

# Survey on Mobile Banking and e-Wallet Usage and Its Security Concerns

Anubhav Bose<sup>1</sup>, Chetna Choudhary<sup>1</sup>, Sunil Kumar Chowdhary<sup>1</sup> and Manoj Kumar<sup>2</sup>

<sup>1</sup>Amity University Uttar Pradesh, Noida

<sup>2</sup>School of computer science, University of Petroleum and energy Studies, Dehradun

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**Abstract:** The rapid development in Information Technology has led to the introduction of many new technologies in every aspect of our life. It has significantly contributed to the field of online transactions. As mobile technology continuously grows, it has resulted in a rapid increase in transactions through mobile devices. It has revolutionized e-banking and virtual money transactions by providing ease of quick transfer of money from any location. Demonetization in India has further facilitated the use of mobile wallets as it encourages cashless transactions online. There has also been a significant rise in usage of mobile banking during demonetization as it saves a lot of time and effort to transact. However, there are many security concerns for consumers due to the unfamiliarity and complexity of mobile devices and their associated technologies. The major concern for users is the protection of their personal identification information and stealing of sensitive payment information. This paper intends to study the usage patterns of mobile banking and E wallets and identify the concerns related to security and privacy issues among the masses in the Indian context.

## 1 INTRODUCTION

The total number of mobile phone users in our country are expected to increase to 730.7 million by 2018, which means almost half of the total population of the country uses mobile phones.[9] With the ease of connectivity and always on availability, mobile phones today not only offer advantages in terms of instant communication, entertainment and greater productivity but they have become tools that consumers use for banking, payments, and shopping. Being easy and convenient, currently, more than 43.7 million mobile users have used Mobile banking services in one form or the other (Trak, 2021). Until last year, e wallets totalled 200 million and expected to grow to 650 million by 2020 (BusinessLine, 2021). As mobile banking and E wallet usage continues to grow by leaps and bounds, security vulnerability and threats to sensitive information are increasing fast.

In the coming times, the security of transactions is probably going to emerge as the greatest worry among Mobile banking and E wallet users. The quick development in online theft and extortion are

on the ascent. Online fraud is found to be third amongst economic crimes prevailing in our country according to a survey conducted by PwC in 2011 (iPleaders, 2021). The incidence of ATM, credit, debit and web transaction-related fraud has gone up by over thirty five percent between 2012-13 and 2015-16 in our country, as concluded by the Central Bank (ZDNet, 2021).

## 2 RELATED WORK

As we have seen, in recent years, there has been an explosion of internet based electronic banking applications (Dixit and Datta, 2010). Harshad Patel and Vijay Pithadia (2013), found that “Advancement achieved in the Information Technology and communication Technology in the last two decades has resulted in the successful implementation of Electronic Banking in India” (Sailaja and Thamodaran, 2016 ).

R. Karuppusamy and Dr N. Venkatesa Palanchamy (2011) state in their study that “Ravi (2008) stated that with the advent of innovative technology, banks were able to provide customized

products and services like internet banking, mobile banking, ATMs, Tele-Banking, to their customers. Latest technology helped the banks to reduce their transaction cost. But certain risks associated with innovative technology and technology related frauds were found to increase” (Karuppusamy and Palanichamy, 2011).

In fact, in Aladwan's (2001) investigation of web based banking, potential clients evaluated web security and client's protection as the most significant future difficulties that banks are confronting. Observed efficiency of online banking has a direct impact on the acceptance of web banking, too (Aladwani, 2001). Customers stress that unapproved people can access their online record and heavy monetary consequences will take place. In India, slowly the Indian customer is moving towards web banking. However, they are very concerned regarding the security and privacy of web banking (Malhotra and Singh, 2009). (Dixit and Datta, 2010) Infact, a majority of studies highlight the fact that “security” is the biggest single concern for customers when faced with the decision to use web banking. Security has an issue perpetually, but its scope has been modified from mere doubts regarding the privacy of personal information to worries of monetary loss. (Sayar and Wolfe, 2007).

A study done by Neha Dixit and Dr Saroj K. shows that Security and protection, trust and originality, have a positive impact on the acknowledgment of web banking in India. Their study aimed to find out the level of acceptance of online banking among those customers who are over thirty five years of age. (Dixit and Datta, 2010)

Jayaram. J and Dr P. N. Prasad (2013) deduce in their examination that the greater part of the investigations that have been done on issues concerned with web banking in countries like Australia (Sathye, 1999), Malaysia (Mukti, 2000; Chung and Paynter, 2002; Sohail and Shanmugham 2004), Singapore (Gerrard and Cunningham, 2003a, 2006b), Turkey versus UK (Sayar and Wolfe, 2007) and Saudi Arabia (Sohail and Shaikh, 2007). (Jayaram and Prasad, 2013 ) A considerable measure of work has not been done in India with importance to e-banking concerns.

The current study intends to understand the amount of level of usage of mobile banking and E wallets and problems relating to the security and privacy problems among the masses in the Indian context.

### 3 RESEARCH MODEL

To investigate the E wallet and E banking Usage

patterns and related security concerns, we designed a survey questionnaire. The questionnaire contains three part: Demographics, E wallet and E banking usage patterns and related Security Concerns.

We used Google forms to create, distribute the survey and store the responses online. A total of 348 responses were received.

## 4 RESULTS AND ANALYSIS

### 4.1 Demographics and Personal Attributes

1.Age: 81% of participants were 18-30 years old. 9.2% were younger than 18 years old, and 8.6% were between 30-50 years. Only 1.1% of the participants were above 50 years of age.

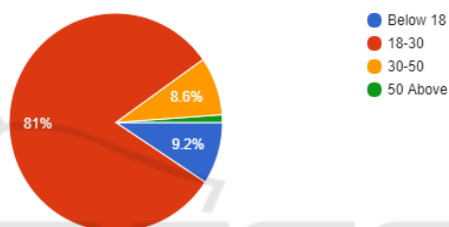


Figure 1: Age distribution.

2.Profession: 77.8% of the participants were students and 17.3% were salaried professionals. While only 3.2% of the participants were self-employed, 1.4% were home makers. The majority of the participants were from Non-IT domain accounting for 77.8%. The remaining 17.3% were associated with the IT industry.

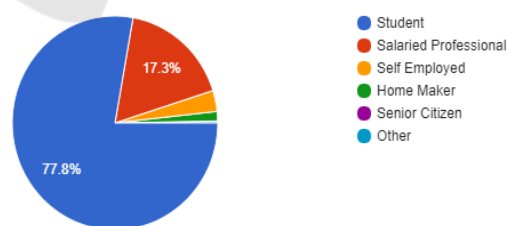


Figure 2: Profession.

### 4.2 Usage Patterns

1.E-wallet type: The majority of the participants used Paytm as their E-wallet, accounting to 78.4%. While 17.3% used Freecharge,11.4% used Mobikwik, 7.5% used PayU money, and 3.2% used M-pesa. The remaining 20.2% of participants didn't use any.

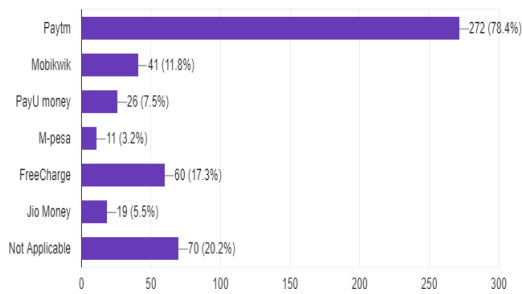


Figure 3: Types of E-wallets.

2.E-wallet usage: The majority of the participants, 59.4% used E wallets for online shopping while 53% used it for payment of utility bills, and 47.8% used it for booking tickets online. 35.2 used e wallets for transferring funds.

3.E Banking Usage: 66% used E banking services, while the rest 34% did not. Among those who use, 27.1% use State Bank of India’s services, which is the highest number.

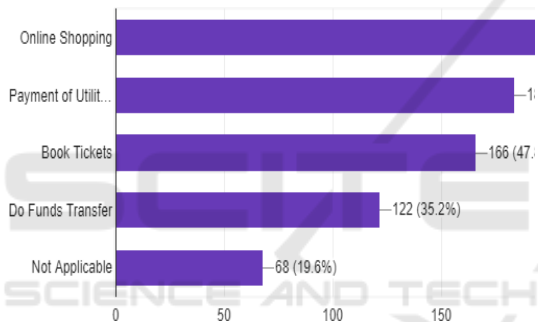


Figure 4: E-wallet usage purposes.

4.E banking Usage Pattern: As we had seen in E wallets, In E-banking too, 48.1% used E banking services for online shopping. 45.2% use it for bill payment services and about 40% for funds transfer.

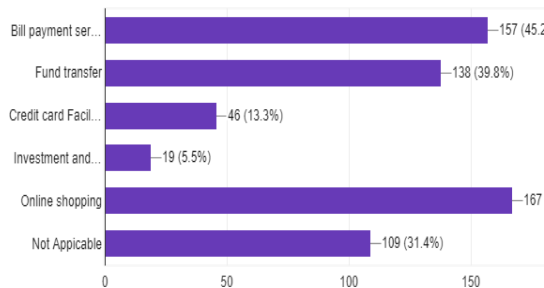


Figure 5: E-banking usage purpose.

5.Frequency: 24.8% of people have said that they use E wallet and E banking services Regularly. The highest, about 30%, use it. Often, and 23.1% use it sometimes.

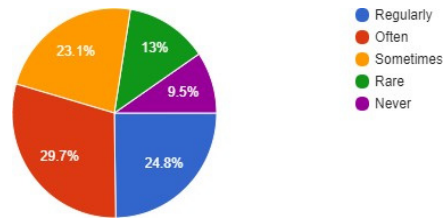


Figure 6: Frequency of usage.

6.Convenience: About 40% of the people find both e wallets and e banking convenient to use, though 36% prefer only E wallets and almost 24% prefer only E banking.

7.Effect of Demonetization: After demonetization in the country in 2016, usage of e wallets and e banking increased for almost 80% of all the people.

### 4.3 Security Concerns

1.Problems Faced: Almost 60% of the people have not faced any problem while using E wallets and E banking services, but about 40% of the people have faced one.

2.Types of Problems faced: Among the users who have faced a problem, the leading problem is Delay in Transaction with about 34% suffering from it. 14.9% of respondents suffered from cheap quality while shopping online and 6.6% from the problem of not having a user-friendly interface.

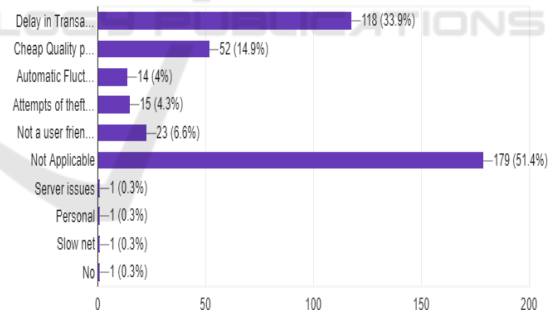


Figure 7: Problems faced in online transaction.

A small number also suffered from Automatic Fluctuation and Attempts of theft. However, almost half of the respondents, 51.4%, did not experience a single problem. Infact, the majority of the population, 78.4% find online transactions safe to use, which shows people’s immense level of trust. 21.6% have voted for a No.

3.An amount that people find safe to transact: The majority of the people, 37.9%, find it safe to transact less than 5000INR.

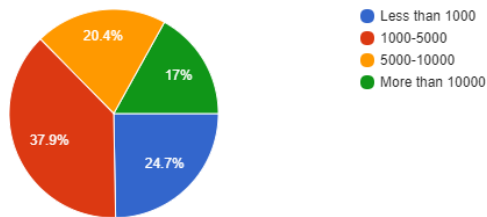


Figure 8: Online transaction amount.

4. Security related concerns: About 61.2% of the people fear the theft and misuse of Personal information while 56.9% fear Theft of Sensitive Information like Passwords and Pin leading to financial loss. 32.8% fear that they might be transacting through mobile devices infected by malware. 23.9% of respondents feared that their mobile would be stolen, and they might be downloading Fake smartphone apps.

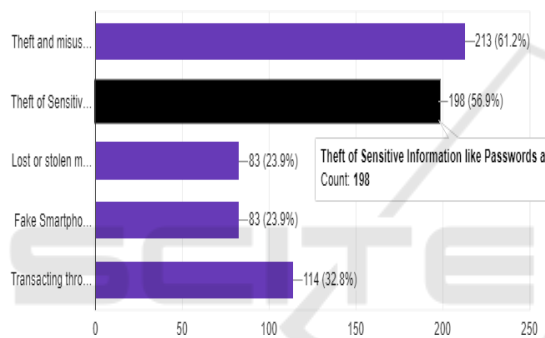


Figure 9: Security concerns.

#### 4.4 Cross Analysis

1. Cross Analysing the two parameters; Profession and the amount people find safe to transact, we see that:

- Among the students, a maximum online transaction is between 1000-5000 INR.
- Among the Salaried Professionals, a maximum online transaction is More than 10000 INR.
- Among the Self Employed, a maximum online transaction is again between 1000-5000 INR.

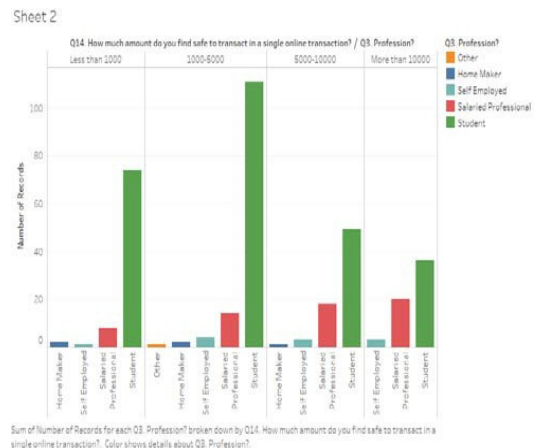


Figure 10: Relationship between Profession and online transaction amount.

2. Cross Analysing the two parameters; Usage levels after Demonetization and Frequency of Usage, we see that all the levels (Regularly, Often, Sometimes, Rare and Never) of Frequency of Usage were high for people who had voted that their Usage of E banking and E wallets Services increased after Demonetization. Also, we see that the levels of Frequency of Usage were low for people who had voted that their usage did not increase after demonetization.

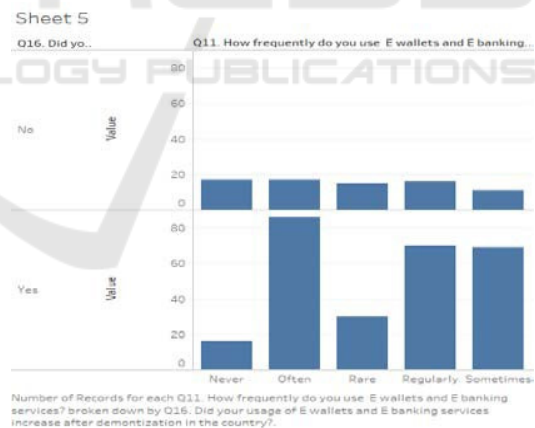


Figure 11: Relationship between Demonetization and frequency of usage of mobile transactions.

3. Cross Analysing the two parameters; Age and Convenience concerning usage of E wallets or E banking or both, we see that

- Below Age 18, Respondents prefer E wallets.
- Between 18-30, though the Respondents prefer Both, their second preference is for E wallets.
- For 30-50 Age group, though the Respondents prefer Both, their second preference, in this case, is E banking.

Sheet 8

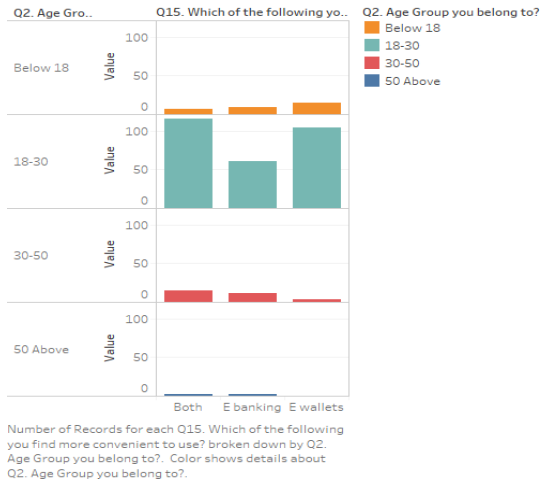


Figure 12: Relationship between Age and preference of e-wallet or e-banking.

## 5 CONCLUSION

Our study found out that the usage of mobile banking and E-wallets has significantly increased in recent years. Demonetization has encouraged the people of India to move towards a cashless economy and has further facilitated the use of mobile banking. The young people below 18 years prefer using e-wallets and tend to transact not more than Rs 5000 while working professionals use both e-wallets and mobile banking and tend to transact more than Rs 10000. Also, a lot of people are concerned about performance and security issues of transacting online via mobile devices. The major concerns are theft and misuse of personal information and delay in transactions. Many people who are more proficient over the internet are also cautious about installing fake smart phone applications via third party stores. We conclude that in spite of the security concerns, there is a major rise in the usage of mobile banking and e-wallets in India.

Further, this paper will serve as a fundamental advance in investigating clients' perspectives and assumptions in regards to mobile banking and its related security concerns. Additional research and investigation are required to explore issues identified with mobile banking in a more profound way and what methodologies ought to be embraced by banks by which they can upgrade the security provided to their consumers.

## REFERENCES

- Karuppusamy, R. and Dr NV Palanichamy, (2011), "Awareness and adoption of Value Added Services offered by the banks in Coimbatore District".
- Dixit, N. and Dr SK, Datta. "Acceptance of E-banking among Adult Customers: An Empirical Investigation in India".
- Jayaram, J. and Dr P. N., Prasad (2013). "Review Of E-Banking System And Exploring The Research Gap In Indian Banking Context".
- Sailaja, P. and Dr.V., Thamodaran (2016). "Customers Perception on Security System in Mobile banking".
- Kumar, K. and Mittal, M. (2013). "E-Banking Security and Challenges: A survey".
- Patel, H. and Dr V., Pithadia (2013), "Emerging trends in customer satisfaction of value added services in selected banks at mehsana district of gujarat".
- Aladwani, A., "Online banking: a field study of drivers, development challenges, and expectations".
- Nema, S. and Shukla, N., (2013), "Mobile Payment Security issues: a Comprehensive Survey".
- <https://www.statista.com/statistics/274658/forecast-of-mobile-phone-users-in-india/>
- <http://trak.in/tags/business/2009/10/08/mobile-banking-users-india/>
- <http://www.thehindubusinessline.com/economy/india-skips-plastic-money-leapfrogs-into-mobile-wallet-payments/article9407059.ece>
- <https://blog.ipleaders.in/online-banking-frauds-in-india-how-to-recover-lost-money/>
- <http://www.zdnet.com/article/online-banking-and-plastic-card-related-fraud-in-india-increases-35-percent/>