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CHALLENGES FACED BY THE MOBILE BANKING USERS IN INDIA

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Abstract

Mobile banking is a mobile commerce application that is revolutionizing financial services. Accepting and using a virtual system is not easy for users, either technologically or emotionally. With the breakthrough of the internet, the global economy is advancing towards a digital ecosystem. Every aspect of the economy is going paperless be it from investment to money transfer. Mobile banking is one such step taken by the banks towards achieving a digitalized banking environment in the economy. It enables customers to initiate and perform their banking tasks using their mobile phones or tablets in a few simple steps. This paper thus, covers the types of mobile banking, its uses advantages and challenges faced by the users of mobile banking.

Keywords: Revolutionizing, Digitalized, Ecosystem

INTRODUCTION

Mobile phones, as a medium for extending banking services, have attained greater significance because of their omnipresent nature. The rapid growth of mobile users in India, through wider coverage of mobile phone networks, have made this medium an important platform for extending banking services to every segment of banking audience in general and the unbanked segment in particular. M-banking refers to the use of the internet and mobile device to bring financial services to customers. Customers use m-banking through a USSD, SMS, or mobile app to access banking services. As a result, it has eliminated the customers' need to visit the bank branch for every other financial necessity. Mobile banking enables clients and users to carry out various transactions, which may vary depending on the M-Banking services provided by the institution. Busy lifestyle and, more recently, the COVID pandemic have forced people to opt for mobile banking. Round-the-clock banking services at the fingertips provide customers with an easy, quick, and hassle-free experience. At the same time, banks also benefit from a reduction in operating costs due to savings in time and resources.

Three Types of Mobile Banking

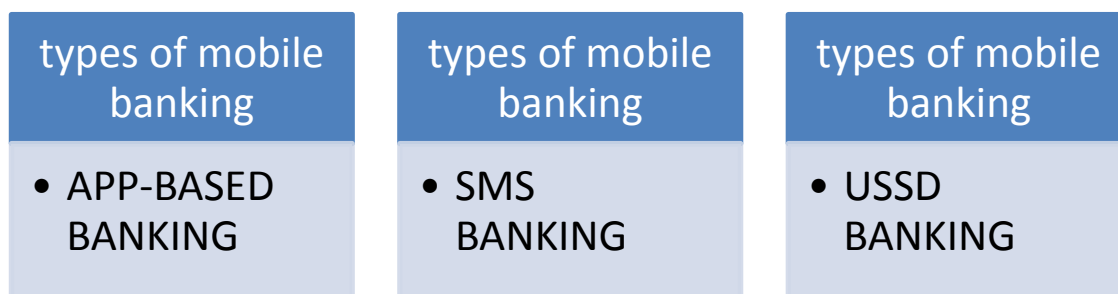
Mobile Banking Services are broadly classified into three types, based on the kind of banking functions you can perform through the platform. Here are the different types of mobile banking options.

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Mobile banking is classified into 3 types – App-based banking, SMS banking, & USSD Banking.

Mobile Banking Via Mobile Apps

All banks who have received the approval from RBI for mobile banking are offering the application-based mobile banking channel to their customers. Customers can download the mobile banking application and perform variety of services including the following:

- a) Non-financial transactions such as Balance Enquiry, Mini statement, Cheque Book request
- b) Financial transactions such as Funds transfer, mobile / DTH recharge, bill payments, etc

The mobile application is offered on various platforms such as Java, Symbian, Blackberry OS, Windows, Android, Apple iOS, etc. Many Banks have made the mobile application available in the app stores such as Google, Apple, Blackberry, etc for easy search and download by the customers.

This type of mobile banking involves all banking and non-banking transactions such as:

- **Access Your Account**

You can view account balances and statements, review any previous transaction, keep track of deposits and loan EMI transactions, invest in equities and mutual funds, check investment statements, etc. You can also get information on other add-on services.

- **Transfer Funds**

You can transfer funds to accounts in the same bank or different banks via

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NEFT, RTGS, IMPS or UPI. You can also use mobile banking to pay your utility bills, shop online, recharge your mobile and DTH devices, etc.

- **Make Investments**

You can open high-interest-bearing fixed deposits or recurring deposit accounts. You can buy and sell mutual funds, invest in shares, bonds, and other investment market securities, and manage your investment portfolio.

- **Avail Support Services**

These services include checking the status of credit or debit cards, checking ATM and branch locations, ordering cheque books, grievance redressal, etc.

- **Marketing**

Banks use mobile banking apps to advertise new products and services, and offer early-bird discounts to customers. You to get information about the banks' latest offerings.

Advantages of the application based mobile banking

. Following are the advantages of the application based mobile banking,

- a. Applications once downloaded are easy to use for the customers who are proficient in using the smart phone based applications.
- b. Banks have made these applications compliant with most of the latest operating systems covering the large range of smart phones in use.
- c. It has been experienced by the banks that once customer has used the application-based mobile banking, he continues to use the same unless there is a change of the handset and/or mobile number.
- d. The application-based mobile banking can also communicate using SMS and GPRS (Data) channels with the mobile banking system of the bank.

Challenges faced of the application based mobile banking

Following are some of the challenges faced with application-based channel for mobile banking by the banks:

- a. Banks need to develop and test the application on the variety of handsets and operating system version combinations (in excess of 1,000 combinations). It is very difficult for banks to develop, test and roll out such an initiative for mobile banking services
- b. Customer needs to have compatible handset for download and installation of mobile application which is normally communicated to the customers by means of bank website
- c. Customer needs to have GPRS subscription in order to download application and perform transactions

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- d. In case of any enhancement or change, customer needs to upgrade the application

Because of the above challenges, the application-based mobile banking has not picked up to the desired levels.

Recommended solution

Following are some of the recommended solutions

- a. Common application for mobile banking may be standardized across all banks and having minimum required transaction set for all banks. This would also facilitate in educating the bank customers.
- b. Mobile banking application may allow transaction over SMS, USSD and GPRS channels also. (The mobile banking application may encrypt the SMS before sending, so that it is end-to-end secure, even for transaction of higher value.)
- c. This application can be used by any user (customers, merchants, agents) irrespective of the bank with which they have an account

Customers can avail the standard menu and transaction services through common mobile application which includes operations such as Generation and changing M-PIN, person to person funds transfer using only mobile number, banking services such as Balance Enquiry, Mini Statement, Cheque Book Request, etc., merchant payments, value added services such as Mobile top-up, DTH top-up, Bill Payments etc.

Benefits of Common mobile application

All the challenges in point 4 above can be overcome by common mobile banking application

Recommendations – Application based mobile banking

The Common mobile application may be developed and distributed which may have standard common menu containing the minimum and most required transaction set.

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Mobile Banking Services Over SMS

Mobile banking services over sms is a popular and widely used channel in mobile phones. It is ubiquitously available in all handsets irrespective of make and model and also GSM and CDMA enabled handsets. Most customers are very conversant with the SMS channel and use the same for various services including the short messaging. Many popular mobile VAS services such as Cricket, Jokes, Horoscopes, etc. are based on SMS and used widely by customers. SMS banking is another type of mobile banking facility. It is designed for account holders who do not have internet-enabled smart phones. You need to register your mobile phone number with the bank to enjoy SMS banking services. Under SMS mobile banking services, you get facilities like

- Balance enquiry
- Mini statements
- Blocking of ATM-cum-debit card and credit card
- Conducting enquiring about current interest rates and foreign currency exchange rates
- Transferring funds between your Current and Savings Account.

Current status of SMS-based mobile banking

Given the advantages offered by SMS channel, many banks have offered mobile banking services through the SMS channel. This includes non-financial services such as Balance Enquiry, Mini statement, Cheque Book Request, Transaction Alerts, etc., and financial services such as funds transfer, mobile / DTH recharge, Bill payments, etc.

In order to avail mobile banking services over SMS, customer needs to send the request with a keyword and parameters to SMS short code or long code number, for e.g. for Balance Enquiry, customer can send SMS BAL to 5667766 (short code) or 9212167766 (long code). The request is sent to the respective bank server, and customer receives the response via SMS. Similarly in order to perform funds transfer using the IMPS platform, customer can send SMS “IMPS ” to bank short code or long code. The request is forwarded to the bank server, the bank server processes the transaction, and sends response to customer via SMS.

Challenges faced

Following are some of the challenges faced with SMS channel for mobile banking by the banks:

- a. Customer needs to know the exact syntax of SMS for performing transaction.
- b. The syntax becomes complex when (i) bank adds more transactions which will end up as different keywords and (ii) when more input parameters are needed to

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complete the transaction. Under these conditions, it is also difficult to communicate and educate the customer to use the syntax.

- c. The SMS channel is not end-to-end encrypted without having an application on the handset to encrypt the entire SMS. There is a transaction limit as per RBI mobile banking guidelines, of Rs 5,000/-per transaction without end to end encryption.
- d. The SMS remains in the readable form within the sent items on the mobile phone. In case the custody of the customer's handset is obtained, will result into the risk of losing the confidential information to initiate the financial transactions.
- e. The SMS short code or long code for sending SMS transactions is different for each Bank, and needs to be communicated to customer

Because of above challenges, the SMS based mobile banking has not picked up adequately, despite the advantages offered by SMS channel.

Recommended solution for SMS based mobile banking channel

The solution as envisaged to resolve the above issues is to use the common mobile banking application which will enable the use of encrypted SMS messages for mobile banking transactions:

- a. The common mobile banking application preferably using STK (SIM Tool Kit) application for mobile banking.
- b. This common application may be standard menu-driven and interactive, and can be used by all banks so that users can perform transactions conveniently without the need to remember or know the SMS syntax.
- c. The STK application encrypts the SMS before sending, so as to ensure end-to-end security, and can be used for transactions of higher values.

User does not need to know the SMS short code or long code number, the STK application will encapsulate that information and send encrypted SMS to pre-defined number

Mobile Banking-USSD based channel

Unstructured Supplementary Service Data (USSD) is a protocol used by GSM cellular telephones to communicate with the telecom service provider's systems. USSD can be used for WAP browsing, prepaid callback service, mobile-money services, location-based content services, menu-based information services, and as part of configuring the phone on the network. USSD messages are up to 182 alphanumeric characters in length. Unlike Short Message Service (SMS) messages, USSD messages create a real-time connection during a USSD session. The connection remains open, allowing a two-way exchange of a sequence of data. This makes USSD more interactive and advantageous than services that use SMS.

Unstructured Supplementary Service Data (USSD), also known as feature codes or quick codes, is a communication system used by mobile phones for communication purposes. This mobile banking type does not require a Smartphone or internet connection. The National Payment Corporation of India owns *99#, a USSD-based

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service in India. With USSD mobile banking, you can check account balance and mini account statement and transfer funds via account number, Aadhaar, or Mobile Money Identifier (MMID)

Advantages of USSD:

The USSD platform which is MNO dependent can be efficiently used by the mobile banking platforms due to the following advantages:

- USSD works on all GSM phones irrespective of make, model or service provider – thus all phones including low end phones are capable of handling this.
- It does not require any application/software to be downloaded to the handset.
- It is interactive in nature – and thus enables complex transactions as well which may not be possible through SMS.
- It is a session based communication i.e. it does not store any data on the phone and transaction terminates as the session end.
- USSD utilizes the same capability as the voice calls hence has the coverage most of the parts of the country having GSM voice call coverage.
- It is safer and much faster than traditional SMS based transactions (recent TRAI guidelines on Quality of Service indicates two seconds as acceptable response time requirement for the USSD session.
- It can support multiple languages which is very useful for effective financial inclusion roll out.

Current Status of USSD Implementation

Realizing the benefits and potential of USSD based mobile banking, some of the banks have launched USSD based mobile banking services e.g. State Bank of India, Canara Bank, ICICI Bank, with the help of telecom aggregators who in turn have tied up with few MNOs. For instance, ICICI Bank has tied up with Idea, Aircel, Tata Docomo, Reliance and MTNL for offering USSD platform to its customers on their GSM network.

National Payments Corporation of India (NPCI) has implemented the common USSD gateway with the single short code *99# to offer the USSD channel of mobile banking for all banks. Even though a large number of banks are participating in the common USSD gateway, only two MNOs are operational which is limiting the use of the services being extended to all bank customers.

TRAI regulations and initiatives on USSD channel to be available for mobile banking

The Inter-Ministerial Group (IMG) was constituted on November 19, 2009 to work out the relevant norms and modalities for introduction of mobile based delivery model for delivery of basic financial services and to enable finalization of a framework to allow financial transactions using mobile phones.

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The IMG had, among other things, recommended that TRAI may draw up guidelines to ensure high availability of associated communication services in mobile banking. Accordingly, based on a consultation with stakeholders, TRAI had issued the **Mobile Banking (QOS) Regulations, 2012 on April 17, 2012**. Broadly, these regulations mandated that the access providers (telecom companies) shall, among others, (a) facilitate banks to use SMS, USSD and IVR to provide banking services to its customers (b) deliver the message generated by the bank or the customer within the time frame specified (within the response time of less than 10 seconds for SMS, IVR, WAP and STK, and in less than 2 seconds for USSD); the expiry time for SMS was stated to be 72 hours (c) ensure that the customer is able to complete the transaction in not more than two stage transmission of the message in all cases (d) maintain the record of mobile banking messages for six months for audit purposes.

Subsequently, the above regulations were extended (on November 26, 2013) to include authorized agents of banks acting as the aggregation platform providers to use SMS, USSD and IVR to provide banking services. Similarly, since it was realized that completion of transaction in two stages may not be possible for every kind of transaction on a mobile banking menu, the matter was examined and TRAI has increased the completion stages to five stages (from the earlier two stages).

The IMG framework envisages opening of the mobile-linked ‘no-frills’ accounts, which would be operated using mobile phones and the customer would be able to perform five basic transactions – cash deposit, cash withdrawal, balance enquiry, transfer of money from one mobile-linked account to another, and transfer of money to a mobile-linked account from a regular bank account.

The mobile banking ecosystem comprises of two distinct sectors – the financial services sector and the telecom sector – both of who are governed by two separate sets of regulations. In order to make financial transactions available for the unbanked population, USSD-based mobile channels can be effectively deployed, as has already been launched by certain banks like SBI, Canara Bank, ICICI Bank in partnerships with some telecom service providers.

The final outcome is that TRAI has mandated that a pay-per-use charge within the ceiling tariff of Rs.1.50 per USSD session would be payable by the subscriber upon establishment of an outgoing USSD session, regardless of whether the session results in a successful or a failed banking transaction.

Recommendations: the way forward for USSD

The USSD channel based offering of mobile banking services may take following paths in future:

Bank-specific USSD offering

The recent TRAI guidelines, it is open to banks to tie up with MNOs to offer these services directly to their customers by getting into arrangements with each of the MNOs. This may be done by the bank with each of the MNO or their service

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providers. With this, the customer dialing the USSD code will reach the bank's own menu, and the transactions will be routed to the bank directly by MNO. However, in such cases, this facility is extended only to bank customers who are also the subscribers of those MNOs with whom the bank has tied up for USSD channel.

Implementation of common USSD gateway for mobile banking

To overcome the challenges faced by each bank in tying up with a large number of MNOs, and to facilitate the reach and usage of mobile banking through USSD, there is a need for common USSD gateway for mobile banking. A common USSD Gateway based mobile banking service offers an opportunity to provide convenient, cost effective and user friendly payment option for all customers and thus a very convenient mechanism for banks for furthering financial inclusion objectives of Government of India. The committee also recommends that the implementation of the TRAI regulations must be expedited by all the stakeholders.

Benefits of a common USSD gateway

It will offer a common platform for all banks thus eliminating the need for banks to establish individual infrastructure for this channel. Common USSD short code e.g. *99# can be used by customers, merchants, and agents for performing mobile banking transactions.

Customers can avail following standard menu and transaction services through common USSD gateway to perform operations such as generation and changing the M-PIN, person to person funds transfer transactions as well as merchant payments, other banking services such as Balance Enquiry, Mini Statement, Cheque Book Request, etc., value added services such as Mobile top-up, DTH top-up, Bill Payments etc., other transactions including OTP Generation, Mandate Creation etc.

The merchants can also benefit from initiating USSD payment message to receive payments from customer (using just customer mobile number and bank) on common USSD platform.

The mobile banking volume jumped from 524mn transactions to 1048mn transactions in the period (Nov-Aug of 2016-2017). The value of mobile banking transactions, rose up from ₹2,700 crore in September 2015 to ₹104,300 crore in 2016, and to ₹186,200 crore in 2017(Hindu Business Line) The collaboration of the new technologies with the traditional banking has proved to be a winning situation for the financial systems. Mobile wallets like Paytm took the maximum advantage of demonetization to facilitate the customers in making small number of payments like hiring cabs, booking movie tickets, payment of utility bills etc. The demonetization moves encouraged the adoption of digital payments through mobile banking and also provided ample opportunities to startups like Paytm, Mobikwik etc. As per the above graph, it is evident enough that even though mobile banking was introduced much before the demonetization move in India, the growth in the same was very stagnant. The pre demonetization period shows us a minimal growth in the mobile wallet transactions each financial year. There was a minimal growth of 19mn transactions

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in mobile wallet transactions from FY13 to FY14. But after the launch of Digital India in PJAEE, 17 (6) (2020) 9474 2015, with the help of integrated technologies and the internet, mobile wallets slowly started picking up and projected a larger growth in the volume of transactions compared to the corresponding previous year. Further after the announcement of Demonetization in the year 2016, Mobile wallets like Paytm and Phone Pe gained momentum and the growth in the mobile wallet transactions increased ever since. Paytm became best alternative of cash for the country in times like demonetization. Many Shopkeepers, vegetable vendors, petrol bunks started accepting payments through Mobile wallets like Paytm, Phone Pe etc. Paytm witnessed an increasing trend of 435% in its traffic, 200% growth in the app downloads and a rise of 250% in the overall transactions volume and their value.

Types of Mobile Banking Services

Mobile banking services can be divided into transactional and non-transactional.

Non-transactional services mostly include the following:

- Checking recent transactions
- Viewing account information and history
- Checking account summary and current balances
- Downloading bank forms and bank statements
- Requesting debit cards or check books

Transactional services include:

- Funds transfer and deposit
- All sorts of payments
- Investments

Mobile banking services can be categorized into the following:

1. Account information access

- Mini-statements and checking of account history
- Alerts on account activity or passing of set thresholds
- Monitoring of term deposits
- Access to loan statements
- Access to card statements
- Mutual funds / equity statements
- Insurance policy management

Account information access allows clients to view their account balances and statements by requesting a mini account statement, review transactional and account history, keep track of their term deposits, review and view loan or card statements, access investment statements (equity or mutual funds), and for some institutions, management of insurance policies.

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2. Transactions

- Funds transfers between the customer's linked accounts
- Paying third parties, including bill payments and third party fund transfers(see, e.g., FAST)
- Check Remote Deposit

Transactional services enable clients to transfer funds to accounts at the same institution or other institutions, perform self-account transfers, pay third parties (such as bill payments), and make purchases in collaboration with other applications or prepaid service providers.

3. Investments

- Portfolio management services
- Real-time stock

Investment management services enable clients to manage their portfolios or get a real-time view of their investment portfolios (term-deposits, etc.)

4. Support services

- Status of requests for credit, including mortgage approval, and insurance coverage
- Check (cheque) book and card requests
- Exchange of data messages and email, including complaint submission and tracking
- ATM Location
- Loan Application

Support services enable clients to check on the status of their requests for loan or credit facilities, follow up on their card requests, and locate ATMs.

5. Content and news

1. General information such as finance related news
2. Loyalty-related offers
3. Content services provide news related to finance and the latest offers by the bank or institution.

Not all services are available online, so visiting a bank branch is sometimes a must. The silver lining here is that the queues are much smaller and bank clerks can dedicate more time to help you out with your bank needs.

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Retrieved from <https://ijeponline.com/index.php/journal>

References:

Aboelmaged, M., Gebba, T. R., (2013) Mobile banking adoption: an examination of technology acceptance model and theory of planned behavior. *International Journal of Business Research and Development*, 2(1).

Sampat, B., (2016) Antecedents to Mobile Banking Adoption in India: An Extended TAM model. *Wealth: International Journal of Money, Banking & Finance*, 5(2).

Lian, J.-W., Yen, D. C., (2013) To buy or not to buy experience goods online: Perspective of innovation adoption barriers. *Computers in Human Behavior*, 29(3), 665–672. doi: 10.1016/j.chb.2012.10.009

Poushter, J., Stewart, R., (2016) Smartphone ownership and internet usage continues to climb in emerging economies. Pew Research Center

Akturan, U., Tezcan, N., (2012) Mobile banking adoption of the youth market: Perceptions and intentions. *Marketing Intelligence & Planning*, 30(4), 444-459.

Püschel, J., Afonso Mazzon, J., Mauro C. Hernandez, J., (2010) Mobile banking: proposition of an integrated adoption intention framework. *International Journal of bank marketing*, 28(5), 389-409.

Davis, F. D., (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Park, E.; Lim, J.; Cho, Y., (2018) Understanding the Emergence and Social Acceptance of Electric Vehicles as Next-Generation Models for the Automobile Industry. *Sustainability*, 10, 662. doi: 10.3390/su10030662

Rehman, Z.; Omar, S.; Zabri, S.; Lohana, S., (2019) Mobile Banking Adoption and its Determinants in Malaysia. *International Journal of Innovative Technology and Exploring Engineering Regular Issue* 9(1), 4231-4239. doi:10.35940/ijitee.l3015.119119

Milchram, C.; Kaa, G. V.; Doorn, N.; Künneke, R., (2018) Moral Values as Factors for Social Acceptance of Smart Grid Technologies. *Sustainability* 10(8), 2703. doi:10.3390/su10082703

Zhao, J.; Fang, S.; Jin, P., (2018) Modeling and Quantifying User Acceptance of Personalized Business Modes Based on TAM, Trust and Attitude. *Sustainability* 10(2), 356. doi:10.3390/su10020356

Pires, I.M.; Marques, G.; Garcia, N.M.; Flórez-Revuelta, F.; Ponciano, V.; Oniani, S., (2020) A Research on the Classification and Applicability of the Mobile Health Applications. *J. Personal. Med.* 10, 11

Geissdoerfer, M.; Savaget, P.; Bocken, N.M.; Hultink, E.J., (2017) The Circular Economy—A new sustainability paradigm? *J. Clean. Prod.* 143, 757–768

Faria, R.; Lopes, I.; Pires, I.M.; Marques, G.; Fernandes, S.; Garcia, N.M.; Lucas, J.; Jevremović, A.; Zdravevski, E.; Trajkovik, V., (2020) Circular Economy for Clothes Using Web and Mobile Technologies—A Systematic Review and a Taxonomy Proposal. *Information* 11, 161.

Grinevich, V.; Huber, F.; Karataş-Özkan, M.; Yavuz, Ç., (2019) Green entrepreneurship in the sharing economy: utilising multiplicity of institutional logics. *Small Bus. Econ.* 52, 859–876.

Marques, M.S.G.; Pitarma, R., (2016) Smartphone Application for Enhanced Indoor Health Environments. *J. Inf. Syst. Eng. Manag.* 1, 4.

Shuib, L.; Shamshirband, S.; Ismail, M.H. (2015) A review of mobile pervasive learning: Applications and issues. *Comput. Hum. Behav.* 46, 239–244.