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FACULTY OF BUSINESS ECONOMICS
Master of Management

Master's thesis

The factors that affect the implementation of mobile banking in Jordan

Promotor :
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Supervisor :
De heer Wouter FAES

Ahmad Freihat

Thesis presented in fulfillment of the requirements for the degree of Master of Management

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University Hasselt

**The factors that affect the implementation of
mobile banking in Jordan**

By

Ahmad Bassam Freihat

Thesis submitted to the faculty of the
Hasselt University

In partial fulfillment of the requirements for obtaining the degree of

MASTER OF MANAGEMENT

In

Management Information Systems

Promotor: Prof. Dr. Koen Vanhoof

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PREFACE

This thesis is made on the topic of “The factors that affect the implementation of mobile banking in Jordan “. It is submitted by Ahmad Freihat in partial fulfillment of the requirements for the Master of Management degree from Hasselt University. It was made under the supervision of Prof. Dr . Koen Vanhoof and co-promoter Mr. wouter Faes between October 2013 and July 2014.

The thesis has been solely written by the author. However, many parts of the text are based on the research by other authors, who have been referenced in the text and the list of references at the end of the dissertation.

Writing this thesis has been hard, especially at the beginning. Yet, I am glad that I have learned a lot in the process of writing. My initial conception of the mobile banking applications and possibilities has certainly changed. I have dealt with a lot of subjects and interviewed several people in an attempt to give this thesis a broad perspective with regards to the implementation of Mobile Banking. This research must be called exploratory since it has some limitations, we have mentioned at the end of the dissertation which present opportunities for further research to build on this dissertation.

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Foremost, I would like to express my sincere gratitude to my advisor Prof. Koen Vanhoof and my co-promoter Wouter Faes for the continuous support for my master study and research, for their patience, motivation, enthusiasm, and immense knowledge. Their guidance helped all the time in executing the research and writing of this dissertation. I could not have imagined having better advisors and mentors for my master study.

Besides my advisors, I would like to thank the rest of my thesis committee and all the people who were involved in my thesis for their encouragement, insightful comments and hard questions.

My sincere thanks also goes to my family for their support, and especially to my father for the financial support. I would also like to thank all my friends for their psychological support and their friendship.

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EXECUTIVE SUMMARY

Mobile banking is a relatively new form of banking, presenting customers with the opportunity to perform basic banking operation via their mobile phone. It offers customers ease of operation, 24-hour service during all days of the week and this from the comfort of the home or the place they are residing. Customers also have to cope with some disadvantages when using mobile banking systems. They feel that their money and the data about their transactions are less secure; they miss the personal contact with the well-known bank employees and have to know a lot about internet and mobile phone use. Conservative customers will be less interested in using the system. Moreover, the reach of the system might not be 100 % complete in countries like Jordan.

In Jordan, mobile banking is indeed a relatively young service offered by banks. Internationally operating banks have offered an application to their customers since a couple of years to customers, but Jordanian banks had the disadvantage that the regulations from the Central Bank of Jordan only allowed them to develop the applications since a year and in two steps, namely first an internet banking service and only then a mobile banking system. They thus do not possess the same level of knowledge and expertise as international banks, who draw on their experiences and marketing knowledge in other countries, mainly in the MENA region. This has as a consequence that the level of their IT-systems, the training of their employees and the aptness of the services they offer is much better than with the banks only operating in Jordan. They claim their operations are also more profitable and that the penetration level of mobile banking services with their customers is higher.

This signifies that, although this research is only based on interviews with people from three banks, the major factors affecting the implementation of mobile banking in Jordan are the banking regulations, the lack (or availability) of resources and IT-systems and the readiness of the customers to participate. This has to be verified by further research in the whole MENA-region with more banks and on the basis of real quantified customer and marketing research

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Chapter 1 Introduction and Background

In this chapter, we will try to indicate how the use of internet technology is gradually influencing the structure of banking in the world and has given rise to what is called “mobile banking”. We will also explain what the research objectives and questions of this dissertation are.

1.1. Information Technology and Banking

Information Technology (IT) has been used as a central element in the development and sustaining of businesses and their processes in many sectors of industry, creating not only less costly business models but also new and more interesting services and offerings to customers. The banking sector is an example in case. One of the most significant influences in this sector is the development of a completely new and important channel of distribution for financial services using IT technology, namely mobile banking.

Since the internet has become available to nearly everyone at lower costs and with better and more secure connections, its use enhances the possibility for customers to benefit from the essential banking services their bank is providing them directly and in a self-service mode. As such, IT internet technology has become essential for the execution of payments. It also offers banks the opportunity to promote their banking facilities by using the new technology. Mobile banking thus offers bank clients with an application software program that enables them to use bank services via their mobile phones (Baldwin 2011). A more developed service is one that offers customers the opportunity to have access to their accounts and to implement transactions on their account or to buy products online via their mobile phones as well. This is quite different from the first applications of IT technology in banking at the beginning of the 1960s in which IT was used to automatize the back-office of banks, which is the part of the

banking operations invisible to clients. Since then IT applications have gradually moved to the front office, which is the customer service part, as well as to the process of providing management with tools to manage their operations better and with more insight (Liao and Cheung, 2003).

In order to start with the implementation of mobile banking, the Infrastructure for the execution of it should exist. This means that banks wanting to offer mobile banking services should possess a high level of maturity with regards to IT technology and have made enough investments in internet connectivity. Not in all countries, banks are at this stage of development yet. Banks in Jordan are starting seriously with the substitution of their old banking approaches only very recently. A lot of work still has to be done before offering mobile services can be done by all or most of them. Not all possess the tools to apply new technology yet. But they are motivated to do so by the fact that they see the possibility offered by these services to raise benefits and sustain good relationships with their customers offering them better service satisfaction. “Compatible with the revolutionary components of the electronic marketplace, Jordan has actively developed e-banking services since 2004 (Central Bank of Jordan, 2009.)”

At this point we have to delineate the borderlines of our study a bit further. Since mobile banking is often considered as either electronic bank services or an electronic branch of a traditional bank, actually two different types of mobile banking could be investigated. But given the infrastructure and the rules of the Central bank of Jordan, this study only focuses on an electronic branch of traditional banks.

Many people in Jordan however are at the moment very unfamiliar with mobile banking and the technology that supports it, although it has to be said that the experience and education needed for using it may vary enormously as well, for instance between the people living in some parts of Amman and the larger urban centers and the people living in the East and the South of the country who are living mainly from agriculture or as bedouins in the desert. The

availability of the technology is also very unevenly spread over the country. This makes the challenge for banks even larger when implementing mobile banking.

Understanding the factors that affect the implementation of mobile banking and how people gradually accept new technologies, new services and thus also mobile banking and why this is the case is thus an important issue. The answers to these questions may help bank managers to take decisions to apply mobile banking at right time and in the right place. These decisions when taken correctly might also guarantee the success of new technology (mobile banking).

1.2. Research objectives

The research aims at investigating the factors that affect the implementation of mobile banking in Jordan. Our research will mainly focus on how people in Jordan are motivated to use mobile banking services and how customers' acceptance of mobile banking services evolves. Moreover, the technical issues involved in setting up mobile banking services in Jordan will also be addressed in detail.

This study thus aims at identifying which factors affect the efficient implementation of mobile banking in Jordan. It will focus on three sides or perspectives of the problem: the customer focus, the bank's interests and the influencing factors in the environment.

- 1- The first side is the customer's side. It talks about the factors related to customer's adoption of mobile banking like trust, privacy and acceptance (customer behavior).
- 2- The second side is the bank's perspective. This side contains the factors that are related to technical issues in the establishment of mobile banking processes, like risk, security, guarantees and service.
- 3- The third side will be the environmental factors perspective. It will contain factors that are related to the environment that will make the implementation of mobile banking

possible like the infrastructure in the country, the available internet connections, the number of mobile users.....etc. These factors also influence banks decision processes as they indicate the potential of mobile banking in the country.

1.3. Research Questions

In general our research questions looks very simple indeed: "What are the factors that affect the implementation of mobile banking in Jordan?"As indicated, the study focuses three perspectives influencing the implementation of mobile banking in Jordan: the bank clients' perspective, the bank's internal perspective and the environment specific factors that have an influence on mobile banking in Jordan. Our research question thus has to be subdivided in a number of sub questions. We finally decided to focus on the two last questions and sub questions. The reasons will be explained in Chapter 3.

With regards to the customer focus, these sub questions can be:

- What do customers expect from mobile banking in Jordan?
- Which technological problems do they face in Jordan?
- Do they trust mobile banking systems?
- How can their trust be gained, improved and maintained?

For the banking perspective the sub questions can be:

- Is there enough IT capacity available to implement mobile banking?
- Which elements of infrastructure and training have to be improved?
- Which services are they most willing to offer customers?
- How can they make this a profitable enterprise?
- How can they motivate people to adopt the mobile banking services?

For the influencing factors, the following questions are relevant:

- Is there enough infrastructure in Jordan to offer customers the mobile banking service?

- Are there enough customers linked to these services?
- Which banking rules and regulations set by the Central Bank of Jordan are helping banks in developing mobile services and which ones are hindering them?

1.4. Conceptual framework

This research will have to follow a strict structure in order to answer these questions. We have tried to depict in Figure 1.

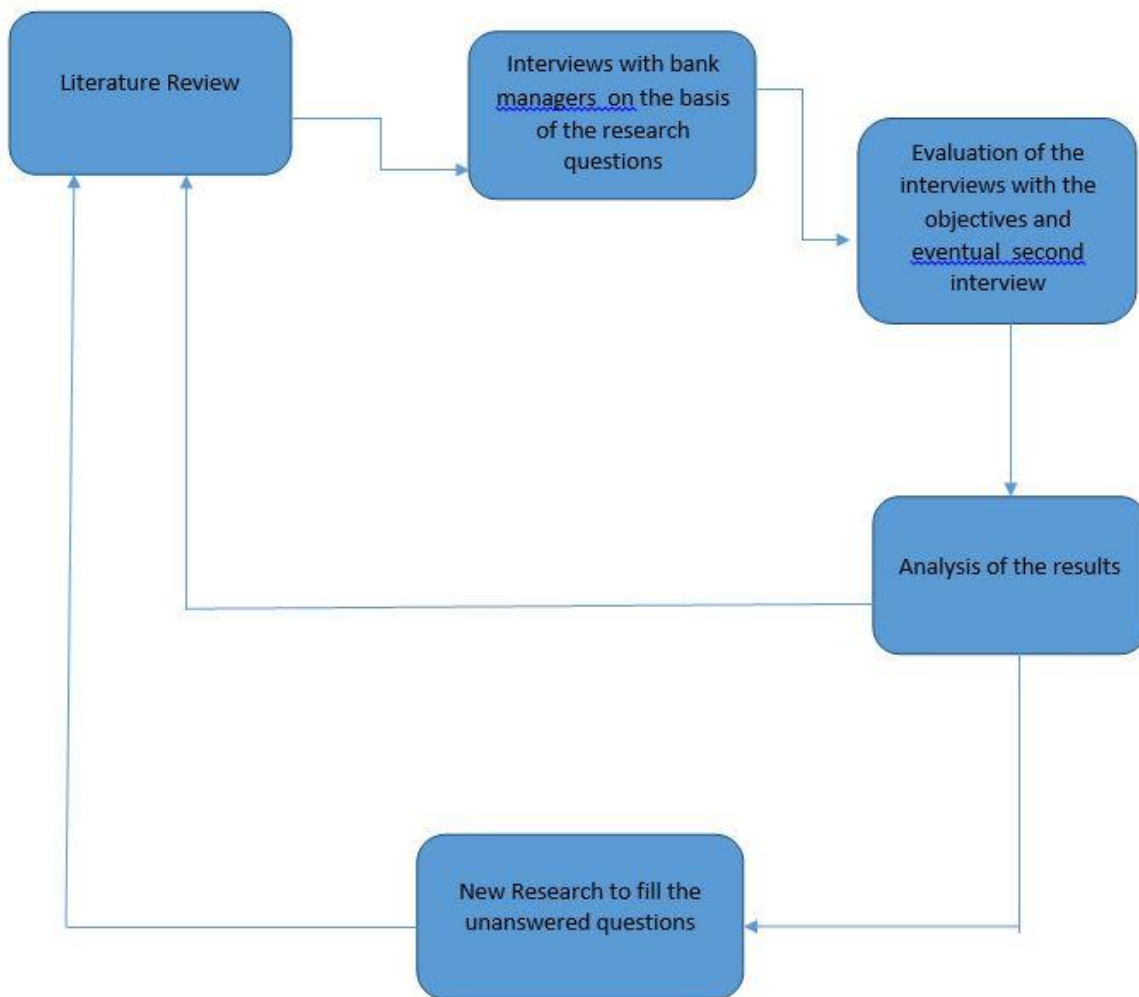


Figure 1.1. Conceptual framework of our study

Chapter 2 Theoretical Background and Literature Review

In this chapter, we will first introduce mobile banking as a concept in more detail, explaining the advantages and disadvantages it might present and the different services that are offered. Next, we talk about the factors influencing the willingness of customers to implement mobile banking systems and how the adoption process itself by customers is influenced, amongst others by characteristics of the services itself. Finally, we have included some data on the situation of mobile banking in Jordan, as this is the object of our research.

2.1. Introduction

Banks are developing their services to customers by using a new tool, called “mobile banking” everywhere. This means that the bank’s customers are incited to perform their financial operations via wireless connection technology, using their mobile phones. This is offers them the possibility to do these bank operations at an appropriate time, not limited and controlled by the bank’s opening and working hours. In addition, customers are expected to execute all or most of their bank transactions, such as bank statements via the same technology. Which factors influence the adoption of this new modus operandi by customers? Researchers have offered different views about the factors that affect the implementation of mobile banking, which will be explained in the next paragraphs.

2.1.1. Advantages and Disadvantages of Mobile Banking

Mobile banking is, as already mentioned, the execution of finance related functions by customers on a mobile device like a smartphone or tablet computer or on other types of similar devises. With the usage of a mobile device, the user can perform mobile banking operations

via calling, texting, website usage or specific applications (The role of mobile banking in enhancing economic development (2011)).

There are both advantages and disadvantages of mobile banking (Barnes and Corbitt, 2003; Nadim and Noorjahan, 2008; Wu and Wang, 2005).

The advantages mentioned in literature are:

- It utilizes the mobile connectivity of telecom operators and therefore does not need an internet connection in the case of using "sms" or phone calls to execute any transaction;
- With mobile banking, users of mobile phones can accomplish several financial functions conveniently and safely from their mobile device;
- Customers can perform many different functions, such as review recent transactions, check their account balance, pay bills, transfer funds, locate ATMs, manage investments, etc...;
- Mobile banking is available all the time "around the clock 24/7/365";
- It is easy and convenient and a perfect choice for accessing financial services for most mobile phone owners and mobile device's in general in the rural areas; and
- Mobile banking is supposed to be even more secure than online/internet banking.

The disadvantages mentioned in literature are:

- Mobile banking users may eventually receive fake SMS messages and fraudulent calls;
- The loss of a person's mobile device often means that criminals can have access to your mobile banking operations, using the PIN code and can obtain other sensitive information that may be used in bad way;
- New mobile devices like smartphone and tablet computers are better suited for mobile banking than old models of mobile phones and devices. Thus customers always have to follow the rapid development of technology and use a lot of different platforms. It is hard to stay on top of developments;

- Regular users of mobile banking can over time have to pay significant charges from their banks as a fee for mobile banking services, depending on the pricing strategy of the banks;
- In latest years mobile banking has become pretty popular and suitable for many people, so it became also more attractive for hackers and other technical problem arose.

2.1.2. Mobile banking services offered: how is it done and which services are offered?

Banking services through mobile phones use smart mobile phones or cellular devices to perform the functions of banking from anywhere and away from fixed computer systems located in a home or an office. Technically, these services are offered in the following way (mobile banking overview, journal 2009).

Banking services through mobile phones usually work across all the major providers of mobile phones through internet phones or applications that have been developed for the iPhone devices, Blackberry, and other devices that use the Android system. Hence, it is clear that mobile banking is potentially offered in two different ways: the browser system and the custom application system (mobile banking overview, journal 2009).

The first option is using a "Web" browser system. This is a service very similar to accessing online accounts from your computer at home and thus allows the customer to monitor accounts and pay bills and perform transfers between accounts simply by logging in into the user account through a web browser on Mobile device.

The second system is a custom applications for smart mobile phones, iPhone, Blackberry and devices that uses the Android system. It works by connecting the user directly to the bank server and getting the bank service without having to use a web browser. The customer can download these applications on mobile devices via the bank's website or via the shops

allocated to each type of smart mobile phones such as the iTunes store for the devices the “IOS” iPhone, iPad and others or the Play store for devices that use the Android system.

Today, most large banks around the world provide a basic mobile banking solution for their customer and the most common services that they are providing are:

1. Account alert, security alerts for each transaction and reminders for transaction that should be take place.
2. Account balance, updating the information, historic information.
3. Branch and ATM location service.
4. Paying bills: deliver online payment by a secure agent and mobile applications.
5. Funds transfers from one account to another.
6. Transaction verification.

2.2. Factors influencing the willingness to implement of mobile banking

Researchers have discussed about many factors that may affect the willingness to implement mobile banking. They are: knowledge and understanding of mobile banking and its potential benefits, security and privacy, the quality of the internet connections, trust and perceived risk. In this paragraph we will explain each of them in more detail.

2.2.1. Knowledge and Understanding of mobile banking Service and its benefits

Awareness of previous mobile services and internet use is one of the factors that affect the implementation of mobile banking. Specific previous knowledge and skills of mobile phone use for different applications and use of the internet by the customers will indeed influence their adoption rate of mobile banking (Tobbin, 2012).

Pin and Hsin-Hui (2005) mentioned that the data or information delivered to the clients about mobile banking and its benefits might have a dynamic influence on the implementation of mobile banking. In addition, Zavareh et al (2012) noted that dumpy understanding of mobile banking is an important issue in inducing clients not to utilize mobile banking. Vinayagamoorthy and Sankar (2012) finally state that lack of awareness of mobile banking and its benefits are one of the core reasons that make bank's clients to be hesitant to use mobile banking and undermine bank's efforts to incite customers using mobile banking systems.

2.2.2. Security and privacy

Security of the financial transactions executed through mobile devices is a critical and significant issue when using mobile banking. It is moreover one of the very essential factors for banks to implement mobile banking. Finally, it is a critical factor that customers will take into account before using mobile banking (Cano and Asensi, 2011). Many clients avoid using mobile banking as they consider it as being rather defenseless to fraudulent use by other people (mainly other internet user with criminal intentions).

Kim et al. (2007) mention that the very high percentage of banks clients certainly do not use mobile banking since they are very concerned about protection and security issues. Users moreover are concerned that they themselves will be held responsible for the use their personal and financial information over the mobile device in case of fraud.

From technical perspective however their concerns may be considered as relatively too concerned. The security for most mobile banking (MB) systems depends primarily on a transport layer security protocol, known as Wireless Transport Layer Security. Li et al. (2009) consider this to be a valid protection: "A strong security protocol is the cornerstone for the implementation of mobile banking services and is used to determine the security properties of the system" (Valentine, 2011 and 2013).

2.2.3. Quality of Internet connections for mobile devices

The quality of internet connections is considered to be an important element for any mobile-based application. Porteous (2006) recognized that without an excellent quality and the use of the best mobile connection, the implementation of mobile banking will not be preferable to customers over traditional banking systems. With respect to Jordan, mobile internet connections started only in 2002. They were initially very slow and not obtainable for all. Moreover they were very expensive for customers. Internet quality was too bad for mobile banking. Since then, the situation has considerably improved.

2.2.4. Trust

The organizational trust literature (Mayer, 1995; Rousseau, 1998) defines trust as "trust is a belief or expectation about the other (trusted) party or in a behavioral sense the willingness to be governed by or rely on another person or on a new development, coupled with a sense of defenselessness or risk if the trust is violated".

Trust becomes an important factor for customers in a mobile environment. "Trust is more crucial and complex in an e-commerce environment than in general and in a traditional commerce situation due to its uncertain environment and to information asymmetry (Lu, 2003; Cho, 2007)." Information asymmetry here is the fact that customers know much less about the technicity and safety of e-mobile systems than the providers or companies that offer services. Researchers have recommended that online customers generally stay away from vendors whom they do not trust (Reichheld and Schefter, 2000).

"The buyers and sellers usually complete the transaction through internet and mobile device technologies and it is not necessary meet each other face to face. The buyers will thus be concerned that their personal information and money will be transferred to a third party without their knowledge (Pin and Hsin-Hui, 2005) ". Consequently the existence of trust in the

relationship with the bank is a kind of insurance against risks and unexpected behavior or events.

The customer's attitude towards mobile banking is positively motivated by trust in the bank and the system. This trust issue is more essential in online (mobile banking) compared to offline banking because mobile banking includes sensitive information about users and parties and their concern about safety is larger since the admission to significant links and information shifts to the internet protocols (Alsajjan and Dennis 2006). In addition, in online transactions, there is no face-to-face contact, which usually decreases a client's trust level (Gurau, 2002; Yang, 2009). Researchers notify that a lack of trust may be the most important long-term barrier for understanding the full potential and attitude towards the adoption of mobile banking (Keen 1997; Hoffman, 1999; Gummerus et al., 2004).

Lack of trust is thus a critical issue that needs to be addresses vigorously if mobile banking wants to be successful (CommerceNet, 1997).

2.2.5. Perceived risk

One of the most important factors influencing the implementation of mobile banking from the customer's perspective is also the perceived risk. Several recent studies (Pavlou, 2003; Schlosser et al., 2006; Ruyter et al., 2001) contend that perceived risk as an important factor influencing mobile consumer behavior. Cheung and Lee (2006) mention that because in the mobile (online) environment, criminal acts can be performed with very high speed and without any physical contact this concern is very real indeed. For example, when an authorized individual can get access to the mobile banking data of a user, large amounts of financial information may be at risk and huge financial losses might occur. "Perceived risk reduction shows to be critical in an unclear and risky environment" (Mayer, 1995; Tobbin, 2012).

Krauter and Kaluscha (2003) point out that online transactions always take place in such a risky environment where unrecognizability, lack of control and potential opportunism are always involved. Online trust can, as mentioned in the previous paragraph, decrease the levels of

perceived risk accompanying these financial transaction processes (Pavlou, 2003; Koufaris and Hampton-Sosa, 2004). In terms of perceived security, websites could increase consumers' online trust by decreasing perceived environmental risks or by strictly increasing the levels of security involved in the operations (Warrington, 2000).

2.3. The adoption process of mobile banking by customers

Given these different factors that directly influence the willingness of customers to implement mobile banking, one can ask how the adoption process itself takes place and which characteristics of the mobile banking product or service itself influence it.

A considerable amount of research on the adoption process by customers of mobile finance services has occurred. The majority of these studies apply research models and frameworks traditionally used within the IS literature and the diffusion of innovation literature (Tobbin, 2012; Hoehle and Huff, 2009).

Among the different models that have been proposed telling this adoption process the Technology Acceptance Model (TAM) (Davis, 1989) appears to be the most extensively accepted one, also among information systems researchers. The TAM posits that a user's adoption of a new information systems is determined by that user's intention to use the system, which in turn is determined by the user's beliefs about the system. The TAM further suggests that two beliefs – perceived usefulness and perceived ease of use – are instrumental in explaining the variance in user intentions. As Davis (1989) noted, future technology acceptance research must address how other variables affect usefulness, ease of use and user acceptance. Therefore, perceived ease of use and perceived usefulness may not fully explain behavioral intentions towards the use of mobile banking, necessitating a search for additional factors that can better predict the acceptance of mobile banking. Another theory pertaining to the adoption of new technologies is the "Diffusion of Innovation" Theory by Rogers (1983).

According to Rogers (2003, p.175), there are five perceived characteristics of innovation that can be used to form a favorable or unfavorable attitude towards an innovation, namely: relative advantage, compatibility, complexity, triability, and observability.

Based on that, Tan and Teo (2000) and Rogers (2003) have verified the influence of several characteristics of mobile bank services on their adoption by customers. Six factors were included:

1. Self-efficacy: an individual's self confidence in his or her ability to perform an innovative behavior (Taylor and Tod, 1995)
2. Triability: the extent users would like an opportunity to experiment with the innovation prior to committing to its usage (Agarwal and Prasad, 1997)
3. Compatibility: the amount to which an innovation is viewed as being consistent with existing values of users (Agarwal and Prasad, 1997).
4. Complexity: the degree to which an innovation is considered relatively difficult to understand and use (Taylor and Tod, 1995).
5. Risk: the perceived sense of risk concerning disclosure of personal and financial information (Tan and Teo, 2000).
6. Relative advantage: the extent to which a person views an innovation as offering an advantage over previous ways of performing the same task (Taylor and Tod, 1995). This may be ease of use, comfort, cost efficiency and so on...

The consequence of all this theory is that the more banks are capable of offering mobile banking services that are easy to understand and use, can be tried by customers during a short period of time without risk and offer customers a benefit in terms of comfort or cost, the more probable it will be that customers will not only be willing to adopt the new banking system, but will also be relatively quick in doing (Chin-Yi et al., 2013).

This theory might also explain the difference in adoption rates of the several services offered by mobile banking by the very customers using a mobile banking system. Vinayagamoorthy and Sankar (2012) indeed mention that the popularity of mobile banking services differs

significantly in India. We presume that there is not so much difference between the Indian situation and the situation in other countries, like Jordan. Services about cheques and payment reminders are more complex and present a larger risk and cannot easily be tried before the first real use by customers. This is explained in Table 2.1. Below.

Usage	Unique Users (In millions)
Used mobile banking	43.70
Checking account balance	39.97
View last three transactions	28.15
Status of cheques	21.06
Payment reminders	20.92
Request a cheque book	19.11

Table 2.1. Use of different mobile banking services in millions of users in India.

2.4. The situation of banking and mobile banking in Jordan

In this paragraph, we will first indicate the basic elements of the development of the banking sector in Jordan before describing the evolution of mobile banking in the country.

2.4.1. The history of banking in Jordan.

The first stage of the development of the Jordanian banking sector goes back to the year 1925, when the Ottoman Bank started its commercial operations in the country followed by the Arab Bank in 1934 and the British Bank of the Middle East in 1949. The banking sector stayed limited to these three banks until 1955. In the period between 1955 and 1960 four new commercial banks were established, namely the Jordan National Bank, the Jordan Bank and the Cairo - Amman Bank as well as the Rafidein Bank, which opened its first branch in Jordan in 1957. The

banking sector did not enjoy much growth during the period of the 1960s since no other banks, neither local nor foreign, began new operations.

By the beginning of the 1970s, the banking sector in Jordan underwent a major revolution, both in qualitative and quantitative terms. Several Jordanian commercial banks were opened the (Jordan Gulf Bank and the Jordan Kuwait Bank, the Petra Bank and the Syrian Jordanian Bank). In addition, some foreign banks also opened new branches in the country since then (Citibank, Chase Manhattan, and Credit and Commerce Bank). Other financial organizations, specialized banks and investment banks also launched operations in Jordan. This finally led to the integration of the Jordanian financial market, in terms of the variety of its elements and financial tools available in the world financial market. Operations became international and processes were organized according to the then available international standards.

From 1974 to 1981, the evolution of the Jordanian banking sector was mainly influenced by major accomplishments of success by the Jordanian economy in general. The growth of the economy led to growth in the banking sector in particular. A huge expansion in terms of operating units, total assets and variety of financial tools used could be observed. The total number of banks increased to 17, with overall 174 branches. International operations became a fixed part of the operations as exports grew as well.

A next phase (1982-1990) in the evolution followed. In spite of difficult conditions encountered by the Jordanian economy and banks, the banking sector succeeded in increasing total deposits in local and foreign currencies. More credit facilities were allowed and offered to customers by the end of this period as well. Previously the sector was very conservative in this respect.

From 1990 till 1993, the Jordanian economy and banking sector were mainly influenced by the crisis in Iraq and the Gulf and by the resulting consequences. Jordan encountered many difficulties in keeping a foothold on its traditional markets in Iraq and the Gulf states. Later (1994 - 2000) the tight fiscal policy implemented by the Central Bank of Jordan managed to reduce available liquidities in the domestic market, which in turn resulted in a slight growth of deposits in local currency. Since then qualified banks in Jordan have succeeded in increasing their assets, deposits and credit facilities. By 2008, the overall number of banks in Jordan had

increased to 23 banks of which eight international banks. Since the start of the sector, Jordan considers its banking sector as fully integrated in the international financial system and offering Jordanian as well as foreign customers all the services to be competitive on this market.

2.4.2. The evolution of mobile banking in Jordan.

The evolution of mobile banking in Jordan and the development of the access to mobile devices go logically hand in hand.

Jordan belongs to the group of developing countries in which the use of mobile banking is still in its initial stage. Nevertheless, banks are trying to accelerate the implementation new technologies and mobile banking. Currently the majority of the Jordanian banks provide different services through the mobile banking.

It is only since 2006 that banks in Jordan have started utilizing mobile banking. They were forced to do so under pressure of foreign competition and in order to follow the global changes the banking industry was experiencing. The Arab bank in Jordan was the first one to offer this service (mobile banking) to customers. Other banks followed soon afterwards the Arab bank's procedures, such as the Islam Bank and the Jordan Kuwait Bank. Since that time, bank managers in the administration of the larger banks realized that developing mobile banking systems was an important tool to save the time and costs and could as well increase customer satisfaction. At the moment most of the Jordanian banks have their application for mobile banking but they offer only limited services such as check the balance. Therefore, customers still need visiting their banks' branches regularly.

This evolution is very logical and follows the use of mobile technologies in general. This use of is indeed progressively spreading, specifically among Asian countries and has reached nearly every potential user in South East Asia. Jordan is not an exception. Several applications are

widespread among many Jordanian users and range from normal mobile telephone conversations and very simple text messages (SMS) to multimedia messaging services (MMS) and internet access, depending on the technological capabilities of the mobile phone the users possess and the services mobile phone companies are offering. These applications have indeed been made realizable through several developments in the mobile telephone technology such as WAP, GPRS, and the 3G standard. The 3G telephone standard allows users to access voice, data and video, as well as internet access over wireless application protocols (WAP). Jordan is more and more open to international telecommunication companies, investors and operators. The Telecommunications Regulatory Performance program keeps an overview of what is offered and is the first in its kind in the region. It allows private sector investment and provides accountability for major telecommunication licenses and projects. The government attributed a third GSM license by the end of 2003 and two more licenses for international operators in 2004 (International Journal of Business and Social Science, November 2011). In the mobile communications market, four operators Zain Jordan, Orange Mobile, Express and Umniah are present. They all offer mobile services (GSM). New official statistics show that in Jordan the number of cellular subscriptions exceeded the number of population for the first time in its history by the end of the September 2009. By 2010, the number of subscribers of mobile phone services in Jordan is more than six million. Thus penetration stands at 101% of the population (Al Rai newspaper 2010).

At the moment the annual increase in mobile banking services customers is about 10 % per year (statistical data of 2009, 2010 and 2011 combined). This is somewhat lower than in the BRIC countries and in developed nations, but quite considerable. A comparison can be made with some countries based on Table 2.2. Below.

Country	Percentage of consumers using in		Increase
	2010	2011	
China	10%	25%	150%
Brazil	10%	21%	110%
Kenya	6%	18%	200%
USA	11%	22%	100%

Table 2.2. Increase of mobile banking services customers in some countries.

Mobile banking in Jordan has had a mixed effect on the profitability of banks. Siam (2011) observed the effect of the implementation of mobile banking on bank profitability in Jordan. The population of the study were all working banks in Jordan, which offer mobile banking. The study pertains to the period of 2006-2010. The results of the data analysis, gathered by questionnaire, show that the initial impact of mobile banking on bank profitability is negative in the short run, but positive in the long run. This association showed to be statistically significant. Overwhelmingly, managers and bank employees clearly stated that they prefer their banks to expand their electronic operations in servicing customers, but not converting the bank into a totally “electronic” bank (Khraim et al., 2011).

Mobile banking services in Jordan are thus still in its early stages. However, it is a reality and not just a trend. The Jordanian public, the financial institutions in both private and public sectors are indeed gearing up their efforts towards increased and more effective use of the internet and IT.

Chapter 3 Research Design and Methodology

In this chapter, we will indicate which methodology we will use in our research venture in order to collect the required information. We will mention the objectives of the research, the research approach, the unit of analysis and the difficulties encountered, as well as the interview guide that will lead us through the interviews with experts in banks in Jordan about mobile banking.

3.1. Objectives of the research

This research will attempt to examine how mobile banking develops in Jordan. Since mobile banking is, a very recent phenomenon and not many customers have access to it. We mentioned in Chapter 2. Moreover starting a survey to bank customers in Jordan from Belgium would have been very difficult as we could only have started this with help of one of the banks and these prefer the customer data to be secret. The research questions mentioned in chapter 1 were therefore somewhat too large. Our focus will be on the perspective of the banks and not on the customers, which signifies that the last two of the research questions mentioned in chapter 1 will be the focus of our research.

The first main objective of this research is consequently to check if and how mobile banking is effectively implemented in Jordan and in how far in several banks the right circumstances are created to start this new type of banking service. This research also wants to look into the problems, which have an impact on a banking companies' decision to implement mobile banking. We take an internal stance here in which the technical prerequisites are also mentioned more specifically. This is the second objective of this research.

3.2. Research Methodology and Approach

There are several types of research (qualitative and quantitative, objective and subjective, deductive and inductive). Each of these research methods needs a different set of tools and techniques for the purpose of data collection.

Our research was qualitative in nature. It will explore issues and answer questions by analyzing and making sense of unstructured data. It will focus as on “discovery, insight and understanding”. Moreover, it is the best way to ensure that secrecy is kept when we explore the arrangements made by banks in Jordan with regard to the privacy protection and the security for the user and how banks focus main on it (Creswell 2003).

Moreover, our research will be inductive in nature. An inductive approach usually moves from very specific information or idea to its wide or general application in contrast to a deductive approach that starts with the big picture and narrows down with a very specific topic or information. Since this research focuses on implementing new technologies (mobile banking) and newly designed services to the public, this research falls within the inductive Approach.

There are two types of data we collected and used in this research. Primary data were gathered using structured interviews with selected banks in Jordan while secondary data were collected from journals, books and other official publications, as well as from websites and official information sources of the banks involved. The reason for this choice is very simple. As we want to investigate how mobile banking develops in Jordan, it is quite logical that we needed to look for answers to this type of research question by asking the banking companies themselves how they developed and manage their mobile banking operations.

By using these two approaches, we hope to enhance the research intensity, validity and reliability, although it is difficult to attain this goal in a personal qualitative interview, where some subjectivity in the interpretation of the gathered data will always be present.

3.3. Data collection

The most important data (directly related to the subject of our research) were collected using interviews that were designed to understand the factors influencing the mobile banking process and the services offered to the audience. Thus, our unit of analysis was a bank. The interviews were conducted with selected people in a high position in those banks because they were considered to be knowledgeable. However, they also had to be directly related to the research area and have qualified and accurate information about it.

We only conducted interviews with one person in each bank in the sample we will talk about later in this chapter. As the author of the dissertation resided in Belgium during the research process, it was impossible to really triangulate the results by comparing the answers of different people involved in the contacted banks and with documents present in the bank. This would only have been possible if the author would have traveled back home, which would have been an expensive option and not helpful for the following of the courses and making exams in Belgium. The interviews were skyped and recorded and later analyzed.

3.4. Study Population and Research Sample

3.4.1. Study population

The study population includes effectively all personnel directly engaged in the research study field of mobile banking technology via the use of the interviews. While the using of mobile banking services is not limited to specific people, we can say that the study population is an open issue. Involving members of staff of Jordanian banks. We already indicated that their knowledgeability about the material was the first reason for selecting them. People in the IT department seemed best fit.

3.4.2. The Research Sample

Three banks were willing to cooperate in this research.

- **Blom Bank**

BLOM BANK is a leading Lebanese bank which has repeatedly and unanimously been selected as the Best Bank in Lebanon by the most recognized regional and international institutions. Its successful business operations are based on a universal banking model which includes: Commercial Banking, Corporate Banking, Private Banking, Investment Banking, Asset Management, Retail Banking, Islamic Banking, Brokerage Services, and Insurance Products and Services.

As one of the oldest established banks in Lebanon, if not in the region, BLOM BANK has always been at the center of the country's banking system. Its universal banking services revolve around trust and credibility, built with its clients through long-term personal relationships, integrity, and the strong financial results that it has consistently delivered. And it is proud to have become over the years its clients' preferred banking partner and investment reference, meeting all their financial needs and ensuring their "Peace of Mind".

Throughout the years, BLOM BANK has also maintained a track record of exceptional performance and growth that carried over to this year, despite the unstable political and economic conditions facing Lebanon and the region. BLOM's operational and managerial efficiency has enabled it to maintain in 2013 the lowest cost-to-income ratio among its peers at 37.8%, which helped generate a rise in its 2013 profits to \$ 353 million. This also implied the highest return on average common equity among listed banks at 16.8%. In addition, assets increased to a total of \$ 26.2 billion and customers deposits increased to a total of \$ 22.6 billion. Moreover, total loans rose to \$ 6.4 billion, with retail loans increasing to \$ 2.4 billion and constituting the largest share in the Lebanese market.

BLOM BANK's strategy is based on measured regional expansion to markets with strong fundamentals and on the diversification of its universal services that has placed it at the fore

front of Arab banks in the region. As a result, BLOM BANK has the widest foreign presence among Lebanese Banks, and is currently present in the following 12 countries: Lebanon, Syria, Jordan, UAE, France, UK, Switzerland, Romania, Cyprus, Egypt, Qatar, and Saudi Arabia. It conducts its worldwide operations through a network of 213 banking and financial units, either directly or through its subsidiaries in different countries. EXPERTS FOR FINANCIAL SERVICES – JORDAN is their operational bank in Jordan. In this respect, the bank serves the niche market of Lebanese and Arab expatriates in Europe, and acts as one of the trusted local commercial and investment banks in the Middle East for local individual customers and companies.

In its drive to diversify its revenue base and enrich its asset class, the bank is constantly looking to strengthen its regional expansion in the medium-to long-term, adopting an organic growth strategy and adhering to its conservative but rewarding business model. To this end, the Bank will be expanding to Iraq in early 2015, which will be the newest addition to its portfolio of countries. And, as always, the Bank will be capitalizing on its regional competitive edge in terms of common culture, existing relationships, and the replicability of its excellent products.

- **The Bank of Jordan**

Bank of Jordan is a pioneering brand established in Jordan in 1960. Over the last 53 years the Bank has adopted a sustainable development and improvement approach for its financial and banking activities. The Bank has been a key player in the accelerated growth and development of the banking industry both locally and globally over the last five decades. Since its establishment, the Bank has enhanced both the investment movement and economic development in Jordan by offering comprehensive banking products and services that fulfill client needs and meet the requirements of all consumer categories, including individuals, corporations and institutions. It has also effectively participated in national development projects and private sector projects.

Today, Bank of Jordan is among the top five local banks with capital of JD 155.1 million, assets of JD 2,076.9 million and shareholders' equity of JD 317 million as of 31/12/2013. The Bank also has wide distribution channels, including 97 branches and offices as well as 148 ATMs throughout Jordan and Palestine. These channels serve in parallel to electronic distributions

channels that include IVR, Internet Banking, and SMS services, in addition to a 24-hour customer contact center.

It is worth noting that Bank of Jordan Group currently consists of Bank of Jordan – Jordan, Palestine bank branches, Bank of Jordan – Syria, Excel for Financial Investments Company, and the Jordan Leasing Company.

The achievements of the Bank have been the result of sound management, comprehensive strategy and a long-term vision for future growth and development of the banking industry. Hence, the Bank has recently instituted a number of strategic development projects while improving its services and IT infrastructure to strengthen its competitive and pioneering position in the marketplace. These improvements serve to increase the Bank's offering of high-quality services that suit client needs and to prepare the Bank for continued growth and progress year after year. The Bank has also implemented and instituted syndicated loans and signed agreements with national and international parties that best fit its products and services within existing client requirements to be in a more attractive position as the total number of client's increases.

In line with the Bank's strategic approach, which enhances relationships and partnerships in various sectors and provides high-quality services, the Bank strives to improve the performance and capabilities of its human resources with the most up-to-date technologies

The Islamic Bank

Jordan Islamic Bank was established in 1978, as a public shareholding limited company to carry out all kinds of banking, financing and investment business operations in compliance with the glorious Islamic Sharia' and in accordance with the provisions of Jordan Islamic Bank's Special Law, which was superseded by one chapter on Islamic banks in the Banks' Law which was in effect as of 2nd August, 2000. It provides the customer with Islamic banking services.

The Bank's first branch started its business on 22/9/1979, with a paid up capital of about JD 2 million from its authorized capital that reached JD 4 million.

The Bank's capital will be increased to JD 150 million instead of JD 125 million (which is equivalent to about US\$ 211.57 million) after the approval has been issued by Board of commissioners of Financial Security Commission and the bank's finalizing all procedures for the inclusion of capital increase shares by JD 25 million/ share. They will be distributed as free shares to shareholders each according to his/ her portion in the bank's capital at the end of day 10/6/2014 through capitalizing JD 15 million from voluntary reserves and JD 10 million from retained profits.

In the 1st of July, 2010, the bank changed its logo and launched its new corporate identity in order to be unified with the subsidiaries of Al Baraka banking group.

The Bank offers its banking, financing and investment services through its 70 branches and 15 cash offices in the different locations in the country, as well as through the bonded office.

The Bank also presents services through 146 ATMs all over the country. The Bank's staff reached about 2000 employees who have sufficient knowledge and experience to provide Islamic banking services.

The number of the clients' accounts performing in the Bank reached about 629 400 accounts. The Bank was able to grow rapidly and enhance its position among Jordanian banks. As it presents banking and investment services to the clients in conformity with the Islamic Rules of Sharia' which has a special method of Islamic economy and adopts a vision of money function different from that of conventional banks.

3.5 The interview

In this section, we indicate the major questions that guided us through the three interviews. That is why we call this an interview guide. Our source of inspiration are the research questions indicated in chapter 1.

For the banking perspective the research questions were:

- Is there enough IT capacity available to implement mobile banking?
- Which elements of infrastructure and training have to be improved?
- Which services are they most willing to offer customers?

- How can they make this a profitable enterprise?
- How can they motivate people to adopt the mobile banking services?

Questions in our structured interview relating to this set of research questions are the following. They are listed in Figure 3.1.

Since when does your bank implement mobile banking?
 Why did you start this new service system?
 Which difficulties did you experience in getting started?
 Which were the major technological difficulties encountered?
 Which were the IT problems encountered?
 How did you try to solve these problems?
 Which software and hardware was used to do so?
 Did you develop it yourself or did you use the help of experts?
 Why did you make this choice?
 How did the development evolve over time, that is, which stages in the evolution were there?
 Did this stepwise model (if the answers are positive to the previous questions), have consequences for the bank employees? For the structure of the bank? For the development of services in online banking to customers?
 Which consequences were the most important ones?
 How are employees motivated to work with the new system?
 Which services are now offered to customers?
 How are customers influenced to work with the new system?
 How do you involve the different branches in offering this?
 Which benefits do you think it offers to them?
 Which elements of costs and profit within the bank are influenced by mobile banking?
 Has the bank become more profitable since introducing mobile banking?

Figure 3.1. Questions in the structured interview related to the first research question.

For the influencing factors on mobile banking, the following research questions were considered relevant in chapter 1:

- Is there enough infrastructure in Jordan to offer customers the mobile banking service?
- Are there enough customers linked to these services?
- Which banking rules and regulations set by the Central Bank of Jordan are helping banks in developing mobile services and which ones are hindering them?

Questions in our structured interview relating to this set of research questions are the following. They are listed in Figure 3.2.

Which infrastructural needs are needed for your mobile banking system?
Which difficulties with regards to infrastructure do you encounter in Jordan?
Are they worse or less than in competing countries in the MENA region?
How could eventual deficiencies be covered better?
Which improvements are foreseen?
How are you coping with the existing problems?
How many customers are linked to the system? (Penetration degree with your customers)
Is this number growing fast?
What are the reasons for this growth?
Which banking regulations help in developing mobile banking in Jordan?
Which banking regulations are a barrier to the development of mobile banking in Jordan?
Do you expect the government to act on these regulations fast?
What could you learn in Jordan from the regulations and existing infrastructure in other countries?

Figure 3.2 Questions in the structured interview related to the environment

Chapter 4 Research Findings

In this chapter, we will first indicate the most important elements of the different interviews we had next to comparing them at the end of the chapter. We have made a distinction between the first interview, Blom Bank, a bank with international branches (international bank) and the last two interviews, the Bank of Jordan and the Islamic Bank, two banks which are local banks because some differences we observed are directly linked to this fact.

4.1. Case International Bank: Blom Bank

Blom started its mobile banking operations in 2008 with the offering of SMS- banking to its customers and as of 2011 with a mobile banking applications for smart phones. The purpose was to create a competitive advantage over other banks by introducing an improved technological solution while at the same time saving cost and time for both the bank and its customers.

The introductions did not go without difficulties. First of all since most customers were using ATM online banking services, they did not always feel comfortable about the mobile banking application Offered. They also feared that the risk of loss of data of theft was much bigger than with the ATM system and thus felt the system was less safe. Secondly, Blom Bank also encountered technological problems. The bank did not have enough experience in adopting this technology and the used system. Thirdly, there was effectively a security risk since 70 % of the mobile application did not have an alternative method of authentication which could safeguard against the impersonation of customers.

Blom bank tried to solve these problems by using the help of good software experts from outside the bank, who had more experience in programming applications software. They finally came up with a system that send out security codes through plaintext communication, not by using unencrypted database to store the customer's confidential information as some competitors do. In the system, the software or the apps you need can be downloaded (in android or iPhone) into your smartphone and the hardware is provided with the appropriate software.

Blom thinks that they are still in the early stages of mobile banking, as customers still trust people more than technology. The future development will largely depend on new technological developments, their safety modes and on how customers are getting acquainted with them. This will be different In Jordan compared to other countries because of differences in life style and education of the people.

The introduction of mobile banking systems did affect the bank and its employees in several ways, according to Blom. Since technology is one the most important issues today in banks when they want to create more efficient procedures and reduce costs, this has an influence on the bank's structures and personnel. It requires more coordination between the structural departments of the bank and between the banks and the customers, but people also have to be trained better to apply the system. The bank can only save time and costs after this has been done effectively and the upfront investment in structural reform and training can be recuperated by larger efficiency of the system. The training offer the bank employee the information needed to have a talk to the customer and saves him/her time and costs.

The bank employees are not only trained, they also get support by the marketing program that the bank develops to influence customers to use the mobile banking system more. In that, way they can start cross-selling services, normal ones and mobile banking ones to their customer contacts, although at the moment the customers only have mobile banking opportunities by which they can transfer money between their own accounts.

The Blom bank themselves indicate that they have a better cost structure and will gain a lot of valuable time. This is due to the fact that they don't have to move from one branch to another as often anymore since customers can contact the bank from their homes, which save the customer time as well. Blom thus saves costs and thinks to gain market share and revenue due to mobile banking and get more profitable in the end.

These gains are however not easy to obtain since Blom experiences several infrastructural problems in the implementation process of mobile banking. They are amongst others: application management and the difficulties the mobile environment faces in Jordan, more than in other countries in the MENA region, more specifically the internal regulations of the banking sector are not really flexible enough to make a good start with mobile banking. Blom fears that changing these regulations will be a slow process as this is mostly the case in the region.

An enhanced infrastructure and swifter internal banking regulations in Jordan would lead to a system that would make it possible to switch also core banking services to mobile systems. But Blom admits that more research, more expertise of the people in the bank and more support of top management for the mobile solutions have to be acquired to get the system more performant and capable of adjusting to core banking.

The revenues are not really as expected yet either since a bit less than 60 % of the actual customers use the actual services offered by mobile banking. More marketing is needed to increase awareness considerably. This is one of the lessons learned so far by Blom. Customers have to be made more aware that these services can be helpful for them and a through re-evaluation of the system is regularly needed.

This assessment is also based on what Blom thinks are lessons Jordanian banks can learn from foreign banks with regards to mobile banking systems. They indeed seem to have an edge and

have more and longer experience with mobile banking due to more flexible regulations. The international research results can be analyzed better, the internationally available training systems can be adapted to the processes in Jordan. This would make the assessment and implementation better and swifter and increase management's belief in mobile banking.

4.2. local Banks: Bank of Jordan and Islamic Bank

We will deal with the interviews of both of these banks simultaneously as many answers we obtained were very similar. In this way, we avoid duplicating eternally what has been said.

At both banks a mobile banking system does not exist yet, but the management is busy trying to get it started as some, mainly foreign, customers are really asking for it. The reason for this difference with Blom Bank (case 4.1.) is that in 2012 the Central Bank of Jordan has closed a new agreement with the World Bank, approving and even pushing for the start of a mobile banking system, which previously was not allowed to be installed by banks operating in Jordan only. This sparked a lot of activity and both banks went looking for a partner provider for the establishment of internet and mobile banking. We have to mention both types of banking at the same time since mobile banking is according to the new regulation only admitted when first internet banking is offered to customers.

Both banks faced many difficulties in establishing the new systems. We will first mention them in greater detail before answering the more technical and specific questions about mobile banking and its future we asked all of our respondents.

Five difficulties were met by both the Bank of Jordan and the Islamic Bank. Both interviewees talked about them, although not necessarily in the same words. We have tried to combine

them into a unified group of barriers or difficulties to these new banking systems, recently introduced in Jordan.

First, they started having done only poor market research. Many Jordanian customers do not readily trust automated bank systems, they prefer doing their transactions with the help of bank personnel and are thus not only not always aware of the opportunities internet and mobile banking would present them, but are also not keen on them. Trust is low and perceived risk considered as high by customers in terms of what we mentioned in Chapter 2. Moreover, the customers are reluctant to pay for the internet and mobile services as they consider them identical to the old system, that they trust more.

Banks however do not always realize this upfront and thus face a second problem, namely convincing the customers to use the system, which is not an easy task as customers were previously not probed nor prepared for the introduction. In terms of marketing internet and mobile banking are thus services the customers never asked for but have to be “sold” to them.

Third, both banks did not have any previous experience in internet and mobile banking, thus they also lacked the resources to start properly, although the infrastructural basis for it was available. Lack of experience also leads to poor resources devoted to it, in terms of personnel and IT-capacity as well.

Fourth, management changes at both banks are frequent and what previous managers started as a newly oriented program, does not always pass the test of acceptability by new managers.

Finally, costs are high due to the systems infrastructural needs and the low income such a new system is going to generate given the first two difficulties mentioned. Moreover, security issues faced by both banks are important, both in terms of visa control and account control. Thus, the internet and mobile banking system’s introduction did not get high priority at both banks.

Technically speaking however, certainly the Bank of Jordan did not face any major problem for the introduction of an internet based or mobile banking system. The bank possessed the Certificate of advanced IT systems in Jordan, needed for the start-up of the system. They were of the “nationally operating banks” in Jordan the only one to have it, so the Islamic Bank needed to invest in it and first hire the personnel of the consulting companies to get it started.

Therefore, the Bank of Jordan was capable of setting up an expert team for the internet and mobile banking project. It only lacked resources given the number of simultaneous IT-projects the bank was trying to get off ground. The solution adopted was finally to hire more and not necessarily always expert (but certainly qualified) personnel. This is not necessarily the best solution as it might and would probably have been cheaper, more effective and quicker to look for a provider, given the limited resources in the IT-department, mainly one from the BLUE-ring companies’ experts in the systems specifically for the internationally operating banks in the region. This is all the more true since the system could use the same infrastructure used for the existing bank system and be integrated with the Oracle bases used.

As such, the project was developed over time and had many stages, each one of them always integrating an extra function in the system that was tested completely, such as transfers between accounts and managing you own account for a single customer. Each stage learns the Bank of Jordan better ways of allocating resources and understanding some customers’ needs and the needs of the business. The infrastructure also slightly improves from stage to stage. Unfortunately, the system is not complete yet and thus we can say that in the Bank of Jordan mobile banking does not exist yet. The major hurdle remaining is of course the customer’s reluctance to use and pay for the system, as mentioned in the difficulties above. The objective is finally to have an SMS- or e-mail banking system that would allow transfers and checking the status of an account and managing it.

As the system is still in its development stage, the Bank of Jordan did not fundamentally change its structures. The same is true for the Islamic Bank. Only the IT infrastructures was adapted. In

general employees were, according to our interviewees, very motivated because they were part of a new experience and many in the team liked the challenge of developing together with the IT-team these services as they came due to the shortage of resources in the IT-department from other departments in the bank.

It has to be said that towards the end of the project, the marketing department also got involved, but mainly to develop a campaign to incite customers to use the system. Since customers were reluctant, this is actually a kind of hard selling approach that does not necessarily will be successful.

Branches were not involved in the project, so implementation of the system would technically be a step forward for them, provided customer would be less reluctant and they would be informed about all the options and possibilities and trained in the use of the system. The advantages for both branch personnel and customers would certainly be the reduction of the queue lines at the counter which would give the employees the opportunity to spend more time more efficiently in attracting new customers, listening to them and offering them services better adapted to their needs. Both banks actually agree on these potential benefits. Although initially the costs are higher than the benefits given the small number of customers, banks expect that a better time utilization of the employees will in the end lead to profits as the costs of the infrastructure itself will be minimal due to the integration in the actual bank systems. But this will only be sure once the system is actually finished and fully implemented at both banks.

With regards to the infrastructural needs for an internet and mobile banking system in Jordan, the situation in the country is, according to the Bank of Jordan and the Islamic Bank positive. Internet coverage of the country is very good due to the high usage of smart phones by a largely young population. If the IOS used by these systems can be used in the banks applications, there will be very little problems indeed. Of course, there is a difference in coverage between regions in the country. Some less densely populated regions and smaller cities will be more difficulty integrated in the system, once it is in place.

It is according to the Islamic Bank and the Bank of Jordan a pity that the country certainly lags other countries in the MENA region, such as the Gulf States, Lebanon and Saudi Arabia, due to the late coming into being of the agreement of the Central bank with the World Bank. The consequence is that in spite of the relatively good starting conditions, mobile banking was not allowed and did not receive accordingly the attention that it merits and the funds needed for fast development. But, they say they could learn from their experience, as internationally operating banks in fact have actively done (see case Blom).

Both banks realize now that they have made some mistakes while trying to introduce the system. As it still does not function, there is, according to our interviewees, a chance that they will build better knowledge of the customer needs over time and by using the know-how of experts through outsourcing find a better and workable solution and bridge the gap in knowledge and experience that they still feel hampers them in the stepwise development of the system in the country. But they also realize that this will need more management support than actually is the case and a more flexible regulation than the actual agreement with the World Bank. The access to information about regulations in Jordan is still limited to the CEO's and managers of banks and thus the system is in general slow and difficult to understand. Management support and regulations thus both still function as barriers to internet and mobile banking too much.

Anyway, as the number of customers is pretty low in general and limited to the customers of the international banks, there is an enormous margin of growth for mobile banking in Jordan. It will also require a shift in culture of customers who still mistrust such a system very much and will need time to get used to it and experience the benefits. Employees also need to be more tuned to the benefits of a mobile banking system to be able to "sell" it better to customers and convince them of the advantages.

In this respect, which is more of a marketing nature, experience of customers in the Gulf States and research about their attitudes can be very helpful, according to our interviewees. Learning from overseas operations in the few branches they have there is paramount in that effort, because also the training of employees and the reliability of the IT-systems can be tested better in these branches. A kind of “small detour” via international branches could be very helpful for Jordanian banks, was stated, particularly by the Bank of Jordan.

Chapter 5 Conclusion

In this chapter, we will try to analysis the results of our interviews and make a comparison between the two main categories of banks that we could discern from our research with regard to the situation of their mobile banking operations in Jordan. These categories are the international banks, that also have a branch in Jordan, that follows the directives of the headquarter in their mother country and the local Jordanian banks that they have branches in the country and outside and have to follow Jordanian bank regulations. In our case Blom bank is a representative of the first category and the Jordan Bank and the Islamic Bank represent the second category.

5.1. Comparison of the case interviews

When studying the factors that affect the implementation of mobile banking in Jordan, we found that bank sector in Jordan with regards to this phenomenon has to be divided in two categories of banks. First there are the banks of Jordanian origin which have only have branches in Jordan (and sometimes some in some in other countries like Syria, Palestine and Lebanon), but have to follow the regulations of the Central Bank of Jordan completely, which limits them to having internet banking first and then only mobile banking. Without permission form the Central Bank to start the implementation process, they may not offer mobile banking and moreover they only can get it since one year. Then there are the banks of foreign origin with a foreign headquarter in countries where mobile banking was earlier allowed and permitted and that have branches in Jordan. They face nearly no limitations to mobile banking at all.

These two groups of banks follow clearly a different evolution path for their mobile banking operations that we have tried to depict in two figures: Figure 5.1. (For the situation of the local banks) and 5.2. (For the situation of the international banks), that are shown in the following pages.

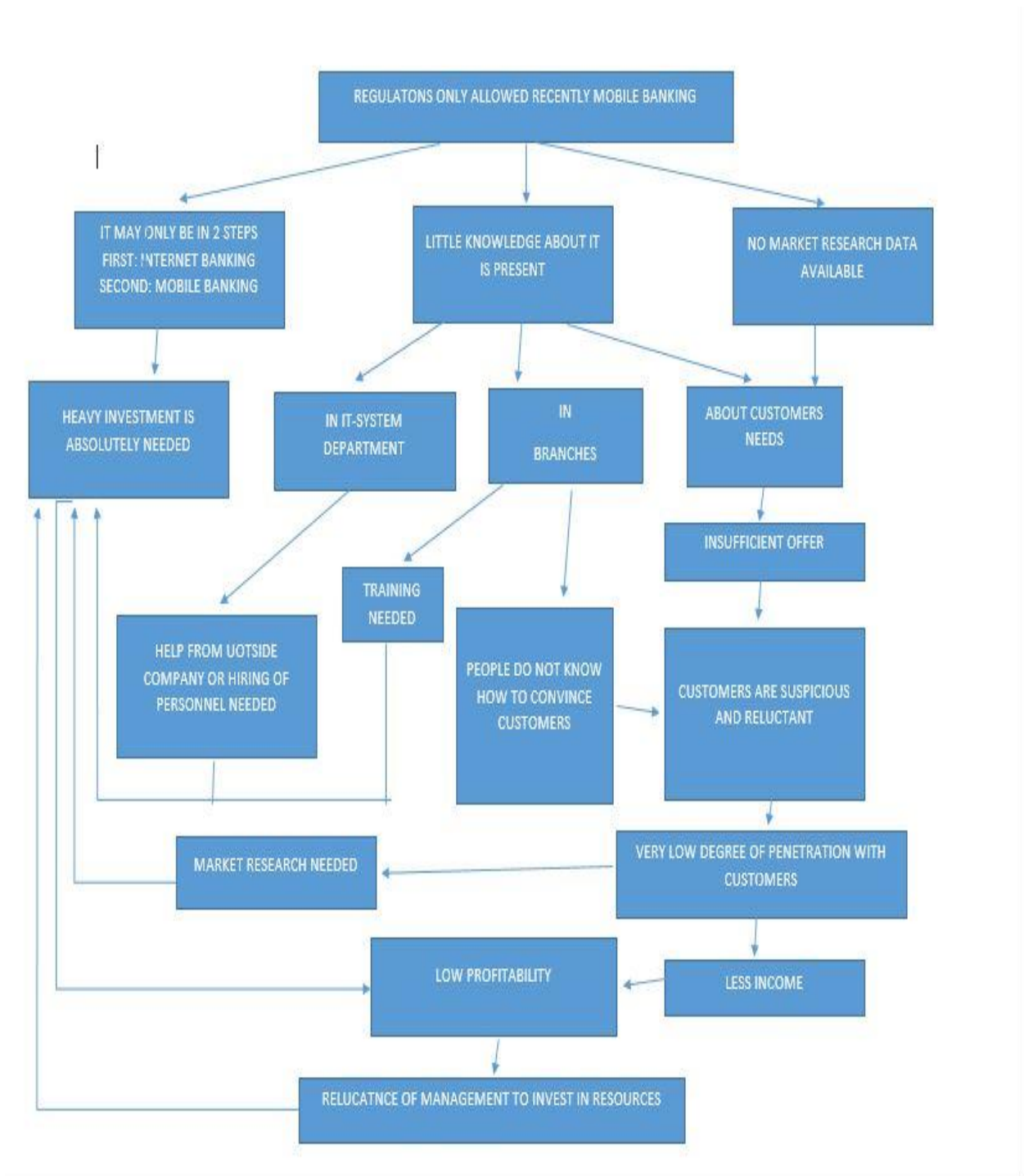


Figure 5.1. “Cycle of doom” for mobile banking in local Jordanian banks

Local banks in general don't have the required infrastructure for mobile banking yet and also don't possess expertise in offering it to customers. Their employees are no experts at all and they don't have much data on the interest customers have in mobile banking services. This is due to the recent allowance by the Central Bank only to start with these operations and to the lack of marketing data. The consequence is that they only recently started with a mobile banking system and are not really ready at all for it. This leads to a kind of "circle of doom", which we depict in Figure 5.1.

Having limited expertise and not a good infrastructure and little data about customers indeed leads to a situation in which the resources needed to get started are relatively high. The reasons for this are multiple: setting up a new system without having the experts from within the bank requires outside advice and contracting with consultants, people have to be trained and market data still gathered. This all costs extra money while the development of any new system in itself within a bank already necessitates the liberation of sufficient resources as such.

At the same time, the penetration rate of the mobile banking services among the customers is low, as they only started maximum a year ago. Thus, the expected income flow is very low. High costs (given the need for a high level of resources) and low income hamper the profitability of mobile banking in these banks. This does not incite management to be positively interested in mobile banking and to be willing to invest in these services. Management indeed has to select the investment projects that are most profitable as they face a number of these simultaneously. Mobile banking stand low on their agenda. The result is disastrous: local banks are already late in offering the system to their customers and are also not keen on developing it quickly. They don't prepare the public for it. They are lackluster in training their employees in headquarters and at branches and the system is thus slow in development. We believe it will take a substantial period of time before customers are convinced and systems are in place to offer a good quality of mobile banking and support by the bank's employees. Thus, we have called this development path the "cycle of doom". It may well be that some of these banks will in the end not fully develop the potential of mobile banking systems.

For the other category of banks, the international or multinational banks which have their headquarter in a foreign mother country and branches in Jordan, the situation is completely different. They have already implemented mobile banking in the mother country and thus possess the IT-systems and knowledge for making it happen. Their employees possess know-how and they also have market research data on how customers react to mobile banking offerings in their mother country. Therefore, their state of readiness to implement mobile banking in their Jordanian operations is much higher than the one of the local banks. In the short run they certainly they have a competitive advantage over local banks with regards to offering mobile banking services.

As shown in Figure 5.2., the international or multinational banks have the opportunity to apply their knowledge from abroad about the customer needs. They can provide better or more targeted services to customers. Their customers might also be more “international” in nature or have a profession that allows them to stand more positively towards the services offered and the better service they can offer will also be a positive a factor in convincing customers to overcome their initial reluctance to use mobile baking services. The penetration rate of mobile banking among their customers will be higher, which will reflect in the long term in a higher income from these mobile operations.

At the same time, the international banks also possess the knowledge to be used in the branches, which means that the training of the employees exists and can be transferred to Jordan easily with little cost. They will much quicker have employees qualified in marketing and selling mobile banking services to customers as a consequence. From their international operations they also have the knowledge that can be used in their IT-Department, so they don't need to invest a lot of money in new IT-systems. The foreign operational systems can be implemented or at least amended easily to the Jordanian situation. Thus the resources needed to set up a mobile banking system in Jordan are more limited than for the national banks: the cost of training people and implementing systems will be lower (or recuperated in their foreign operations).

Thus, international banks will benefit from higher revenues and lower costs than local banks in mobile banking. The profitability of their operations will be much better and the reluctance of their management to offer these services to customers will be much lower as they already took this step abroad and know that the profitability will be higher. We have called this a “cycle of hope”. We do not dare to be more optimistic since in the start-up stages the profitability will still be rather low as customers in Jordan still have to be accustomed to mobile banking much more than is the case now.

MULTINATIONAL BANKS

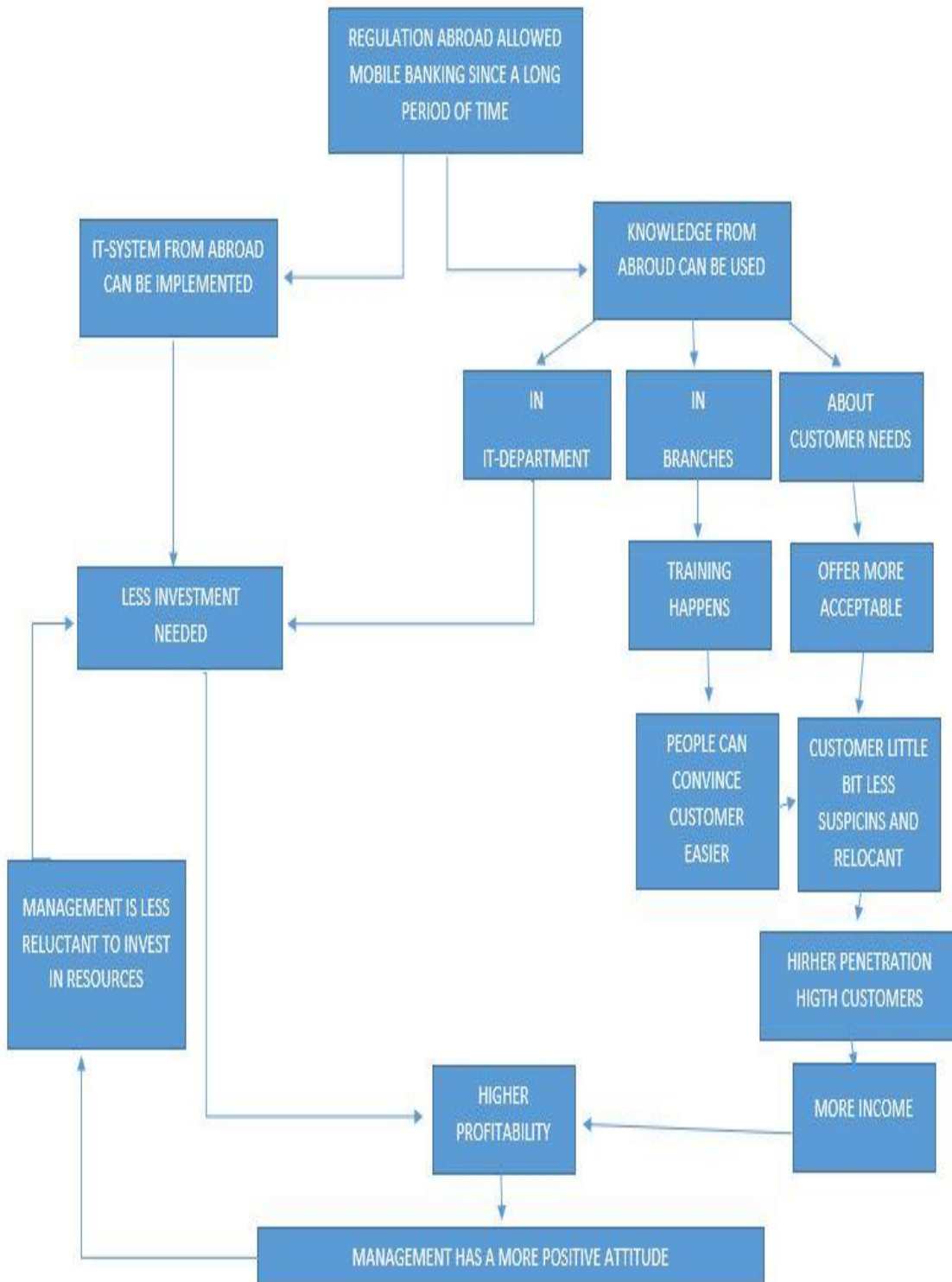


Figure 5.2. "Cycle of hope" for mobile banking in international banks

5.2. Implications for management

Our research partially confirms previous research indicated in our literature review chapter by Siam (2011) indicating a negative performance of mobile banking systems initially and an improvement of results over the long run. The international banks have more experience with mobile banking and thus have reached a higher level of profitability than the local banks who are in their initial stages of implementation.

The consequence is that we can ask ourselves how the local banks over time can shift from their actual “cycle of doom” to a much more positive “cycle of hope”, that is more equal to the actual situation of the international banks. In our eyes two factors are crucial: management attitude and the availability of good marketing data. Management will in the end be willing to give mobile banking more priority, also in local banks, if a higher penetration rate with the customers can be achieved. This requires more detailed data on who are the most interested customers and what they are actually looking, why this is the case and who they are. Thus a more targeted approach can be developed offering the right services in mobile format to the market segment that is really interested. Thus higher income will be generated and more willingness will be found with management to invest sufficiently in systems, training and marketing. Thus a “cycle of hope” could be started up also in local banks. Our interviewees stated that in all cases a “detour” via the international branches in their operations might be very beneficial. This sufficiently supports our point.

We have to state however that, according to the study of Khraim et al. (2011) a bank will never become a completely “electronic bank”. Our interviews indicate that the reluctance of customers and employees is too large for that.

5.3. Limitations of this study

This study only comprises three case studies. The case studies have been executed via skype and tape recorded interviews of around half an hour with the IT-manager of the case banks. Moreover, it was quite difficult to find willing interviewees as many of the bank managers did not want to grant a real interview because it would take too long nor did they like to answer all the questions openly for reasons of secrecy. This has as main consequence that no really deep answers could be obtained or probed at, a thing that would have been possible with a longer personal one-to-one interview.

We also got the answer from only one person in each of the case banks and cannot really verify whether the answers were prepared in collaboration with a colleague from the same or another department or the manager or CEO himself. Thus the normal measures that researchers use to make case based research more reliable could not be undertaken. We could not talk to more than one person in each bank to get an insight into the view of the different departments involved in mobile banking, nor could we confront them with opposing views. Further study of the views of the customers and the branch managers of several branches of the involved banks might have been useful. We also could not compare the data obtained with documents and records in the bank to verify the exactness of the answers either.

For these reasons we have to be very careful when interpreting these data and may certainly not generalize them for all mobile banking situations, although the fact that two of the interviews yielded nearly exactly the same data gives us a certain feeling of reliability.

At best we can say that this is a preliminary study into the topic of mobile banking in the Middle East. The fact that the one international bank we could have an interview with gave us a different perspective indicates that it would have been very fruitful to look for mobile banking systems and operations outside Jordan as well. But we could not know that from the start. Thus more, deeper and more pointed research is needed to develop a better understanding of this process.

5.4. Implications for further research

Further research should take these limitations at heart. This signifies that the best way to go forward is:

- To use real life interviews in some banks in the MENA region in order to compare the situation in different countries.
- To execute a proper verification of the data obtained as such by looking into company documents and talking to several involved people at headquarter and branch level and in several bank departments such as IT, marketing and finance.
- To go further on the conclusions of these cases to develop a more quantitative approach to verify whether the proposed schemes linking the situation to the profitability of mobile banking are really correct.

We would advise future researchers to try to keep cultural influences in the answers of the managers involved in this type of research to a minimum. This will not be easy as the most like banks to cooperate are international banks that might have multinational management as well. In that case only studies that take also the interrelated influence of mother and daughter banks into account will be fruitful. Another option could be that the research team itself becomes international and multicultural in nature. In that sense a research venture of researchers from different universities in a network like Erasmus/mundus or at least having some kind of intense cooperation seems to be a good way of doing so.

Another advice is that if such research is considered to be interesting, the specific research interests of the researchers involved should also be multi-disciplinary. At least someone interested in IT and marketing-related topics should be involved as well as someone interested in finance and international banking as a specialization field.

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APPENDIXES

Appendix 1: BLOM bank inter view

First part

Q1. Since when does your bank implement mobile banking?

2008 as a sms banking then in 2011 as a mobile banking apps in smart phone

Q2. Why did you start this new service system?

Competitive advantage, improve technology, less cost, save time for both customers and bank,

Q3. Which difficulties did you experience in getting started?

The customers are mostly using ATM and online banking services.

Most of the customers feel comfortable without mobile banking.

They also feel, there are a big chances and easy for theft steal it so they feel unsaved with it

Q4. Which were the major technological difficulties encountered?

Lack of using technology, poor experience and adopting the latest technologies in this field, and system we used in mobile device also plays an important role in development of Apps for easy access of various services.

Q5. Which were the IT problems encountered?

Well, I'll say security problems cuz let's say 70% of the mobile banking apps did not have an alternate method of authentication which could help guard against impersonation of customers.

Q6. How did you try to solve these problems?

It could be solve by sent out security codes through plaintext communication, some banks are using an unencrypted database to store your confidential information.

Q7. Which software and hardware was used to do so?

The software you need just the program or the apps to download it (android or iPhone) in your smartphone and the hardware is smartphone provided with appropriate software

Q8. Did you develop it yourself or did you use the help of experts?

Of course help of expert's cuz you need the good experience for software programming

Q9. Why did you make this choice?

cuz you need the good experience for software programming

Q10.How did the development evolve over time, that is, which stages in the evolution were there?

Its depends for technology development and how much people accept this technology and its different from country to country like life style and educations , and for which stage in the evaluation we are !! i think we still in aerial stage cuz people here still trust people (face to face) more than technology

Q11.Did this stepwise model (if the answers are positive to the previous questions), have consequences for the bank employees? For the structure of the bank? For the development of services in online banking to customers?

Of course its effect in banks as you mention for online banking and structure cuz technology is very important these days for efficiency procedures and reducing cost and make save time, which is time is the most important for banking structures and effective results

Q12.Which consequences were the most important ones?

Let's say the Coordinating inside the bank between the structures departments and between bank and the clients

Q13.How are employees motivated to work with the new system?

By training courses, save time for them, achieves more work,

Q14.Which services are now offered to customers?

Sms banking, using Ur online banking throw your smartphone, transfer between your own accounts

Q15.How are customers influenced to work with the new system?

As much as they using more, as much as developed mobile banking new services

Q16.How do you involve the different branches in offering this?

By marketing campaign, employee training courses, cross selling, explain for the clients how it's important and save your time

Q17.Which benefits do you think it offers to them?

Time, cost, and the information just he needs

Q18. Which elements of costs and profit within the bank are influenced by mobile banking?

Cost of mobility, they don't have to move from branch to branch or from his house to his bank and profit of gaining more time, what he want to make it within 2 hours he can do it in one click at his home

Q19. Has the bank become more profitable since introducing mobile banking?

Of course, less cost more revenue, gain more market share

Second part

Q20. Which infrastructural needs are needed for your mobile banking system?

Core banking, financial switch, application management, mobile environment, data and customer management, integration support

Q21. Which difficulties with regards to infrastructure do you encounter in Jordan?

Application management, mobile environment

Are they worse or less than in competing countries in the MENA region?

Worse

Q22. How could eventual deficiencies be covered better?

More awareness for customers how it's important to use, and enhancing the infrastructure

Q23. Which improvements are foreseen?

Let's say Core banking

Q24. How are you coping with the existing problems?

More research, more expert people, the believe from the top management of using mobile banking and its benefit

Q25. How many customers are linked to the system? (Penetration degree with your customers)

Still in earlier stage but Less than 60 % of customers

Q26. Is this number growing fast?

Yes

Q27. What are the reasons for this growth?

Let's say the revaluation of technology and awareness of the customers of them needs for services like that

Q28. Which banking regulations help in developing mobile banking in Jordan?

External regulations like Central bank regulations,

Q29. Which banking regulations are a barrier to the development of mobile banking in Jordan?

Internal regulations like financial regulations

Q30.Do you expect the government to act on these regulations fast?

In Jordan or Middle East in general governments still grown up slowly

Q30.What could you learn in Jordan from the regulations and existing infrastructure in other countries? Everything about research , management , training , hire expert employee from other countries , study the historical of others , what the risk and advantage and disadvantage for using mobile banking

Appendix 2: Bank of Jordan and Islamic bank interview (combined)

First part

Q1. Since when does your bank implement mobile banking?

The Mobile banking does not exist yet at Bank of Jordan. While the management is communicate some companies to deal with them.

Q2. Why did you start this new service system?

We started search for a third party since the central bank of Jordan made a new agreement with the World Bank which pushed the bank to move forward to use the mobile and internet banking. The agreement was signed in 2012 and then each bank starts to find a provider for the mobile banking and the internet banking services.

Q3. Which difficulties did you experience in getting started?

The difficulties that the involved team faces were as the follows:

1. The lake of experience in such services.
2. The poor market research.
3. Some management changes.
4. The security visa and account control issue.
5. And the most one is to make the customer use to it.

Q4. Which were the major technological difficulties encountered?

There were no major technology difficulties since bank of Jordan is the only bank that has the certificate of advanced IT systems in Jordan

Q5. Which were the IT problems encountered?

The only problem the IT team faced was the lake of resources regarding to the number of projects.

Q6. How did you try to solve these problems?

The management hired more employees to deal with this shortage.

Q7. Which software and hardware was used to do so?

The system will be built on the same infrastructure that exist for the bank system, integrities with the oracle databases.

Q8. Did you develop it yourself or did you use the help of experts?

As I mentioned above there were a lake of experience and know how so searching for a provider is better solution and cheaper in some points as example of the companies is BLUE-ring.

Q9. Why did you make this choice?

This choice was made regarding to the limited resources in the IT department while the outsourcing costs less and much effective.

Q10. How did the development evolve over time, that is, which stages in the evolution were there?

The project will be developed into many phases each phase will deliver back a part of the services such as the transfer between the accounts and managing your own account.

Q11. Did this stepwise model (if the answers are positive to the previous questions), have consequences for the bank employees? For the structure of the bank? For the development of services in online banking to customers?

there was no major changes inside the organization since the project is not exist yet, while its want be profitable for the bank because the customers are not willing to pay for this service and which will heavy costly the bank and the return of investment will be in a very long term. By each phase the team is willing to allocate the resources in better way while the understanding betters the customer requirements and the business needs. The infrastructure will be developed slightly to meet the new system requirements.

Q12. Which consequences were the most important ones?

The development of the infrastructure was the most important to deal with.

Q13. How are employees motivated to work with the new system?

The employees were motivated by having the new experience of developing such a service due to the shortage of the IT department

Q14. Which services are now offered to customers?

One of the services is the SMS banking and the email banking more or less checking the account status by SMS.

Q15. How are customers influenced to work with the new system?

The marketing team worked in parallel with the involved team in order to create an effective campaign and shows the benefits of using such a system.

Q16. How do you involve the different branches in offering this?

The branches did not involve yet since the implementation phase is step forward.

Q17. Which benefits do you think it offers to them?

The benefits of using the mobile banking decrease the Q-Line while the customer service can serve the customer in better and spend more time to attract more new customers and develop relationships.

Q18. Which elements of costs and profit within the bank are influenced by mobile banking?

The infrastructure already existed since the mobile banking and Internet banking infrastructure requirement is already integrated in most of the bank systems.

Q19. Has the bank become more profitable since introducing mobile banking?

The management will reduce by the long term the operational cost by decreasing numbers of employees and the work process time and resources.

Second part

Q20. Which infrastructural needs are needed for your mobile banking system?

The requirement to build mobile banking infrastructure is to have internet coverage over the country which is already exists in Jordan due to that the smart phones that most used in the country to know which IOS should the application developed on.

Q21. Which difficulties with regards to infrastructure do you encounter in Jordan?

Most difficulty that the bank will face is how to spread the network of the application in some cities.

Q22. Are they worse or less than in competing countries in the MENA region?

The banking sector in Jordan is still in young ages of using and developing the internet banking and the mobile banking, while in the gulf countries most of the banks used the mobile banking as a full service solution for the customer.

Q23. How could eventual deficiencies be covered better?

The banking sector in Jordan is too closed to invest in a mobile banking during the previous years. They can't step forward without having the right from the central bank of Jordan. Therefore the new agreement with the World Bank gives the opportunities for the Jordanian bank to invest in the mobile banking.

Q24. Which improvements are foreseen?

The main improvement for the case of having a mobile banking is to find and know how company than can deals with the Jordanian market needs and the exits infrastructure.

Q25. How are you coping with the existing problems?

the banks deal with the problems as step by step in order to find the best solutions since the bank have no experience in the mobile banking then it's become easier to solve the problem one by one.

Q26. How many customers are linked to the system? (Penetration degree with your customers)

The number of the involved customers is pretty small because there is a few banks that had the mobile banking which are the multinational banks.

Q27. Is this number growing fast?

No, since the Jordanian bank which have the highest percentage of market share still don't have the mobile banking.

Q28. What are the reasons for this growth?

The main advantage of this growth is the understanding of the benefits that the mobile banking provides for both the banks and the customers in the short and long term.

Q29. Which banking regulations help in developing mobile banking in Jordan?

The Jordanian banks are committed to the roles and regulations of the central bank which most of these regulations are provided for the top management and the CEO's of those banks. More or less the access for these information is difficult unless the central bank announced that.

Q30. Which banking regulations are a barrier to the development of mobile banking in Jordan?

The main barrier was the culture since most of the customer do not trust the mobile applications and the lack of using the internet online payments.

Q31. Do you expect the government to act on these regulations fast?

Yes, the central bank already signed an agreement with the World Bank to imply the mobile banking which will increase the customer satisfaction on the long term due to the benefits that the banks and the governments have from this service.

Q32. What could you learn in Jordan from the regulations and existing infrastructure in other countries?

Mainly the bank sector in gulf region is excel in the mobile banking that would help the Jordanian banks to apply it and make it function most effectively.

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