usefulness and intention to adopt E-banking.

H1. 2: There is a positive significant relationship between Perceived ease of use and intention to adopt E-Banking.

H1.3: There is a positive significant relationship between Trust and intention to adopt E-Banking.

H1.4: There is a positive significant relationship between Subjective norms and intention to adopt E-banking.

H1.5: There is a positive significant relationship between Fees & Charges and intention to adopt E-banking.

H2: There is a positive significant relationship between intention to adopt a E-banking and the actual usage.

H3: Demographic Characteristics (gender, age, experience) moderate the relationship between Perceived usefulness and intention to adopt

H3.1: gender moderate the relationship between Perceived usefulness and intention to adopt E-banking .

H3.2: age moderate the relationship between Perceived usefulness and intention to adopt E-banking .

H3.3: experience moderate the relationship between Perceived usefulness and intention to adopt E-banking .

CHAPTER THREE

RESEARCH METHODOLOGY

CHAPTER THREE

RESEARCH METHODOLOGY

Chapter Overview 3.0

In this chapter, the general research design is described first. It is followed by, a discussion on the population of interest, sampling procedures and sample, survey design and survey method are described too. It includes a discussion on the modification of scale items and an explanation of the different measurement scales being used and, then followed by questionnaire design. The methods used in collecting and analyzing data, and .testing the hypotheses are also described

General Research Design 3.1

The purpose of this study is to examine the Critical Factors Influencing E-Banking Service Adoption by customers in the Sudanese banking sector . It seeks to identify the relationships between factors affecting and adoption of E-Banking. The researcher has used descriptive studies in nature to describe aspects of the Critical Factors Influencing of E-Banking Service Adoption of interest from individual side as the unit of analysis. The study was cross-sectional in which data were gathered just once over a period of weeks to answer the research question.

3.2 Population and Sample

The population of this study was the bank customers in the Shendi University, Shendi, Sudan .

A total of 350 questionnaires were distributed to the respondents.

3.2.1 Research Tools: Questionnaires:

Questionnaire is a simple and rapid tool for collecting data in less time with less effort. By using this tool hundreds even thousands of individuals can participate (Khan, 2009).

We choose questionnaire as a research tool to test the research model which is formulated in chapter two. Questionnaire is designed with closed questions method to get specific answers, which will help in achieving the research purpose. Especially the research population is large. Thus, the use of the questionnaire provides accurate data and enables us to analyse the collected data without ambiguous results.

First draft of the questionnaire is designed as the following:

1. We made questionnaire cover, which consists of three parts: purpose of the questionnaire, definition of E-banking services, and letter of gratitude to participants with promises not to share their information to a third party.

2. We chose independent variables that could help in understanding the nature of people.

3. We set some questions to measure the usage of E-banking services.

4. We set several statements related to the factors that influence E-banking adoption. These statements aim to measure the factors that determined in the research model. We set a group of statements for each factor; each factor has 4 statements .

The source of questionnaire statements depended on specific previous empirical studies, and the viewpoints of experts in E- banking fields.

5. To measure the statements which are created in step three, we chose five point likert scales. "5" strongly disagrees, "4" disagree, "3" neutral, "2" agree, "1" strongly agree.

6. I discussed first draft of the questionnaire with my supervisor. Adjustments were made.

7. After we reviewed the English Version of the questionnaire to be sure it would achieve the research goals, we translated it into Arabic Language, because it's the mother language in Sudan. The translation process also reviewed to make sure that the meaning of the statements in Arabic corresponds to the meaning in English.

3.3 Measurement of Variables

Table 3- 1(a): Scale of questionnaires

No.	Variable		items	Reference
1	**Perceived usefulness**	**Quick E-Service**	1- frequent connection breakdown 2- transaction is efficient 3- fast speed of e- transaction flow 4- satisfactory response speed	(poon, 2008)
		Convenience	1- Access any time and any where 2- No queue 3- Save time 4- E- bank transaction is easy to use	(poon, 2008)
		Accessibility	1- Easy access of information on products and service 2- Diversity of services 3- Print account statement 4- Outstanding balance enquiry	(poon, 2008)
2	**Trust**	**Security**	1- Security of e-banking is important for me 2- the authorized username and password are important 3- online monetary transaction is safer than carrying money 4- overall, online banking is highly secure	(Khrewesh, 2011)
		Privacy	1- confidential information is delivered safely from banks to customers 2- banking institution keep customers information 3- I can safely make an e- transaction 4- Privacy in e-banking is important to me	(Khrewesh, 2011)
		Trust	1- I trust in e- banking services 2- I trust in the safety of online money transfer 3- Bank service personnel assist users in trusting internet banking 4- Overall , I trust online banking	(Baraghani, 2007)

Table 3- 1(b): Scale of questionnaires

No.	Variable		items	Reference
3	**Perceived Ease of use**	**Content**	1- I believe that up to date content is crucial 2- Interaction with E-banking does not require a lot of mental effort 3- it is offering sufficient number of information and image of bank. 4- Transactions are necessary process because it is simple and straightforward	(Tan and Teo, 2000)
		Design	1- I agree that attractiveness screen layout and design 2- Nice graphic and colors configuration 3- I feel that user friendliness of the design is important 4- I agree People culture and behaviors	(Tan and Teo, 2000)
		Simplicity	1- E-banking interfaces support Arabic Language, It is easy to use E-banking system; 2- Interaction with E-banking is clear and understandable; 3- I think that it is easy to learn and use 4- Overall, E-banking system is flexible to interact with.	(Tan and Teo, 2000)
4	**Fees and charges**		1- E- banks charge lower transaction fees 2- Price of service fees is acceptable 3- I can save my time and money by using internet banking 4- Transaction done at internet banking is less costly than bank branches	(poon, 2008)
5	**Subjective norms**	**Reliability**	1- Easiness of transferring money from any bank to any other account of your bank 2- ordered and continuous functionality with the ATM of your bank. 3- sufficient number of ATM booths 4- account statement through SMS/ E-mail services	(Nupur, 2010)
		Anxiety	1- speedy and quick service 2- sincere interest in solving problem 3- good reputation of bank 4- Charges of using your banks ATM booths.	(Nupur, 2010)
	Adoption		1- It is likely that I will use e- banking 2- It is highly likely that I will adopt e-banking 3- I would like to use e- banking 4- I intend to e- banking in the near future.	(Khrewesh, 2011)

3.4 Statistical Techniques Used

3.5.1 Degree of significant Test for the random data:

To test to what extend there is a consistency in the study for answer questions by the respondents, the researcher calculated the degree of significant (Alpha –cronbach) and the accepted statistical value of the coefficient of Alpha- cronbach is 80%, so the researcher applied the procedure of significant test for the answers of all respondents for whom the questionnaire was distributed randomly in all its pillars and the results explained as follows:

Table 3-2: Alpha Cronbach Results of consistency

Variables	Alpha cronbach
Subjective norms	.748
Fees and Charges	.800
Perceived usefulness	.805
Perceived ease of use	.873
Trust	.907
Intention to Adopt	.705
Total	.815

Source: the researcher survey – questionnaire results.

Table 3-2 shows a high degree of internal consistency among the answers of all hypothesis wording which enable us to accept , for attaining the objectives of the study .

3.5.2 The descriptive statistical methods:

The descriptive statistical method was used in general to obtain general resolutions about the population sample features and its distribution, so frequent distribution was used for the answers of the structured questionnaire wordings.

Analytical description: the mean was used to reflect the averages of the total answers of all study wordings, , No "5" strongly disagrees, "4" disagree, "3" neutral, "2" agree, "1" strongly agree.

3.5.3 The use of Regression analysis:

It was used to test the statistical significant of the study hypothesis at level of significant 5%, and it means that if the value of calculated t.test at level of significant less than 5% reject the Null hypothesis (Ho) and accept the (H1) the substitute hypothesis, and vice versa when calculated T.test at level of significant more than 5% accept Null hypothesis (Ho) and reject (H1) the substitute one.

3.5.4 The programme used for analyzing the data of the study:

In analyzing the questionnaire data, the researcher was used the SPSS, and it is the one of the best programmers' that was used in statistical analysis .As the terminology it means that the statistical package for social science and this program me was used in analyzing data (descriptive analysis or deduce analysis) and this was known as test of hypothesis.

CHAPTER FOUR

ANALYSIS AND FINDINGS

CHAPTER FOUR

ANALYSIS AND FINDINGS

chapter overview 4.0

This chapter discusses the data planning, a data analysis, descriptive, correlation analysis and hypotheses testing

4.1 Data Analysis:

This chapter will present the results of analysis of data that is collected via the questionnaire using SPSS software. This chapter will show the results of descriptive statistics and the results of the hypotheses testing in order to determine the factors that influence e-banking adoption in Sudan.

4.2 Demographic and Descriptive Statistics:

Respondents on research questionnaire have different personal information; besides these differences they introduce different responses e-banking usage, and the factors that influence e-banking adoption. The following discussion shows these differences.

Table 4-1: Questionnaires rate of return

Total questionnaires sent to the university	350
Completed questionnaires from the respondent	274
Returned questionnaires (partially answered)	2
Questionnaires not returned	74
Over all response rate	78%
Useable response rate	78%

Source: prepared by researcher, (2014)

4.2.1 Respondents Personal information

274 participants answered the questionnaire from banks customers. The following tables show the characteristics of participants.

Table 4-2: Respondents Personal information

Respondents Personal information		Frequency	Percent	Total
Gender	Male	176	64.2	274
	Female	98	35.8	
Age	Less than 25 years old	44	16.1	
	25-35 years old	136	49.6	
	36- 45 years old	64	23.4	
	46-50 years old	16	5.8	
	More than 50 years old	14	5.1	
qualification	high school or below	18	6.6	
	University	160	58.4	
	Post graduate	96	35.0	
Job	Education Staff	115	42.0	
	Employees	144	52.5	
	Worker	15	5.5	
Experience	less than one year	45	16.4	
	1-5 years	130	47.4	
	6-10 years	31	11.4	
	more than 10 years	68	24.8	
Income	less than 500 SDG	16	5.8	
	500-1000 SDG	147	53.6	
	1001-3000 SDG	89	32.5	
	3001-5000 SDG	21	7.7	
	Over 5000 SDG	1	.4	

The results of analysis of personal information data appear the following facts:

• The highest percentage of participants is males who form 64.2% of respondents.

• The highest percentage of participants is young (25 – 35 years old) who form 49.6% of respondents.

• The highest percentage of participants has bachelor degree who form 58.4% of participants.

• The highest percentage of participants is employees who form 52.5% of participants.

• The highest percentage of participants has Experience ranges between 1-5 years their percentage in participation is 47.4%.

• The highest percentage of participants has monthly income ranges between 500 -1000 SDG their percentage in participation is 53.6%.

4.2.2 E-banking Usage:

Table 4-3: Actual Usage

E-banking Usage		Frequency	Percent	Total
ATM	Use it	259	95.5	274
	know it but did not Use it	12	4.4	
	Do not know this service	3	1.1	
SMS Banking	Use it	44	16.0	
	know it but did not Use it	189	69.0	
	Do not know this service	41	15.0	

Pervious discussion points for two important results:

- ATM service is primitive E-banking Services ; it has limited functions (withdrawal, deposit, and balance enquiries). ATMs become familiar among participants and achieved the highest usage by participants rather than SMS banking service.
- Most of Participants have knowledge about SMS E-banking service but they do not use these services yet.

4.3 Descriptive Analysis for the factors influencing of E-banking

Table 4-4 contains means and standard deviations for the factors influencing of E-banking. The table shows that highest score Subjective norms (mean = 1.89, standard deviation = 0.629), followed by Fees & Charges (mean = 1.73, Standard deviation = 0.706), Perceived usefulness (mean = 1.70,Standard deviation = 0.559), Perceived ease of use (mean = 1.60, standard deviation = 0.436), Intention To Adopt (mean = 1.54, standard Deviation = 0.554) and Trust (mean = 1.35, standard Deviation = 0.402). These results indicated that Sudanese banks customers have high usage of e-banking.

Table 4-4: Descriptive analysis of factors influencing of E-banking

Variables	mean	std deviation
Subjective norms	1.89	0.629
Fees & Charges	1.73	0.706
Perceived usefulness	1.70	0.559
Perceived ease of use	1.60	0.436
Intention To Adopt	1.54	0.554
Trust	1.35	0.402

4.4 Correlation Analysis

Table 4-5: represents the correlation matrix for the constructs variables in this study. These variables correlations allow for preliminary inspection and information regarding hypothesized relationships.

Table 4-5: reveals also that all the correlations in the hypothesized are positive relationship. For example the relationship between factors influencing and the intention to adopt are distinctively positive and statistically significant ($0.535 \leq r \leq 0.230$, $p<0.01$).

Table 4-5: Correlation between relationship Factors influencing and adoption of e-banking

	SN	FS	PU	PEOU	TT	INT
Subjective norms (SN)	**1**					
Fees & Charges (FS)	.524(**)	**1**				
Perceived usefulness (PU)	.583(**)	.537(**)	**1**			
Perceived ease of use (PEOU)	.507(**)	.570(**)	.527(**)	**1**		
Trust (TT)	.406(**)	.410(**)	.540(**)	.654(**)	**1**	
Intention To Adopt (INT)	.230(**)	.366(**)	.279(**)	.535(**)	.528(**)	**1**

**Correlation is significant at the 0.01 level (2-tailed)

4.5 Hypotheses Testing

This section discusses the results of testing hypotheses of the study. The hypotheses were tested with the hierarchical regression that discloses the effect of independent variables. The independent variables considered in this study the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) and its impact on the dependent variable of adoption of e-banking.

4.5.1 The relationship between Factors influencing and intention to adopt E-banking.

This section deals with the first hypotheses in the study which predicts that factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) have positive relationship with the intention to adopt. As shown in figure (4-1) below.

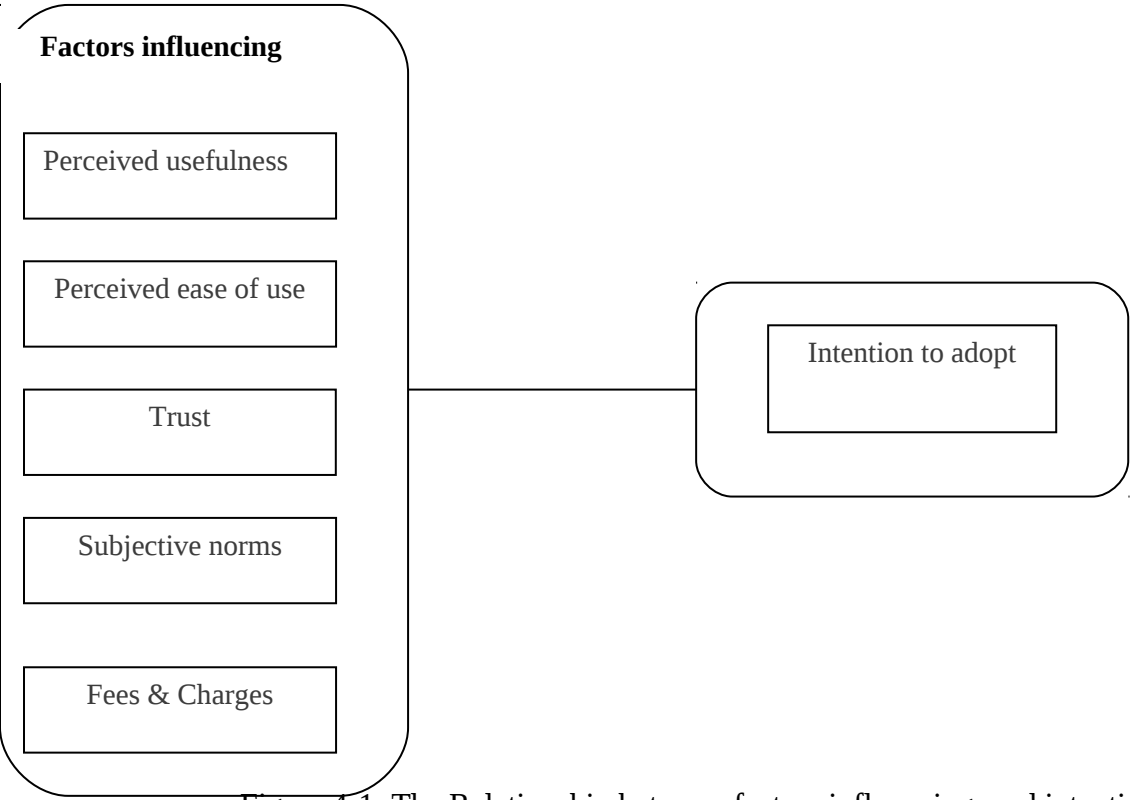


Figure 4-1: The Relationship between factors influencing and intention to adopt

Table 4-6 shows the result of regression analysis of factors influencing and intention to adopt. The regression models were significant (F= 30.009, p<0.01). In the result the factors influencing have significant effect on intention to adopt. The five variables of factors influencing together explain about 36% of the total variation in factors influencing**.** This means that factors influencing cumulatively explain 36% of the variance in intention to adopt of e-banking.

Table 4-6: Regression Result: The Relationships between factors influencing and intention to adopt of e-banking

Variable	intention to adopt
	Std Beta
Model variable	
Perceived usefulness	0.279
Perceived ease of use	0.535***
Trust	0.528***
Subjective norms	0.230
Fees & Charges	0.376**
F value	30.009***
R2	.364
Adjusted R2	.352
R2 change	.364
F change	30.009***

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

The results showed that the hypothesis was supported, i.e. there is a positive relationship between Factors influencing and intention to adopt E-banking.

The results also showed that Perceived usefulness (ß = -0.110) has no significant effect on intention to adopt. The result showed that the hypotheses was no supported H1.1: There is ,a positive significant relationship between Perceived usefulness and intention to adopt Perceived ease of use has the significant effect on intention to adopt (ß=0.350, $p<0.01$) The result showed that the hypotheses was supported H1.2: There is a positive significant relationship between Perceived ease of use and intention to adopt, Trust (ß=0.223,$p<0.01$) The result showed that the hypotheses was supported H1.3: There is a positive significant relationship between Trust and intention to adopt, Subjective norms (ß = -0.094) has no significant effect on intention to adopt. The result showed that the hypotheses was no supported H1.4: There is a positive significant relationship between Subjective norms and intention to adopt, and Fees & Charges (ß=0.157, $p<0.05$) The result showed that the hypotheses was supported H1.5: There is a positive significant relationship between Fees .& Charges and intention to adopt

Therefore, these results provide support for the assertion that the effort to become factors influencing to the creation of intention to adopt, while all the dimensions of (factors influencing) have significant relation with intention to adopt except Subjective norms and .Perceived usefulness. The full SPSS output is displayed in Appendix 3

4.5.2 The relationship between intention to adopt and the actual usage E-banking.

This section deals with the second hypotheses in the study which predicts that variables of the intention to adopt have positive relationship with actual usage E-banking.

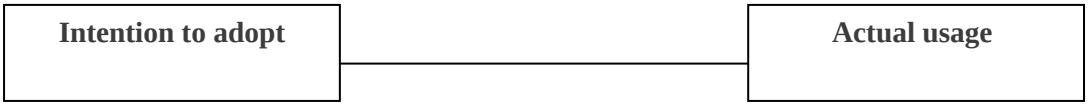


Figure 4-2: The Relationship between intention to adopt and actual usage

Table 4-7 shows the result of regression analysis of variable of intention to adopt and actual usage The regression models were significant (F= 15.869, p<0.01). In the result the intention to adopt has significant effect on actual usage. The intention to adopt together explains about 5% of the total variation in intention to adopt. This means that the intention to adopt cumulatively explain 5% of the variance in the actual usage of e-banking. The results showed that the hypothesis was supported, i.e. there is a positive relationship between intention to adopt and actual usage of e-banking.

Table 4-7: Regression Result: The relationship between intention to adopt and the actual usage of E-banking

Variable	actual usage
	Std Beta
Model variable	
intention to adopt	. 238***
F value	15.869***
R2	.056
Adjusted R2	.053
R2 change	.056
F change	15.869***

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

These results also showed that intention to adopt has significant effect on actual usage of e-banking. (ß=0.38, p<0.01) The result showed that the hypotheses was supported H2: There is a positive significant relationship between intention to adopt and the actual usage .of e-banking

Therefore, the result provide support for the assertion that the effort to become intention to adopt does lead to the creation of actual usage of e-banking. The full SPSS output is .displayed in Appendix 4

4.5.3 The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by experience, gender, and age.

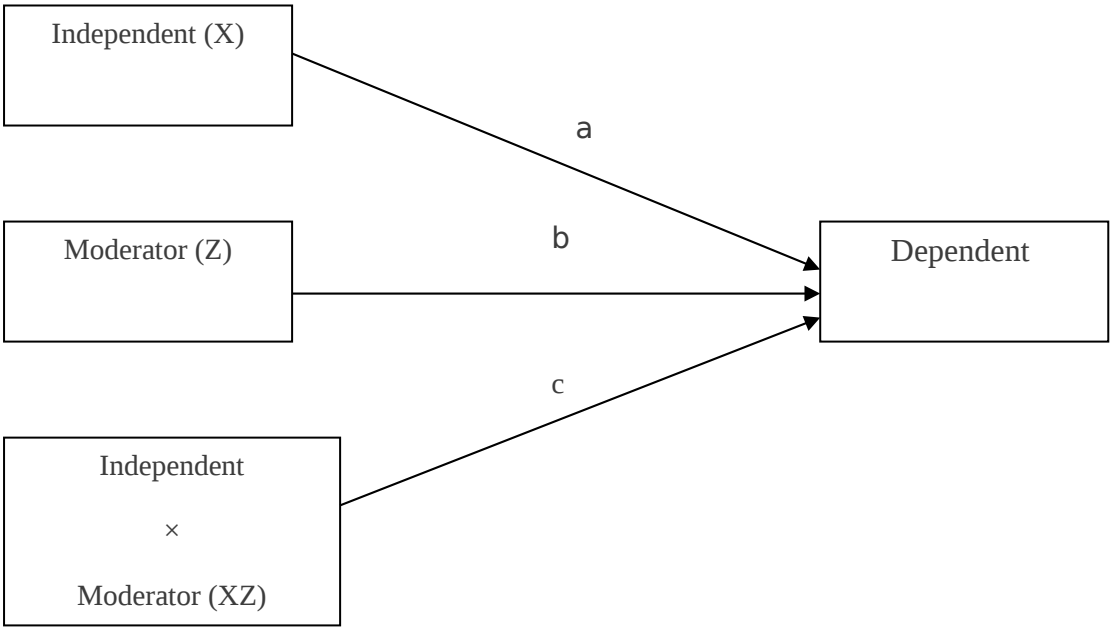
This section deals with the third d hypotheses in the study which predicts that variables of gender, age and experience moderate the relationship between Perceived usefulness and intention to adopt.

The model diagrammed in Figure 4-3 has three causal paths that feed into the outcome variable of task performance: the Figure 1. Moderator model. The impact of the independent (Path a), the impact of controllability as a moderator (Path b), and the interaction or product of these two (independent × moderator) (Path c). The moderator hypothesis is supported if the interaction (Path c) is significant. There may also be significant main effects for the independent and the moderator (Paths a and b), but these are not directly relevant conceptually to testing the moderator hypothesis.

The linear hypothesis is tested by adding the product of the moderator and the continuous independent variable to the regression equasion, as described three step hierarchical regression recommended by baron and Kenny (1986) , if the independent variable is

denoted as X, the moderator as Z, and the dependent variable as Y, Y is regressed on X, Z, and XZ. Moderator effects are indicated by the significant effect of XZ while X and Z are controlled.

The Figure 4-3: Moderator model



source: baron and Kenny (1986)

The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by gender

In model 1, the result showed that the Perceived usefulness significant effect on behavioral intention to adopt (ß = 0.26, p<0.01), In model 2, the result showed that the gender significant effect on behavioral intention to adopt (ß = - 0.15, p<0.01) and In model3, the result showed that the Perceived usefulness × gender significant effect on behavioral intention to adopt (ß = 0.43, p<0.05). These results showed that the moderating hypotheses was supported H3.1: The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by gender

Table 4-8: Regression Result: The relationship between Perceived usefulness and behavioral intention to adopt e-banking moderated by gender

Variable	intention to adopt		
	Std Beta		
Model variable	model 1	model 2	model3
Perceived usefulness	0.267***	0 .267***	0. 267***
F value	20.193***	13.850***	11.142***
R2	0.071	0.095	0.113
Adjusted R2	0.068	0.088	0.103
R2 change	0.071	0.024	0.018
F change	20.193***	7.045***	5.275**

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by age

In model 1, the result showed that the Perceived usefulness significant effect on behavioral intention to adopt (ß = 0.26, p<0.01), In model 2, the result showed that the age significant effect on behavioral intention to adopt (ß = - 0.14, p<0.05) and In model3, the result showed that the Perceived usefulness × age significant effect on behavioral intention to adopt (ß = 0.49, p<0.05). These results showed that the moderating hypotheses was supported H3.2: The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by age.

Table 4-9: Regression Result: The relationship between Perceived usefulness and behavioral intention to adopt e-banking moderated by age

Variable	intention to adopt		
	Std Beta		
Model variable	model 1	model 2	model3
Perceived usefulness	0.267***	0 .267***	0. 267***
F value	20.193***	13.335***	11.275***
R2	0.071	0.092	0.114
Adjusted R2	0.068	0.085	0.104
R2 change	0.071	0.021	0.022
F change	20.193***	6.088**	6.588**

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by experience

In model 1, the result showed that the Perceived usefulness significant effect on behavioral intention to adopt (ß=0.26, p<0.01), In model 2, the result showed that the experience significant effect on behavioral intention to adopt (ß= - 0.16, p<0.01) and In model3, the result showed that the Perceived usefulness × experienc**e** significant effect on behavioral intention to adopt (ß=0.42, p<0.05). These results showed that the moderating hypotheses was supported H3.3: The relationship between Perceived usefulness and behavioral intention to adopt E-banking moderated by experience

Table 4-10: Regression Result: The relationship between Perceived usefulness and behavioral intention to adopt e-banking moderated by experience

Variable	intention to adopt		
	Std Beta		
Model variable	model 1	model 2	model3
Perceived usefulness	0.267***	0 .267***	0. 267***
F value	20.193***	14.331***	11.323***
R2	0.071	0.098	0.115
Adjusted R2	0.068	0.051	0.105
R2 change	0.071	0.027	0.016
F change	20.193***	7.993**	4.883**

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

CHAPTER FIVE

DISCUSSION AND CONCLUSION

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DISCUSSION AND CONCLUSION

5.0 Chapter Overview

Following the data analysis from the preceding chapter, conclusions emerging from the research findings are illustrated initially followed by discussion of the results in light of prior researches. The implications of the findings for theory and management are then developed. Next, limitations and directions for future researches are identified.

5.1 Recapitulation of the Study Findings

It appears clearly that the Sudanese Banks use E-banking Services . This employment varies greatly between using automated teller machine (ATM) to the use of a collection of E-banking services. SMS banking in Sudanese banks is quiet limited.

E-banking Services is new in Sudan. Sudanese banks still working on adopting such technologies. The research also revealed that role of Sudanese banks in encouraging their customers to adopt E-banking Services is not mature yet.

It is also clearly obvious that Sudanese banks do not have clear strategies to motivate customers to adopt E-banking Services .

Hence, in order to aid banks to increase E-banking adoption by customers; it is important to identify factors that influence E-banking adoption in Sudan. Therefore we introduced Acceptance Model for E-banking Services .

results indicate that participants do use the primary E-banking services like ATM banking. These results agree with bankers' viewpoints, as well as support the problem area of this research. In addition, these results confirm that bankers should work to

increase customers' intention to adopt E-banking services. E-banking adoption model which introduces in this research will help banks to achieve this goal.
Furthermore, Results indicate important findings concerning factors that influence E-banking Services in Sudan.

This study aimed to measure the factors effect on adoption of e-banking among Sudanese banks. In addition, the study aimed at investigating the relationship between the factors influencing and adoption of e-banking. The study as well examined the relationship between five variables of the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) and intention to adopt, the relationship between intention to adopt and actual usage and the relationship between Perceived usefulness and intention to adopt controlling for moderating Demographic Characteristics (gender, age , experience).

Tow research questions were outlined to achieve the objectives of the study. The questions are as follows:

1. What are the factors influencing adoption of e-banking by Sudanese banks customers?
2- What are the E-banking Services Usage (Automated Teller Machine (ATM), SMS Banking) in Sudanese banks?

Based on literature review, the study identified the five components of factors influencing of e-banking (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) and intention to adopt .

The first hypothesis in this study predicts that the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) have a positive relationship with the intention to adopt. The results predict (Perceived ease of

use, Trust and Fees & Charges) shows significant positive relationships with intention to adopt

The second hypothesis in this study predict that intention to adopt have a positive relationship with the actual usage. The results predict intention to adopt shows significant positive relationships with actual usage.

The third hypothesis in this study predict that Perceived usefulness have a positive relationship with intention to adopt controlling for moderating Demographic Characteristics (gender, age , experience)

Discussion 5.2

Based on the previous section, this section further discusses the research findings. The discussion is based on theoretical perspective, empirical evidence and conceptual studies that are considered to be appropriate for this study. The discussion covers the relationship between five variables of the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) and intention to adopt, the relationship between intention to adopt and actual usage and the relationship between Perceived usefulness and intention to adopt controlling for moderating Demographic Characteristics (gender, age , experience)

5.2.1 The relationship between five variables of the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) and intention to adopt.

The current study had discovered that three components of factors influencing of e-banking Perceived ease of use, Trust and Fees & Charges are positively significant related

to the intention to adopt. While perceived usefulness and Subjective norms showed no significant relation

Perceived usefulness and Perceived ease of use derived from TAM, Subjective norms derived from TPB and Trust and Fees & Charges extension to the TAM The result of these hypotheses indicate that intention is influenced directly by These results in general are consistent with previous study indicating that factors influenced the intention to adopt significantly (El-Qirem , 2013), (Khrewesh, 2011) and (Baraghani, 2007).

5.2.2 The relationship between intention to adopt and actual usage.

The current study had discovered that intention to adopt **is** positively significant related to the actual usage. These results in general are consistent with previous study indicating that intention to adopt influenced the actual usage significantly (El-Qirem, 2013) and (Khrewesh, 2011).

5.2.3 The relationship between Perceived usefulness and intention to adopt controlling for moderating Demographic Characteristics (gender, age , experience)

The current study had discovered the Perceived usefulness and intention to adopt are positively significant related to the controlling for moderating Demographic Characteristics (gender, age , experience) These results in general are consistent with previous study indicating that factors influenced the intention to adopt significantly (El-Qirem , 2013) .

5.3 Theoretical implications

Findings in this study were compared with prior theoretical and empirical researches to provide possible insights. Based on the data analysis in Chapter four, the compared findings, the result shows that factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) have significant relation with the

intention to adopt, The relationship between intention to adopt and actual usage have significant relation and finally The relationship between Perceived usefulness and intention to adopt controlling for Demographic Characteristics (gender, age , experience) have significant relation.

5.3.1 Practical implications

This study provides good insight for decision makers. Managers should focused more on the factors influencing of e-banking (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) they want to increase customers' intention to use E-banking Services and there by increase the competitive advantages of the bank and increase the market share of the customers. Also this result can assist manager to build good strategies for creating valued intention to adopt and actual usage.

5.3.2 Limitations

This study was confined by several limitations. These limitations were as Follows.

1- Cross-section study.

2- The respondents of study from in Shendi of town of specially Shendi university

3- The respondents of study were banks' customers.

For the adoption of e- banking it is necessary to focus of the factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges).

5.4 Recommendation

1- E-banking Services needs effort from all levels in banks, operation managers should work and cooperate with top level management to achieve the following issues:

- Good customer services
- Richness of website contents
- Fast respond to customer service
- Rapid delivery of service
- 24 h / 7 days availability of services
- No queue to achieve Convenience
- Price of service fees is acceptable
- sufficient number of ATM booths.

2- Banks should pay more attention to technical issues beside operational issues. Research results indicate those factors are influenced the adoption of E-banking Services . Based on these findings, banks should work on creating E-banking systems which are:

- perceived usefulness: available all the time with high speed, and accessible from anywhere.
- Trust: secure, reliable, and achieve the privacy for customers.
- perceived ease to use: user-friendly, simple, support Arabic Language, and free of effort.
- Banks should Use advanced technologies for authentication process like Eye Print. For example, Eye Print can be used in ATMs to verify customers.
- Banks should establish comprehensive security system to protect e-banking servers from viruses and hackers. Security systems should be announced to all customers to trust E-banking Services .

5.5 Recommendation for Future Studies

The following topics could be studied in the future, which may contribute in development of E-banking Services in the Sudan:

1. Studying the Adoption of E-banking by Firms.
2. Study specific types of E-banking services, especially Internet Banking.
3. Study the difference of people's perceptions towards E-banking on the light of other variables including gender, age, occupation, educational level, monthly income, and place of residence.
4. Study other factors that influence E-banking adoption in Sudan.
5. Studying the Adoption of E-banking by Khartoum state.

5.6 Conclusion

The purpose of this research is to conduct an investigation into the essential factors affecting the behavioral intention to adopt or accept of E-Banking service in the Sudanese Commercial Banks. The proposed model posits that factors influencing (Perceived usefulness, Perceived ease of use, Trust, Subjective norms, Fees & Charges) have a direct impact on the behavioral intention to adopt financial services. At the same time this research suggests a direct impact of the behavioral intention on the actual usage of the E-Banking service.

The literature review indicated that TAM models were extensively used to explain the intention to accept and use specific technology in the developed countries more than Arab world. While some researches have been used TAM models in Arab business environment, to date very little research has been done to address E-Banking services adoption in Sudan.

The research utilized quantitative research methodology, the quantitative data were gathered from a random sample of three hundred and fifty (n = 350) Sudanese banks'

customers via a survey that was developed for this purpose. We retrieved two hundred and seventy four (n=274) questionnaires with a response rate of eighty eight percent (78%). SPSS V. 11.5 was used to analyse the collected data and to examine factors influencing Customers' Adoption of E-banking Services in Sudan. Various statistical processes were employed such as frequency, means, percentages, in order to answer and test the research questions and hypotheses.

Based on the research findings, Sudanese banks should work on formulating new strategies, developing their operational process, introduce services with high quality, and coordinate between ICT companies and central bank that would be helpful in achieving customer's trust.

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استبانه حول

العوامل المؤثرة على قبول الخدمات المصرفية الالكترونية في السودان

الأخ الفاضل / الأخت الفاضلة

تسعى الباحثة في هذه الاستبانة الى التعرف على العوامل المؤثرة في تبني الخدمات المصرفية الالكترونية لدى عملاء البنوك السودانية وتحليلها والخروج بتوصيات ونتائج تساعد القطاع المصرفي السوداني لتطوير الخدمات المصرفية الالكترونية وفهم طبيعة عملا ء البنوك وسلوكهم تجاه الخدمات المصرفية الالكترونية.

ويقصد بالخدمات المصرفية الالكترونية: اي خدمة مصرفية يريد عملاء البنوك الحصول عليها دون التوجه الى البنوك أو التعامل مع موظفيها، بل يمكنهم انجاز معاملاتهم المصرفية المختلفة من خلال التعامل مع الوسائل المصرفية الالكترونية المتعددة مثل : نظام الخدمات المصرفية الالكترونية عبر خدمة الرسائل النصية القصيرة من خلال الهاتف النّقال للاستفسار عن الأرصدة و الحركات المصرفية المختلفة و جهاز الصراف الآلي.

وحيث نؤمن انكم خير مصدر للوصول الى المعلومات المطلوبة، و نعهد بكم الاهتمام والاستعداد لمؤازرة الابحاث العلمية، التي تخدم مجتمعنا و تطوره . نتوجه اليكم و كلنا امل ان نجد التعاون من قبلكم, وذلك من خلال الاجابه على الاسئلة المحتواه في هذه الاستبانة, و التي نتعهد لكم بالمحافظة على عدم اظهار هوية المجيب عنها, و عدم استخدامها في اي مجال غير مجال البحث العلمي.

و لكم جزيل الشكر و العرفان ،،،

الباحثة،،،_

الجزء الأول : المعلومات الشخصية

الجنس: ذكر ( ) أنثى ( )

العمر: أ قل من 25 ( ) 25 – 35 ( )

36 – 45 ( ) 46 – 50 ( ) أكبر من 50 ( )

المؤهل العلمي : ثانوي أو أ قل ( ) جامعي ( ) دراسات عليا ( )

الوظيفة: عمال ( ) موظفين ( ) أعضاء تدريس ( )

الخبرات: أ قل من سنة ( ) 1- 5 سنوات ( ) 6 - 10 سنوات ( ) أكثر من 10 سنوات ( )

مستوى الدخل الشهري: أ قل من 500 ( ) 500 - 1000 ( )

1001 – 3000 ( ) 3001 - 5000 ( ) أكبر من 5000 ( )

الجزء الثاني : الخدمات المصرفية الإلكترونية

استخدام خدمة الصراف الآلي:

استخدمها ( ) أعلم بها ولم استخدمها ( ) لا أعلم بوجود هذه الخدمة ( )

استخدام خدمة الرسائل النصية القصيرة للاستعلام عن الحركات المالية:

استخدمها ( ) أعلم بها ولم استخدمها ( ) لا أعلم بوجود هذه الخدمة ( )

الجزء الثالث: أرجو اختيار الدرجة التي تتناسب مع تصوراتك للخدمات المصرفية الالكترونية

أسئلة الاستبانة	أوافق بشدة	أوافق	محايد	لاأوافق	لا أوافق بشدة
هذه الأسئلة لقياس مستوى السرعة للخدمات المصرفية الالكترونية					
نظام الخدمات المصرفية الالكترونية يتمتع بشبكات اتصال فائقة السرعة					
نظام الخدمات المصرفية الالكترونية ينفّذ معاملاتي المصرفية بكفاءة					
نظام الخدمات المصرفية الالكترونية ينفّذ معاملاتي المصرفية بدرجة عالية من السرعة					
يتميز نظام الخدمات المصرفية الالكترونية بسرعة رد مقنعة					
هذه الأسئلة لقياس مستوى الراحة للخدمات المصرفية الالكترونية					
ان الخدمات المصرفية الالكترونية متوفرة للاستخدام من أي مكان و طيلة الوقت 24) ساعة يوميا/ 7ايام بالأسبوع(					
ان الخدمات المصرفية الالكترونية لاتحتاج لوقوف في صفوف انتظار					
نظام الخدمات المصرفية الالكترونية يوفر الوقت					
نظام الخدمات المصرفية الالكترونية سهل الاستخدام حيث استطيع إنجاز ما أريد من خلاله					
هذه الأسئلة لقياس مستوى الوصول للخدمات المصرفية الالكترونية					
تمتاز الخدمة المصرفية الالكترونية بسهولة الوصول للمعلومات					
الوصول لخدمات مصرفية الكترونية متنوعة					
يُمكِّن نظام الخدمات المصرفية الالكترونية من الوصول للحساب					
يمكن نظام الخدمات المصرفية الالكترونية من التحقق من الرصيد					
هذه الأسئلة لقياس مستوى الأمن للخدمات المصرفية الالكترونية					
أن نظام الصيرفة الالكترونية مهتم جدا بسرية معاملاتي					
يتحقق نظام الخدمات المصرفية الالكترونية بطريقه دقيقه من اسم المستخدم وكلمة المرور الخاصة بي					
المعاملات النقدية الالكترونية أكثر أمناً من حمل المال					

أسئلة الاستبانة	أوافق بشدة	أوافق	محايد	لاأوافق	لا أوافق بشدة
بشكل عام، نظام الخدمات المصرفية الالكترونية آمن جداً					
هذه الأسئلة لقياس مستوى الخصوصية للخدمات المصرفية الالكترونية					
المعلومات السرية تسلم بامان من البنوك الى الزبائن					
المصرف ملتزم بحفظ معلومات الزبائن					
إجراء المعاملات الالكترونية بسلامة					
الخصوصية في الصيرفة الالكترونية مهمة لي					
هذه الأسئلة لقياس مستوى الثقة للخدمات المصرفية الالكترونية					
لديَّ ثقة في نظام الخدمات المصرفية الالكترونية					
أثق بأمان التحويل النقدي الالكتروني					
لديَّ ثقة في سرية معلوماتي الشخصية والمالية					
بشكل عام، أثق في نظام الخدمات المصرفية الالكترونية					
هذه الأسئلة لقياس مستوى المحتوى للخدمات المصرفية الالكترونية					
أعتقد بأن المحتوى حديث و حاسم					
آلية استخدام نظام الخدمات المصرفية الالكترونية واضحة ومفهومة					
يعرض معلومات كافية عن البنك					
بساطة إجراء المعاملات الالكترونية					
هذه الأسئلة لقياس مستوى التصميم للخدمات المصرفية الالكترونية					
أوافق بأن تصميم واجهة المستخدم جذاب					
أشعر بأن التصميم جميل والألوان متناسقة					
أعتقد بان التصميم الفعال مهم لي					
يوافق ثقافة وسلوك الزبائن					
هذه الأسئلة لقياس مستوى البساطة للخدمات المصرفية الالكترونية					
نظام الخدمات المصرفية الالكترونية يدعم اللغة العربية					
إستخدام نظام الخدمات المصرفية الالكترونية لا يتطلب الكثير من الجهد و التفكير					
آلية إستخدام نظام الخدمات المصرفية الالكترونية واضحة ومفهومة					
أعتقد أن نظام الخدمات المصرفية الالكترونية سهل التعلم والاستخدام					
بشكل عام، نظام الخدمات المصرفية الالكترونية مرن و غير معقد					
هذه الأسئلة لقياس مستوى الرسوم للخدمات المصرفية الالكترونية					
رسوم إجراء المعاملات الالكترونية قليلة					
الرسوم على الخدمات الالكترونية مقبولة					
أوفر وقتي ومالي باستخدام الصيرفة الالكترونية					

أسئلة الاستبانة	أوافق بشدة	أوافق	محايد	لاأوافق	لا أوافق بشدة
إجراء المعاملات الالكترونية أقل تكلفة من التعامل المباشر مع البنك					
هذه الأسئلة لقياس مستوى الاعتمادية <u>للخدمات المصرفية الالكترونية</u>					
سهولة تحويل مال من اي مصرف لاي حساب أخر					
خدمة مستمرة ومنظمة					
عدد كافي من نقاط الصراف الالي					
الحصول على بيان حساب في أي وقت					
هذه الأسئلة لقياس مستوى القلق <u>للخدمات المصرفية الالكترونية</u>					
الخدمة الالكترونية سريعة					
أشعر باهتمام في حل المشاكل					
سمعة مصرفية جيدة					
لا أثق في استخدام الصراف الالي					
هذه الأسئلة لقياس مستوى النية لقبول <u>الخدمات المصرفية الالكترونية</u>					
أنوي استخدام أو الاستمرار في استخدام الخدمات المصرفية الالكترونية					
من المحتمل سأتبنى نظام الخدمات المصرفية الالكترونية					
أود الاستفادة من مزايا و فوائد الخدمات المصرفية الالكترونية					
أعتقد أن استخدام الخدمات المصرفية الالكترونية سوف يكون إلزاميا في المستقبل					

Appendix 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
subjective norms	268	1.00	4.25	1.8909	.62951
Fees & Charges	274	1.00	4.25	1.7381	.70685
perceived usefulness	268	1.00	3.92	1.7047	.55940
perceived ease of use	268	1.00	3.00	1.6032	.43641
Intention To Adopt	274	1.00	4.00	1.5465	.55419
perceived risk	268	1.00	3.08	1.3532	.40237
Valid N (listwise)	268				

Appendix 2

Correlations

		subjective norms	Fees & Charges	perceived usefulness	perceived ease of use	Trust	Intention To Adopt
subjective norms	Pearson Correlation	1	.524**	.583**	.507**	.406**	.230**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000
	N	268	268	268	268	268	268
Fees & Charges	Pearson Correlation	.524**	1	.537**	.570**	.410**	.366**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000
	N	268	274	268	268	268	274
perceived usefulness	Pearson Correlation	.583**	.537**	1	.527**	.540**	.279**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000
	N	268	268	268	268	268	268
perceived ease of use	Pearson Correlation	.507**	.570**	.527**	1	.654**	.535**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000
	N	268	268	268	268	268	268
Trust	Pearson Correlation	.406**	.410**	.540**	.654**	1	.528**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000
	N	268	268	268	268	268	268
Intention To Adopt	Pearson Correlation	.230**	.366**	.279**	.535**	.528**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	268	274	268	268	268	274

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.603[a]	.364	.352	.37779	.364	30.009	5	262	.000	1.395

a. Predictors: (Constant), Trust, subjective norms, Fees & Charges, perceived usefulness, perceived ease of use

b. Dependent Variable: Intention To Adopt

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.415	5	4.283	30.009	.000[a]
	Residual	37.395	262	.143		
	Total	58.810	267			

a. Predictors: (Constant), Trust, subjective norms, Fees & Charges, perceived usefulness, perceived ease of use

b. Dependent Variable: Intention To Adopt

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	.501	.098		5.135	.000			
	subjective norms	-.070	.048	-.094	-1.444	.150	.230	-.089	-.071
	Fees & Charges	.105	.044	.157	2.395	.017	.376	.146	.118
	perceived usefulness	-.092	.058	-.110	-1.590	.113	.279	-.098	-.078
	perceived ease of use	.347	.080	.323	4.367	.000	.535	.260	.215
	Trust	.408	.080	.350	5.110	.000	.528	.301	.252

a. Dependent Variable: Intention To Adopt

Appendix 4

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.238[a]	.056	.053	.18436	.056	15.869	1	265	.000	1.388

a. Predictors: (Constant), Intention To Adopt

b. Dependent Variable: Actual Usage

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.539	1	.539	15.869	.000[a]
	Residual	9.007	265	.034		
	Total	9.547	266			

a. Predictors: (Constant), Intention To Adopt

b. Dependent Variable: Actual Usage

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.413	.034		41.508	.000			
	Intention To Adopt	.084	.021	.238	3.984	.000	.238	.238	.238

a. Dependent Variable: Actual Usage

Appendex 5

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.273[a]	.074	.071	.44448	.074	21.294	1	265	.000	
2	.281[b]	.079	.072	.44426	.004	1.257	1	264	.263	
3	.281[c]	.079	.068	.44509	.000	.014	1	263	.907	1.241

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Sex

c. Predictors: (Constant), perceived usefulness, Sex, usefulness&Sex

d. Dependent Variable: Intention To Adopt

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.207	1	4.207	21.294	.000[a]
	Residual	52.354	265	.198		
	Total	56.560	266			
2	Regression	4.455	2	2.227	11.286	.000[b]
	Residual	52.105	264	.197		
	Total	56.560	266			
3	Regression	4.458	3	1.486	7.500	.000[c]
	Residual	52.103	263	.198		
	Total	56.560	266			

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Sex

c. Predictors: (Constant), perceived usefulness, Sex, usefulness&Sex

d. Dependent Variable: Intention To Adopt

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.114	.087		12.767	.000			
	perceived usefulness	.225	.049	.273	4.614	.000	.273	.273	.273
2	(Constant)	1.027	.117		8.799	.000			
	perceived usefulness	.225	.049	.273	4.625	.000	.273	.274	.273
	Sex	.064	.057	.066	1.121	.263	.064	.069	.066
3	(Constant)	1.026	.118		8.715	.000			
	perceived usefulness	.231	.073	.281	3.191	.002	.273	.193	.189
	Sex	.063	.057	.066	1.111	.267	.064	.068	.066
	usefulness&Sex	-.004	.032	-.010	-.116	.907	.195	-.007	-.007

a. Dependent Variable: Intention To Adopt

Appendix 6

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.273[a]	.074	.071	.44448	.074	21.294	1	265	.000	
2	.282[b]	.079	.072	.44413	.005	1.420	1	264	.234	
3	.292[c]	.086	.075	.44346	.006	1.789	1	263	.182	1.208

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Age

c. Predictors: (Constant), perceived usefulness, Age, usefulness & age

d. Dependent Variable: Intention To Adopt

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.207	1	4.207	21.294	.000[a]
	Residual	52.354	265	.198		
	Total	56.560	266			
2	Regression	4.487	2	2.243	11.374	.000[b]
	Residual	52.073	264	.197		
	Total	56.560	266			
3	Regression	4.839	3	1.613	8.201	.000[c]
	Residual	51.722	263	.197		
	Total	56.560	266			

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Age

c. Predictors: (Constant), perceived usefulness, Age, usefulness & age

d. Dependent Variable: Intention To Adopt

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.114	.087		12.767	.000			
	perceived usefulness	.225	.049	.273	4.614	.000	.273	.273	.273
2	(Constant)	1.194	.110		10.890	.000			
	perceived usefulness	.224	.049	.271	4.592	.000	.273	.272	.271
	Age	-.033	.028	-.070	-1.192	.234	-.076	-.073	-.070
3	(Constant)	.921	.231		3.979	.000			
	perceived usefulness	.384	.129	.466	2.969	.003	.273	.180	.175
	Age	.081	.090	.175	.908	.365	-.076	.056	.054
	usefulness & age	-.067	.050	-.320	-1.337	.182	.088	-.082	-.079

a. Dependent Variable: Intention To Adopt

Appendix 7

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.273[a]	.074	.071	.44448	.074	21.294	1	265	.000	
2	.273[b]	.075	.068	.44527	.000	.055	1	264	.814	
3	.280[c]	.078	.068	.44517	.004	1.118	1	263	.291	1.203

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Experience

c. Predictors: (Constant), perceived usefulness, Experience, usefulness&Experience

d. Dependent Variable: Intention To Adopt

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.207	1	4.207	21.294	.000[a]
	Residual	52.354	265	.198		
	Total	56.560	266			
2	Regression	4.218	2	2.109	10.637	.000[b]
	Residual	52.343	264	.198		
	Total	56.560	266			
3	Regression	4.439	3	1.480	7.467	.000[c]
	Residual	52.121	263	.198		
	Total	56.560	266			

a. Predictors: (Constant), perceived usefulness

b. Predictors: (Constant), perceived usefulness, Experience

c. Predictors: (Constant), perceived usefulness, Experience, usefulness&Experience

d. Dependent Variable: Intention To Adopt

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.114	.087		12.767	.000			
	perceived usefulness	.225	.049	.273	4.614	.000	.273	.273	.273
2	(Constant)	1.127	.103		10.919	.000			
	perceived usefulness	.226	.049	.274	4.602	.000	.273	.273	.272
	Experience	-.006	.027	-.014	-.235	.814	.018	-.014	-.014
3	(Constant)	.915	.226		4.053	.000			
	perceived usefulness	.359	.135	.435	2.664	.008	.273	.162	.158
	Experience	.078	.084	.175	.929	.354	.018	.057	.055
	usefulness&Experience	-.052	.049	-.270	-1.058	.291	.161	-.065	-.063

a. Dependent Variable: Intention To Adopt