

Type of the Paper: Original scientific paper

Received: 22.12.2021.

Accepted: 31.12.2021.

DOI: <https://doi.org/10.18485/edtech.2021.1.1.4>

UDC: 004.738.5:336.71

336.71:004.42

The Implementation of Mobile Banking in Modern Banking Business

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Abstract: The development of mobile banking ensued after the development of the mobile phone market as well as the sudden emergence of the internet and electronic trade. In order for mobile banking to function properly, there needs to be a good collaboration between the banks and mobile phone companies, as well as a satisfactory software support for various services. Nowadays, almost all banks offer mobile banking to their customers. In the beginning, the clients had only the option of viewing their account information, while today they can complete transactions and do shopping. Mobile banking is seen as the newest means in e-banking, which will enable a suitable way of performing banking transactions by way of using the mobile phone or other mobile devices. The potential for e-banking can be a lot more feasible than by using the computer, because there are more mobile phone users than computer ones. In the beginning, clients were only able to have an insight into the balance of their accounts, and today they can perform many other transactions related to their payment cards, current and foreign currency accounts and loans. Mobile banking is the latest channel in electronic banking that will provide a convenient way to perform banking transactions using mobile phones or other mobile devices.

Key terms: : e-banking, mobile banking, safety and protection of data, e-commerce

1. Introduction

Electronic systems are developing at a fast pace everywhere in the world; including our country. Many companies, not only massive multinational systems but also smaller companies, and banks are interested in introducing electronic systems into their business organization in order to communicate with their clients more easily, to perform their business quickly and effortlessly, and in order to reach those clients who do not want or are unable to do business in person.

Many experts and analysts believe electronic business is beneficial for the economy of a country, since it is an advantage for clients, companies, and banks. A contemporary bank cannot fathom doing business without proper electronic support. E-banking, as a part of electronic business, is complex and requires the work of many analysts, which are updating and adjusting the system. This is the reason why so much research is being done and so many papers are written on this topic.

The internet is a relatively new means of doing banking. Its previous form, which was introduced in the 1980s, was known as providing “online banking services” and it required using a computer along with a modem and software supplied by the provider of financial services. Yet, this form was mainly not accepted, so that most of the initiatives regarding this service were not continued. During the mid 1990s, along with the growth of other electronic services, banks renewed their interest in electronic business operations due to rise of the Internet.

In recent decades, there is a development of mobile banking as a part of modern banking operations. Mobile banking is a service provided by the bank or some other financial institution, which enables their clients to do business via devices such as smart phones and tablets. Unlike the affined internet banking, it uses software popularly dubbed *an app*, which is given by the financial institution. Usually, mobile banking is available 24/7; although, some financial institutions have time frames within which you can access your account via a phone as well as withdrawal limits.

Mobile phones, i.e. smart phones, and their applications are used more and more in recent years. By using a phone, one can view account information at any time of the day, can perform banking transactions, and also shop for goods and other services. [1] The development of mobile banking is tightly connected to the development of the mobile phone market as well as the rise of the internet and e-shopping. An adequate cooperation of banks with mobile service providers as well as solid software support is needed in order for mobile businesses to function. Today, almost all banks offer mobile banking services to their clients. In the beginning, the clients could only view their accounts, whereas today they can perform transactions and do shopping.

2. Mobile Banking - the Newest Means of Banking Services

Banking is an important division in today's economy, which has been influenced in recent years by a variety of e-technologies. The banking industry has realized that one of the most important e-innovations was the source of comparative advantage, and that such sources were taken for granted by the consumers and the bank industry alike. For example, in many industrialized countries web banking is necessary and is a must when it comes to gaining new clients.

Therefore, in the future, banks will have to do research, accept and apply various technologies in order to stay in the game with their competitors. Many of those technologies will have a mobile component: mobile banking, mobile pay services, and online shopping [2].

Some banks are making considerable investments in mobile systems in order to bring a range of different business values from higher efficiency and lower costs to a more advanced operating efficiency as well as providing services to users in order to gain a comparative advantage. The factor that made a difference was a higher availability and capacity of mobile communications worldwide; thus, developing even more the types of mobile phones and their functionality. The decrease in the expense of sending data and the lower costs of devices have contributed to a global distribution of technologies and the rise in the global mobile market. In those countries in which the traditional telecommunications infrastructure is not well developed, mobile technologies are being transformed and available via internet.

Mobile banking can be described as the newest means in e-banking, which will provide a suitable way of performing banking transactions by using mobile phones or other mobile devices. The potential for mobile banking can be even greater than it is by using computers, because there are more mobile phone users than computer ones. There are two main technologies that are available in mobile banking:

- WAP Wireless Application Protocol
- WIG Wireless Internet Gateway

WAP (Wireless Application Protocol)

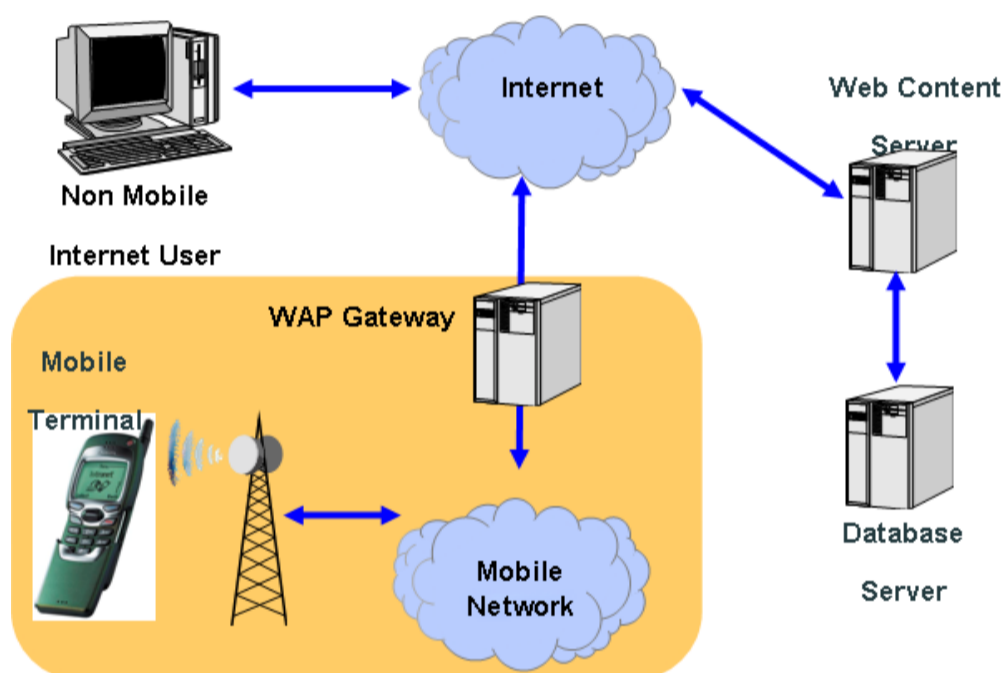


Figure 1. WAP Banking [3]

WIG service is based on SMS through which the menu of available banking options is downloaded onto the mobile device. This feature enables the users to perform certain banking transactions.

Mobile banking is accepted in almost all countries; however, there is a number of factors that contribute to a lower use of mobile technologies, and they are:

- The expenses of using the internet - Even though, some costs of connecting mobile phones are not high they are still high enough in some countries, which leads to deterring users from certain applications such as mobile banking.
- Difficult computer interface - The Human Computer Interface (HCI) is the key component for accepting mobile technologies. It includes the usage and context of computers, human traits, computer systems and the architectural interface and the process of development [3]. The general rule is that the easier it is to accept the interface, the more the users will use it.
- The lack of user awareness - Many banking users are not even aware of the possibilities that the availability of mobile banking gives or the mutual advantages that exist. As with other technologies, awareness grows with time and serious promotion is needed.[4]
- The limitations of mobile device functionality - Mobile technologies have certain limits such as battery life, unreliable web connection, varying access points, the risk of data loss and other ones. Even in developed countries, until recently, wireless communication came with limits when it came to the functionality of the device and the speed of transmitting data. The limitations such as the size of the screen, memory and data storage, and the price of data transfer all limit the amount of data that can be shown and which can be accessed. These limitations are still, in many countries, the greatest barrier when it comes to accepting mobile operations.
- Availability - Fast internet access in public places offers various possibilities of connection as well as staying connected from different locations. Nowadays, hotels make sure that business travelers have a fast internet connection in their rooms. As these networks increase, so does the number of various applications [5]. Maybe it

will take a few more years to achieve the “always connected” goal as is to stay connected in rural areas, which are currently outside the high technological paths.

- Security issues - Mobile technology still has issues with questionable security, so it is not suitable for the transfer of confidential financial data. Mobile devices are becoming more and more targets for viruses, hackers, and SMS spamming. The abruptness of services and theft of data can cause serious problems for customers including loss of revenue and the lack of satisfaction with customer service. However, the greatest loss can be for the banks which provide mobile access, since in most cases fraudulent activity leads to loss of funds. Thus, this can be one of the main reasons why some banks refrain from providing mobile banking options. In order to be successful in mobile banking, the industry needs to develop the ability to withstand malware problems.
- Changes in organization - in order to offer business banking many organizations will have to change their business processes, the way they give information, the way information is accessed, work relations and practices, work ethics and most of all the changes in the roles and responsibilities of management.
- The number of choices - There are many options when it comes to providing mobile banking. One can spend anywhere from a few thousand to a few million pounds for any combination of hardware, software and network not even being aware of many of the advantages. With lower prices of mobile technologies, it is obvious that mobile work is cheap for implementation. However, it is important to remember that the price of technologies is only a portion of the possible total expenses. As a rule, these costs are only 30% of a typical mobile project, while the other 70% include training, maintenance, security, management, and integrations. These numbers imply that the real expenses of mobile work could be even greater than the promised savings [4].
- Encumbrance of technologies - The expansion of personal devices such as computers, mobile phones, and digital organizers along with the development of new media such as e-mails and the World Wide Web the ways in which consumers are informed and entertained have been forever changed. These fragmented means of informing result in inefficient ways in which users switch from one device to another as with different media that are used for everyday use such as e-banking [7].

As to promote usage, users need to be aware of the advantages which mobile banking offers in comparison to other means that are available. Customers should have the option of trying out mobile banking or seeing a demonstration of how it works at bank branches or via their devices. This would raise awareness and give people a better understanding of mobile banking options. Apart from that, the services that are offered need to be advertised to a targeted market, such as young people, who have the tendencies to accept the latest innovative services. The perceived risks, as with many innovations should be dealt with by limiting the responsibility of the customers as well as implementing the latest security technologies. The newer versions of WAP use coded digital signatures in order to better security. Functionality and the user interface on mobile devices are getting better while the expenses of internet connectivity in the developed world are costing less. These developments signify that the potential for a more global acceptance of mobile banking seem more promising than ever.

3. The Scope of Mobile Banking Services

Mobile banking is a service offered by the bank or another financial institution, which is given to its users, so that they can perform their financial transactions from a distance by using their mobile devices such as smart phones and/or tablets. Unlike connected internet banking it uses a software popularly called an App, which is provided by a specific financial institution. Mobile banking is usually available 24/7; although, some financial institutions pose some limits to accessing accounts via mobile banking as well as setting withdrawal limits.

Transactions via mobile banking include statements and the list of recent transactions, paying bills, transferring funds from one account to another, and so on. Some applications also provide copies of statements, which can be printed out, while other banks charge sending out hard copies of statements.

From the bank's point of view, mobile banking reduces the costs of handling transactions by reducing the need of the customer to come to the bank in person for transactions such as transferring and depositing money. Mobile banking does not include transactions with cash for which the customer needs to pay a visit to the bank. Many applications have the option of distance deposits for which a camera is used to digitally deposit checks to their financial institution. Mobile banking differs from paying by a mobile device because it requires the use of a mobile device to pay for goods or services in person or online just as one would with a debit or credit card for EFTPOS paying. [8]

The earliest forms of mobile banking used SMS for SMS banking. However, with the advent of smart phones with WAP support, which enabled the use of the mobile web in 1999, many banks began offering mobile banking to their customers with this platform [5]. Before 2010, mobile banking was usually done via SMS or the mobile web. The first success of Apple with its iPhone and the development of phones based on Google's Android operating system brought to the use of specialized mobile applications downloaded to the device. Hence, the development of web technologies such as HTML5, CSS3, and JavaScript encouraged many banks to begin using the services of a mobile network together with additional applications. A study of Google Maps from 2012, documents that over one third of banks show the use of mobile devices as a means for the first access of the bank's webpage [7]. By using this one icon, it is possible to do a couple of things such as to get redirected to the App store, to get redirected to a specific web location for mobile banking, or for giving the user a menu of mobile banking options to choose from.

Mobile banking is defined by giving and using banking and financial services via the help of mobile telecommunication devices. The scope of offered services can include the ability to perform transactions in banks and at the stock market, account administration, and access to information. According to this model, mobile banking has three

interconnected parts:

- Mobile Accounting
- Mobile Brokerage
- Mobile Financial and Information Services

Most of the services offered through accounting or brokerage are regarding transactions. Information services do not deal with transactions but are of vital importance for completing transactions; for example, before completing a transaction one must view the statement. Because of this, accounting and brokerage services are always offered together in a package with information services. On the other hand, information service can be offered on their own as an independent module. Mobile banking can be used as an auxiliary service in business and financial situations.

The usual services of mobile banking:[1] Information regarding the account; Mini statements and checking statements; Warnings about account activity or information about account exceedance; Monitoring of term savings; - Loan statements; Access to card statements; Statements of funds/stocks; Managing insurance; Transactions; Transfer of funds between linked accounts of a client; Payment to third party; payment of bills; transfer of funds to third party; Check remote deposit; Investments; Services of managing a portfolio; Grace period; Support; Loan status, mortgage status and insurance; Credit card approval; Exchange of messages, e-mails, complaints, monitoring; ATM locations; General information such as time zones and news; Loyalty program; Services at certain locations

A report made by the American Federal Reserve from 2012 has established that 21% mobile phone owners used mobile banking in the last 12 months [2]. Based on a poll done by Forrester, mobile banking is used mainly by younger customers. One third of mobile phone users have said that they would consider performing some kind of financial transaction with their mobile phone. However, most users are interested in the basic functions such as statements and creating accounts.

With the advent of technologies and a greater use of smart phones and tablets, the functionality of mobile phone banking would make it possible for users to connect with the whole life cycle of consumers much sooner than before. The enrichment of functionality based on the objectivity in mobile banking are as follows:

- Enrichment of communication - video interactions with agents, advisers
- The possibility of pervasive transactions - the all-encompassing “mobile wallet”
- The education of buyers - a “test drive” for banking services
- Connecting with a new group of buyers - connecting with Gen Y and gen Z by using social media while advertising banks
- Content monetization - micro levels of revenue through themes such as music and e-books
- Vertical positioning - positioning offers in specialized industries of mobile banking
- Horizontal positioning - positioning offers via mobile banking in all industries
- Personalized corporate banking services - the experience of personalized corporate banking based on current advances and contexts
- Branding - Developing the bank’s brand while advancing “mobile properties”

A virtual bank offers some or all types of accounts as do traditional banks, while virtual banks exist only on the web. They usually have lower fees and higher rates due to lower costs. Virtual banking transactions can be checked in real time, at the moment when they are happening, and not at the end of the day or month. Such services can be available online for traditional banks. Virtual banks do not have branches or their own ATM machines, so deposits are made online or via the post office. Virtual banks can refund fees that ATM machines of other banks charge. However, there may be a limit to the number of transactions that can be done during a month.[16]

Online banking, also known as internet banking, is an electronic system of paying, which gives the users or other financial institutions the option of performing multiple financial transactions via a website of a financial institution. The system of online banking is connected to or is a part of the basic banking system of a bank, and is different from the actual banks that traditional clients use for banking.

In order for a client to access a bank of financial institution, they need to register with that institution via internet and to set a username and password and other client verification credentials. The potential for online banking usually is not the same as phone or mobile banking. Nowadays, financial institutions usually assign a number of customers regardless of whether or not the users said that they intend to access their online banking facilities. The numbers of the buyers are usually not the same as the number of accounts, because the number of the account of the buyer can be connected to one client number. So, it turns out that the number of the buyer can be connected to any account in the financial institution which the user controls, even though the financial institution can limit how big the account that one wants to access is; for example, a check, savings, loans, credit card. [9]

The user visits the webpage of the financial institution and enters the online banking facility using the number of the buyer via the established credentials. The financial institution determines the types of transactions which the client can perform via online banking, but it usually includes getting an account, a list of recent transactions, online bill paying, and the transfer of funds between the client and some other party. Most banks provide the client with the possibility to get copies of statements, which can be printed in the buyer’s facility (some banks charge a fee for sending a copy of the statements). Some banks enable the users to directly transfer transactions into the accounting software of the buyer. The facility can allow the client to order checks, statements, report stolen/lost credit cards, stop a payment, make a change of address or other routine activities.

Today, many banking facilities use only the internet. These “virtual banks” have lower maintenance fees than traditional banks. In the United States of America, there are many virtual banks which are insured by the Federal Deposit Insurance Corporation (FDIC) and can offer the same level of security for funds as do traditional banks.

In Serbia in recent years, almost all banks developed mobile banking. It is a hybrid distribution means for which an

internet connectivity is needed, and it essentially requires the use of smart or Android phone or a tablet. It is a well-known fact that today's clients prefer to use phones over computers, so a great many banks have decided to create applications which can be used on mobile phones. With the application, the user can access faster and easier the required service. The possibilities that type of banking offers coincides a lot with internet banking; however, it is more about substitutes and not actual complementary functions.[11]

Most banks in Serbia have developed applications for the two biggest operational systems Android and iOS. Still, in this segment Telenor bank offers the most advanced services to its customers. In early 2014, the mobile phone provider Telenor bought a license from the KBC bank, which withdrew from the market in Serbia. Telenor already had a banking experience, because they did a similar thing in Pakistan [12].

The basic principle of Telenor's business is dealing only with individuals and not with corporations and long-term loans. So, the aim is to increase business which can be done online and over mobile phones. The only time a client has to come in person is when the contract regarding opening an account is signed (since the certificate system is not yet implemented); however, just opening an account can be done online. Obrovački (2016, p.46) states that this is the only bank which allows the client to choose their account number, so it can even be the client's phone number.

The following services should be singled out (telenorbanka.rs):

1. Sending money to an e-mail account or phone number, at which point the person who receives money can choose the account where they want the money transferred to (if they are not already a Telenor client).
2. The possibility of withdrawing and depositing dinars or euros at ATM machines.
3. Registering certain monthly bills with the application, which then reminds the user when they need to be paid. Payments are made with one click without additional charges.
4. Sending and receiving money from abroad via the mobile App. There is no need to go in person. Money can be sent or receives at the ATM machines.
5. Foreign currency can be purchased via the mobile App at the same rate as in exchange offices without the high exchange rates that other banks have.
6. One can change the card PIN online. It's useful in cases when the card cannot be found and the user is not sure if the card had been stolen in the first place, so they do not want to report it stolen yet.

The carriers of mobile payments are non-financial companies, usually from the IT or retail sectors. Similar payment applications are still not used in the Republic of Serbia, so it is expected that banks in cooperation with retailers or telecommunication companies will offer this service in the future [13].

4. Conclusion

Mobile banking has a huge impact on the business of a bank, and this tendency has been growing with the development of electronic systems and communication technologies. Electronic banking brings an increase in productivity, a decrease in costs as well as gaining new clients, which in turn helps the growth of the client pool, who tend to be more satisfied. Such business helps maintain a healthy competitive edge and focuses on the individual client. These are the positive effects of electronic banking on banks.

This way of doing business has not only been beneficial for banks, but it has also been great for business in general. The advantages of electronic banking have not only been for individuals, but also for companies that wish to pay employees or perform transactions with their business partners, since some of them are abroad. This way they save on expenses and make doing business easier and more suitable for clients and partners. This type of banking reflects positively on society in general. The more technologies are used in banking, the more people become educated about doing business like this and so it contributes to using other technologies more, which is the future of not only our country but the global community as well.

The system of doing banking electronically is not fully accepted in our market. Certain measures and time are needed; not only with other systems but also with banking, in order for electronic banking to become widely used and accepted in general. Only then will users become aware of all the potentials that this type of banking offers.

Telenor banks has revolutionized mobile banking in Serbia in 2013 when it bought in totality the KBC bank. Then, Telenor bank offered citizens of Serbia a bank with innovative and modern mobile and financial services. Telenor bank is the first in the region which used completely mobile banking, and according to the Telenor bank application, the whole bank is stored in your phone. Nowadays, experts predict an even greater expansion of mobile banking in the years to come, since the number of mobile phone users is surpassing the number of internet computer users.

In Serbia, mobile banking develops at the same pace as the development of modern technologies and global trends, and enables their users to use new banking service. The offers of the m-banking market in Serbia have advanced significantly. In a short period of time, the services of mobile banking have drastically broadened and the number of clients has considerably gone up. Clients can perform almost all of the services over the phone that can be done in person at the bank. Customer support for using mobile banking applications significantly increases customer satisfaction as it does the trust they have in the bank which offers mobile banking services. [14]

It can be noted that m-banking is still in its beginning phases of development in Serbia, but an expansion of it is expected in years to come. The rapid development of mobile banking in the world has enabled customers to be able to make all kinds of payments quickly and efficiently via mobile phones. A leap towards this way of doing business was done by Apple for they enabled making payments via POS terminals by simply connecting telephones to the same. This way of making a payment is known as Apple Pay; thus, it was natural that Samsung, their main competitor, created Samsung Pay. [17] The rapid development of mobile phones and their manifold use have nudged many sectors, even banking, to advance their services and adjust them to the needs of the users. It is inevitable that in the future with the development of

the 5G network that m-banking will develop even more. The course and trends in mobile banking can be manifold, and the greatest attention will be given to mending flaws and increasing securities for completing transactions. [15]

As to promote acceptance, users should be aware of the advantages which mobile banking offers in comparison to other options. Buyers should have the option of trying out mobile banking or seeing a presentation, maybe at the local branches or over some form of media; to see how it works. That would raise awareness and give people the understanding regarding mobile banking. Apart from that, the services offered should be advertised for a targeted market, such as younger people who have the tendency to adopt innovative services. The perceptions of risks, as with many innovations should be dealt with by limiting the responsibility of buyers and applying the latest security technologies. The new version of WAP uses a coded digital signature as an upgraded security measure. The functionality and user interface on mobile devices are being upgraded constantly while the charges of internet connectivity are globally becoming lower. These changes mean that an outspread acceptance of mobile banking is becoming more and more a reality.

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