

A Study on Emerging Trends and Innovations in the Mobile Banking Sector

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Abstract: *Trends and innovations in mobile banking The growth of mobile and internet technologies has influenced the transformation of many industries, including particular economies. Many industries, including banking, have changed as a result of the growing popularity of the internet and mobile phones. In comparison to traditional bank transfers, online banking, which can be easily done from home or the office using a personal computer, has fought for its place. "Mobile banking" is the merging of information from mobile phones about the status of a bank account or a payment transaction in a short amount of time. With the help of mobile phones, mobile banking has evolved to the point where it can now be used to make payments at any time and from anywhere. As a result, manufacturers of mobile phones have had to meet the growing demands of users for banking transactions that are simpler and easier. The production of smart phones that allowed for contactless payment transactions marked a ground-breaking advancement in this field. As a result, banking operations have changed as a result of the development of mobile technologies, with the primary objective of providing new channels for banking service distribution. Banks and mobile operators worked closely together as a result of everything that happened. In Serbia, as well as around the world, the number of people using mobile banking services is on the rise.*

Keywords: Mobile banking., banking services, electronic payments

I. INTRODUCTION

The growth of the Internet and mobile technologies has changed many industries and economies. Mobile banking has lower costs and makes services easier to access at any time or location. In many ways, the market's power and competition have changed completely. iTunes has changed the music business in its center, Amazon has left the majority of huge book shops jobless, Expedia has become one of the biggest vacationer organizations on the planet, and so on. The Web and portable innovations are a test to most ventures.

The majority of business models today face a death threat from what began in 2000 during the.com boom. Many industries, including the banking sector, have changed as a result of widespread acceptance of mobile phones, the development of smart phones, and a cheaper and more widely available Internet. Despite initial reservations, online banking has established itself as a viable option for traditional bank transactions.

Exchanges are effectively finished from PCs from home or office. Constant exchange checking empowers clients to follow their cash stream. As a result, driving from one area of a town to another and waiting in bank lines are no longer necessary. From anywhere in the world, transactions can be completed quickly and easily around the clock. People who frequently travel and want to get information on their bank account or make a transaction as soon as possible find that these activities are becoming increasingly important. Fast improvement of versatile advancements empowers us to do these bank activities from cell phones. All of these actions might be referred to as "mobile banking." Clients' developing requirements for more helpful and simpler overseeing of their ledgers and exchanges had likewise to be met by cell phone makers. From simple bank account checking to today's mobile on-the-spot payments in stores, mobile banking has advanced.

It is necessary to mention that Apple, a manufacturer of mobile devices, made a revolutionary advancement in the production of smart phones, which other manufacturers needed to follow in order to gain a share of the market. Apple empowers us to embed electric cards into a gadget and in this manner make contactless installments in stores, by bringing the cell phone near the POS terminal . Apple pay is a method of payment like this. Samsung, Apple's biggest rival, introduced Samsung pay, a similar feature for mobile devices. Not only has the banking industry been forced to

adapt to the needs of customers on a regular basis and compete with other industries for new business, but other closely related industries as well. Versatile banking has been creating step by step and a few additional developments are supposed to arise in this fragment of banking.

Idea of versatile financial Improvement of current advances was quite possibly of the greatest partner being developed of the financial business. Using technological advancements, the banking industry was able to reach clients who were less readily available and who had higher expectations in order to reorient and restructure the business environment. If we look at how the banking industry has developed over time, we can see that a lot of effort has been put into developing new communication channels that can reach every customer. From phone banking to internet banking to mobile banking (m-banking), the primary objective has been to offer new distribution channels for banking services and to simplify the business process by abandoning the rather conservative banking model.

M-banking empowers clients to have every monetary asset "in their grasp", through cell phones, cell phones and individual advanced partners. It is feasible to utilize versatile banking by means of:

1. Voice mail (also known as Interactive Voice Response) is a distribution channel that makes it possible for customers to communicate with banks; When the client calls a number, they select from a menu of various options for reading information and selecting messages.
2. Messages (Short Messaging Service): This distribution channel lets customers send text messages with predefined content, and the bank can respond by sending back another predefined text message with the necessary information.
3. Remote access (Remote Access Convention) - this appropriation channel is like internet banking since it utilizes a similar idea of WAP innovation. On mobile devices, customers can use the WAP search engine to look up bank presentations and find the information they need about banking products and services.
4. Client-oriented mobile applications (Standalone Mobile Application Clients): Clients use this distribution channel to use mobile applications to access advanced banking services and conduct modern-day transactions that are dependable and secure

The spectra of some new and improved models of m-banking have broadened as a result of the development of smartphones, 3G phones, and new technologies for 4G. It means a lot to screen this peculiarity of changing and working on the model of m-banking since, as per data framework specialists, it is one of the main improvement of versatile business (m-trade), and thusly, a key for banking exercises in the future

The most satisfactory meaning of portable banking has been given by : " Mobile banking is a novel approach to gaining access to banking services via a channel in which mobile devices (such as mobile phones or personal digital assistants) are used to communicate with the bank. Smartphones and tablets will soon become new hardware devices in everyday life, according to Deutsche Bank Research , driving a larger and more rapid supply of mobile solutions. Additionally, mobile device usage is rising in the Republic of Serbia, according to a domestic market analysis. Somewhere in the range of 2013 and 2014 there was critical development being used of cell phones in families of practically 4% (86.9 - 90.6%), though in the period 2014 and 2015 this development diminished by 0.3% (to 90.3%), and by 0.1% in 2016 (to 90.2%). These pointers don't show a few outrageous qualities until contrasted with the circumstance quite a while back when the utilization of cell phones in families was 71.2% (Utilization of data and correspondence advancements in the Republic of Serbia, RZS, 2007, 2014, 2016). This development of practically 20% being used of cell phones in families in the Republic of Serbia affirms the worldwide pattern.

A study directed by the Measurable Office of the Republic of Serbia (RZS) has shown that 76.5% of the respondents picked "a cell phone" as the solution to the inquiry on how they admittance to the Web. One of the applications that emerged from mobile commerce (M-commerce) is m-banking. It is a channel through which banks collaborate with clients by involving cell phones in the most worked on structure. Customers receive up-to-date information from banks via m-banking, or SMS services. Due to the constant advancement of mobile communication technology, many authors suggest that every monetary transaction with a wireless telecommunication network can be considered communication.

Tiwari and Buse classify mobile banking as one of the following :

1. Versatile bookkeeping (checking the equilibrium on the financial balance, hindering lost charge cards, bringing in cash moves or marking insurance contracts);

2. Financial instruments can be purchased or sold through mobile brokerage, and Versatile wellspring of monetary data (charge card balance, ATM areas, unfamiliar cash values, costs of products, and so forth.).

One can draw the conclusion that, in comparison to online banking, mobile financial services provide a broader range of practical options. For example, one can utilize the versatile financial application and make a token to make an installment, while in web based financial one ought to have and utilize an extra gadget to do as such, or get an instant message with a code, which suggests the utilization of two gadgets rather than one.

The number of internet-oriented users who gain access to these services rises as a result of their focus on mobile devices, particularly smartphones and tablets , improving both the quality of life and the ease of use. As a result, rather than wasting time in banks, individuals have time for other activities; much further, applications are becoming less difficult, which assists individuals with making their installments more straightforward and quicker Developments are portrayed by their worldwide pervasiveness and a portion of the models for this can be Lloyds TSB bank that offered the help of contactless installments during the Olympic games in 2012, ING Direct that offers versatile installments by basic contacting two cell phones, and American Express with its prizes program for portable clients who "check in" (express their area) in stores that are important for this program, giving those clients a rebate on merchandise they are buying.

The term "**mobile payments,**" also known as "M-payments," refers to all electronic payments made with mobile phones. Because they use electronic technology, they fall into the subcategory known as wireless payments, which are made with mobile phones and small portable computers. Mobile payments, like mobile commerce, are retail payments. On the one hand, they include payments made between individuals and businesses, on the other, as well as between individuals and businesses. In the case of paying with mobile phones at point-of-sale (POS) terminals, mobile phones can be used as a payment device when combined with other devices, or they can be used alone to make more complicated electronic payments A growing number of people who use mobile devices have started the development of wireless technology, which is encouraging for the growth of mobile commerce. Portable business has turned into a cutting edge pattern of moving toward merchants to their clients and to build their portion available a few dealers permit clients to pay with PDAs . New forms of payment have emerged as a hot topic, and mobile technologies have become increasingly sophisticated. The phenomenon known as Near Field Communication (NFC) mobile payment enables users to turn their smart phones into digital wallets.

Customers could only pay in stores with cash or credit cards in the past, but today's payment methods let them pay with their mobile phones thanks to NFC technology. Customarily, as of not long ago, versatile media transmission industry and monetary industry have been totally isolated, each with an alternate, obviously characterized area and market. However, in order to provide new products and payment services, mobile operators and banks are working together more and more these days. Services for mobile phone payments were made possible by recent advances in NFC technology.

A progressive cell phone organization,

Apple, after a progression of fruitful cell phones, sent off another help named Apple Pay in mid-October 2014. It is a payment method that was made only for Apple mobile devices like the iPhone 6 and iPhone 6 plus. At first, it was only available in the US market. This method of payment makes use of NFC technology in conjunction with an iOS-compatible application. The app called Wallet can be used on a mobile device as well as an Apple Watch, a multimedia watch that is worn on the wrist. After a positive involvement with the USA, Apple kept on venturing into new business sectors, empowering the utilization of this help in different nations. In July 2015, the service went live in Great Britain, followed by Switzerland, France, and Hong Kong a year later in July 2016. It is currently available for use in Singapore, China, Australia, Canada, Japan, New Zealand, and Russia. In its show of this help, Apple expresses that the help will be proposed to in excess of 1,000,000 stores across the USA. Additionally, this service will be utilized for payment processing in the applications designed specifically for that purpose.

Worldwide use of mobile banking

Banks have moved some aspects of their business away from traditional branch-to-client interactions as a result of an increase in the use of mobile banking. One of the fundamental contentions for versatile banking, which banks prevalently use in their arrangements to draw in new clients, are lower costs, for example less expensive and more

reasonable administrations. Services in this area of banking are less expensive because they don't require as many employees, and they can be used anywhere, anytime. As can be seen in Graph 2 (where the ordinate indicates the number of mobile payment users in millions), the aforementioned benefits have resulted in a significant increase in the number of users.

The data in the graph suggest that the Middle East has seen the least growth in these services, while the Asia/Pacific region has seen a lot of growth in the number of users, which is in line with the demographic trend, economic development, and geographical configuration (a lot of islands) of the region. The next advantage of mobile banking is the potential for cost savings. As per Boyes [2], costs per exchange are most noteworthy when the exchange is made in the bank, and least when made through web banking. The expenses are lower for the clients as well as for the bank.

According to a cost analysis conducted by KPMG (2015), transactions conducted in a bank cost 43 times more than those conducted through mobile banking distribution channels. Additionally, KPMG states that the level of users' acclimatization to mobile banking is very impressive. It gauges that the quantity of clients of portable financial will increment to 1.8 billion by 2019, which is over two times, contrasted with 0.8 billion clients in 2014. Clients are hesitant to accept mobile banking despite this trend and banks' efforts to cut costs. This may be due, in part, to the predominant age structure of banking service users.

The previous section of this paper addresses the issue of (not) accepting mobile banking, assuming that the cause lies in the demographic or age structure of users. This classification of the average age of mobile banking users worldwide is based on the Forrester research. The typical time of portable financial clients in America, though in Europe it is somewhat higher - 39 years, as would be considered normal, taking into account segment patterns. When looking at the average age of users in Asian nations and Australia, one can see that India has the lowest, at 30 years old, which is also in line with demographic criteria. This study affirms the assessments of different creators who concurred that portable banking is for the most part utilized by individuals matured 26 to 60. Because they are always on the move for work, this method of bank-client interaction is ideal for them.

As a result, banks have tailored their offerings to cater to this group of customers by offering a variety of mobile banking products and services, thereby resolving problems with time-sensitive transactions that required human resources. By recruiting on the web administrators who are not at the bank but rather can telecommute, banks work on the accessibility of help to their clients. Through social networks, new forms of assistance make it easier to solve difficult issues in all fields. Customers' loyalty to banks grows as a result of these particular service channels. Speed and productivity in performing day to day schedules, taking care of bills and making other web-based exchanges increment the fulfillment of clients. However, banks may be able to gain a deeper understanding of their customers' actions. Banking administrations can be significantly more customized such that each client can pick a specific arrangement of administrations they will utilize.

According to Sandader the nations of North America, Europe, and Australia have the most advanced mobile banking systems, with JPMorgan Chase Bank of the United States establishing itself as the market leader. This bank has fostered the most progressive PDA applications for versatile banking, depending on assets, for example, web introductions and two-way text informing. The fact that mobile banking applications can be used on any mobile device in France, Belgium, Denmark, Poland, and Russia demonstrates the growth of mobile banking. This has led to an increase in the number of bank clients and incoming points in the banking system. One of the forerunners in this field is Denmark, where 93% of grown-up populace utilize some of cell phones, 71% of whom have dynamic portable financial applications. Mobile banking is the most common method of communicating with banks across the entire Scandinavian region.

When it comes to the data that is stored on the operating systems that carry out these operations, there is a particular aspect of how mobile banking is used.

Security flaws in mobile banking

Banks needed to keep up with the development of mobile devices in order to provide their customers with services that were more engaging and individualized and keep them as customers. With altering the administrations and extending the financial organization, dangers of misuse have risen. With the introduction of authentication when opening the application or linking touch ID with the application and its authentication, many factors that made elderly people

skeptical about using mobile banking, such as poor application security due to a lack of PIN code, have been mostly eliminated. These measures made it less likely that the device would be lost.

In any case, phishing messages and POS Trojans are as yet a gamble factor for clients. Not at all like POS Trojans, phishing email assaults are connected with the client and banks can't influence them. Most people classify unwanted emails as spam. Classic spam, malware spam programs, and phishing emails are all examples of spam. Most of the time, spam is sent through infected servers, infected client operating systems, or authorized email accounts with a program to send spam. A botnet is a collection of such interconnected systems.

Cybercriminals now market a botnet as a service. It is common practice to use classic spam to promote services, financial securities, or goods. Phishing emails contain an invoice for a specific product, but when users click on the link in the email, they open a fictitious (false) website where they are asked to enter their personal information, which is taken over by hackers. Instead of going to the portal of the online store or the bank, they open the email. Aside from solicitations, phishing messages can contain sees on an adjustment of the ledger balance, scoring cash on a sweepstakes, and so forth.

Trojans that use a keylogger to steal credit card numbers and PIN codes are known as POS malware. POS Trojans record data on the client and send it to programmers, like spam. They pose a threat to mobile operating systems as well as POS terminals. A specific number of banks and monetary establishments began to present "selfie" photographs of their clients with their own data as a quicker strategy for validation. Soon after, cybercriminals created Acecard, a POS Trojan for Android mobile devices, using it for their own purposes. Acecard normally comes masked as a video codec, video module or grown-up applications and it tends to be downloaded solely on informal destinations for downloading Android applications

II. CONCLUSION

Progress in cell phones improvement, and a cooperative energy of three parts - cell phones, telecom organizations and monetary administrations - have prompted a developing number of versatile financial clients. Banks can offer their services to customers at a lower cost and in a more timely manner thanks to this growing trend. Mobile banking's potential security flaws have been minimized and are due to user error. When starting up, almost all mobile banking applications use a PIN code; It is created by the user and is required for mobile device transactions, enhancing mobile banking security. Cryptograms applied by Apple gadgets that demand the unique mark (Contact ID) customize the utilization of the gadget, or at least, just a single clients can get to the gadget. All of the aforementioned factors, in addition to a faster lifestyle and the availability of information at any time through the use of mobile devices, encourage all aspects of mobile banking and service providers to continuously improve.

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