



# Payment Wallet With Fraud Detection

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**Abstract:** Payment wallet has many significant features like anytime transfers, mobile transfer, secure and convenient transfer of money. It can also be considered as a bank for those who do not have approach to banks and do the banking activity like sending and receiving money. Digital wallets are gaining momentum in the Indian market due to increasing technology penetration and acceptance of new developments by the customers. By using E-Wallet payments can be made any time anywhere including receiving money, storing, sending. It works very closely with banks and telecom companies to offer banking services to its subscribers. Use of e-wallets helps in moving away from a cash base economy. In the process, all the transactions get accounted in the economy, which has the effect of reducing the size of the parallel economy. It is an online platform which allows a user to keep money in it, just like a bank account. A user needs to make an account with a mobile wallet provider. This can be used in many different sectors of businesses, Shops, Malls. It will also capitalize the scope of India's education market segments.

**Keywords:** E-Wallet, Payment, Transaction, Fraud detection.

## I. INTRODUCTION

E-Commerce is an essence of doing commercial transaction in our 21st generation. E-Commerce means electronic commerce in which money transaction conducted electronically through Internet. The next generation of E-Commerce is M-Commerce. Kevin Duffey firstly coined the term of "M-Commerce" in 1997. According to him m-commerce is define as the delivery of ecommerce capabilities directly into the consumer's hand, anywhere via wireless technology. In simple words, doing transactions through wireless handheld devices such as mobile phones. The concept of mobile payment is gradually being accepted and adopted across the globe in different ways. The exclusive first patent defined as 'Mobile Payment System' was filed way back in the year 2000. In some of the developing countries, the mobile payment mechanism is being used as a means of extending financial services to those people who are known as underbanked or unbanked and it is estimated that they constitute close to 50% of the global adult population, as per the reports from Financial Access of 2009 - 'Half the World is Unbanked'. They are mostly used for micropayments.

## II. HISTORY

**Banking History:** The history of banking began with the first prototype banks which were the merchants of the world, who made grain loans to farmers and traders who carried goods between cities. This was around 2000 BC in all over the country. Later, in ancient Greece and during the Roman Empire, lenders based in temples made loans, while accepting deposits and performing the change of money. Archaeology from this period in ancient China and India also shows evidence of money lending activity. During the 20th century, developments in telecommunications and computing caused major changes to banks & operations and let banks dramatically increase in size and geographic spread

**E-Banking:** From banking to e-banking the initiative was taken while financial institutions took steps to implement e-banking services in the mid-1990s, many consumers were hesitant to conduct monetary transactions over the web. It took widespread adoption of electronic commerce, based on trailblazing companies such as America Online, Amazon.com and eBay, to make the idea of paying for items online widespread. By 2000, maximum of U.S. banks offered e-banking. Customer use grow slow and it took ten years for banking to reach e banking platform. However, a significant cultural change took place after the Y2K scare ended. In 2001, Bank of America became the first bank to top online banking customers, more than of its customer base. Online customers proved more loyal and profitable than regular customers. Online banking customers who use online bill pay and e-bill services are happier with their banks which translates into deepened relationships.

## III. OBJECTIVE

### Goals:

- 1.To reduce the costs and risks of handling cash.
- 2.To increase the ease of conducting transactions.
- 3.To promote secure and fraud free transactions.

**Objectives:**

1. Controlling risk in the financial system.
2. Promoting the efficiency of the payments system
3. Promoting competition in the market for payment services, consistent
4. with the overall stability of the financial system.
5. Promoting fraud free transactions and tracing the location of fraudster.

**IV. SYSTEM DESIGN**

**Mobile Money Transfer:** Mobile Money Transfer (MMT) services can be defined as a financial service provided by a Mobile Network Operator (MNO) that enables transfer of funds (mMoney) between service subscribers through the use of mobile channels. In MMT service, mobile subscribers can add electronic money called mMoney to his or her virtual mobile account (m Wallet) and store for later use, transfer to other mobile subscribers or purchase goods via mobile phone. The receiver can inexpensively convert this credit back into cash through a retailer such as local corner shops to act as bank branches. Mobile money transfer service allows users to send cash using SMS technology thereby avoiding inconvenient and costly transfer methods such as physical travel, the mail, or traditional wire transfer services like Western Union and Post a pay which are often done in banks. For example, payments for services like electricity and water where people need to travel long distances and may end up meeting huge queues at the bank. To deposit funds into mobile money account, consumers go to participating local shops (retailer) and hand over physical money. There is no charge to a customer for depositing funds into his/her account, but a sliding tariff is levied on withdrawals from the account. A subscriber who sends mMoney is charged a flat fee if sending to another registered user and a sliding fee if sending to a mobile subscriber that is not registered with the same MMT service provider shows a person -to- person fund transfer using MMT service.

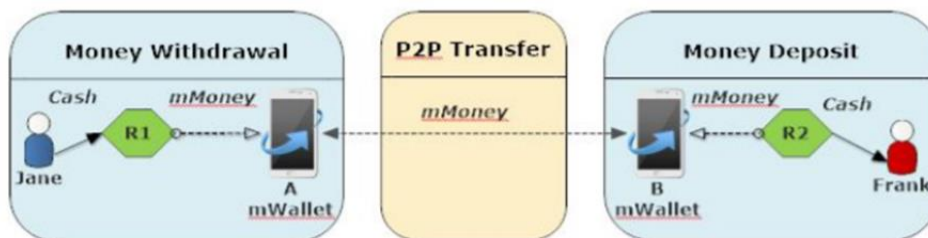


Diagram 1: P2P transfer using MMT

**Mobile Money Business Model:****A. Mobile Network Operator**

Mobile Network Operator (MNO) emits mMoney (m) in partnership with a private bank and they regularly produce compliancy reports to the Central Bank who is responsible for the country's monetary policy [Rie+13]. The role of MNO in mobile money ecosystem is very critical as they play the leadership role by drawing the different stakeholders in the ecosystem together. MNO provides infrastructure such as wireless communication, backend server and the mobile application for the operation of the ecosystem. In addition, they bring their huge existing distribution channels and subscribers into the ecosystem. Wherever there is mobile coverage, there is an agent of a distributor that sells prepaid credits. The geographical distribution of the agents gives MNO the ability to reach customers across all income segments. This coupled with the ownership of the infrastructure gives MNO the ability to be the key player in the mobile money ecosystem. They also play key roles in further ecosystem expansion and training of agents in dealing with consumers. However, they lack experience in the financial services, payment risk, regulatory and legal governance of the payment system.

**B. Financial Institutions (Partner Banks)**

The financial institution provides banking license and help to store the mobile money customers' keep in their m-Wallet. They also bring their vast experience and customer trust in dealing with e-Money while acting as intermediary between the MNOs and agents in acquiring the e-Value. The branch offices of the banks act as aggregation points for the merchants, distribution channel sand their agents in facilitating the flow of money in mobile money ecosystem. The bank provides financial regulatory advice to the MNOs and also on-line banking integration to the m-commerce system of the MNOs to facilitate their operations.



### C. Distribution Channels (Agents)

The distribution channels (agents) are primarily the consumer facing touchpoint and can often be seen as the “face” for mobile money offering [SCP16]. The distribution channels are non-bank entities such as MNOs retail shops, village corner stores or a mix of both that handle customer registration, cash-in/cash-out services and other transactions on behalf of the MNO. Through their knowledge and understanding of the consumers, they help to educate, maintain liquidity, handle account opening procedures and report suspicious transactions in line with regulatory requirements. The agents earn commissions based on the amount of mobile money trading they undertake which are usually very small amount per transaction. However, it is expected that the volume of transactions will add up to a good amount to sustain their retail business.

### D. Service Providers (Merchant and Utilities)

The adoption of mobile money platforms as a means of receiving payment by service providers enables convenient and timely payments for both the merchant and customers. In Kenya and Ghana for example, subscribers of popular pay-per-view TV service use mobile money (M-PESA and ZAP) for the payment of their subscription fees rather than queuing up to make such payment. Also, the adoption of mobile money platform can lead to increased customer base of the mobile money ecosystem thereby acting as a catalyst in promoting the service.

### E. Regulators

The function of regulators in mobile money is to provide an enabling environment, protect the stability of the financial system, ensure implementation of regulations and innovation facilitation. The development of mobile money cuts across two regulatory bodies in most countries, telecommunication and banking. This has brought about competition and unclear functions between the two major operators. As a result, many countries have not yet developed mobile money regulations and policies. therefore, the need to clarify and understand the relationships between the actors within the mobile money ecosystem so as to ensure improved efficiency and clear regulatory policies. This also gives rise to a need for a converged regulation for both technology standards and policy which is slowly coming to the attention of regulators globally. This proposed collaboration requires careful balancing with national interest.

### F. Customers

In mobile money ecosystem, customers are the final recipient and it is therefore important that effective and efficient services are made available by all participating mobile service providers. The use of mobile money payment reduces the risk of carrying cash and increased access of payment, remittances and other financial services for customers particular in the developing markets.

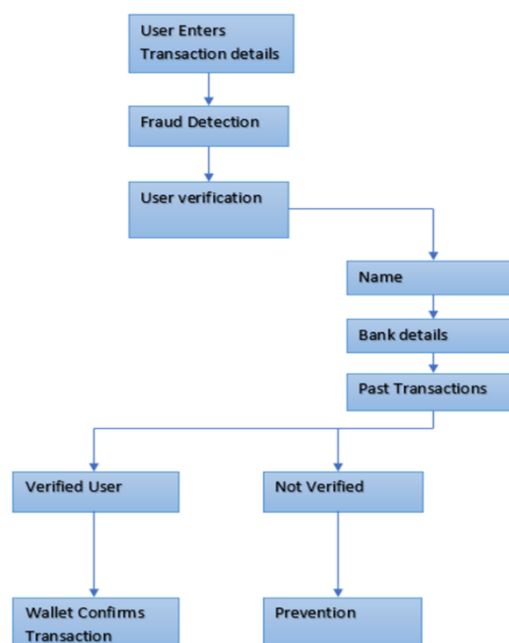


Diagram 2: System workflow

**System Description:** Payment wallet system with fraud detection is a rule-based system which promotes the safe transaction. It has developed for customers, e-commerce, B2B to obstruct the losses resulting from fraud attacks. This wallet provides complete fraud detection and prevention solution for credit cards, ATM/Debit card, UPI's and merchants.



This wallet has scenario definition system which enables customer to check the receiver's details like name, location etc. fraud detection engine monitors actual transactions in real time on the user's device, detecting and preventing suspicious financial transactions before they reach the bank. This wallet does not require installation and runs transparently on web at any device. Wallet's fraud detection engine generates individual behavioural maps by processing the user's past and current transactions. Each behavioural map is shaped according to the user's consumption and spending behaviours.

## V. CONCLUSION AND FUTURE WORK

1. Majority of respondents use E-wallets and few do not use because of lack of awareness about E-wallets.
2. Majority users use E-wallets for Recharge and making Payment, transferring money, booking tickets and online shopping.
3. Respondents would like to use E-wallets at Roadside vendors, Retail shopkeepers, travelling, Restaurant and to make Government payment.
4. The reason behind people still not using E-wallets is lack of awareness, lack of trust or security, lack of infrastructure to accept E-wallets, slow and unstable internet.
5. Majority of people think mobile wallets can replace cash in India

After revolution in M-banking the further steps includes the new concept of mobile wallets. Mobile wallet is a recent phenomenon. Its adoption will take time as it is a habit change experience for users as they are migrating from cash to wallet experience. Even though it might be a relatively a newer concept, the adoption is increasing along with the awareness of it.

In the future, we may witness exit of some players or consolidation of some players from their segment. They will pose new challenges which has to be taken care of all the stakeholders have to address these challenges to ensure the growth in customer base, volume of transaction and profitability of business.

A large proportion of India's population is not financially literate and does not have access to formal banking services. There are multiple problems faced by the industry which can be viewed as three dimensions.: business & operating models, consumer and market dynamics The investigation showed that LR and NN yielded the most elevated exactness, accuracy and review of the calculations tried. SVM and DT experienced over fitting. We might want to utilize more information to lessen the fluctuation of results. Rather than utilizing 4,000 tunes, we desire to incorporate all Billboard Hot 100 hits taken from a more extended time span, and a comparable number of non-hits from the MSD. Besides, we might want to investigate extra sound highlights, for example, span, which was excluded from this undertaking yet can possibly anticipate a melodies Billboard achievement.

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