CURRENT CHALLENGES AND OPPORTUNITIES OF M-BANKING IN AFGHANISTAN

Anosha SOBAT
Member of Computer Science Department, Faryab University**,** Afghanistan 2020.

Abstract

Mobile banking (m-banking) is the newest technological innovations in the banking industry that simplifies the accessibility of banking services to customers. M-banking has emerged as an alternative to e-banking and therefore widely has been adopted by developed and developing countries. Afghanistan was one of those countries that started to launch m-banking service in 2009 to improve its banking services. Yet, despite efforts and investment made for the diffusion of this technology, the adoption rate is still very low. For this reason, this research is conducted to investigate the major challenges and opportunities of m-banking in Afghanistan as a first objective of this research and providing beneficial recommendations for futures assessments as a second objective of this study. A qualitative research method is used to find out the major challenges and opportunities of this technology by collecting data from primary and secondary data sources. Therefore, in-depth interviews conducted both in supply-side and demand-side, with bank officials and customers. Interviews with bank officials focus on four pre-designed patterns (economy, technology infrastructure, regulation, and policies, and organization). The result then revealed the major challenges were in economic and technology infrastructure, and organization parts, respectively. While the result also exposed that customers have main concerns with security, internet quality, risks/fraud, trust, awareness, and interface design of these services.

Keywords: M-banking, online-banking, qualitative research method

Introduction

The rapid advancement of technology, the e-business framework experienced a noteworthy move. Online banking is one of those technology inventions offered by the banks which leads a new way of competition in the financial sector concurrently to e-commerce development (Cronin, 1998). Online banking is an alternative of bank branches on which banking services are delivered to the customers through the bank's website (Bruno, 2003). The customers can access and conduct their financial transactions through banking applications and the internet from any place at any time (Shih & Fang, 2004). Thus, online banking has been accumulated attention from bankers and other financial business service providers, policymakers, and researchers both in developed and developing countries (Ibrahim et al., 2006). Because online banking conveys substantial advantages to banks, businesses, and clients in terms of convenience, low transaction costs, and time savings (Lee & Chung, 2009). Meantime, the increased diffusion, and usage of mobile phones offers enormous opportunities for the evolution of m-commerce which is a substantial successor to e-commerce. Mobile payments (m-payment) are an evolution of e-payment systems that simplify m-commerce and can be a good alternative of cash, cheques, and debit cards. Therefore, m-payment refers to any payments through mobile devices to start, authorize and confirm an exchange of money to get any kind of goods or services in return. The realization of m-payment

will arise the new and unforeseen ways of feasibility and continence in m-commerce. Likewise, along with the proliferation of mobile technologies, mobile banking (m-banking) has emerged as a recent innovative m-payment service. M-banking can be referred to as the use of smartphones to conduct banking activities directly through a mobile device while away from home or computer (Ensor et al., 2012). In other words, m-banking is the new way banking services offered by banks, credit unions or other financial organizations to provide financial information, communication and transactions to consumers directly through the mobile website or more popularly, through a custom mobile application. These devices may include any type of smartphones, tablets, PDAs or any portable devices having connection capability to telecom networks and make it possible for payments to be made. M-banking as the most recent innovative communication channel is growing fast as a large segment of consumers prefers to perform banking services within their mobile phones (Shih & Fang, 2004). Therefore m-banking has been adopted widely in developed countries. While the adoption rate in advanced developing countries is accelerating in recent years especially growing in many Asian countries, including Taiwan, Singapore, China, South Korea, and Hong Kong, (Shih & Fang, 2004). Though, for many non-advanced developing countries, online banking, and its extensions such as mobile banking is still at its infancy level (Qureshi, 2008). Lin(2011) exposed that m-banking has gained potential importance in today's business market thus, several research studies estimated the likely adoption of this technology around the world as Research (2013) discovered that users of m-banking worldwide reached to 1 billion by 2017. Consumer acknowledgment is a key driver deciding the pace of progress in m-banking selection. Since empirical researches on what is holding consumers from acceptance to retention to use have been few especially in developing economies (Sathye, 1999). The banking sector in Afghanistan devastated and faced huge challenges because of decades of war and conflicts. Eventually, new banking laws based on international best practices passed in 2003, and at the end of 2014, there were 17 licensed banks including two governmental banks, ten large commercial banks, and five branches of foreign banks. Besides, a total of 352 branches of private banks in Afghanistan poses another challenge in the banking sector, because it's very few considering a population of 36 million populaces. Afghanistan has few ATM machines and Debit and Masters cards services, which is accessible just in some urbanized areas. For this reason, most of the banks and telecom companies tried to introduce new ways of banking in Afghanistan and consequently the first m-banking service called m-paisa launched in 2008, by Roshan telecom in Afghanistan. For now, there are Four largest telecom operators; Roshan (M-paisa), Etisalat Afghanistan (M-hawala), AWCC (My money) and MTN (My wallet) are offering mobile money in Afghanistan. These services give the chance also for unbanked people to perform some basic banking transactions remotely through cell phones. In the meantime, Western Union correspondingly contracted with Roshan to enable international remittances. In Afghanistan, banks with the cooperation of telecom companies are providing payments through mobile to the customers. In most recent years, commercial banks are offering a wide variety of competitive, efficient, and upgraded online banking in accordance with national and international accessibility and usage. According to MCIT (2017) report, m-banking technology has been expanded recently for the new financial setup of the country. Indeed, banks and other financial consortiums are making investments for building m-banking infrastructure for the low-income market. In addition, reports and evidence revealed that individuals are willing to adopt new, modernized banking

technologies. Because m-banking can provide greater convenience and advantage in terms of time and cost savings for most customers over its substitutes. Therefore, it's quite important to bank and providers to recognize the factors impact the customer's intention to adopt m-banking. Therefore, this study investigates the factors impact the adoption of this technology in Afghanistan and gives insights about this technology further while there is no such study has been done in Afghanistan previously.

Problem Statement and Motivation

Indeed, the adoption of m-banking is an essential need in the current situation of Afghanistan in which the cash-based transactions dominate the market and causes severe difficulties from different aspects. One of the main concerns is the customer's difficulties to interact with bank branches to grasp the specific necessity of banking services. Because of less deployed banking infrastructure, fewer banking branches, few ATM machines, inadequate human labor/stuff, poor traditional banking services bank customers need to wait in long or several hours or sometimes for several days. Another critical concern related to the cash-based market in Afghanistan is security issues which means transferring and using cash for business and daily affairs is life-threatening in most the cases. In addition, a lack of economic stability is another main reason to adopt m-banking thus, to improve the economic growth of the country. Since bank offices or branches all alone are not sufficient to take into account the necessities of requesting customers thus, the majority of banks have started offering various basic mobile payment services to overcome from such kind of problems and also to increase the accessibility for individuals with physical-mobility limitations or people who live in rural areas, far from a bank branches. Recently, concurrent with the high proliferation rate of mobile phone users, several large commercial banks in Afghanistan have been introduced and launched m-banking services. According to the recent estimations of MCIT, of the 36 million population of Afghanistan, the penetration rate of mobile is more than 80%, as of 2016. Also, based on this report, around 6.5 million, which forms 19.5% of the population has access to internet. While, the number of m-banking consumers reaches to 346k based on the latest estimation of MCIT (2017), which shows an unexpectedly low rate as compared to mobile network subscribers. This means the number of active m-banking users are only 10 per 1000 adults or only 1.3%, which represents that using m-banking in the market is in minority compared to the high rate of mobile phone users. Thus, diffusion of m-banking is still a work in progress that needs a deep-consideration and investigation. Regardless of the endeavors that have been done by financial authorities in Afghanistan, the number of customers has been decreased dramatically, thus the adoption rate of m-banking is low, while it was expected to be high. Henceforth, it's critical to understand the perception of customers from m-banking services and what factors impact the adoption of this technology. Therefore, the author is motivated to investigate the adoption of m-banking to assess the customer observations from this technology which has not been explored in Afghanistan yet. This research is conducted to investigate the major challenges and opportunities of m-banking in Afghanistan as the first objective of this research.

Literature Review

To accomplish the goals of this research, several research studies and journals related to m-banking have reviewed to consider different aspects of technology adoption. Literature review in this research covers the main concepts of m-banking and it can be divided into five main sections listed as (i) Online/mobile banking (ii) Factors influencing m-banking adoption (iii) Current status of m-banking in Afghanistan.

Current Status of M-banking Services in Afghanistan

Afghanistan is a country where there is limited access to fixed banking infrastructure. Therefore, banks with the cooperation of financial authorities and telecom operators have tried to introduce a new way of banking or technological banking system to the customers. Thus, the evolution started from e-banking, mobile money, then internet banking, and recently launched m-banking services. Because of a dramatic rise in mobile subscriptions and high mobile device penetration rate. Banks seek new ways of utilizing mobile technology to enhance their services and engage more customers. In 2008, Roshan Telecom launched M-paisa in Afghanistan in order to facilitate mobile banking for the first in Afghanistan. M-paisa services are now available almost in all provinces by providing different types of services. M-paisa started to work widely in 2009 and optimism for the benefits of mobile money was high. And therefore, most people especially people living in rural area started to adopt M-paisa in the very first years. Mobile Money is an electronic wallet service which is a secure electronic account linked to a mobile phone. Essentially, mobile operators are in partnership with banks offering mobile payment services. After that, the main Telecom operators also tried to introduce the same service in 2011. Roshan is now competing with four mobile operators, each offering its own mobile money product (Etisalat, MTN, AWCC, and Salam). Figure 1, shows the most widely used m-money services in Afghanistan based on the Afghan economics report, 2017.

Operators	Mobile Money	Investments	Revenue ($)	Customers	Services	Bank Partners	Agents	Operations
Roshan	M-paisa	5m	2m	159k	Person to person money transfer, Disbursement repayment of microfinance loans, Airtime purchases, Bill Payments, Disbursement and Receipt of salaries	AIB Bank AUB Bank Azizi Bank	115	2008
Etisalat	M-Hawala	6m	74k	113k	Cash Deposit, Cash Withdraw, Money Transfer/P2P, Top-ups, Breshna Bill payments, Purchase goods/Services, Salary Payment	Pashtany Bank Afghan United Bank Azizi Bank	27	2011
AWCC	My Money	4m	64k	85k	Sending money, Receiving money, AWCC airtime top-up, Merchant Payments for goods/services, salary Payments	Maiwand Bank	28	2011

Figure 1: Mobile Money Overview in Afghanistan, (Source: Economics Report, 2017)

After years, the space of growth with mobile money has been remarkable, because of the benefits it conveyed to users such as money transfer between two parties, bill payment,

buying goods and services, and complete savings accounts. They can exchange the digital value for in-store purchases and in transferring funds anywhere a corresponding agent is located. Mobile money can be used to pay utility bills, top-up mobile phone minutes and pay school fees. It's also provided a great way to distribute salaries and social service benefits like pensions and public assistance. Yet the question is here that why is not everyone using mobile money in Afghanistan? What's keeping this great service from taking off in recent years? Findings and report shows many challenges with mobile money in Afghanistan listed as (i) lack of interoperability between banks, mobile operators and merchants, (ii) understanding of consumer's need and preferences, (iii) strategies to ensure rural market liquidity, (iv) lack of business models for mobile operators and agents to ensure their sustainability, as well as challenges on agent recruitment and management, and (v) increasing masses on mobile money transactions for duty payments and government salaries. The challenging conditions facing the mobile money industry here hamper the acceptance of mobile money and need to be carefully taken into consideration.

In the meantime, many large commercial banks (Azizi bank, AIB, Ghazanfar bank) and some micro-finance authorities tried to continues to redefine the way banking is done in Afghanistan . With strong technology driven solutions to introduce the more innovative way of banking by providing bank applications or finance apps to their customers named as AZYPAY, AIB Digital Banking, FastPay and more and customers can find and download these apps from google play and app store. Some of these apps are explained here briefly to give insights about the recent banking services:

a)AZI-PAY

Azizi bank launched the first mobile based wallet solution in the country with brand name AZI-PAY which is Azizi Bank's mobile wallet on your smartphone. It is a prepaid wallet which can be used to transfer money to other wallet users, load money from bank accounts, make merchant payments, make bill payments and request money anytime, anywhere.

b) AIB Digital Banking Mobile App

This app is offered by Afghanistan International Bank for customers to promote the banking services. The greater point about this app is it bring new features such as easy account creation, fast account transfer, statements, automatic bill payments, and secure message alerts and also, report and management tools for the users.

c)HesabPay

Hesab Pay is Afghanistan's first E-payments solution that lets to transfer funds within seconds using your smartphone. Hesab Pay's advanced features for businesses and individuals also include e-taxation, payroll, bill payment, top-up recharge and more. Hesab Pay works together with Afghanistan Payments Systems (APS), Azizi Bank, M-Paisa (Roshan), and all other banks and mobile network operators to handle their daily transactions. Customers no longer have to go to the bank and wait in long queues to make a

balance inquiry or send money. Hesab Pay let them do this within seconds from wherever they wish to.

d)GBOnline

Ghazanfar bank finance introducing GB App, the latest offering in the continuous effort to simplify the banking needs of customers and providing world-class banking services at the comfort of your home. With this powerful application, you can view your account balances, download statements, transfer money, request cheque book without stepping into the branches.

e) FastPay

FastPay is another application provided by the financial authorities in Afghanistan. Using the FastPayAf application users can recharge there prepaid mobile number, transfer money, and book flight tickets and pay for breshna bills using QR- payment method easily. Since m-banking technology is a newborn technology in Afghanistan banks are now struggling to increase the adoption rate of customers and still, the number of customers are unexpectedly low. Hence this research analyzed the e-WOM to find out the major challenges and drawbacks of the new apps as part of literature reviews. The following section shows what are the main problems of these apps.

Drawbacks of Current M-banking Applications Based on e-WOM Analysis

M-banking applications should be offered in a way that convey convenience and great simplicity to customers. While the current applications have major weaknesses according to the customers reviews, feedback's, and experiences. The followings are the list of those problems' customer faced with while using these apps: The most common problem according to customer feedback is login problem means when they attempt to login to account many errors come such as "network unavailable and cannot proceed", even though having a good internet connection. The next major concern in regards of current m-banking applications are installation of app on devices where most of the users concerned with problems saying "device not compliant" or "OTP not received". Meanwhile many customers complained that the functionalities of application slow or not functioning properly mean recharging credit cards or transfer to another account is not working. In addition, many customers said that these apps drain mobile battery, ask for permission to sensitive data, features are limited, and complex design and interface. In addition, majority of customers with a good digital knowledge claimed that these apps need a robust debugging to solve the current problems. While customer behavior is a critical challenge banks faced with. Besides the corruption in Afghanistan has dented the reputation of the country's banking system and as a result not many people trust the system and these all impacts the customer behavior toward using technology. Still, many local technology and business experts believe m-banking will expand the number of customers in the future with more than 80% of Afghan adults using mobile phones currently in the country.

Methodology

To find out the challenges and opportunities of m-banking in Afghanistan, this study used a qualitative or exploratory research method in the form of primary and secondary data collection and correspondingly in-depth interviews with bank authorities and financial officials. The following sections describes the steps done for qualitative method.

1.Specifying the Problem Domain

This study aimed to discover the key obstacles and other challenges regarding m-banking technology in the supply-side (banks) through a qualitative survey. Karimi (2016) found that in regard to supply-side challenges, high risks associated with m-banking, lack of technological infrastructure, budget shortage and lack of government support are the main barriers that banks are not enable to implement the international standards in Afghanistan. While customer unfamiliarity, illiteracy, and expensive internet cost are considered as the main challenges from demand-side view. For this reason, as part of vendors' discoveries, this research attempted to investigate the current challenges and opportunities of m-banking services in different dimensions listed as economy, organization, technology infrastructure, and rules and policies. Besides, the research tried to identify the potential factors that impact the user's perception of m-banking adoption and how these factors influence the user's behavioral intention to use m-banking. Furthermore, this research attempted to provide solutions and recommendations to bank authorities for further advancement of this technology.

2. Developing Interview Questionnaire

The questionnaire is used as the main data gathering instrument for collecting the primary data in this research. For this aim, a semi-structured questionnaire is developed and question are categorized in four pre-determined patterns(economy, technology infrastructure, rules and policy, organization) .Also, bank officials and m-banking users are the main groups that are going to be interviewed in this research. At the same time, due to the bank's confidentiality rules and information sensitivity, the questionnaire is presented in a manner that does not require the respondents to disclose their banks or account information.

3.Data Collection

For the attainment of a good and efficient outcome for the first objective of this research, the primary and secondary data were collected and analyzed further. Thus,
the main portion of data in this report was collected through the face-to-face and focus groups in-depth interviews with bank officials, and financial authorities and bank customers amongst the specific number of banks, Telecom companies, managers, and randomly selected customers who utilize m-banking services. Moreover, secondary data sources also considered as part of data collection in the first step of this study. A major portion of the secondary data in this research was collected through the following documents (journals of Da Afghanistan Bank, Afghanistan Banking Association journals,

International Monetary Fund (IMF) and ASIA reports, private banks annual reports). and internet related websites.

4.Qualitive Data Analysis

Two different data analysis techniques were used to analyze the qualitative data. A content analysis technique was used to analyze the primary data and a document analysis technique used to analyze the secondary data. The content analysis was often used to analyze the group interviews and open-ended questions to complement qualitative data in social science. In this technique coding and labeling were used as a part of meaningfully categorizing sentences in communication to the proper units. A document analysis technique is mostly used to extract knowledge and gain insights from secondary related data sources. The main activities done in this regard were skimming, reading and interpretation of pervious reports, existing journals, and related document to add value to the result of the study.

Result and Discussion

This study has conducted an interview with five officials including Head of Mobile Banking (AziPay) of Azizi Bank, Head of AIB Digital Banking, Head of Da Afghanistan Bank, Head of M-paisa from Roshan telecom in Afghanistan, and Afghanistan Payments Systems (APS) consortium manager. The main objective of these interviews was to investigate the major obstacles, challenges, and opportunities of m-banking at supply-side or bank's perspectives. Afterward, this research has further divided the interview scheme to four major groups, which are economy, technology infrastructure, rules and policies, and organization. The interview with financial officials included 9 questions regarding the four major groups as mentioned above. Meanwhile this research conducted interviews with m-banking users. The purpose of interviews with users was to identify the potential weaknesses, concerns and usage purpose and further to understand their perceptions of m-banking services in Afghanistan. Thus, interviews were done with almost fifty users including and adopters and non-adopters to find out the critical weaknesses, challenges, and barriers of m-banking in Afghanistan. The interviews conducted in a volunteered manner with those customers who were waiting outside the bank in the queue. Furthermore, based on interviews conducted with customers, they are interested to use m-banking services for different purposes. Individual users in the majority were preferring m-banking which can be deemed as a good and optimistic vision for future convenience. The most commonly used areas of m-banking apps were for checking the account balance, check the statement of their bank accounts, and transfer money without going to any bank branch or ATM. Besides, a good outcome from utility of m-banking services and products was that time and resources can be managed and saved with the desire of customer need. Means consumer prefers to use m-banking because its available with no time or location constraints. Also, consumers stated that another main purpose of using m-banking was to facilitate daily banking routines such as balance inquiry, electricity bill payments, top-ups which are quite useful for them. In addition, consumers believe that m-banking is an efficient way of doing banking since no efforts need to make. Although, it's safe and secure

than conventional banking services. Moreover, customers mentioned that m-banking is completely a new magical idea in the context of Afghanistan and shows banking technological advancement. M-banking is providing them the environment for ideal services such as online business, e-commerce, and online shopping. Figure 4.2 illustrates the major usage purposes of m-banking services in Afghanistan based on interviews with m-banking customers. The overall analysis has done for the responses of the user to conclude the major issues with banking technology, which may influence the success of technology in Afghanistan. The analysis suggested the majority of respondents strongly mentioned that m-banking is not secure, and privacy is absent thus, they have fear of hack , fraud, or in other words the high level of uncertainties with existing m-banking applications. At the same time potential adopters stated that they have problem with internet quality, and poor connection made these apps unpleasant to use. In addition, a lack of trust on banking sector was another main concern with m-banking services. Moreover, a large segment of customers lacking awareness of services and also knowledge to use it. Further, customers mentioned that m-banking apps have inoperability and complexity issues. Also, the respondent stated that m-banking apps have a poor user interface design which is not user-friendly and lack some features. Following tables show the result of interviews with customers.

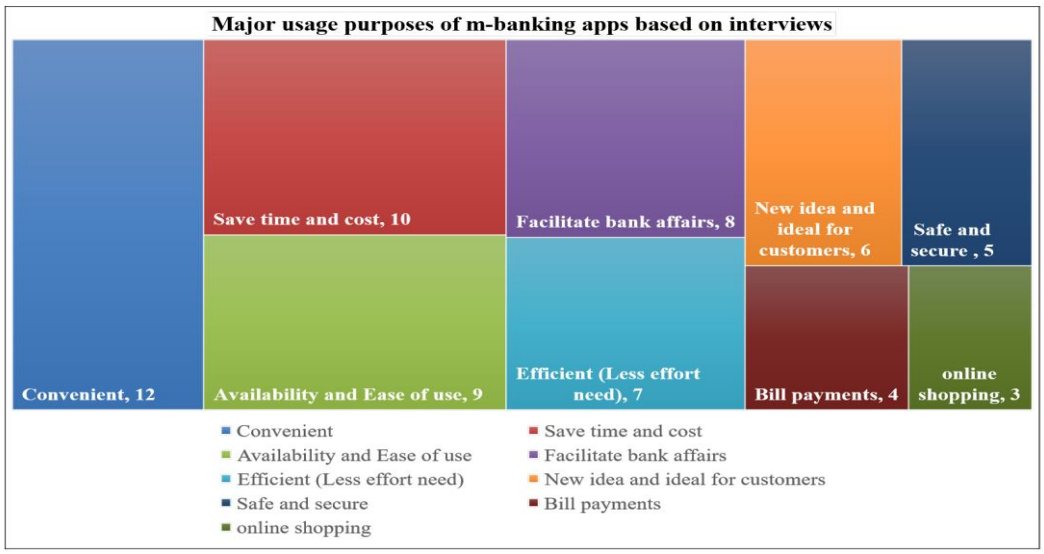


Table 1: Major purpose of using m-banking applications from customer perspective

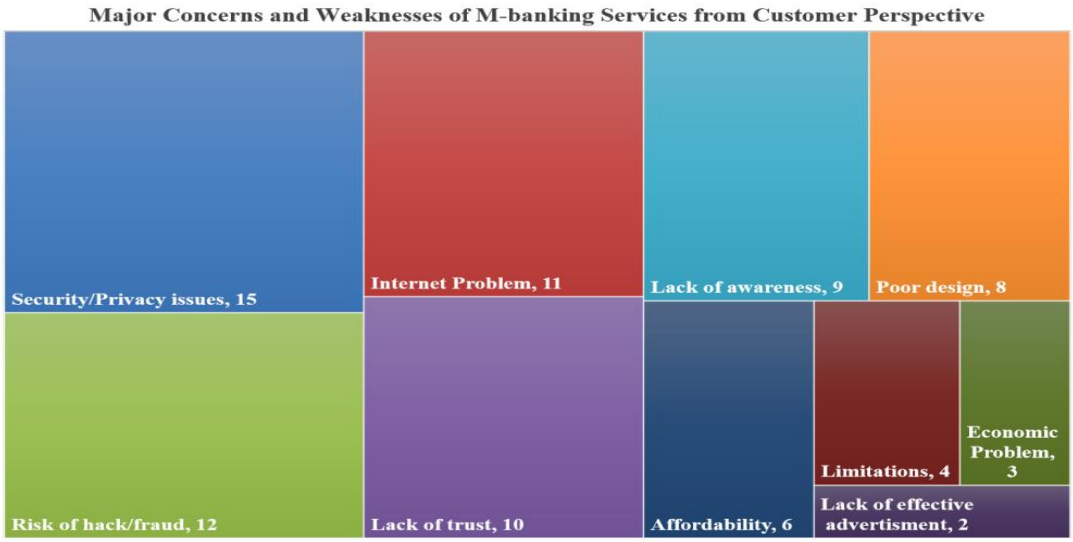


Table 2: Potential concerns and weaknesses of m-banking services from customer

In addition, this research also tried to figure out barriers and main challenges of m-banking services from bank's perspective as well. Table 4.3 shows the result of interviews conducted with bank officials.

No	Theme	Sub Category	
		Challenges	**Opportunities**
1	Economy	Unstable economy condition reduce investment and the pace of economic.	Cash less market where as the bank notes will be replaced with the electronic money which is preventing extirpate of the worn bank notes and so digitization of the banking system to promote economy.
		High amount of investment requires for establishing an app for online banking and Mobile banking whereas the support of customers are less and its making loss for the banking industry.	low transaction value offer an excellent opportunity for mobile payments to gain adoption among consumers.
		Security, maintenance, upgrading the old features of system and installation of the necessary hardware and software is costly due to having vendors aboard and no inside vendors.	Fortunately, the corporate vendors and m-banking related companies working on new apps and will be released ASAP.
		Inadvertency of society for online banking services so, trust-building, marketing, and advertisement needed and are highly expensive and need budget.	Trust among the populous that has been shaken by an unstable banking sector, requires strengthening through an aggressive outreach campaign.

No	Theme	Sub Category	
		Challenges	**Opportunities**
2	Technology Infrastructure	Limitation on internet services (low speed, unreliable connection, and high cost.)	Efforts of telecom and other ISP companies needed to bring potential changes in case of providing better internet services.
		Fear on transpire of privacy , secret data and information of the customer.	Major efforts have been done for assuring the security of the system even cost of security is high.
		High cost of the founders and designers of apps while the new update or features going to be add means banks have to afford high cost to upgrade the app where as the support of public is less.	Government and MCIT could have training projects aboard of country to Afghan developers.
		High cost of operation of m-banking services.	
		Technology risks are also another challenge, risks that are associated with systems failures, processing errors, software defects, operating mistakes, hardware breakdowns, capacity inadequacies, network vulnerabilities, control weaknesses, security shortcomings, malicious attacks, hacking incidents, fraudulent actions, and inadequate recovery capabilities.	

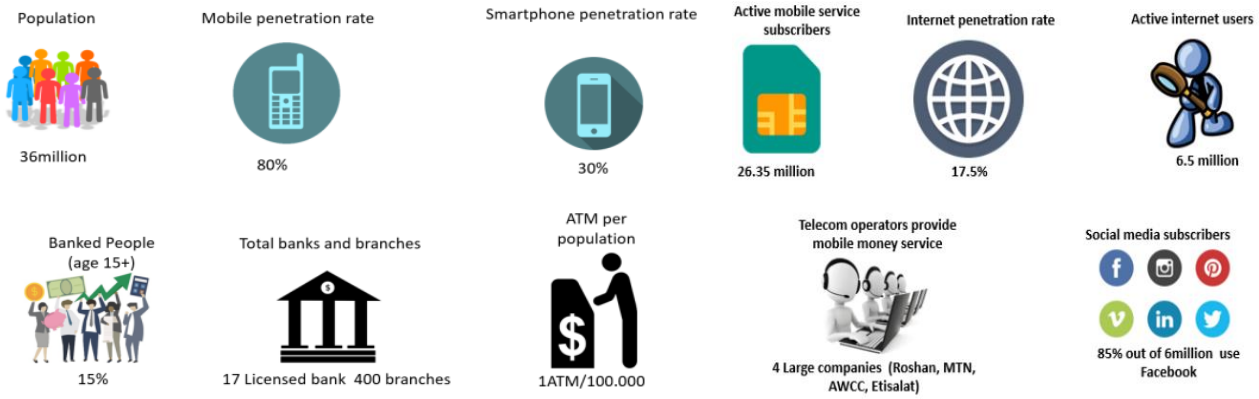
No	Theme	Sub Category	
		Challenges	**Opportunities**
3	Rules and Policies	Lack of effective customer awareness policies	Government support of this technology with the help of MCIT will be using full to Promote mobile banking by advertising and provide awareness programs for the users to enhance the familiarity level of users.
		No direct link of bank account and mobile wallet	
		Regulatory guidelines states that only those having a valid bank account would be allowed m-banking which limits the full potential of m-banking to extend micro-credit and bring banking to the large number of unbanked customers.	Fortunately, Afghan Payment System (APS) plans to introduce an interoperable payment switch to include bank and non-bank mobile and card payment and banking initiatives.
		Avoidance of international banks to open branches in Afghanistan due to security issues.	Possibility of link between governmental banks and private sector banks for better improvement of banks.
4	Organization	Lack of integration between banks and other m-banking service providers.	Key changes needed to switch infrastructure, expansion of money agents, and more explicit linkages between bank accounts and mobile money accounts.
		Lack of governmental and MCIT support.	Giving a clear status of the all accounts and transactions is a good opportunity for government t be aware of the cash flow and capital in market.
		Conceptualizing Electronic Money (Beliefs, misunderstandings, habits, and concerns must be addressed if people who are used to storing money in cash are asked to store it "in" a handset; the analogy remains strained, the mobile is not yet a wallet)	There is a good opportunity to increase the familiarity of people using different kind of advertisements and so for improving the banking services

Table 3: Major Challenges and Opportunities of M-banking Services From Bank's Perspective

To have a comprehensive understanding of challenges in demand-side or consumers, interviews were led to discover the concerns with m-banking apps, main usage of these apps, and major reason to inhibit conducting online transactions through mobile phones. The result of the interview exposed that users of these apps using m-banking for check account statement and balance inquiry, money transfer, credit card top-ups, paying bills, and getting and paying loans from overall usage. After analyzing the interviews, security, internet problem, risk of hack or fraud, and lack of trust in the private banking sector were discovered as the main reasons that impede m-banking or doing online transactions using a smartphone. In addition, the result showed that the poor quality of system, design, and content is the major concerns with m-banking apps. This means that these apps are operable only on smartphone and need a high internet connection to use it while all consumers do not own a smartphone. This poses the affordability challenge. Meanwhile, consumers expect an easy and simple interface design that can be adaptable even by an illiterate person while the current m-banking apps lack understandability and customization or lack of content in national language. Besides, the low quality of content, such as completeness, relevance, and

guidance for these apps were other challenges that consumers face while using m-banking. The result also exposed that majority of customers have concerns with security or privacy issue with these apps and terrified of the loss of confidentiality and hacking. Besides, the demand-side challenges, this research also has focused on supply-side or banks challenges by conducting interviews with two bank officials, Telecom manager and other related to m-banking regulators. So for a wide understanding, all the challenges and opportunities have divided into four major clusters (economy, technology infrastructure, policy, and organization) of m-banking services. The result of the interview showed that the top priority challenges in which banks and other financial authorities face development, and diffusion of m-banking technology are trust-building, customer awareness and also maintenance and security costs regarding this technology. This means that a lack of highly skilled developers, designers or system administrators caused banks to invite foreign vendors and designers; pertaining to a critical challenge which is expensive for banks. Although lack of interior vendors, government support, lack of banks and mobile money integration, are the second most important organizational challenges. These challenges convey the lack of scalability and accountability on the overall mission and diffusion of m-banking technology in Afghanistan. In the meantime, most of the opportunities were there specifically in term of effective advertisement, marketing and also extending and upgrading the infrastructure and features of current system. As well as integration of banks with other mobile money operators in Afghanistan. As a part of determining the challenges and opportunities of m-banking services, document analysis was made on the bank's annual reports, international MIF journals. The findings show some central regulations with their associated challenges and framework of mobile banking in Afghanistan.

The result of document analysis shows that foundation for a broad push in mobile payment is still under development. Regulations are supportive and clear enough that commercial banks and mobile operators have launched or planning to launch m-banking services. To clarify the issues related to m-banking services pieces of pervious related documents and resources were analyzed and the following figures shows the latest development and statistics of m-banking technology in Afghanistan.



Conclusion

To investigate the major challenges and opportunities of m-banking services from supply and demand-side perspectives in Afghanistan, which was the purpose of the first objective of this research, interviews conducted with bank officials and users. The result obtained from these interviews indicated that banks faced mostly with economy and technological and organizational challenges. It means m-banking as the most upcoming services need costs for consumer awareness and education, trust-building, and as well as effective advertisements. Even the quality of services is high though the level of adoption is unexpectedly low; which is making investment loss for the banking industry. For this aim, banks need to expand their awareness policy which is highly expensive since there is no government or MCIT support in this regard. Meanwhile, maintenance and upgrading of the system are also costly for banks due to the lack of inside vendors and the high cost of foreign founders/developers. In addition, it is a key challenge that, yet a large segment of private banks is not affordable to offer mobile applications for their customers and, only a few large commercial banks have the affordability to undertake this technology. While m-banking is a good opportunity for economic improvement in Afghanistan which is currently in 10th place of economic implosion according to the latest report of FFP (The Fund for Peace). Likewise, based on the Central Bank of Afghanistan report (2017), five Billion AFs banknotes burnt annually. At this point, diffusion of this technology will make intense changes in economic condition and extirpate of the burn of banknotes, pointing for great opportunities for mobile payment in Afghanistan. Since, several research studies appealed that m-banking improves the economy of a country by digitizing the money, decreasing the cash-based transactions and thus conceptualizing electronic money in the market. Moreover, lack of professional expertise, lack of high-quality of internet connection and insufficient infrastructure were found as the key technological challenges in the adoption of m-banking. In addition, regulatory guidelines stated the only existing bank account holders would be allowed m-banking which poses a challenge for micro-credit or other financial authorities to extend their services and include unbanked people. Opportunely, the Afghan Payment System (APS) is currently working on the interoperability of m-banking services; to cover both bank and unbanked customers and integrate all initiatives together. Furthermore, the lack of MCIT support, government support, and lack of integration between service providers formulate organization challenges on the bank side. Luckily, many efforts have been made to shift the infrastructure, extend the agents, and clear connection between banks and supplementary service providers. Correspondingly, consumers have specified the concerns and weaknesses with m-banking services.

Findings indicate that the critical challenges were security, low quality of internet connection, risk of hack or frauds, lack of trust, unawareness, unaffordability, poor interface design, and lack of simplicity. Thus, the private banking sector must consider these concerns which impede the development of this technology.

References

1. Akturan, U., & Tezcan, N. (2012). Mobile banking adoption of the youth market: perceptions and intentions market. *Intelligence Plan*, *30*(4), 444-459.
2. Aladwani, A. (2001). A field study of drivers, development challenges, and expectations of online banking. *International Journal of Information Management*, *21*(3), 212-225.
3. Amani, H., & Saad, M. (2016). Perceived risk and behavioral determinants of using internet banking in egypt. *Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport*, *4*(3), 40-4
4. Bruno, M. (2003). Bofa's climb to the top of the online world. *US Bankers*, *113*(6), 24–56.
5. Cronin, M. J. (1998). *Banking and finance on the internet*. John Wiley & Sons.
6. Ibrahim, E., Joseph, M., & Ibeh, I. (2006). Customers' perception of electronic service delivery in the uk retail banking sector. *International Journal of Bank Marketing*, *24*(7), 475-493
7. Priya, R., Gandhi, A., & Shaikh, A. (2018). Mobile banking adoption in an emerging economy:
   An empirical analysis of young indian consumers. *Benchmarking: An International Journal*,
   25(2), 743-762.
8. Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and informatics*, *32*(1), 129–142.
9. Yu, T.-K., & Fang, K. (2009). Measuring the post-adoption customer perception of mobile banking services. *CyberPsychology & Behavior*, *12*(1), 33–35.
10. Liao, Z., & Cheung, M. (2003). Challenges to internet e-banking. *Banking and Finance on the Internet*, *12*(3), 248-250.
11. Laukkanen, L. J., T. (2005). Consumer value creation in mobile banking services. *International*
    Journal of Mobile Communication, *3*(4), 325-338
12. Zhou, T. (2012). Understanding users' initial trust in mobile banking: An elaboration likelihood perspective. *International Journal of Information Management*, *28*(4), 1518-1525.