



Overview of Digital wallets in India

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Abstract: The proposed paper reviews on various types of digital wallets and its usage in India. A complete comparison analysis of various types of digital wallets was performed. An online survey was conducted and the results were presented in the report form in this paper. This paper provides a complete overview, architecture and usage views of digital wallets in India.

Keywords: digital; wallets; online; payment; survey; merchant

INTRODUCTION

The e-payment industry adopts many changes based on the various evolving shopping patterns. Mobile wallet is a new concept in India that has been surpassing credit card usage and is slowly beginning to replace the traditional payment methods. A mobile wallet, in simple terms, is a virtual mobile-based wallet where one can store cash for making mobile, online or offline payments. There are various types of mobile wallets in India, such as open, semi-open, semi-closed and closed depending on the type of usage and payments that can be made.

DIGITAL WALLETS

A digital wallet is a software component that allows a user to make an electronic payment with a financial instrument (such as a credit card or a digital coin), and hides the low-level details of executing the payment protocol that is used to make the payment. The three types (Fig.1) of existing digital wallets as follows:

A. Closed System Payments

These are issued by business establishments for use at their respective establishment only. These instruments do not permit cash withdrawal or redemption. Example - Freecharge credit, Ola money etc.[2]

B. Semi-Closed System Payments

It is used at clearly identified merchant locations with specific contract with the issuer to accept payments. These instruments do not permit cash withdrawal or redemption by the holder. Example - PayTm.[3][5].

PayTM is one of the largest mobile commerce platforms in India, offering its customers a digital wallet to store money and make quick payments. Launched in 2014, PayTM [1] works on a semi-closed model and has a mobile market, where a customer can load money and make payments to merchants who have operational tie-ups with the company. Apart from making e-commerce transactions, PayTM wallet can also be used to make bill payments, transfer money and avail services from merchants from travel, entertainment and retail industry. PayTm wallet is RBI approved digital wallet. With over 75 million wallet users and 2 million daily transactions, it makes us India's largest Wallet [6].

C. Open System Payments

These are payment instruments which can be used for purchase of goods and services and also permit cash withdrawal at ATMs. Example - Almost every Visa, MasterCard or Rupay card issued in India.

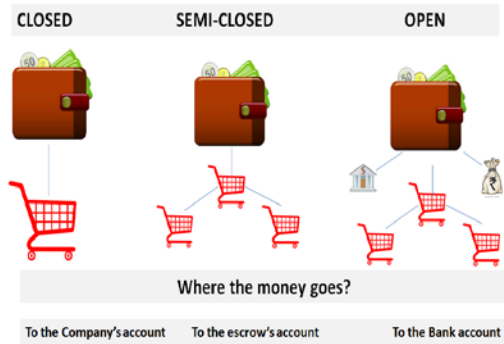


Figure 1: Types of Digital Wallets

III TRANSACTION FLOW OF DIGITAL WALLETS

The transaction flow of the digital wallets is explained below:

A. Authorization-Process

Step 1: The cardholder presents a payment card for goods and/or services to the merchant. (Fig. 2)

Step 2: The merchant swipes card or calls in for authorization. The information is sent to the merchant acquiring Bank [7], and from there is routed to the payment card company. The payment card company contacts the cardholder's bank to ensure that the desired funds are available or if the card was reported lost or stolen. The response is transmitted back through the chain and is delivered to the merchant. If the authorization request was accepted, the transaction is complete; if the request is denied, the merchant is notified of a decline. This process is completed within seconds.

B. Clearing and Settlement Process

Step 3: Merchant sends batch of transactions to the merchant acquiring Bank. See (Fig. 3).

Step 4: The merchant acquiring Bank sends the information to the payment card companies, who in turn send the information on to the respective cardholders' banks. The merchant acquiring Bank applies a processing fee for this service.

Step 5: The payment card companies debit the cardholder's bank for the amount of the transaction minus interchange fees, and credits the merchant acquiring Bank minus interchange fees. The payment card company also applies an assessment fee for transmitting the data to the banks of cardholders'.

Step 6: The cardholder's bank posts the transaction to the cardholder's account, and once a month sends a statement to the cardholder. The cardholder then

Send payment to their bank.

Step 7: The merchant acquiring Bank credits the merchant's checking account for the amount of the transactions. The comparison of Digital wallets is given in Table 1.

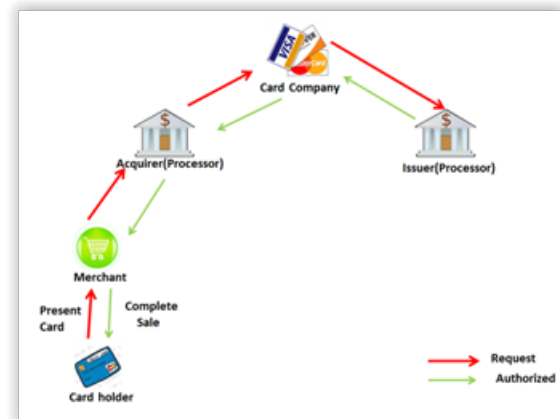


Figure 2: Authorization Process

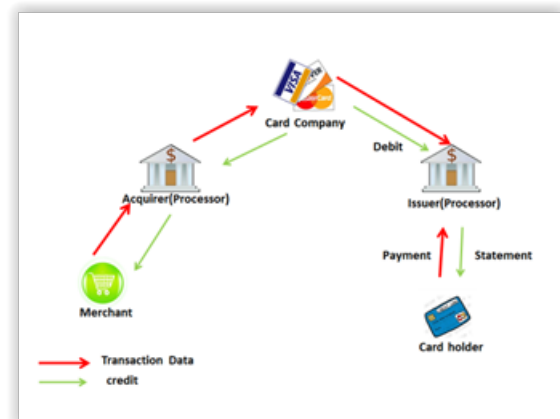


Figure: 3 Settlement Process

Table 1: Comparison of Digital Wallets

Digital wallet	Tokenization Required	Pay at POS (Point of Sale)	Peer-to-Peer Capability	Cost	Cards Accepted
Apple Pay	Yes	Yes (iPhone 6, iPad, Apple watch)	No	Per Transaction	All Except Discover
Google Wallet	No	Yes (NFC Enabled device)	Yes	None	All
PayPal	No	Yes (Web-enabled device)	Yes	None	All

IV ANALYSIS OF DIGITAL WALLET USAGE USING SURVEY:

A survey was conducted to analyze the usage and familiarity of digital wallets in India. A questionnaire containing 50 questions was designed. This questionnaire was made online and the responses were recorded from the public of different

age groups (15 to 50), and the following results (Fig. 4) was obtained. It was found that about 72 percent of the people use Digital wallets to make transactions. The results were recorded in Table 2.

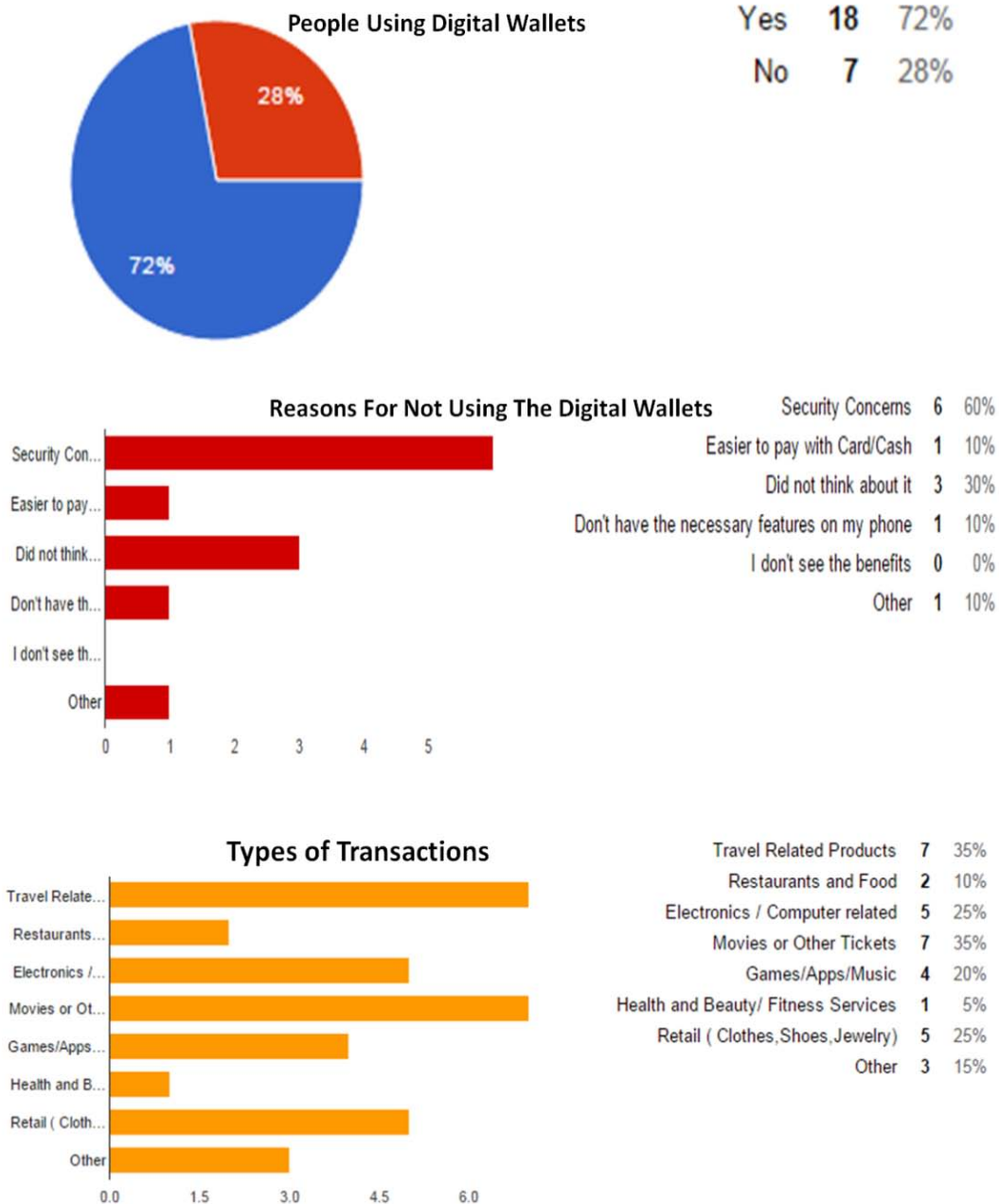


Figure 4: Reports of the survey

Table 2: Results of the Survey

Survey	Reason	Percentage
People Using Digital Wallets	-	72%
Digital Wallets Used for	Travel, Movies and tickets	35%
People not using Digital wallets	Security concerns	60%
Usage of digital wallets in future	Will Increase	92%

Mistakes while using digital wallets	Human & Technical Error	43.5%
Fear of hacking	Security Concerns	56.5%
Transaction of large amount	Not safe to use	34.8%

V CONCLUSION

With the new mission of making India more technologically advanced, we can expect a much wider use of digital wallets among Indians in the near future. It was observed from the survey that the security issues, less technical knowledge and unavailability of internet in many places is still a major drawback for major uses of Digital Wallets in India. Development in the field of offline payment schemes for digital wallets can be beneficial. Better security against hackers is needed so that fraudulent activities do not take place.

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