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UPI Challenges and Direction in Fund Management with Special Reference Banking Sector

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Abstract: After demonetization, there was a massive requirement for currency notes, but the government was unable to provide the required quantity of currency notes, and also Indian government wanted to promote cashless transactions. UPI is built over Immediate Payment Service (IMPS) for transferring funds using Virtual Payment Address (a unique ID provided by the bank). Unified Payments Interface is a payment system launched by (NPCI), which is National Payments Corporation of India, and is regulated by the (RBI) Reserve Bank of India, which provides the facility of instant fund transfer between two bank accounts online through payment apps. Digital transactions by UPI have been made very easy. The UPI service is available 24X7, and it is not like RTGS and NEFT, which do not work on holidays and non-banking hours. This will bring tremendous efficiency to the system and help India become a cashless economy.

Keywords: Digital illiteracy, Online payments, cashless economy UPI, Mobile phone, digital payment mode

I. INTRODUCTION

Unified Payments Interface (UPI) is an instant real-time payment system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also provides the "Peer to Peer" collect request, which can be scheduled and paid as per requirement and convenience.

The national payments corporation of India developed UPI. The interface is regulated by the Reserve bank of India and works by instantly transferring funds between two bank accounts on a mobile platform. It is built over an Immediate payment service for fund transfer. NPCI conducted a pilot launchwith 21 member banks with the above context in mind. The pilot launch was held on April 2016, by Dr. Raghuram G Rajan, Governor, RBI at Mumbai. Banks have started to upload their UPI-enabled Apps on the GooglePlay store from Aug 25, 2016, onwards.

A. Evolution Of UPI

Unified Payment interface is the mobile banking platform developed by the National Payment Corporation of India on Apr 11, 2016, by the Ex RBI governor Raghuram Rajan; the payment interface became famous among people after the banning of the 500 1000 rupee notes in India by the Prime Minister. Like the other mobile banking and cashless transaction techniques, the UPI has also made massive growth. Later the wallet-based mobile platforms got more complicated, and UPI became famous because of the transaction speed and bank-to-bank transfer. Unified Payments Interface (UPI) is a trending payments system in India. UPI is the fastest payments gateway developed by the National Payments Corporation of India (NPCI) regulated by the Reserve Bank of India (RBI). UPI is built by the already available IMPS technology, which enables a user to instantly transfer funds between their bank accounts through UPI Virtual Address (unique ID generated by the bank) or by using their Bank Account Number and IFS Code (Jayadevan, 2018)

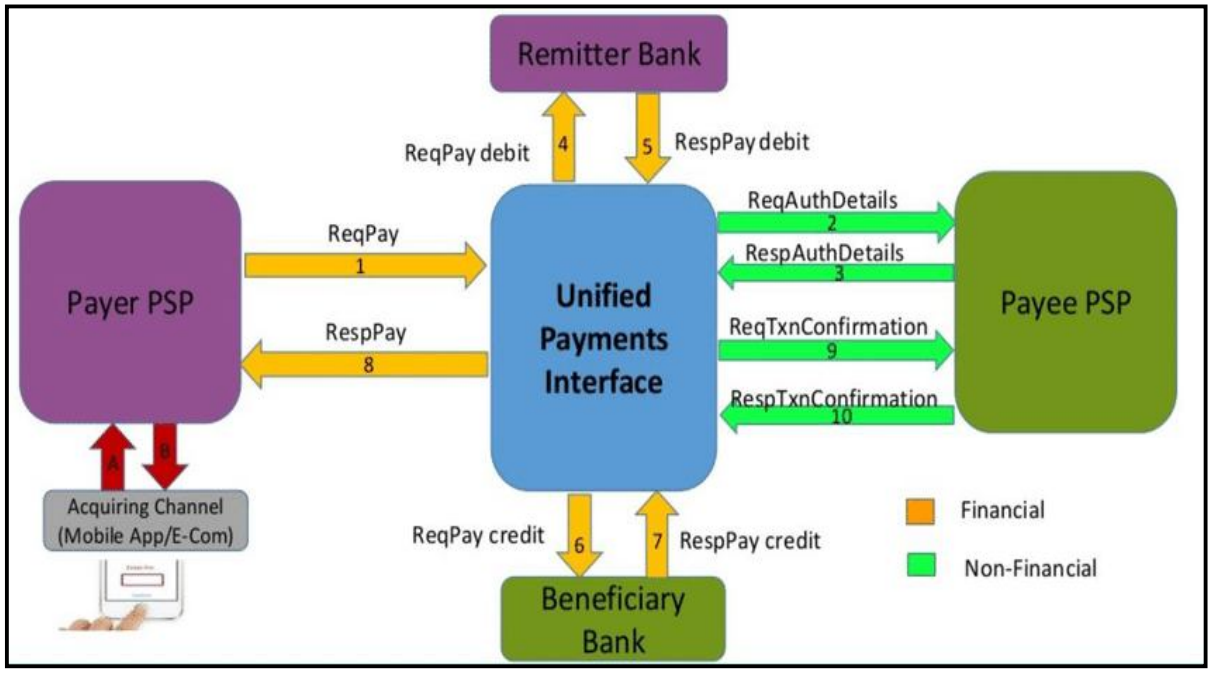
B. UPI Architecture

The following diagram is the architecture of UPI allowing USSD, Smartphone, Internet banking, and other channel integration onto a standard layer at NPCI. This common layer organizes the transactions and ensures settlement across accounts using IMPS, AEPS, NFS, E-com Etc. Usage of existing systems ensures the reliability of payment transactions across various channels and takes full advantage of all theinvestments.

Here, the merchant sites collect the payment through the virtual address avoiding the need to provide the account details or sensitive information on websites or third-party applications. The payment authentication and authorization are always done within this solution using personal mobile.

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C. Concepts



D. Every Payment Has The Following Core Elements

1) The account details of the payer and the payee for routing andauthentication purposes.
2) Authentication credentials.
3) Transaction amount.
4) Timestamp.

E. Payment Address

The payment address is unique for every user. It is very flexibleand can be changed. This address is linked with our mobile number and the account number. Since it is not our actual payment address but acts as the bank account details, it is called virtual payment address (VPA).

Provider is expected to map the payment address to actual account details appropriately. Providers who provide virtual addresses should expose the address translation API forconverting their virtual addresses to an address that NPCI can use.

F. Authentication

Authentication is the process of recognizing something orsomeone's identity. In terms of the transaction, the communication takes place between the two parties such that both the parties have to share the required details among themselves so that the identity of each party is known to the other. In UPI, a unique benefit of single-click 2-factor authentication is allowed. It mainly has two levels of security.

II. PROSES OF UPI SYSTEM

A. For The Banks

1) Single click two-factor authentication provides 2 levelsecurity, and the bank account is secured.
2) Payments can be made by using a unique identifier.
3) The transaction is safe and secure.
4) Availability of online application process called universalapplication for the transaction.
5) Merchant transactions can be done without
6) theinvolvement of the third party

B. For The End-Users

1) The customers can do the transaction round the clock regardless of the Sundays and the public holidays.
2) As the virtual payment address is used during a transaction,there is no need to share sensitive information.
3) The complaints can be given directly through the mobileapp.
4) Different bank accounts can be managed through asingle mobile application.
5) Single click authentication

C. For The Merchants

1) The cash on the delivery problem can be solved.
2) No risk of storing the customer's virtual address like in thecards.
3) Bestsuitable for e-commerce and m-commercetransaction.
4) In-app payments can be made.

III. REVIEW OF LITERATURE

A. Shivani Maheswari 2019, in the study titled "UPI (Unified Payments Interface) - The futuristic Payment Method," discusses the architecture of UPI and states the month-wise income features. The study found that 105 million income till Nov 17, as reported by the National Corporation of India (NPCI). It is concluded from the Study that UPI payment is not only creating a peer to peer transactions but also peer to merchant transactions.

B. Radhika Basavaraj Kakade1, Prof. Nupur A. Veshne, 2019, Their study reported that the UPI had made digital transactionsfor individuals as easy as sending text messages. Service is available 24X7, not like RTGS or NEFT, which do not work on holidays or during non-banking hours. This will bring enormous efficiency to the system and help India become a truly cashless economy.

C. The Study of (Dr.Virshree Tungare 2018), "A Study on Customer Insight Towards UPI (Unified Payment Interface) - An Advancement of Mobile Payment System," states that cashless transaction has become an essential component after the demonetization. The researcher conducted a study in Indore about the UPI payments and related E-payments modes. The findings of the study state that most of the respondents find UPI payments are a convenient way of using and it provide various rewards and incentives. The study concluded that it is enhanced with the help of smartphones.

D. Atul Gupta 2018, in his study titled "UPI- Redefining Digital Payments - A Critical Review," states the statistical data about the usage of UPI mobile interfaces. The data was extracted from the government websites like RBI and NPCI. This article discussed the various challenges and opportunities of UPI.

E. Suma Valley and Hema Divya, 2018, in their study on consumer adoption of digital payments in India, had indicated that the deployment of technology for digital payments has improved the performance of the banking sector and can achieve the motive cash less country. The study emphasizes the percentage of awareness on maximum utilization of technology. Banks should take effective measures in creating awareness towards the practical usage of technology and security.

F. In their Study, Shamsher Singh & Ravish Rana (2017) reported that the education level of the customer influences the adoption of digital payment. If a person has studied beyond matriculation and is internet savvy, he or she will be inclined to use the digital payment mode. It was also found that in areas/regions where the education level is high, such as Delhi NCR and other metropolitan areas, the possibility of digital payment acceptance is much higher. The growth of users of smartphones and internet penetration in such areas also facilitated the adoption of digital payment.

IV. OBJECTIVES OF THE STUDY

A. To understand both the UPI system and other payment modes.
B. To assess the consumer perception towards digital payment applications.
C. To analyze the factors that influence the use of various digital payment modes.
D. To compare the UPI system with other payment modes.
E. To provide instant payments through the mobile, web, and other applications.
F. To provide a more secure and convenient payment service for both sender and receiver channels.
G. To allow banks and other players to innovate and offer a next-level customer experience to make electronic payments more secure for us
H. To support the growth of e-commerce while at the same time meeting the target of financial inclusion.

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V. RESEARCH METHODOLOGY

The study was conducted in Mysore city in Oct-Nov 2021 with a sample size of 150. The study tries to assess the customer attitude and perception towards digital payments and UPI interface and identify the security gaps in the different modes of payments

A. *Advantages Of UPI*

There are various advantages to the unified payment interfaces; the significant advantages are listed below:

1) It can use like their account number and IFSC code Etc: It can only need to know their VPA or both of the person using the same online app for the transactions only need to save their mobile number into the mobile phone.
2) There are no service charges for transactions as of now.
3) It is an instant transfer platform money - debited from the account and instantly credited to their account within no time
4) It almost acts like a wallet – It can also use this online platform to book travel tickets, pay bills, buy movie tickets, and send money to various government relief funds within one or two touches with mobile phones.
5) Service initiated by the government - the apps may be owned by private companies, but ultimately the service is initiated by the Central Government and RBI, so it is a Government initiative to encourage a cashless economy.
6) Need not create any additional account like a wallet.
7) It can also use your bank UPI apps or other third-party apps

B. *Challenges Faced by UPI*

1) *Technological Barriers:* For it is an online transaction, there can be technological barriers regarding using the apps as it can stop working, leading to transaction problems, or can cause errors which can again be vulnerable.
2) *Digital Literacy:* This has always been a barrier in India; it is less in rural areas where people tend to use lesser mobiles and online modes of transactions in remote areas. It will still require some time for India to come fully Digitalized.

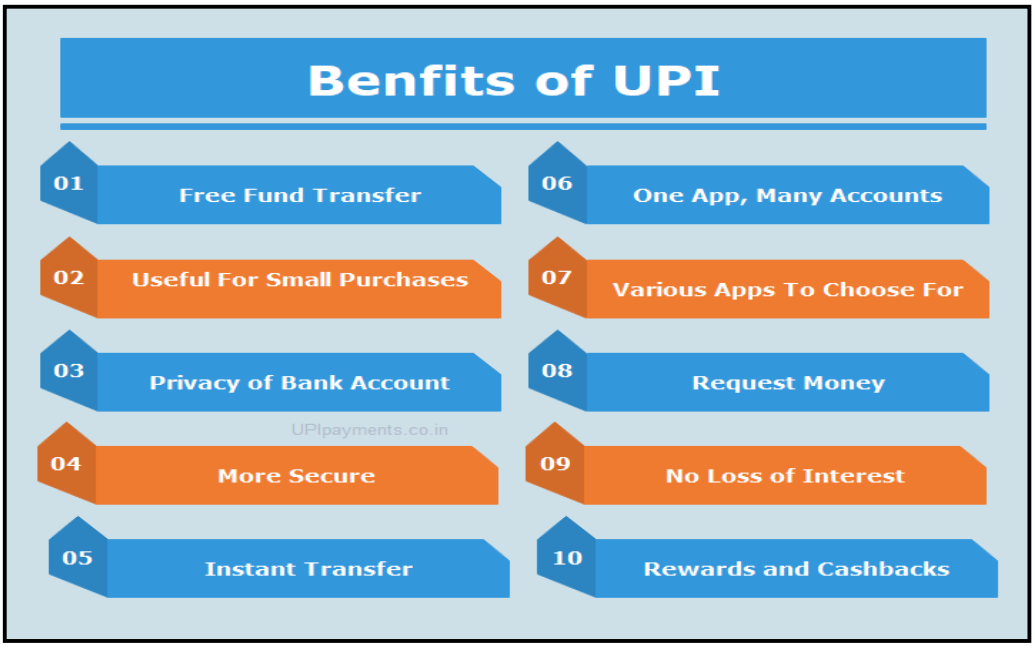
C. *Features*

1) Immediate money transfer through mobile devices 24*7 and 365 days.
2) The user creates a unique virtual payment address (VPA) for transacting money, and no other bank detail is required. In order to create VPA, a globally unique mobile number/Aadhar card/Email ID is required.
3) It is not necessary that you use the UPI app offered by your bank. For instance, though you have an ICICI bank account, you can still use The HDFC UPI Bank app, and it can even link your other various bank accounts with it.
4) UPI can be used for both pull and push functions. Under Pull Function, the payee can send a money collection request to the payer using the UPI app.
5) Payment through UPI has been designed for both online and offline purchases as well as cash on delivery

D. *Famous UPI Based Apps*

1) Google Pay (formally known as TEZ)
2) Phone pay
3) BHIM UPI
4) Pay TM
5) Razor pay

Parameter	Weightage
• Payment Enablers	25%
• Payment Infrastructure - Demand Side Factors	10%
• Payment Infrastructure – Supply-side factors	15%
• Payment Performance	45%
• Consumer Centricity	5%



E. How does the RBI-DPI calculate the adoption of digital payments?

There are five broad parameters that the RBI digital payments index considers to measure the extent and depth of digital transactions in India. These parameters are:

F. How are the Digital Payment Index parameters measured?

They have sub-parameters within them that are concretely quantifiable. For example, under 'Payment Enablers,' the sub-parameters include new bank accounts opened, smartphone and internet adoption, and Aadhar card registrations. Taken together, these sub-parameters constitute 25% of the index.

Payment Enablers	Payment-Infrastructure Deman Side	Payment-Infrastructure Supply Side	Payment Performance	Consumer Centricity
• Internet	• Debit Cards	• Bank Branches	• Digital Payment Systems- Volume	• Awareness and Education
• Mobile	• Credit Cards	• Business Correspondents	• Digital Payments Systems- Value	• Declines
• Aadhar	• Prepaid Payment Instruments	• ATMs	• Unique Users	• Complaints
• Bank Accounts	• Customers Registered- Mobile & Internet Banking	• PoS Terminals	• Paper Clearing	• Frauds
• Participants	• FASTags	• QR Codes	• Currency in Circulation	• System Downtime
• Merchants		• Intermediaries	• Cash Withdrawals	

Source: Reserve Bank of India

VI. SUGGESTIONS

A. Indian people negatively perceive online payment applications because of fraudulent activities. People mostly prefer cash transactions. If online wallets, UPI, or any other online cash transfer application should focus on marketing their security of the transaction.

B. Indian government is taking steps towards "Digital India," and for attracting the customers, UPI is giving benefits like cash backs, discounts Etc. Government should invest in "How to be cashless" in the form of seminars or TV advertisements.

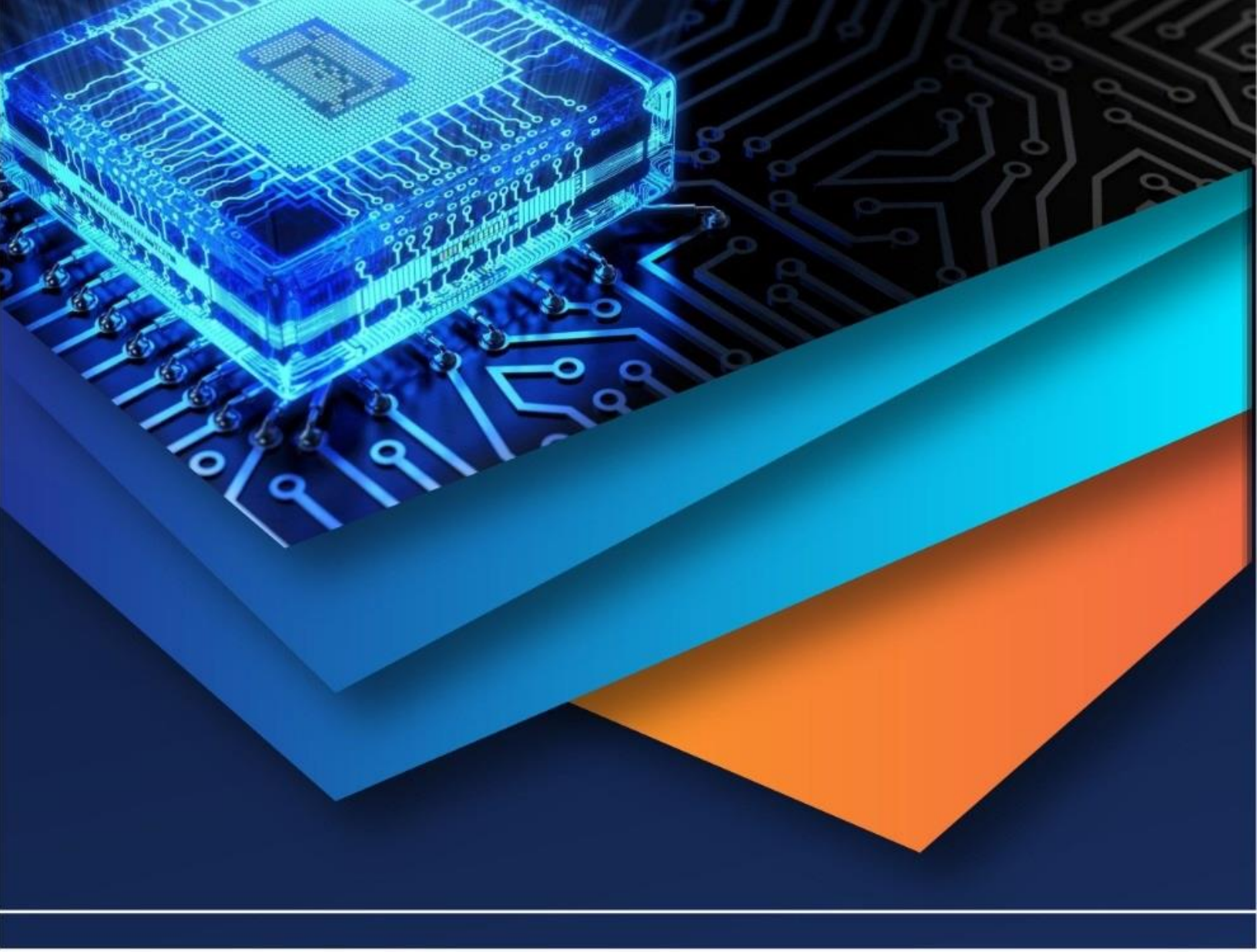
C. In India, there is a lack of internet connectivity in rural areas or even some parts of urban areas. Government should invest in providing high-speed internet at a low cost. If internet connectivity increases, then online fund transfers will surely increase.

VII. CONCLUSION

Making the payment is all about convenience, security, and speed. India's payment system evolved from the barter system to cash to card to digital payment mode. Security is the biggest concern among consumers and can be considered a key factor for adopting UPI payments. India is a dominant cash society. Even though there is a rapid increase in digital payment modes, there is still a lack of awareness among people concerning security, data privacy, etc., which leads to them believing that making payments as a card or cash is much better than using a UPI application. Unified Payment Interface isconsidered the biggest competitor for UPI payments. The customer is the king, and they are looking for a seamless and convenient way of payments through the internet, and UPI is the best option for the customers for machining transactions

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