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# Mobile Banking: A Study on Adoption by Indian Users

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**Abstract**
Mobile Banking is one of the highly discussed topics of the times, with the exponential growth of mobile phones over the years and a teledensity of around 80% Banks are trying their best to enhance adoption of banking though mobile phones. Today with Mobile banking penetration of around 3% there is a huge market to be tapped in the country. With the burgeoning population the brick & mortar model of banking is difficult to pace with and Bankers are harping large on the adoption of mobile banking providing traditional banking to all would be too costly and may not be feasible. The review paper delves into the aspects of low mobile banking penetration and the factors impacting the adoption of Mobile banking in India, despite the high Teledensity & 49% Bank Penetration. Self efficacy, Apps compatibility, 24x7 hours availability have been found to build perception towards "Ease of Use". Efficient transaction and Transaction cost, as primary factors leading to perception of "Usefulness" Privacy Risk & Transaction Risk have been found to be the primary factors leading to Risk Perception and accordingly influencing the adoption decision. The study proposes a model which is built upon the Technology Acceptance Model TAM. The findings from the study would provide the stakeholders in the Mobile banking domain with a better understanding of customer perceptions of mobile banking services and help them plan their marketing strategies and promotion approaches for mobile banking services in the future.
**Keywords:** Mobile Banking, TAM, online banking, Smartphone banking, Banking penetration, TAM

## INTRODUCTION:

Mobile phones has brought about a revolution in human lifestyle today, It has become a necessity and people from all strata of the society have adopted it in all parts of the world albeit some countries have very high levels of mobile penetration. Internet banking which was already in adoption phase got a great collaborator when banking became available on Mobile phones in around 2000 (Deloitte, 2013). Mobile banking is a system that allows customers to conduct a number of financial & non-financial transactions such as such as Funds transfer, mobile/DTH recharge, bill payments, Balance Enquiry, Mini statement, Cheque Book request, SMS alerts etc through mobile phone. (RBI, 2014). Most of the banks today provide mobile banking services and run mobile applications to help their customers to use mobile as mode of transaction. The services offered through Mobile Banking are more or less evolving and slowly but firmly more services would be available in the future. In India Banks like SBI, Axis Bank, Citibank, Union Bank of India, Federal Bank, HDFC, ICCI, PNB, Yes Bank etc offer different services under mobile banking.

Worldwide the way that consumers interact with banks has already dramatically changed in recent years. Consumers have shifted from physically visiting a branch towards managing their bank accounts online. However the Statistics on users on MB are still in single digit. Only 3% of the mobile phone customers were using mobile banking. Customers in Europe prefer other channels for banking operations compared to M-Banking as of 2007 (Sudeep S, 2007)

In India which has the second largest world telecom market, Mobile Banking can be a potential emerging alternate channel for providing banking services. It is likely that just as internet banking has taken its own time to improve its acceptability, mobile banking is also poised to great adoption once the adoption issues are addressed. This research study which intends to find the impacting factors wrt mobile banking is likely to yield findings worthy enough for Government, Banks, Telecom Operators, Mobile device manufacturers, Intermediaries & financial institution attention. The findings would definitely be of help to the Banks, Mobile operators and the government agencies in assisting in driving the adoption.

Empirical studies on adoption of Mobile Banking accessed as part of literature survey shows focus on the same in both developing and developed countries like Ghana, South Korea, Tanzania, Taiwan, Mauritius, Portugal, China, Japan, Saudi Arabia, Bahrain, Brazil, USA, Pakistan, Finland, Kenya, India, Philippines, Ghana and many other countries.

In India banks are constantly adopting technology to expand its business and to reach different level of customers. Apart from ATM, Internet banking and other technology enabled services Mobile Banking is one of the services provided by banks to its customers. Astonishing growth in telecommunication sector, its penetration including rural population and technology feasibility are the major factors for the introduction of Mobile banking services. The numbers of mobile banking users in India were 5.96, 12.96 and 22.51 Million in the year FY 10-11, 11-12, 12-13 respectively. (RBI, 2014) .Consulting firm AT Kearney says by 2020 there will be about 400 million mobile internet users and 900 million monthly app downloads. By then 75 million children will use apps for education, from almost zilch at present. Already, about a third of Google searches land on mobile, a third of

Facebook users log only from their smartphones and a similar number watches YouTube videos on handhelds. Adds Sashi Shankar, chief marketing officer, Idea Cellular: "The country is poised for a mobile broadband revolution." Undoubtedly a major share will accrue to banking related activities on the handheld mobile devices.

**1.4 Need of the study:**

The need for convenience & usefulness has fuelled enormous interest in the use of mobile banking services. Compared to other banking delivery channels, mobile phone has an advantage in terms of reach and cost to serve, though it may not yet score high on of ease of use. Mobile phones are already being used by approximately 17 million Indians for banking purpose and its usage for banking and payment transactions is on the rise. (Deloitte Sep 2013) Latest figures from RBI website state that the Mobile Bankers in the country is a mere 22.5 Million in FY 12-13. There has been a slow acceptance of mobile banking services vis a vis the actual potential. It is pertinent to state that mobile banking in India has failed to achieve the much desired critical mass required. This research, therefore, is a conceptual framework to examine factors influencing the acceptance of mobile banking services.

The study was contemplated because of the following reasons:

- **Low Mobile Banking Penetration:** In spite of a healthy Mobile penetration and Banking penetration the mobile banking penetration still lies a dismal low at 2.4%.
- **Easy disbursement of money from Government schemes:** In absence of adequate number of bank branches the usage of the banking facility for Government schemes is best expected through the mobile phones.
- **Tier I & Tier II city behavior:** The study would bring out the difference in behavior of Tier I and tier II cities users as the study sample is spread around them. No research paper during the literature survey has shown this wide coverage as is proposed in this research.
- **Banked & Unbanked users:** The study would clearly spell out differences in mobile banking adoption behavior among the banked (mobile users who have a bank account) and unbanked (Mobile users who do not have a bank account)
- **Gender specific findings:** Women are increasing becoming mobile, getting employed, playing the double role in family and hence the research would be of prime importance.
- **Reduction in Brick & Mortar Banking:** with the growth in banking penetration it would be difficult for government to provide the traditional form of brick and mortar branches and hence speedy adoption of Mobile Banking is priority for the government.

**1.6 Objective of this Research**

- Explore the factors affecting Mobile Banking Adoption by Indian users.
- Establish the relationship between key factors and Mobile Banking Adoption through a theoretical model
- Identify and spell out the academic, Institutional and Social implications of the findings of the research.

These findings from the study would provide the stakeholders in the Mobile banking domain with a better understanding of customer perceptions of mobile banking services and help them plan their marketing strategies and promotion approaches for mobile banking services in the future.

**2. Literature survey**

**Modes of Mobile Banking**

Mobile banking is a system that allows customers to conduct a number of financial & non-financial transactions such as such as Funds transfer, mobile/DTH recharge, bill payments, Balance Enquiry, Mini statement, Cheque Book request, SMS alerts etc through mobile phone. (RBI, 2014).

Some of the opinions of other researchers defining mobile banking have also been captured here. Mobile Banking can be defined as a facility which provides banking services such as balance enquiry, funds transfer, bill payment, and transaction history via a user's mobile phone (Stair et all, 2008). Mobile banking can also be defined as an occurrence "when customers access a bank's networks using cellular phones, pagers, Personal digital assistants, or similar devices through telecommunication wireless networks (Kondabagil, 2007).

Mobile banking can also be defined as the ability to conduct bank transactions via a mobile device, or more broadly – to conduct financial transactions via a mobile terminal (Drexelius & Herzig, 2001). This definition is a suitable working one as it includes not only basic services such as bank account statements and funds transfer but also electronic payment options as well as information based financial services (e.g. alerts on account limit or account balance, access to stock broking). It compares well with the definition found in (Kiesnoski, 2000) where mobile banking is referred to as the "ability to bank virtually anytime, anywhere".

Mobile banking services can be classified into

- **SMS Banking,**

- **Phone Banking**
- **Browser (Internet) based model (On Mobile Device)**
- **Transaction through Banking Mobile Apps.(Application Softwares)**
- **Mobile Payments***
- **Wallet service provided by Telecom operators like M rupee, Mpaisa**
- **Hashtag Banking or Social networking Banking (on Mobile Device)**

- **SMS Banking** refers utilizing banking services through SMS from the registered mobile number of the customer.
- **Phone Banking** refers utilizing banking services through registered mobile number by making phone calls.
- **Browser based mobile banking** refers Internet based mobile banking where the communication made to internet application which is optimized for mobile handsets.
- **Application or Software oriented Mobile Banking** refers downloading the application developed by the bank for utilizing the mobile banking service that works in traditional mobile handsets. This refers to mobile applications developed for Smart phones using Android, Windows, Java, etc.
- **Mobile payments (m-payment)** is one which eliminates any movement of physical currency and facilitates quick payment mode. This involves use of a mobile device to pay for goods or services either at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment (Electronic funds transfer at point of sale).
- **Wallet services** are offered by Mobile telecom operators in association with Banks like mRupee, airtel Money etc
- **Hashtag Banking:** Another interesting feature of the account that the bank calls Hashtag banking where users can send commands out to their bank account using hash tags on Twitter through the mobile device. The bank account is bound to the customer's Twitter handle and the customer does not have to enter their bank account number or card details.
    - For example, to get the account's balance details, customers have to send #Jifibal to the @kotakjifi handle. ICICI Bank and Kotak Mahindra Bank are the early birds offering banking services over Twitter and Facebook in order to stay ahead of the game. ICICI Bank recently launched its Twitter banking service—icicibankpay, to allow customers to execute banking transactions through Twitter. (www.firstpost.com, 2015)

**Key findings from previous studies on Adoption of Mobile Banking**

Empirical studies from across the world were available during the literature survey. Some of the these have been discussed below are from the countries like Finland, USA, Japan, China, South Korea, Bahrain, Pakistan, Saudi Arabia, Germany, Poland and India etc. The varieties of factors are spread across Technological, Social, Cultural, Economic & Regulatory or Govt policies.

In a study carried out in Finland by (Minna Mattila, 2003) the researcher found that Mobile Banking adopters and non-adopters show different socio demographic characteristics. Adopters are relatively young, with the majority in the age group of 25–34. They are mostly white collar workers and students with average income levels. Mattila also revealed that the major trigger of adoption behavior is availability of mobile services regardless of time and locations; the major hindrances to adoption are the malfunction of services and lack of guidance.

Likewise, in a empirical study on Consumers attitude towards online and mobile banking in **China** (Laforet and Li, 2005) it was found out that mobile bank adopters there are relatively young, wealthy, and employed. Although demographic characteristics help identify potential mobile banking adopters, the question of why people adopt or do not adopt mobile banking cannot be answered solely by socio demographic information.

As MB services offered via a mobile media channel are still new to customers, perceived risk as a significant factor finds mention in both (Lee et all, 2003).

In the study Cell phone banking: predictors of adoption in **South Africa** (Brown et al., 2003) applied Tan and Teo's Internet banking adoption framework to the MB context. Tan and Teo had combined the diffusion of innovation theory and TPB to explain intention to adopt Internet banking. Their study revealed that relative advantage, compatibility, trialability, perceived risk, perceived self-efficacy, and government support of Internet commerce are significant determinants. Brown et al. found perceived relative advantage, trialability, the number of banking services required, and perceived risk to be significant factors affecting MB adoption. The risk construct in their study is limited to information risk and security concerns.

In the two studies on adoption of Internet Banking and adoption of Mobile Banking (Kim et al., 2008 & 2009) approached the problem from a more focused perspective: the formation of consumers' initial trust in MB. Their results indicate that both trust and perceived usefulness have a significant, direct impact on adoption

behavior while the impact of perceived risk is only mediated by trust.

In a study carried out using TAM model in **Singapore** (Bong Keun Jeong & Tom Yoon, 2012) of the five factors which influence consumers' behavioral intention to adopt mobile banking perceived usefulness, perceived ease of use, perceived credibility, perceived self-efficacy have role to play. Only the perceived financial cost did not have any significant impact in the adoption of mobile banking services. Perceived usefulness is the most influential factor explaining the adoption intention. They also found that consumers' perceptions are different between mobile banking users and non-users. For users, perceived ease of use is the important factor while perceived self-efficacy significantly influence non-users' adoption intention.

In a study carried out in **USA** using UTAUT Model, (Unified Theory of Acceptance and Use of Technology) and other factors the researchers extends line of research by conjointly examining multi-dimensional trust and multi-faceted risk perceptions in the initial adoption stage of the wireless Internet platform. Results of this study indicate that risk perception, derived from eight different facets, is a salient antecedent to innovative technology acceptance.

In a research carried out to find out customers perception on Mobile banking adoption in the kingdom of **Bahrain** (Ali AlSoufi and Hayat Ali, 2014) extended TAM model was used to carry out the empirical research on 372 customers. The results reveal that the intention to adopt mobile banking is mainly affected by specific factors which are: Perceived Usefulness and Ease of Use. On the other hand, some factors such as perceived cost and perceived risk did not show any affect on the users' intention to use mobile banking.

In a study carried out in **Pakistan** to find out the trust and initial acceptance of Banking (Syed Anus et all, 2011) the researchers have focused on the risks influencing the initial adoption of mobile banking. Eight facets of perceived risk i.e. financial, performance, privacy, time, Psychological, social, physical and overall risks were analysed of which only social and physical were found to be insignificant, others had a significant impact on the adoption.

In the empirical study "Issues & Challenges in Mobile Banking in **India:** a Customers perspective, (Prerna Sharma & Preeti Singh, 2011) the researchers explore the issues in mobile banking perceived critical for adoption by both mobile banking users as well as non-users. The study identified certain issues pertaining to banks, mobile handsets and telecom operator's viz. mobile handset operability, security/privacy, standardization of services, customization, Downloading & installing application software and Telecom services quality. Study suggests that from consumers' perspective mobile handset operability, security/privacy and standardization of services are the critical issues.

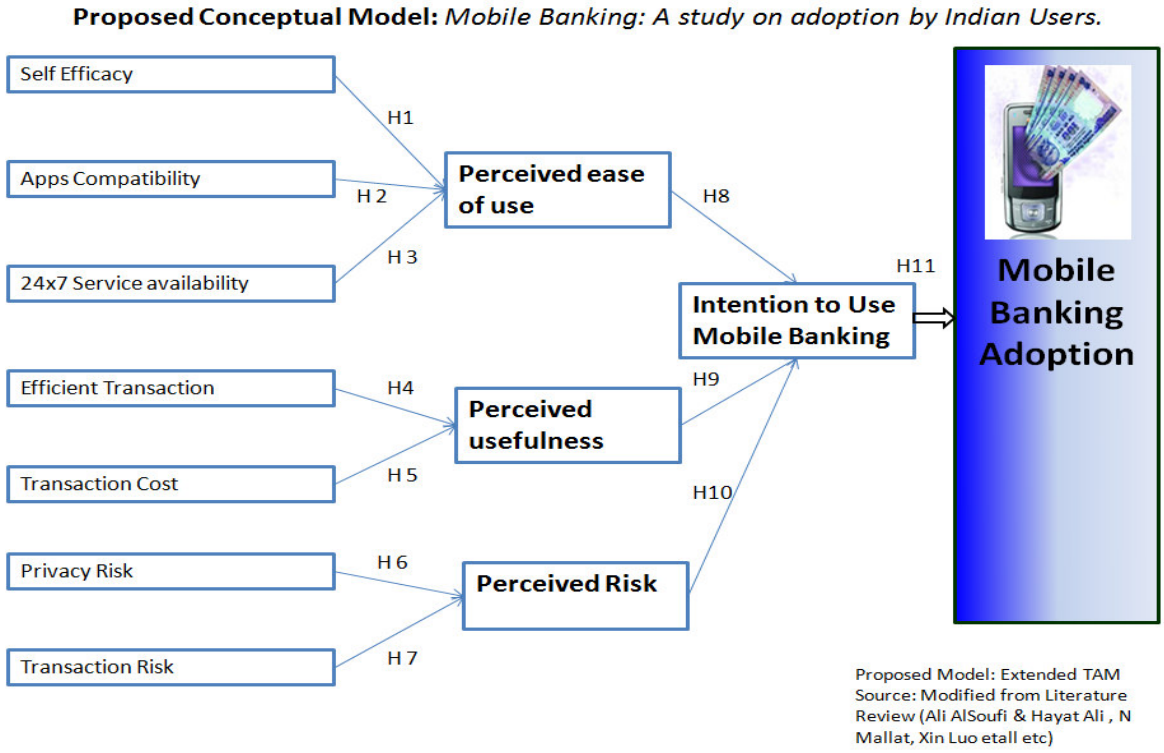
In yet another study recently carried out by researchers in **India** on consumer adoption of mobile payments in Bangalore City (Sanjeev P & Krishna kishore, 2013). The factors explored by them were perceived Use, Perceived ease of use, Trust and Expressiveness of which "ease of use" has received the highest favorable response.

A number of adoption models have been encountered during the literature survey carried out. Prominent among those are TRA (Theory of Reasoned Action), TPB (Theory of planned behavior), TAM (Technology acceptance Model), Extended TAM, UTAUT (Unified theory of acceptance and use of technology) Bass diffusion model, Rogers Diffusion Theory of Innovation.

**Proposed Conceptual Model**: The most popular and commonly used models in the Mobile Banking adoption studies are around TAM (Technology Acceptance Model), wherein the Ease of Use and Usefulness are the driving factors. Hence TAM is picked up as the base model. Addl constructs on Risk were picked up later and added onto the model and hence known as extended TAM. **Self efficacy**, **Apps compatibility, 24x7 hours availability** have been found to build perception towards "Ease of Use". **Efficient transaction** and **Transaction cost**, as primary factors leading to perception of "Usefulness" **Privacy Risk** & **Transaction Risk** have been found to be the primary factors leading to Risk Perception and accordingly influencing the adoption decision. The Primary factors help build a perception towards Ease of Use, Usefulness & Risk and accordingly determine a attitude towards the Mobile Banking Services. These attitude determines the intentions and finally the actual Mobile Banking Usage(Adoption)

The proposed model can be considered to be built on the model and a mix of the conceptual models proposed by Ali AlSoufi & Hayat Ali, N Mallat and Xin Luo et all. All these researchers have stressed on the three intermediary constructs i.e Ease of Use, Usefulness, Risk in some way. A set of 11 Hypothesis is proposed for testing during the field study. None of the studies or research work done earlier proposes the current set of constructs proposed in this review paper and links them the way it is proposed in the model here.




Proposed Model: Extended TAM

**Directions for Future Research**

While the review paper spells out the factors as identified from previous researches, there is a need to identify new virgin factors through exploratory study as there have been massive changes in the socio economic lifestyle of citizens and major changes in terms of Mobile & technology usage. For example whether language plays a major role in the adoption considering mobile banking transactions are largely enabled in English mode. Similarly none of the studies has placed focus on Regulatory policies by the government as a factor in adoption decision. Also there is a huge investment that is to be made as part of Mobile Network being available to the users for adoption of the MB technology. If the necessary network infrastructure is not in place adoption of MB would be adversely be affected. It would also be interesting to find out if the popularity of Online retail Shopping is driving the Mobile Banking usage.

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