

Consumer Adoption - Risk Factor of Mobile Banking Services

Esad Kadušić, Petar Bojović and Amela Žgalj

Abstract—Mobile banking services present a unique growth opportunity for mobile operators in emerging markets, and have already made good progress in bringing financial services to the previously unbanked populations of many developing countries. The potential is amazing, but what about the risks? In the complex process of establishing a mobile banking business model, many kinds of risks and factors need to be monitored and well-managed. Risk identification is the first stage of risk management. Correct risk identification ensures risk management effectiveness. Keeping the risks low makes it possible to use the full potential of mobile banking and carry out the planned business strategy. The focus should be on adoption of consumers which is the main risk factor of mobile banking services.

Keywords—Consumer Adoption, Mobile Banking, Risk

I. INTRODUCTION

THE mobile banking market is supported by a range of independent risks that have extraordinary impact on the success of a business model, it is therefore necessary to define the risks, and allocate them to perform risk management.

In the complex process of adaption and establishment of new mobile banking business models there is a whole range of risks and issues that come to mind, primarily as follows:

- 1) Fraud is one of the great risks that come with the emergence of global remittance of money via mobile. As the mobile banking business models emerge they process is followed with spam, and steal of personal financial information. Fraud Management requires additional cost and complexity of the process, which will further complicate entering the mobile banking market.
- 2) Security remains an important question, which is necessary to solve during the establishment of mobile banking business models.
- 3) Financial regulations and legislation is necessary when we know that in some countries, telecom operators are not allowed to assume the role of financial institutions. It is precisely that the regulations are the main reason that many non-financial organizations had been kept away from these services.

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- 4) Lack of technological interoperability that might find a solution in the NFC technology, as it will make it possible to move payments from one bidder to another and from one country to another.
- 5) Privacy issues related to user skepticism can be explained by the demand of necessary personal data during the payment process.
- 6) Identity theft and theft of mobile devices depends on secure authentication, for instance, there is biometric-control technology that device manufacture try to avoid, given that users are trying to replace the stolen devices with new ones, which is a source of income manufactures.
- 7) Traditional banking risks are specific risks to which banks are exposed in mobile banking and activities related to electronic money can be grouped according to the classification carried out by the Basel Committee, and in that sense, these risks are not new.
- 8) Consumer experiences are one of the crucial and basic issues in creating a reliable and successful business model.

Consumers are looking for reliable and easy ways to pay, and if they are not satisfied with the offered business models, there is no intention to withdraw from traditional payment methods.

A lot of work still has to be done in this field, in order to improve consumers' adoption. In that sense we put our focus on the consumer resistance, precisely on adoption of consumers.

II. CONSUMER RESISTANCE AND ADOPTION OF MOBILE BANKING

In addition to the competitive forces within the mobile payments services markets, other factors are believed to impact these markets as well, for example, technology and standards, regulatory activities and legislation, established purchase and payment habits, or national economy infrastructures [11]. In order to successfully describe the relations between these external factors and influences, it is necessary to use the block diagram as follows.

The inner facet of the framework, that is competitive factors, describes the five main competitive forces of the mobile payment services markets. The outer facet of the framework includes contingency factors, that is, technological, social/cultural, commerce and legal/regulatory/standardization.

Recent market conditions have disrupted relationships between service providers and their consumers. Increased

competition, higher service costs and heightened regulations on fees all threaten to reduce consumer loyalty and drive down profits. But mobile banking is in a unique position to solve these problems.

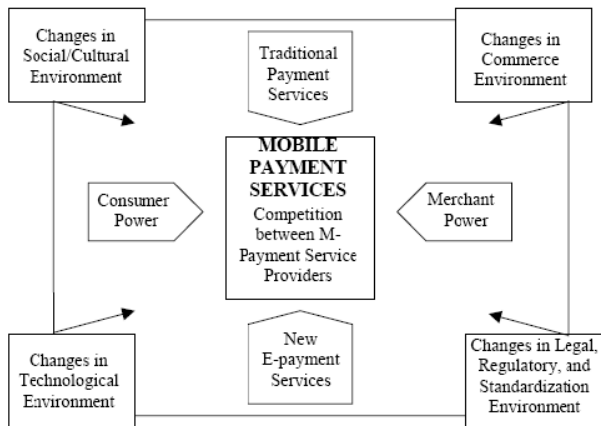


Fig. 1 Framework of factors impacting the mobile payment services market (According to the model from Dahlberg Mallat, 2002, Javalgi & Ramsey, 2002, Jayawardhena & Foley, 2000)

Our focus is on the consumer, and consumers' adoption of a new payment solution. Lack of consumers' adoption of offered new services in mobile banking is one of the important risks in banking fields. Inattention to this risk may lead to serious financial harms and losses.

Sociological questions can be considered in several dimensions. The first dimension is the acceptance of users; the second are attitudes of users, and third knowledge of risk. We distinguish the risks associated with the product or service, including functional loss, financial loss, loss of time and loss of opportunity, while the second group of risks is related to the context of the transaction, meaning the fear for privacy and security. Considering the whole range of factors we can predict attitudes, intentions and actual behavior of users.

As the Technology Acceptance Model shows we can by understanding the usefulness and ease of use predict user attitude toward a business model, and overlook the behavior or the actual use at the end of the chain.

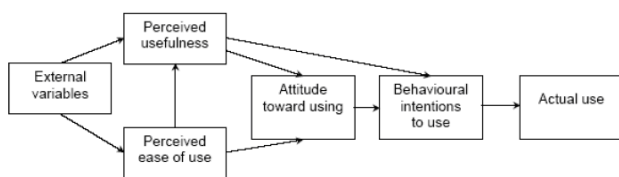


Fig. 2 Technology Acceptance Model (adopted from Davis 1989)

According to [7] we have ten interrelated factors that determine attitude towards online shopping. These ten factors are external environment, demographics, personal characteristics, vender/service/product characteristics, attitude towards online shopping, intention to shop online, online shopping decision making, online purchasing, and consumer satisfaction. Based on this analysis we are going to define a

number of factors that are critical to the success and adoption of mobile banking. These factors are as follows:

- External environment,
- Demographic conditions,
- Personal characteristics,
- Service/Product Characteristics,
- Attitude and aspirations of potential users of mobile banking,
- Consumer satisfaction.

A. External environment

Many studies have addressed the issue of how mobile payments impact on society and the development of society. However, some variables make the isolated measuring of the impact on society quite difficult. First of all, number of mobile subscribers. It is difficult to determine which technology is responsible for improving the quality of life of individuals, whether it is mobile telephony or mobile payment.

Countries that significantly invest in infrastructure, mobile internet and encourage the market development will also support the development of innovative technologies. So it is again difficult to determine what exactly affected the economic development- the saturated mobile phone penetration in society, even the economically weak, or the general technological improvement.

The external environment can be divided into three categories, as follows:

- Market environment,
- Political and regulatory environment,
- Infrastructure environment.

Market environment can be consists of economic factors, such as:

- Average income of population,
- Costs of service- competitive price,
- Level of infrastructure investment,
- Regional price differences and their impact on investment, and the sociological factors, which refer to the general social climate.

Infrastructure environment refers to:

- Mobile coverage,
- Quality of service
- Quick transfer times,
- Level of education,
- Influence of social networking,
- Technological aspect (in terms of technical architecture, security options and implementation options).

It is also very important to point out a very significant set of political and regulatory factors that determine the pace and size of effort to establish a business model around mobile banking. These factors are as follows:

- Organization of society,
- Education system,
- Leadership at all levels,
- Competition policies,
- Development strategies and their compliance,

- Recognition of social change in the environment,
- Willingness to change,
- Regulatory clarity (consumer protection rules, regulatory restrictions, taxation on services, etc.)

B. Demographic conditions

Many cultural and sociological factors can be studied in relation to mobile banking, for instance, the influence of the characteristics of countries and cultural similarities and differences between regions. In a complete analysis the kind of analysis that will show the connection between the sociological and technological aspects can not be left out. The significance of perceived credibility, perceived elitisation (perceived to be a service for the elite), facilitating conditions and demographic factors all specifically relate to the social, cultural and economic conditions of the environment [3].

One study that analyses the influence of culture on development of payment systems was performed in [16]. The authors pointed out that mobile phones are used to a much smaller extent in the US than in Europe. They also identified clearly distinguishable payment cultures within Europe, for example the debit orientation in Germany, or the determining smart card tradition of French banks. Other cultural factors that can influence what payment services are offered and how they are adopted include industry strengths, home-banking affinity of consumers, or strong mobile phone inclination. After them many others dealt with this issue, and the most significant results have been made in [13-15]. It is clear that we live in a world where economic, political or technological opportunities may or may not take place according to our expectations. However, a factor that financial as well as other types of institutions will have to take in to account is: *population ageing*.

According to surveys of the Statistical Office of Finland 10% of the Finnish population will be over 75 years until 2020, and about 20% of the population will be over 65 years. A similar situation exists in other developed countries. This fact will influence the business environment.

Demographic data will significantly affect the structure of business models. In this way, consumers are searching for business solutions that are stable enough for the older population. But in this respect, we should consider that older adults of tomorrow are today's youth, which at present can and should adopt habits that will preserve the old-age.

C. Personal characteristics

Studies have shown that the way people use banking products depends on three factors, namely:

- Attitude towards money (e.g. whether they are prone to borrowing or not, whether their spending within their means or above, etc.)
- Personal experience with bank security,
- Socio-economic status, which directly affects the level of income and purchasing power and consumer habits.

Personal Characteristics influencing mobile banking adoption are:

- Gender (Females for example, are found to have a lower attitude towards adoption and sustained usage of mobile banking services than males),
- Age (Early adopters of new products are commonly thought to be young in most technology markets),
- Education level,
- Personal income,
- Standard of living.

The European market is generally characterized by consumers who save and who are not prone to excessive borrowing, (Mortgage Loan is an exception). The world's largest banks operate on different continents and they offer a variety of products and services in these markets, depending on the orientation of the users.

D. Vender/Service/Product Characteristics

Although there is a significant number of new services and applications for mobile phones, mobile banking is a service that not only has an extreme potential in the short-term, but also because it is easier to understand as its concept is considerable similar to the internet banking concept.

Mobile banking is not a small challenge, because we have to take into consideration all the specific and individualized needs of the market, and on the other hand products must be simple and accessible to the average user.

Characteristics of a successful mobile banking solution include:

- Ease of use,
- Simplicity,
- Mobility (independent of hardware),
- Reliability on the business model and resistance to various attacks,
- Target 100% coverage (make the solution available to all consumers by opening enrolment through multiple channels),
- Enable personalization (allow consumers to conduct mobile banking on their own terms by letting them set preferences),
- Optimize consumer experience (Proactively deliver valuable, personalized content to consumers in real-time).

We recommend an efficient partnership model, which means that banks need to manage a multitude of partners, such as telecom operators, retailers, mobile device manufactures and many other stakeholders. The attention should be paid on the consumer and his needs, so it is important to make a user-centric working business solution.

It is generally accepted that cooperation between stakeholders (at the least financial institutions and mobile network operators) is required to bring mobile payments to the mass market. The lack of standardization has been detected as the main cause of inability of establishing. Collaboration will become an essential part of services of the future, but industry groups have to act wisely. A quality partnership is the one that takes advantage of the strength of each participant and has a balanced ratio of interests.

By using mobile banking emerging economies have a unique opportunity, to acquire an untapped population of unbanked and under-banked consumers, and revolutionize the way banking and payment services are delivered.

E. Attitude and aspirations of potential users of mobile banking

The attitude and aspirations of potential users of mobile banking can be evaluated in terms of psychological barriers, which determine the willingness to adopt modern technologies.

Among psychological barriers, we have tradition barrier, which mainly imply the change an innovation may cause in daily routines. If the routines are important to a consumer, tradition barrier will most likely be high. Moreover, behavior that is contrary to consumer's societal and family values and social norms will cause the barrier [8-9].

Tradition barrier to electronic banking may arise, for example, as it is not the way consumers are accustomed to paying bills [5]. Consumers may feel pressure in terms of marketing campaigns, and pricing strategies widely used for pushing consumers to adopt new ways of doing business. This may have the opposite effect causing resistance on the part of those consumers who prefer the traditional channels, instead of using modern technologies.

The essentiality is to gain consumer confidence. Consumer confidence can be evaluated in three dimensions:

- 1) Reputation- Reputation of the business model can significantly affect the eligibility of the business model to potential users,
- 2) Performance- Good performance of services or products are the catalyst for the success of the business model,
- 3) Appearance- Good image in public can also affect the acceptability of the model. That is the reason why many service providers and products are trying to leave a better impression in their appearance on the market.

Potential consumers are looking for mobile banking to be compatible with their individual lifestyle, to form a more positive attitude towards adopting mobile banking. The more the advantages and visible results of mobile banking use are in the first plan, the greater will the mobile banking adoption be. People want to form a positive image in front of other people, and if this modern kind of doing business can provide them the desired social image, they will be enthusiastic to use it. The focus should be on providing a chance to test mobile banking and to grant the consumer an opportunity to realize the advantages of mobile banking. The more positive an individual attitude towards using mobile banking is, the higher the intention to use mobile banking. In our hectic everyday life people suffer from a lack of time, so that the catalyst of mobile banking adoption can be seen in the time savings that this way of doing business provides. It is important to intrigue potential consumers for new services, then provide them a quality service, let them form a positive attitude about it and keep them as permanent satisfied consumers.

F. Consumer satisfaction

One of the main reasons for market failure of innovative business models is resistance among consumers, or psychological barriers to the adaptation of innovative business models.

Users depend on the growing increase in confidence, and bad experiences can cause a general distrust of the user. Thereby satisfaction of consumers is a primary goal. Preferred is the co-existence of competition between suppliers and cooperation that allows the benefits of interoperability. Good balance between cooperation and competition varies as the market grows and develops. If there is no interoperability business models are at risk of dominant "players" existence. Crucial factors for the success of mobile banking are competition and competent authorization legislation giving it sufficient authority for regulatory agencies to support interoperability and exclude uncompetitive behavior.

The World Economic Forum has launched an initiative 2008 to collect, aggregate and interpret data on acceptance of mobile payment business models, and to analyze their impact on the social aspect. The first phase of this initiative is completed with the evaluation of current research to the annual meeting of the World Economic Forum 2009. Research has shown little progress in this field, and where the adoption of mobile payments was found, it was recognized as too fragmented in terms of functionality. But this research pointed out the need for new research. The second phase of this initiative will establish a specific methodology to measure the impact of mobile banking business models. Measurement of impact of any social influence requests application-oriented access. It should also be taken into account that the mobile banking business models experience different forms in developed and developing countries.

III. THE BEST WAY TO ACHIEVE CONSUMER ADOPTION

Developments in information and telecommunication technologies have created conditions for the globalization of business. The main goal is to become regardless of geographic distance as quickly as possible and efficiently connect consumers and information flows. The great business potential lies in mobile banking. With specification of appropriate mobile banking business models it is possible to set the relevant analytical basis for estimating the economic effects of implementation of such a way of doing business. The attention should be paid on the consumer and his needs, so it is important to make a user-centric working business solution. The question is which is the best way to follow? How to win the consumers?

Mobile operators tried in the past to address the market independently of others. However, they came to the barriers related to lack of expertise in the field of financial management and risk management, which financial institutions can offer. To achieve operational efficiencies and realize the full growth potential, banks will need to work on the complex integration and efficient partnership model,

which means that banks need to manage a multitude of partners, such as telecom operators, retailers, mobile device manufactures and many other stakeholders. This kind of synergies we could define as a collaboration model, which uses expertise of the telecom sector as well as the financial sector, and allows the establishment of a single technology standard for mobile payment thereby avoiding the fragmentation of different technologies and platforms.

A. Collaboration model enhances consumer adoption

Global and regional experts in the deployment and management of mobile payment systems have urged all stakeholders, especially in emerging industries, to adopt a collaborative business model in order to develop the full potential of mobile banking.

A widely acceptable business solution can only be realized by each stakeholder focusing on its core competencies. In that sense banks should concentrate on billing and settling transactions, while mobile operators on their part should provide a stable and reliable network to carry out transactions. Meanwhile the payment intermediary, the so called Trusted Service Manager, should provide the process and switch transactions between all parties in a quick, secure and seamless manner. In this way mobile phones could be turned into a cheaper, more efficient, and highly profitable, replacement for Western Union and other wire transfer services [1]. The phenomenal success of two or three early entrants into the mobile funds transfer market- particularly M-PESA in Kenya, a service of Vodafone's local subsidiary Safaricom, and GCASH in the Philippines, a service of Globe Telecom- sparked heightened industry interest [1].

The potential can be seen in the already existing base of loyal users in both sectors, and orientation of mobile banking to a broader market could be accomplished through cooperation. The key lies in forming of a unique standardization framework, and an effective cooperation mechanism which puts the consumer in the middle point. In that way consumers would gain additional confidence, and the path to success of mobile banking would not be left out. Further advantage can be seen in the fact that banking services are for consumers available from the preferred bank, and in a more convenient way. The wait time for doing payments is reduced, and the only need is to obtain and activate bank-specific application on device.

A good way of functioning of a collaboration model is to include an intermediary known as Trusted Service Manager (TSM) in the ecosystem. Its role is to connect all participants and to help distribute and manage applications, thereby creating a confidential end-to-end system. Such an agent may accelerate the development of services through contractual arrangements and other aspects of the business.

Such a stakeholder scenario [10], shown in fig. 3, can be suitable for all participants, and service providers can quickly and effectively offer services with only one agent, which gives them access to all users.

The addition of money transfer service to the mobile phone

could encourage people to use their phones more heavily and have more loyalty to their network provider.

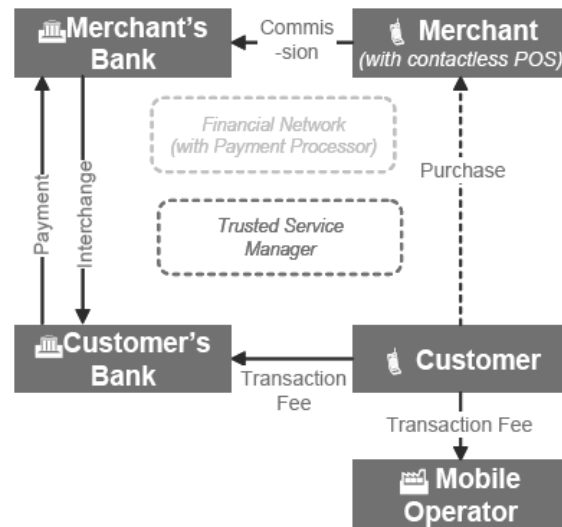


Fig. 3 Collaboration model: Stakeholder scenario (Smart Card Alliance, 2008)

B. Optimizing the mobile consumer experience

Consumers expect to be able to do business when they want, how they want and where they want, thus business solutions should be quick, easy and secure. Today's consumer demonstrates a high degree of loyalty to institutions that offer them choice, security and convenience- and this consumer loyalty can grow into superior market share, increased brand awareness and greater profitability for the financial institution.

Convenience will always be a major factor driving consumer decisions, and mobile banking takes the "anytime, anywhere" accessibility of the Internet to a new level.

Offering of new services can strengthen the relationship between the consumer and the service provider, thereby providing mobile services can also be viewed as a long-term cost reduction strategy. This is about the utilization of "self-service" mobile banking for checking account balances, making payments and transfers, which reduce costs associated with maintaining a consumer contact call center.

The mobile channel is fertile ground for financial institutions looking to enhance their brand visibility in the marketplace. By offering both mobile and online services, the financial institution actually makes the relationship with their consumers "stickier," as customers are far less likely to switch banks when all of their needs are being met. And contrary to initial concerns, the growing popularity of the mobile channel hasn't been detrimental to online business. In fact, research shows that today's consumers seem to be comfortable using both mobile and online services depending upon their needs and the situation [2]. This is a win-win situation for financial institutions, since mobile banking may ultimately reduce the operating cost of doing business while increasing consumer loyalty and profitability, by meeting consumer's demands and preferences.

Today's consumers are more than ever focused on balancing their busy lives, and financial institutions that offer quick and efficient services to consumers at their preferred touch points will only strengthen their position within the markets they serve. It is also more likely that satisfied consumers will recommend the service to others.

Financial institutions also understand the importance of targeting younger consumers for a longer consumer-bank relationship lifecycle. By offering mobile services, they are tapping a vast market of younger consumers who are more than willing to utilize mobile banking services. By attracting these consumers early, the financial institution has the potential to grow the relationship through upcoming years, and to establish a long term relationship.

To provide an added level of consumer confidence, service providers should consider offering mobile banking transactions with a high security guarantee. Providing a high level of confidence for the consumer makes the mobile transaction feel like a comfortable extension of the online experience they know and trust today [2]. This security arrangement can be provided by a complete security strategy for mobile banking in order to protect the consumers and their assets.

IV. CONCLUSION

The mobile banking market is influenced by many factors which are mutually interconnected, and the goal is to build a working system in which every stakeholder has its role and responsibilities, but the only way to accomplish this goal is to get to the final consumers and to ensure consumers' adoption of a new payment solution. Lack of consumers' adoption of offered new mobile banking services is one of the important risks in banking fields. Inattention to this risk may lead to serious financial harms and losses.

The aim of our paper was to point out a whole series of factors (External environment, Demographic conditions, Personal characteristics, Service/Product Characteristics, Attitude and aspirations of potential users of mobile banking, Consumer satisfaction) which are crucial to consumer adoption of mobile banking.

We showed the inevitable fact that these factors are correlated and that ignorance of any of them results with failure of mobile banking, in that sense consumer adoption is to be treated as a risk factor of mobile banking services. This is a complex process and it requires detailed and structured analysis, keeping in mind that the main goal is consumer adoption, and the most important element is the consumer and his preferences.

In that sense we suggested a collaboration model, which means that banks will need to work on the complex integration and efficient partnership model, i.e. banks need to manage a multitude of partners, such as telecom operators, retailers, mobile device manufactures and many other stakeholders. This kind of synergies we could define as a collaboration model, which uses expertise of the telecom

sector as well as the financial sector, and allows the establishment of a single technology standard for mobile payment thereby avoiding the fragmentation of different technologies and platforms. In this manner mobile banking business would center the consumer in the middle point, and ease the way of doing business for the ultimate participant - the consumer.

If the mobile banking provider succeeds in identification of consumers' motivations and preferences, and tries to follow a working strategic plan of cooperation and interoperability, the success of mobile banking is certain.

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