

A PROJECT REPORT ON
**“A STUDY ON DIGITAL MONEY OF UPI
(UNIFIED PAYMENTS INTERFACE)
PAYMENT”**

A Project Submitted to
University of Mumbai for Partial Completion of the Degree
of Bachelor in Commerce (Banking and Insurance) Under
the Faculty of Commerce

By
ANSUYA BRIJMOHAN SINGH

T.Y.B.B.I. (SEMESTER – VI)

PRN NO.:2021016400534565

Under the Guidance of
‘ASST. PROF. DR. KISHOR CHAUHAN’

JNAN VIKAS MANDAL’S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts Dr.

R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Sector-19, Airoli, Navi Mumbai, Maharashtra 400708



FEBRUARY, 2024.



JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Sector-19, Airoli, Navi Mumbai, Maharashtra 400708

CERTIFICATE

This is to certify that **Ms.** _____ has worked and duly completed his Project work for the degree of Bachelor in Commerce (Banking and Insurance) under the Faculty of Commerce in the subject of **Banking** and her project is entitled, “ _____ ”

Under my supervision.

I further certify that the entire work has been done by the learner under my guidance and that no part of it has been submitted previously for any Degree or Diploma of any University.

It is her own work and fact reported by her personal finding and investigations.

Guiding Teacher,

ASST. PROF. DR. KISHOR CHAUHAN.

Date of submission:

DECLARATION

I the undersigned **Ms. Ansuya Singh** here by, declare that the work embodied in this project work titled “**A STUDY ON DIGITAL MONEY OF UPI (UNIFIED PAYMENTS INTERFACE) PAYMENT**”, forms my own contribution to the research work carried out by me under the guidance of **ASST. PROF. DR. KISHOR CHAUHAN** is a result of my own research work and has been previously submitted to any other University for any other Degree/ Diploma to this or any other University.

Wherever reference has been made to previous works of others, it has been clearly indicated as such and included in the bibliography.

I, here by further declare that all information of this document has been obtained and presented in accordance with academic rules and ethical conduct.

Ansuya Brijmohan Singh

Certified by:

ASST. PROF. DR. KISHOR CHAUHAN.

ACKNOWLEDGEMENT

To list who all have helped me is difficult because they are so numerous and the depth is so enormous.

I would like to acknowledge the following as being idealistic channels and fresh dimensions in the completion of this project.

I take this opportunity to thank the **University of Mumbai** for giving me chance to do this project.

I would like to thank my **I/C Principal, Dr.B.R.Deshpande Sir** for providing the necessary facilities required for completion of this project.

I take this opportunity to thank our **Coordinator** for their moral support and guidance.

I would also like to express my sincere gratitude towards my project guide **Asst. Prof. DR. Kishor Chauhan** whose guidance and care made the project successful.

I would like to thank my **College Library**, for having provided various reference books and magazines related to my project.

Lastly, I would like to thank each and every person who directly or indirectly helped me in the completion of the project especially **my Parents and Peers** who supported me throughout my project.

INDEX

CHAPTER NO.	PARTICULARS	PAGE NO.
	EXECUTIVE SUMMERY	6
1	INTRODUCTION	7
1.1	OBJECTIVES	8
1.2	DEFINITIONS	14
1.3	SIX STEPS OF START USING UPI	15
1.4	DIGITAL PAYMENTS	16
1.5	FUTURE OF DIGITAL MONEY IN UPI	31
1.6	KEY FEATURE OF UPI	32
1.7	IMPROVEMENT IN UPI	35
1.8	LIMITATION	38
1.9	IMPACT OF UPI ON PAYMENT INDUSTRY	40
1.10	WHAT MAKES UPI SECURED PLATFORM	41
1.11	HISTORY OF GOOGLE PAY	46
1.12	BILL PAYMENT ON GOOGLE PAY	48
1.13	HOW DOES UPI WORK	50
1.14	HOW TO USE UPI TO TRANSFER MONEY	52
1.15	BENEFIT OF USING UPI	54
1.16	THINGS TO REMMEMBER ABOUT MAKING UPI PAYMENT	55
2	LITERATURE REVIEW	58
3	RESEARCH METHODOLOGY	60
4	OBJECTIVE OF STUDY	64
5	HYPOTHESIS OF STUDY	67
6	DATA ANALYSIS	69
7	FINDING	74
8	SUGGESTIONS	77
9	CONCLUSIONS	81
10	BIBLIGORAPHY	83

Executive summary

A digital payment, sometimes called an electronic payment, is the transfer of value from one payment account to another using a digital device such as a mobile phone, POS (Point of Sales) or computer, a digital channel communications such as mobile wireless data or SWIFT (Society for the Worldwide Interbank Financial .

Digital money and cashless transactions have become increasingly popular in recent years, with the rise of various digital payment methods like UPI payments. UPI (Unified Payments Interface) is an instant real-time payment system developed by the National Payments Corporation of India (NPCI), which enables users to transfer money between bank accounts using their mobile devices.

One of the biggest advantages of UPI payments is that they are highly convenient and easy to use. All you need to do is link your bank account to a UPI-enabled app, and you can transfer money to anyone instantly, 24/7, without any hassle or need to physically handle cash. Moreover, UPI payments are highly secure and reliable, with multiple layers of authentication and encryption to protect your transactions.

In addition to its convenience and security, UPI payments have also helped to promote financial inclusion by making it easier for people to access and use digital financial services. With the rise of UPI-enabled apps like Google Pay, PhonePe, and Paytm, even people who may not have had access to traditional banking services can now participate in the digital economy.

Overall, UPI payments have revolutionized the way people in India transfer money, making it faster, easier, and more secure than ever before. With the continued growth of digital payments and the increasing.

The main objective of UPI is facilitating seamless transfer of funds between two bank accounts. A Unified Payment Interface is a smartphone application that allows users to transfer money between bank accounts. It is a single-window mobile payment system developed by the National Payments Corporation of India (NPCI).

CHAPTER 1:-INTRODUCTION

Advancement in technology has modified the system of payments in the Asian nation. Additionally, (After 08 November 2016) cashless dealings have been extensively pushed by Prime Minister Mr. Narendra Modi as a part of government reforms. The number of digital transactions stood at regarding 11.8 billion for the primary six months of this year, consistent with calculations based on knowledge from the depository financial institution of Asian nation and also the National Payments Corporation of Asian nation. This market of digital payments is extremely settled by a sensible tool called sensible phones. The simple handiness of web affiliation, one-touch access, secures monetary dealings influence the adoption of 1-bit payment. So to optimize this profit of sensible phone and technology and to develop a platform for cashless and clear monetary transactions the Government of the Asian nation developed one important product, the "UPI" (Unified Payment Interface).

UPI may be a straightforward payment tool created by NPCI (National Payments Corporation of India) that's primarily based on the IMPS system. It facilitates a Virtual Payment Address (VPA: A VPA is an Associate in Nursing ID, that a user creates by linking their accounts to a bank's mobile application). Youngsters incorporate a special concern regarding technology. The government of the Republic of India has been taking many measures to push and encourage digital payments within the country. As a part of the "Digital India" campaign, the government aims to form a "digitally empowered" economy that's "Faceless, Paperless, and Cashless". Post ending, folks slowly started to grasp digital payments, and even tiny time merchants and search homeowners started accepting payments through the digital mode. United Payment Interface (UPI) transactions value increased by a whopping 105% between December 2019 and 2020, revealed transaction data from the National Payments Corporation of India (NPCI). Transaction value in rupees, through the UPI system, jumped from Rs2.02 lakh crore to Rs 4.16 lakh crore, as the platform found a higher user base since the COVID-19 pandemic.

India is the seventh largest economy of the world with GDP of USD \$ 2.3 trillion, for an economy of this size India is predominantly cash driven economy. Total currency in circulation in India as on March 2016 was Rs. 16,415 billion which constitutes about 12.04% of GDP compared to Brazil (3.93%), Mexico (5.32%) and China (8.8%). High dependence on cash brings its own set of problems of production, storage and cash management cost of currency

How to cite this paper: Gochhwal, R. (2017) Unified Payment Interface—An Advancement in Payment Systems. American Journal of Industrial and Business Management, 7, 1174-1191.
<https://doi.org/10.4236/ajibm.2017.710084>

Received: October 3, 2017 Accepted: October 23, 2017 Published: October 26, 2017

Copyright © 2017 by author and Scientific Research Publishing Inc.

1.1. Objectives

Fundamentals of Unified Payment Interface (UPI) NPCI developed Unified Payment Interface (UPI) as a common interface or a platform for all digital payment systems in India. NPCI is the owner, network operator, service provider, and coordinator of the UPI Network. The Unified Payment Interface enables architecture and a set of standard Application Programming Interface (API) specifications to facilitate digital payments using a mobile phone. UPI leverages high penetration of mobile phones and growing adoption of smartphones, data and internet to enable mobile based instant payment system in India. UPI allows users to send or request money instantly from their bank accounts using a mobile phone, making mobile phone a primary payment device for the masses. UPI uses IMPS as the switching mechanism to enable instant payments and settlement between different financial institutions. With UPI everyone with a bank account in India can create their Virtual Payment Address (VPA or UPI ID) and start transacting using a mobile phone. This Virtual Payment Address for e.g., abc@xyzbank becomes a person's unique payment identity and abstracts the need to share bank details while transacting. UPI considerably simplifies digital payments, instead of issuing cards to a large population which is costly and time consuming UPI enables mobile phone a primary device for authorizing and making payments. Also a mobile phone combined with a unique payment ID makes it a low cost payment acceptance device thus making digital payments universal, easy and low cost.

The primary goal of this case study is to look into the growth and prospects of the Unified Payment Interface (UPI). In this context, the following objectives are framed.

- (1) To understand the Unified Payment Interface (UPI) system's growth.
- (2) To assess UPI's position in the digital payment ecosystem.
- (3) To know the progression of UPI in retail digital payments.
- (4) To conduct a SWOT analysis of the UPI of NPCI.

Interoperability: The Unified Payment Interface (UPI) uses a virtual payment address and one-click payment making it a highly interoperable service. This means, the user will be able to send money to customer of any bank, which uses the UPI platform. With the availability of better interoperability, UPI offers users the freedom to use their money, the way they want to without having security concerns. It enables users to make payments using their mobile phone as the primary device including person-to-person, person-to-businesses, and businesses-to-person. The interface allows customers to make payments through a single identifier like Aadhaar number or virtual address.

Ease of doing transaction: It eradicates the complexity of third party payments. While using UPI, users will get rid of IFSC code and bank account number other details required today for making transfers. It has simplified to an extent where users need only a unique ID/Virtual ID for instant peer-to-peer payments.

Since its inception, UPI has been touted as a wallet killer for third party wallets like Paytm. UPI will not kill third party wallets; however, it will give an edge to banks over third party wallets. Banks will integrate UPI functionality in their apps and wallets enabling them to provide another channel for consumers to make P2P and P2M payments. Amongst all the payment channels, UPI will have the best user experience as customers do not need to enter bank details, giving bank wallets a clear differentiator over third party wallets. Moreover, a customer can have unique VPA's for different bank accounts and can link multiple VPAs to a single banking app or wallet application. For

enabling UPI, banks need to minimal changes in their apps or wallet, hence, they can launch the service very quickly.

Major challenge UPI can face, will be with its adoption since it is only available on Android, this will pose the limitation to other software users, so initially there can be a segment of people who will not use UPI. Other challenges will only be highlighted once people start using it and by the market reaction, it will only be clear how successful UPI is. Also, not all banks offering UPI are leveraging its complete offerings. Most of the banks are just offering VPA based transactions. However, they should also facilitate UPI transactions using mobile number and Aadhar number, which will further simplify transactions and enhance user experience.

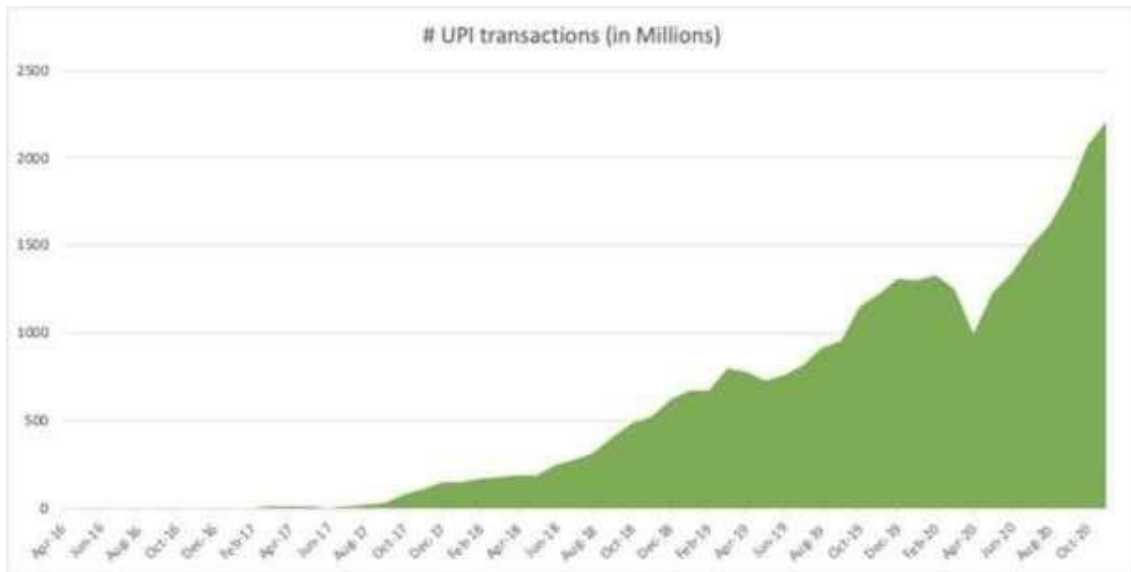
UPI is a win-win for both consumers and banks. It offers secure, frictionless transactions to all consumers and provides banks an edge over third party mobile wallet providers.

UPI stands for Unified Payments Interface and is a product of NPCI (National Payments Corporation of India). In simple words, UPI is an advanced version of IMPS and UPI ID/VPA can be considered as a unique email ID for the payments that are used by the banks to conduct the transaction using IMPS.

Launched in 2016, the United Payments Interface (UPI) is a great way for average consumers to facilitate daily payments. Data has shown that Indian consumers now prefer to pay using UPI over other payment methods. Even during and post the COVID-19 lockdown, UPI beat cards, and net banking by wide margins.

This is largely because UPI is seamless and easy to use. The UPI intent flow has high usage on Android devices, and with Razorpay bringing the UPI intent flow to iOS as well, the usage of UPI is only going to increase.

More than 50% of transactions on Razorpay are through the UPI payment method and it has become somewhat of a default payment mode for most of the people in India. UPI is perhaps the fastest product to hit 2 billion transactions-a-month in 2020 since its inception in August 2016.



Background

Reserve Bank of India is the regulatory body with Payments and Settlements Systems Act (2007) being the primary legislation governing payments systems in India. Making India “less cash” dependent and promoting digital payments has been a focus area for RBI since last decade. The five yearly RBI Vision Documents which sets the tone and vision for achieving key objectives in the payments ecosystem aptly sums up the priority for RBI to transform the payments landscape in India. “To proactively encourage electronic payment systems for ushering in a less-cash society in India and to ensure payment and settlement systems in the country are safe, efficient, interoperable, authorized, accessible, inclusive and compliant with international standards.” The period 2016-17 has been the pivotal period for payments landscape in India, the country witnessed profound changes in payments ecosystem with radical policy decisions, introduction of new age payment systems and rapid changes in user behavior. Demonetization was introduced during this period whereby 86% of the currency notes were rendered worthless overnight. During demonetization paper money became scarce and one could witness serpentine queues in banks and ATMs to withdraw meagre currency that was available. Business and trade almost came to a standstill and the GDP growth rate decreased in spite of rapid introduction of new currency notes and use of digital forms of payment.

The year preceding demonetization saw the emergence of mobile based digital wallets which witnessed rapid adoption by a large smartphone using population. Emergence of mobile based digital wallets was largely driven by new age private technology companies. During the same period with the clear mandate from Reserve Bank of India to drive next generation digital payments, National Payments Corporation of India (NPCI) set out to create a new payment system called Unified Payment Interface (UPI). Unified Payment Interface (UPI) was formally inaugurated by then RBI Governor on 11 April 2016 and launched for public use on 25 August 2016. Reserve Bank of India has been relentlessly working in the direction of enabling a digital payments ecosystem in the country. In this direction, RBI under its guidance and with support from Indian Banks Association (IBA) enabled the formation of National Payments Corporation of India (NPCI) as an umbrella organization for all retail payments system in India with all leading bank as stakeholders/shareholders. NPCI was formed with the mandate to consolidate and integrate the disparate systems with varying service levels into nation-wide uniform and standard business process for all digital payment systems.

The clear objective was to create a uniform and affordable payment system by leveraging technology and enable financial inclusiveness in the country. UPI was a culmination of a series of developments by NPCI over a period of 8 years since its inception in 2009. The first step taken by NPCI in this direction was the standardization, simplification and implementation of National Finance Switch (NFS) for all the banks of the country. NFS set the common standard and enabled digital interoperability between all banks in the country. NFS is now the backbone which powers the largest domestic ATM network in the country. The next revolutionary step for NPCI was to enable Immediate Payment System (IMPS) riding the interoperable layer of NFS. Prior to IMPS the modes for digital transactions in banks were Real time Gross Settlement System (RTGS) and National Electronics Funds Transfer System (NEFT). RTGS and NEFT are unsuitable for small ticket digital retail payments due inherent limitations of these systems like high transaction limits, delayed settlement in batches and fixed operating time hours.

Thus, NPCI introduced IMPS, a real time retail payment service with round the clock availability. IMPS is channel independent and can be accessed through mobile phone, internet, ATM and Unstructured Supplementary Service Data (USSD) on feature phones. IMPS provided a mobile based interoperable fund transfer service involving various stakeholders such as banks, merchants, and telecom service providers. IMPS works on immediate settlement where settlement takes place on at a granular transaction level with instant transaction confirmation to both the remitter and the beneficiary.

IMPS transactions were enabled through mobile phones and can be considered the precursor to Unified Payment Interface (UPI), since UPI transactions are settled through IMPS. In India, mobile phone numbers are connected with bank accounts. Leveraging this connectivity Mobile Money Identifier (MMID) was provided to mobile users holding a bank account. MMID enabled the abstraction of the need to know the bank account details of the recipient to make a payment. With IMPS users could make Push payments using Phone Number and MMID or Account Number and IFSC code of the recipient or request a payment using Phone number and MMID of the recipient. IMPS transactions grew in value from Rs. 4.3 billion in 2014 to Rs. 1622 billion in 2016. IMPS transactions were being mainly used to transfer money using internet banking but were not successful for retail small ticket transactions primarily for two reasons; The need to know the bank details or the MMID and Phone number of the recipient.

There was no common interoperable platform to connect both the payers and the payees.

Current Situation of UPI in Payment Industry

As of my last knowledge update in January 2022, I don't have real-time data on the current situation of the UPI payment industry. For the most accurate and up-to-date information, please check the latest reports, news articles, or official releases from relevant financial authorities in India.

However, as of my last update, the UPI payment industry in India was experiencing significant growth and adoption. UPI had become one of the most popular and widely used payment methods, with increasing transaction volumes and a growing number of users. Several factors contributed to its success, including ease of use, interoperability, government initiatives promoting digital payments, and the continuous development of innovative features by various UPI-based apps.

To get the latest information on the current situation of the UPI payment industry, you may want to check official publications from the National Payments Corporation of India (NPCI), which manages the UPI system, as well as recent reports from financial institutions, government sources, and reliable news outlets.

1.2 Definitions

In the past 20 years there has been an evolution of the digital payment which started to get slow attraction from users, researchers as it was bringing change in the modern e-commerce. As it was getting attraction the researcher's started to define it in various ways it focused on various fields namely business, IT, accounts & finance. According to Briggs and Brooks (2011) digital payment is a form of payment which is supported by banks and interconnected between individuals and banks for making monetary.

UPI, or Unified Payments Interface, is a real-time payment system developed by the National Payments Corporation of India (NPCI). It facilitates instant money transfers between two bank accounts through a mobile device with the help of a UPI ID (Virtual Payment Address), eliminating the need for traditional methods like entering bank details or card numbers.

Key features of UPI include its interoperability, allowing users to link multiple bank accounts to a single mobile application, and the ability to perform various transactions such as peer-to-peer transfers, bill payments, and merchant transactions. UPI has played a pivotal role in promoting digital transactions, financial inclusion, and reducing the dependence on cash in India. Users can access UPI through various mobile apps provided by banks and other financial institutions, making it a widely adopted and user-friendly payment system.

Peter and Babatunde(2012) saw digital payment as a mode of payment ,transaction or transfer of money with the help of internet. In the same context Adeoti and Osotimehin (2012) referred digital payment as an way of making payment online or in any particular place using the digital mean. Kaur and Pathak(2015) suggested that digital payments are payments which are done for e-commerce purpose where money is exchanged through digital mode. Going by the above definition we can conclude that digital payment is a mode of payment which involves various digital platforms or application to make transaction, using digital means.

1.3 Six Steps to start using UPI

UPI is now publicly available. Check if your bank has released an updated mobile app with UPI support already.

Download the UPI app of your bank from Google Play Store/Apple Apps Store and install it in your phone.

Set app login.

Create a Virtual Payment Address (VPA). Eg: Roychoudary@icici

Add your bank account. Set MPIN.

Start transacting using UPI.

1.4 Digital Payment

1. Plastic Cards- These are cards issued by banks to their account holder, by using it they can withdraw money from any ATM by using their password. These cards are used for depositing money in banks to so that there is less wastage of paper. There are two type of cards issued by banks i.e. debit and credit card. Debit cards are issued to all account holders whereas credit cards are issued to the once according to their interests.

2. UPI - Unified Payment Interface is a payment mode this is used to make fund transfers through the mobile app. One can transfer funds between two accounts using UPI apps. One should have a registered mobile banking facility to use UPI apps. Currently, this service is only available for android phone users. One can download a UPI app and create a VPA or UPI ID. There are too many good UPI apps available such as BHIM, SBI UPI app, HDFC UPI app, Mobile, PhonePe app etc. It is not mandatory to use the UPI app from a respective bank to enjoy UPI service. One can download and use any UPI app.

3. Mobile Wallet- It's the other way of storing or keeping digital cash and using it for various transactions. A person can download any mobile wallets namely Paytm, GPay, Phone pay, Sbi buddy, Jio money, etc. They just need to link there bank account or their plastics cards number to use the amount required and which is further used for making payments, paying bills etc.

4. Internet banking- There are various types of internet banking which are NEFT(National Electronic Fund Transfer), RTGS(Real Time Gross Settlement),ECS(Electronic Clearing System), IMPS(Immediate Payment Service).These are e-banking system which allows individual or organisations to make transfers using the website of their banks.

5. Mobile banking- It is provided by all banks to their customers where the customers need to download the application of the bank and they cause it for making transactions. For using such application on should have a smartphone. There are many more types of digital payment available in our country and across the globe we have talked about a few which are known to people.

1.5 Futures Of Digital Money In UPI

PhonePe

Paytm

BHIM app

MobiKwi

k Google

Tez Uber

Chillr

Paytm Payments Bank

SBI Pay

iMobile

Axis Pay

❖ **PhonePe**

This is one of the most popular payment apps that allows users to transact using the UPI interface. This is considered to be one among the most preferred apps for UPI. The app was founded in 2015 and is powered by Yes Bank.

PhonePe is a popular mobile payment application in India that offers a range of financial services and features. As of my last knowledge update in January 2022, here are some notable features of PhonePe:

Unified Payments Interface (UPI): PhonePe allows users to make instant and secure transactions using the UPI platform.

Wallet Services: Users can load money into the PhonePe wallet, facilitating quick and easy transactions.

Bill Payments: PhonePe enables users to pay utility bills, mobile recharges, and other bills directly through the app.

Mobile Recharge: Users can recharge their mobile phones, DTH, and data cards using PhonePe.

In-app Shopping: PhonePe offers a platform for users to shop for various products and services directly within the app.

Mutual Funds Investment: PhonePe provides a platform for users to invest in mutual funds, making it convenient for those interested in wealth management.

Gold Purchase: Users can buy and sell digital gold through the PhonePe app.

Insurance: PhonePe offers the ability to purchase insurance products such as health insurance directly within the app.

Split Bills: Users can split bills with friends and family easily using PhonePe.

UPI Mandates: PhonePe allows users to set up UPI mandates for recurring payments, making it convenient for regular bills.

Recurring Payments: Users can set up automatic payments for regular bills and subscriptions.

QR Code Payments: PhonePe supports QR code payments for both merchants and peer-to-peer transactions.

Offers and Cashbacks: PhonePe often provides various discounts, cashback offers, and promotions to incentivize users to make transactions through the app.

Multi-Language Support: The app is available in multiple languages, catering to a diverse user base.

Transaction History: Users can view their transaction history, helping them keep track of their financial activities.

❖ **Paytm**

This mobile wallet app company has also collaborated with the UPI platform to provide customers the facility to transact and transfer funds in an easier manner. Customers can add money into their Paytm wallets with the UPI ID. Along with other payments options such as debit/credit card, net banking, etc., UPI is also one among them. Customers can also initiate collect money requests through Paytm with UPI. After the remitter accepts the payment request, the money is added to the Paytm wallet.

As of my last knowledge update in January 2022, Paytm is a prominent digital payment platform in India that offers a range of financial services. Here are some notable features of Paytm:

Mobile Recharge and Bill Payments: Users can recharge their mobile phones, pay utility bills, and make payments for various services.

Digital Wallet: Paytm provides a digital wallet that allows users to store money securely and make quick transactions.

UPI Payments: Users can make instant payments using the Unified Payments Interface (UPI) feature on the Paytm app.

QR Code Payments: Paytm supports QR code payments, enabling users to make transactions by scanning QR codes at merchants or other Paytm users.

Online Shopping: Paytm offers an e-commerce platform where users can shop for a wide range of products and services.

Movie and Event Tickets: Users can book movie tickets and tickets for various events through the Paytm app.

Travel Booking: Paytm allows users to book flights, trains, buses, and hotels through its platform.

Insurance Services: Paytm offers various insurance products, including health insurance and vehicle insurance.

Investment Platform: Users can invest in mutual funds, gold, and other financial products through the Paytm Money platform.

Digital Gold: Paytm enables users to buy and sell digital gold, providing an investment option.

Loan Services: Paytm provides personal loan options for users through its app.

Paytm Postpaid: Users can avail of a "Paytm Postpaid" service, allowing them to make transactions and payments and settle the dues at a later date.

Offers and Cashbacks: Paytm often runs promotional offers, discounts, and cashback schemes to incentivize users to use the platform.

Paytm for Business: Paytm offers business solutions, including QR codes and payment processing services, for merchants and businesses.

Metro Card Recharge: Users in certain cities can recharge their metro cards using the Paytm app.

❖ **BHIM App**

The BHIM (Bharat Interface for Money) app has been developed by the National Payments Corporation of India (NPCI). This app is known for its simplicity. It also offers a very secure interface. The payment interface comes with all the essential features and is known for its good user experience. Funds transfers can be initiated either through VPA, QR code or bank account number and IFSC Code.

BHIM (Bharat Interface for Money) is a mobile app developed by the National Payments Corporation of India (NPCI) to facilitate digital payments through the Unified Payments Interface (UPI). Here are some notable features of the BHIM app:

Simplified Transactions: BHIM allows users to make secure and straightforward digital transactions using the UPI platform.

Multiple Bank Accounts: Users can link multiple bank accounts to the BHIM app, providing flexibility and convenience.

QR Code Payments: BHIM supports QR code payments, enabling users to make transactions by scanning QR codes at merchants or other BHIM users.

Mobile Number as Payment Address: Users can register with BHIM using their mobile number as their payment address, eliminating the need for multiple bank details.

Request Money: Users can send payment requests to others, simplifying the process of splitting bills or requesting funds.

Check Balance: BHIM allows users to check their bank account balance directly within the app.

Custom Payment Address: Users can create a custom payment address (UPI ID) for easy identification.

Transaction History: BHIM provides a transaction history feature, allowing users to track their financial activities.

Secure UPI PIN: BHIM requires users to set up a secure UPI PIN to authorize transactions, adding an extra layer of security.

Supported Languages: BHIM is available in multiple languages, making it accessible to users across India.

Offline Transactions: BHIM supports offline transactions, allowing users to make payments even when internet connectivity is limited.

Balance Inquiry: Users can inquire about their account balance through the BHIM app.

Cashback Offers: BHIM often runs promotional cashback offers and incentives to encourage users to make transactions through the app.

Immediate Bank Settlement: BHIM transactions are settled immediately, providing real-time fund transfers.

Two-Factor Authentication: BHIM employs two-factor authentication to enhance the security of transactions

❖ **MobiKwik**

This Indian payments network also joined the UPI interface. All Mobikwik customers can use UPI to add money into their wallet. They already provided various services such as fund transfer using debit/credit card, net banking, cash pickup and cash deposit.

The e- wallet service provider also has tied-up with various e-commerce merchants.

MobiKwik is a digital wallet and payment platform in India that offers a variety of financial services. As of my last knowledge update in January 2022, here are some notable features of MobiKwik:

Mobile Recharge and Bill Payments: MobiKwik allows users to recharge their mobile phones, pay utility bills, and make payments for various services.

Digital Wallet: Users can store money securely in the MobiKwik wallet and use it for quick transactions.

UPI Payments: MobiKwik supports payments through the Unified Payments Interface (UPI), enabling instant fund transfers.

Debit/Credit Card Payments: Users can link their debit/credit cards to MobiKwik for seamless transactions.

QR Code Payments: MobiKwik facilitates payments through QR codes, allowing users to scan and pay at merchants or other MobiKwik users.

Online Shopping: MobiKwik provides an e-commerce platform where users can shop for a wide range of products and services.

Bus and Train Ticket Booking: Users can book bus and train tickets directly through the MobiKwik app.

Insurance Services: MobiKwik offers various insurance products, including health insurance and term insurance.

Investment Options: MobiKwik provides options for users to invest in mutual funds and digital gold.

Loan Services: MobiKwik offers personal loan options for users through its platform.

Gold Purchase: Users can buy and sell digital gold through MobiKwik.

Bill Splitting: MobiKwik allows users to split bills with friends and family easily.

Cashback Offers: MobiKwik often runs promotional offers, discounts, and cashback schemes to incentivize users.

Prepaid Cards: MobiKwik offers virtual prepaid cards that can be used for online transactions.

International Recharge: Users can recharge mobiles internationally using MobiKwik.

❖ Google pay

Launched by technology giant Google, the Tez app is one of the other apps that will provide customers the facility of using UPI. What makes this app different is that it is available in many Indian languages such as Telugu, Tamil, Marathi, Kannada, Gujarati, Bengali, and Hindi.

As of my last knowledge update in January 2022, Google Pay is a widely used digital payment platform offering various features and services. Keep in mind that features may evolve over time, and it's advisable to check the latest information on the official Google Pay website or within the app for the most up-to-date details. Here are some notable features that were present in Google Pay:

Unified Payments Interface (UPI): Google Pay enables users to make instant and secure payments through the UPI system.

Digital Wallet: Users can store money in the Google Pay digital wallet for quick and easy transactions.

Send Money: Users can send money to friends, family, or anyone with a UPI ID or a linked bank account.

Request Money: Google Pay allows users to request money from others, making it convenient for splitting bills or requesting payments.

QR Code Payments: Users can make payments by scanning QR codes at merchants or other Google Pay users.

Bill Payments: Google Pay supports the payment of utility bills, mobile recharges, and other services directly through the app.

Online and In-Store Payments: Users can make payments both online and at physical stores using Google Pay.

Cashback and Rewards: Google Pay often runs cashback offers and rewards programs for users who make transactions through the platform.

International Payments: Google Pay facilitates international payments and money transfers.

Integration with Gmail: Users can send and receive money directly within Gmail using Google Pay.

Integration with Google Services: Google Pay is integrated with various Google services, allowing users to pay for Google Play purchases, YouTube subscriptions, and more.

Tap to Pay (NFC): Google Pay supports contactless payments through Near Field Communication (NFC) technology.

P2P Loans: In some regions, Google Pay allows users to apply for and receive small loans directly within the app.

Financial Insights: Google Pay provides insights into spending habits, helping users track and manage their finances.

Gift Cards and Offers: Users can purchase and send gift cards through the app, and Google Pay often features special offers and promotions.

❖ **Uber**

Now, Uber has included UPI as one of the modes of payment. You can pay for your Uber rides with this interface. Uber has launched UPI-based payments system on its app in India. UPI stands for Unified Payments Interface, and allows users to make payments directly from the bank account, rather than relying on cash, digital wallet or their debit card information.

Uber typically does not directly operate under the Unified Payments Interface (UPI). UPI is a real-time payment system in India that enables users to link multiple bank accounts to a single mobile application and make instant money transfers. Uber primarily relies on digital wallets, credit/debit card payments, and other payment methods integrated into its app for transactions.

However, Uber does accept payments through various methods, and in India, it has integrated with UPI-based apps for transactions. For instance, users can link their UPI accounts to Uber for seamless payments. The specific payment methods available in the Uber app may vary by country, and the company frequently updates its payment options to cater to local preferences and regulations.

It's essential to check the latest payment options available in the Uber app, especially considering that the integration of various payment methods may change over time. If Uber has expanded its UPI integration or introduced new payment options, this information would likely be available on the official Uber website or within the app.

❖ Chillr

This payments app has made available UPI as one of its payment methods. This app had been providing fund transfer facility through IMPS before it joined the UPI bandwagon.

Chillr, before discontinuing its services, was a UPI-based mobile payment app in India. The app aimed to simplify peer-to-peer and online transactions. Here are some features that were associated with Chillr :

UPI Payments:

Chillr facilitated UPI payments, allowing users to send and receive money directly from their bank accounts.

Contact-Based Transactions:

Users could make payments to contacts in their phone book without the need for additional details like bank account numbers or IFSC codes.

Bill Splitting:

Chillr offered a bill splitting feature, allowing users to divide expenses among friends and family.

Mobile Recharges:

Users could recharge their mobile phones and pay utility bills directly through the Chillr app.

Multi-Bank Support:

Chillr supported multiple banks, allowing users to link accounts from various participating banks.

Transaction History:

Users could view a detailed history of their transactions within the app.

Security Features:

Chillr implemented security features, including authentication mechanisms like UPI PINs, to ensure secure transactions.

Integration with Multiple Banks:

Chillr collaborated with various banks, enabling users to link their accounts from different financial institutions.

Notifications:

The app provided real-time notifications for successful transactions and other relevant updates.

Offers and Promotions:

Chillr occasionally offered cashback and promotional deals to incentivize users to make transactions through the platform.

Language Support:

The app may have supported multiple languages to cater to a diverse user base

❖ **Paytm Payments Bank**

Paytm Payments Bank will now include the Unified Payments Interface (UPI) system as one of its features. The facility will soon be launched for all account holders after testing and fixing bugs. The feature is likely to be made available in the next few weeks. Paytm Payments Bank UPI will allow customers to transfer funds with a UPI ID to all merchants or account holders without any hassle, at the click of a button. The interest rate offered by the payments bank is around 4%.

Paytm Payments Bank is a digital financial service provider in India that offers a range of features and services. Keep in mind that features may evolve over time, and it's advisable to check the latest information on the official Paytm Payments Bank website or within the app for the most up-to-date details. Here are some notable features associated with Paytm Payments Bank:

Digital Savings Account:

Paytm Payments Bank provides users with a digital savings account, allowing them to manage their finances through the app.

Zero Balance Account:

Users can maintain a savings account with zero minimum balance requirements.

Interest on Savings:

Paytm Payments Bank offers interest on the money deposited in the savings account.

Debit Card:

Account holders receive a physical or virtual debit card for transactions and ATM withdrawals.

UPI Transactions:

Users can make instant and secure payments through the Unified Payments Interface (UPI).

Mobile Recharges and Bill Payments:

Paytm Payments Bank facilitates mobile recharges, bill payments, and other utility payments directly through the app.

Insurance Products:

Paytm Payments Bank may offer various insurance products, including health insurance and life insurance.

Fixed Deposits:

Users may have the option to invest in fixed deposits through Paytm Payments Bank.

Fast and Secure Transactions:

The bank emphasizes fast and secure digital transactions for various financial activities.

Debit Card Services:

Users can manage and track their debit card transactions through the app.

Cashback Offers:

Paytm Payments Bank often provides cashback offers and promotions for various transactions made through the platform.

24/7 Customer Support:

The bank offers customer support services around the clock to address user queries and concerns.

Virtual Debit Card:

Users may have the option to generate and use a virtual debit card for online transactions.

Auto Sweep Facility:

Paytm Payments Bank may offer an auto sweep facility, allowing users to convert excess funds into fixed deposits to earn higher interest.

Personalized Financial Insights:

Users may receive personalized financial insights and recommendations based on their transaction history and account activity.

❖ SBI Pay

This is a State Bank of India (SBI) app that is specially built for UPI requirements. The main advantage of this app is that even those who do not hold an account in SBI can use the app to send and receive money using a VPA. The app is very simple to use and one can easily register for the service after downloading the app.

State Bank of India (SBI) Pay is a mobile banking application offered by the State Bank of India, India's largest public sector bank. Here are some features associated with SBI Pay:

UPI Payments:

SBI Pay facilitates UPI-based payments, allowing users to send and receive money using the Unified Payments Interface.

Scan and Pay:

Users can make payments by scanning QR codes at merchants or other individuals, simplifying transactions.

Bill Payments:

SBI Pay allows users to pay utility bills, mobile recharges, and other bills directly through the app.

Mobile Recharge:

Users can recharge their mobile phones and DTH services using the SBI Pay app.

Multiple Bank Account Linking:

Users can link multiple bank accounts to the SBI Pay app, providing flexibility in managing different accounts.

Balance Inquiry:

SBI Pay provides a feature for users to check their bank account balances directly within the app.

Transaction History:

Users can view a detailed history of their transactions, helping them keep track of their financial activities.

Secure Transactions:

SBI Pay incorporates security features such as UPI PINs and other authentication mechanisms to ensure secure transactions.

Merchant Payments:

Users can make payments at various merchants, both online and at physical stores, using the SBI Pay app.

Offers and Discounts:

SBI Pay may provide users with promotional offers, cashback, and discounts to incentivize the use of the app.

24/7 Availability:

SBI Pay operates 24/7, allowing users to make transactions at any time, including weekends and holidays.

Language Support:

The app may offer support for multiple languages to cater to a diverse user base.

Transfer to Non-UPI Beneficiaries:

Users can transfer funds to non-UPI beneficiaries by providing their bank details within the app.

Quick Fund Transfer:

SBI Pay allows users to make quick fund transfers to contacts or beneficiaries without entering bank details each time.

Integration with SBI Services:

SBI Pay may offer integration with various banking services provided by the State Bank of India, enhancing the overall user experience.

❖ iMobile

The UPI interface can be used through the iMobile and Pockets app offered by ICICI Bank. The app can be downloaded from Google Play store. To send money through this app, you have to go to the 'Funds Transfer' option and click on the UPI method.

iMobile is a mobile banking application offered by ICICI Bank, one of the leading private sector banks in India. iMobile provides a range of financial services and features to its users, making banking and financial transactions convenient through mobile devices. Here are some key features associated with iMobile:

Account Management:

Users can view their account balances, check transaction history, and manage multiple accounts through the app.

Fund Transfers:

iMobile facilitates various fund transfer options, including Immediate Payment Service (IMPS), National Electronic Funds Transfer (NEFT), and Real-Time Gross Settlement (RTGS).

UPI Payments:

Users can make instant payments and transfers using the Unified Payments Interface (UPI) within the iMobile app.

Bill Payments:

iMobile supports the payment of utility bills, credit card bills, and other bills directly through the app.

Mobile Recharges:

Users can recharge their mobile phones, DTH services, and data cards using iMobile.

Cardless Cash Withdrawal:

iMobile may offer cardless cash withdrawal services, allowing users to withdraw money from ATMs without using a physical card.

Fixed and Recurring Deposits:

Users can open and manage fixed deposits (FD) and recurring deposits (RD) through the iMobile app.

Loan Services:

iMobile provides information about loan products and services offered by ICICI Bank, and users may be able to apply for loans through the app.

Investment Services:

iMobile may offer investment-related features, including the ability to buy and sell mutual funds, equities, and other financial instruments.

Insurance Services:

Users may have access to information about insurance products and may be able to purchase insurance policies through iMobile.

Debit and Credit Card Management:

iMobile allows users to manage their debit and credit cards, including blocking and unblocking cards, setting spending limits, and more.

e-Lockers:

Some versions of iMobile may offer a virtual locker service where users can store and manage important documents securely.

❖ Axis Pay

Axis Bank is one of the other banks that has launched a UPI enabled platform for its customers. This comes with a very user-friendly interface and various other features.

Axis Pay is a UPI (Unified Payments Interface) based mobile banking application offered by Axis Bank, one of the major private sector banks in India. The Axis Pay app allows users to make instant, secure, and convenient digital transactions using their smartphones. Here are some of the main features associated with Axis Pay:

UPI Payments:

Axis Pay facilitates UPI-based transactions, enabling users to send and receive money in real-time through their linked bank accounts.

Send Money:

Users can easily send money to contacts in their phone book using UPI IDs or mobile numbers.

Request Money:

Axis Pay allows users to send payment requests to friends, family, or others, simplifying the process of splitting bills or requesting funds.

QR Code Payments:

The app supports QR code payments, allowing users to scan QR codes at merchants or other Axis Pay users to initiate transactions.

Bill Payments:

Axis Pay enables users to pay utility bills, mobile recharges, and other bills directly through the app.

Multiple Bank Account Linking:

Users can link multiple bank accounts from different banks to the Axis Pay app, providing flexibility in managing their accounts.

Transaction History:

Axis Pay provides a detailed transaction history, allowing users to track their digital transactions and monitor their spending.

Personalized Virtual Payment Address (VPA):

Users can create a personalized Virtual Payment Address (VPA) for easier identification and sharing during transactions.

Secure Transactions:

Axis Pay implements security features such as UPI PINs and other authentication mechanisms to ensure secure digital transactions.

Integration with Axis Bank Services:

The app may offer integration with various banking services provided by Axis Bank, allowing users to access additional features and services.

Offers and Cashbacks:

Axis Pay may provide users with cashback offers, discounts, and promotional deals to incentivize the use of the app.

24/7 Availability:

Axis Pay operates 24/7, allowing users to make transactions at any time, including weekends and holidays.

1.6 Key Features of UPI

1) UPI enables personal mobile to be used as a primary device for all payments including person to person, person to entity, and entity to person. Using UPI, users can seamlessly make or request payments with ease and security to/from friends, merchants or pay their bills etc. without the need to share banking credentials. User can consolidate multiple banking relationships using a single UPI App which makes for good user experience for users.

2) The payments can be initiated both by sender (payer) and receiver (payee). This enables a personal mobile to be used to “pay” someone (push) as well as “collect” from someone (pull).

3) UPI allows users to create their unique Virtual Payment Address thus enabling users to make payments only by providing a payment address without the need to provide sensitive details like bank account numbers or credentials on third party applications or websites. The payments can be done using multiple identifiers like Virtual Payment Address, Aadhaar Number or Account Number & Indian Financial System code (IFSC).

4) UPI provides a standard set of APIs to enable transactions on UPI platform, thus enabling a fully interoperable system across all banks, financial institutions and payment systems without having silos and closed systems. These minimalistic and fully functional APIs allows innovations by payment service providers to build

customized payment solutions for businesses and functionality rich mobile apps for consumers without having to change the core API structure.

5) UPI uses One-click 2-factor authentication for safe and secure payments using a personal mobile phone without the need for any separate acquiring devices or physical tokens.

1.7 Improvements in UPI

Over Existing Payment Systems

1) Pull Based Mobile transactions: Current digital payment systems including cards and online payments are push based transactions i.e. transactions are initiated by the customer. There is no mechanism for the merchant to initiate a payment request (pull) which the customer can approve and pay. UPI enables both real time push and pull transactions using a mobile phone.

2) Interoperable User Interfaces: UPI allows payments across interfaces i.e. payment can be requested on one interface and transaction can be authorised on a different interface. For

e.g. Merchant can request a payment from a website which user can authenticate and pay using a mobile phone.

3) Abstraction of Bank Details: There is no need to share any sensitive bank details like account number etc. to make a transaction. Users can create their unique virtual payment address which serves as their unique identity to make or receive payments. This makes for secure payments since user is not required to share any sensitive data on third party interfaces.

As per last knowledge **update in January 2022**, I don't have real-time information on the latest improvements in UPI (Unified Payments Interface). However, as of that time, UPI in India had been continuously evolving with various updates and enhancements. Here are some trends and potential areas of improvement that were observed in the UPI space:

- **Increase in Transaction Limits:**

The National Payments Corporation of India (NPCI), which operates UPI, had periodically increased transaction limits to accommodate larger transactions, promoting its use for various financial activities.

- **Enhanced Security Measures:**

Efforts were being made to enhance the security of UPI transactions, including the introduction of multi-factor authentication and additional security features to safeguard users against fraud.

- **Internationalization of UPI:**

There were discussions and initiatives to make UPI more globally accessible, potentially allowing users to make UPI transactions internationally.

- **Merchant Payments and QR Codes:**

Improvements in the integration of UPI for merchant payments, including the use of dynamic QR codes, were underway to streamline the payment process and enhance user experience.

- **Introduction of UPI 2.0:**

UPI 2.0, the upgraded version of UPI, was introduced with additional features such as overdraft facility, one-time mandate, invoice in the inbox, and signed intent and QR.

- **Wider Acceptance Across Platforms:**

UPI payments were becoming increasingly accepted across various platforms, including e-commerce websites, mobile applications, and in-store transactions, contributing to its growing popularity.

- **Innovation in UPI-Based Apps:**

Banks and third-party apps offering UPI services were continually innovating to provide users with additional features, services, and a more seamless experience.

- **Government Initiatives:**

The Indian government continued to promote digital payments, and UPI played a central role in initiatives like Digital India and efforts to reduce cash transactions.

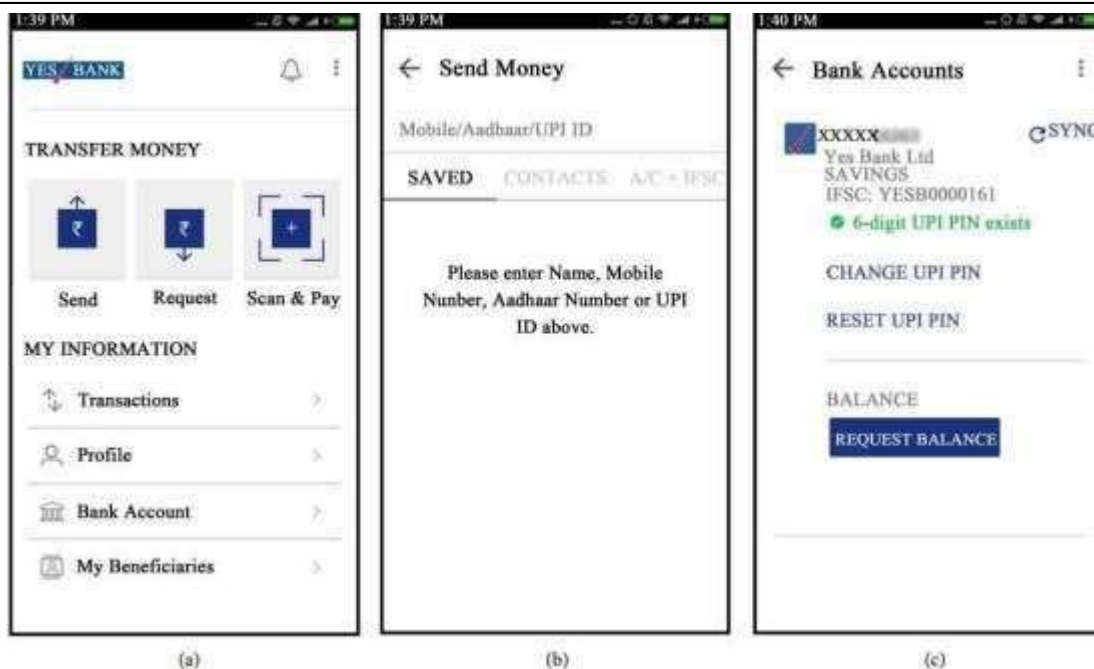


Figure 1. (a)-(c): UPI payment Interface of PSP UPI App.

4) Safety with One Click-2 Factor Authentication: UPI enables transactions with single click—in which the customer just needs to enter MPIN on the mobile phone to make a transaction. This is unlike the existing payment systems where you have to enter card details, usernames, passwords, OTPs etc. on third party devices or websites to make a transaction. In UPI the user’s personal mobile phone acts as a single device to authorize and authenticate the payment.

5) Mobile first approach: UPI is designed to embrace the smartphone using population in India to enable low cost and universal digital payments. With UPI there is no need to create the consumer side hardware infrastructure (cards etc.) to enable digital payments. In India, almost every adult has a bank account and a mobile phone. UPI uses this ubiquitous relationship to enable universal digital payments in India.

6) Other mobile payment systems like e-wallets work in their own silos i.e. the payer and payee need to be on the same platform to transact. In UPI, only the payment address of the beneficiary is required and amount is credited into the bank account. Also, to transact in e-wallets, users need to pre-load the money into the wallet accounts which means their money remains stuck in the wallet account till it is again redeemed back into the bank accounts. While in UPI there is no need to preload any wallet, money is directly debited from the bank account of the payer and credited into the bank account of the payee.

1.8 Limitations

Impact of UPI on Businesses Apart from being the most cost effective, fast and seamless payment method UPI enables digital payments for an entire spectrum of businesses both for brick and mortar and online merchants. For physical businesses, each employee can be enabled to collect digital payments since there is no need of any POS machine, each employee can be provided a unique UPI ID and QR Code which the employees can present to the customer to collect payments. Apart from proximate payments where the customer is physically present at the billing counters, UPI opens unique opportunities for businesses to collect payments where customers are not physically present for example. Insurance premium collection, school fee and electricity bill payments etc. where payment request can be sent to the customer and customer can pay remotely using mobile phones. Another important use case for businesses can be to enable payment at the time of delivery. In India there is a large prevalence of cash on delivery, almost 60% of ecommerce sales happen with cash payment being made at the time of delivery. Such payment at time of delivery can be converted into digital payment at the time of delivery using UPI whereby a customer can easily pay through UPI at the time of delivery. 10.

The Way Forward—UPI 2.0 UPI has witnessed rapid growth that can be attributed to the expanding ecosystem promoted by banks and other payment service players and increasing adoption by the users. Security, ease of use and development of business solutions are paramount to make UPI as a payment system of choice both for users and businesses.

In this direction NPCI is coming out with an upgraded version of UPI called UPI 2.0 with enhancements in security, ease of use for customers and which open new use cases for businesses and expand the UPI ecosystem.

The salient features of UPI 2.0 are expected to include:

Transaction authentication using Biometrics: Currently users can authenticate their payments using 4 - 6 digits MPIN. This MPIN can be self-generated by the user on the PSP UPI App with the ability to change the MPIN as and when required. This MPIN is captured by secure NPCI libraries and authenticated by the Issuer Bank. However, this use of MPIN

has its own limitations with users forgetting the MPIN and entering wrong MPINs leading to failed transactions. Another perceived risk is fear of fraudulent transactions in case of loss or theft of mobile phone. To overcome these issues UPI 2.0 will include transaction authentication using biometrics of user like fingerprint or iris prints. User will have the option to authenticate the transactions using his/her biometrics.

While UPI (Unified Payments Interface) has become a widely adopted and efficient payment system in India, it does have some limitations. As of my last knowledge update in January 2022, here are some common limitations associated with UPI:

- Network Dependency:

UPI transactions require a stable internet connection. In areas with poor connectivity or during network outages, users may face challenges in making transactions.

- Smartphone Requirement:

UPI relies on smartphones and dedicated apps, limiting its accessibility for individuals who do not own smartphones or are not comfortable using them.

- Security Concerns:

While UPI incorporates security measures, including UPI PINs and two-factor authentication, users should remain vigilant against phishing attacks, unauthorized access, or fraudulent activities.

- Transaction Limits:

UPI transactions are subject to daily and per-transaction limits, and these limits might vary between banks. This could be a limitation for users looking to make high-value transactions.

- Interoperability Challenges:

While UPI is designed to be interoperable, there might be instances where transactions between different banks or UPI service providers face challenges, affecting the seamless transfer of funds.

- Dependency on Mobile Numbers:

UPI transactions are often linked to mobile numbers. In case of a change in the mobile number or SIM card, users may face challenges in accessing their UPI accounts.

- Limited International Use:

As of my last update, UPI is primarily designed for domestic transactions within India. International transactions are limited, and users may need alternative methods for cross-border payments.

- Risk of Frauds:

Users need to be cautious about sharing their UPI PINs, and there is a risk of fraud if individuals fall victim to phishing attacks or disclose sensitive information.

- Limited Merchant Adoption in Some Areas:

While UPI is widely accepted, in some areas or among certain merchants, there may still be a preference for cash transactions, limiting the utility of UPI.

- Dependency on Banks and Service Providers:

UPI transactions depend on the infrastructure and reliability of banks and UPI service providers. Any disruptions or technical issues on their end can impact the user experience.

1.9 Impact of UPI on Payments Industry

UPI has witness rapid growth since its launch in August, 2016 in terms of number of users, volume and value of transactions. Currently 55 banks are live on UPI platform with more than 60 PSP UPI apps available on app discovery platforms [18]. Within 12 months of launch of UPI, more than 20 million users have downloaded various UPI PSP apps. Total value of transactions on UPI has grown 82% month on month since its launch with total transacted amount of Rs. 227 billion till August 2017 [19] (Figure 3). The monthly value of transactions on UPI has already overtaken monthly transactions of all e-wallets put together in India. The value of transactions on UPI is currently is less as compared to value of credit and debit cards transactions which constitute about Rs. 2700 billion per month but UPI is growing at a much faster rate.

Currently person-to-person money transfers constitute majority of UPI transactions while person-to-merchant transactions are currently very less. This is due to lack of merchant acceptance infrastructure at merchant payment points to accept UPI payments. UPI usage for merchant payments is expected to increase with more businesses enabling UPI payments for their customers. Current POS machines accepting payments through debit and credit cards need to be reconfigured and updated to accept UPI payments. The updated POS machines should be able to display the UPI QR code of the merchant to enable the

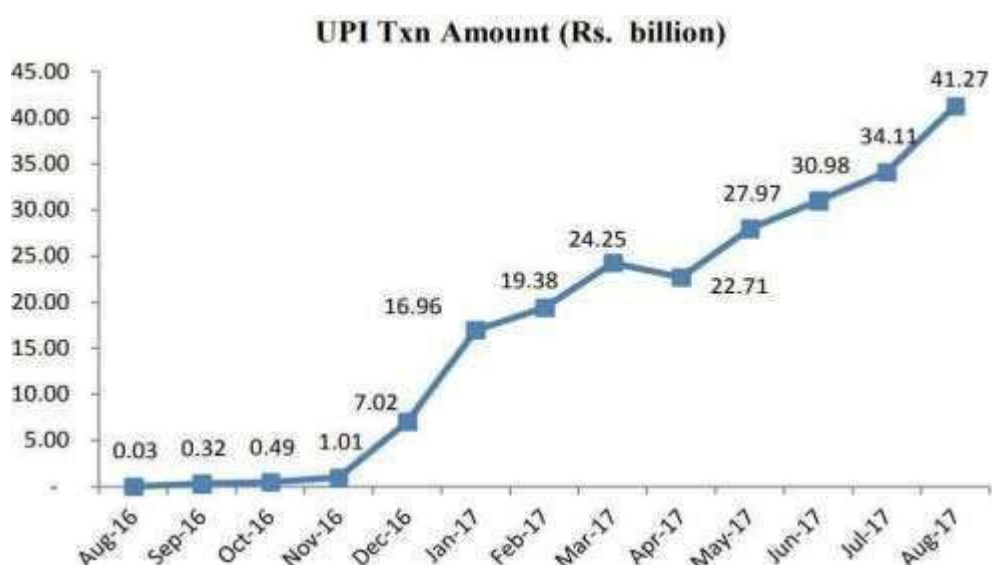


Figure 3. UPI transaction growth.

customer to scan the QR code and make payment using UPI PSP Apps. Also, POS machines should be able to get the confirmation status of UPI transactions. As a payment mode, UPI has the potential to make debit cards redundant since with UPI there will be no need to carry your debit card as your mobile phone will work as your debit card. However, UPI in the current form does not support credit cards hence UPI as a product does not compete with the credit cards. For online payments UPI clearly offers better user experience vis-à-vis debit cards or net banking payments.

Impact on Payments in Physical World: Payments in the physical world include cash and debit or credit card transactions. UPI has the potential to transform payments in the offline world as it offers a cost-effective alternative to both cash and cards transactions. With UPI merchants do not require expensive POS machines to collect digital payments through cards, a merchant will be able to display a unique UPI QR Code which the customer can scan with mobile phone and make the payment with the amount being credited instantly into merchant's bank account. Merchant can receive payment confirmation over their mobile phones. Most cash transactions at merchant point happen due to lack of digital acceptance mechanisms with merchants. The customers can also directly pay the merchant at merchant's UPI ID and merchant will receive payment confirmation on the mobile phone.

Impact on Online Payments: Currently majority of online transactions are enabled by payment gateways with Debit/Credit Cards and Netbanking being the primary modes of payments. Users are required to input all the sensitive details including Card Numbers, Card Verification Value, Netbanking usernames and passwords etc. This makes digital payments vulnerable to data leaks and frauds. Also, there are a number of network hops between card networks, issuer and acquiring bank to enable a transaction which leads to high failure rates of transactions. With UPI customers need not provide any information, a customer can simply scan a QR code displayed on the website using a mobile phone and payment can be completed in seconds with a few network hops. This can not only avoid data leaks of any sensitive data but also increases transaction success rates.

1.10 What Makes UPI Secured Platform

Unified Payment Interface (UPI) is an initiative by National Payments Corporation of India (NPCI), set up with the support of the Reserve Bank of India with a vision of migrating towards a "less-cash" and more digital society.

The Unified Payments Interface (UPI) is considered a secure platform for digital transactions due to several features and security measures implemented by the National Payments Corporation of India (NPCI) and participating banks. Here are key aspects that contribute to the security of UPI:

Two-Factor Authentication (2FA):

UPI transactions typically require two-factor authentication. Users need to enter their UPI PIN, which is known only to them, in addition to their mobile number or UPI ID to authorize a transaction.

UPI PIN:

The UPI PIN is a crucial element for authorizing transactions. It acts as a secure code that users set during the registration process, adding an extra layer of security to each transaction.

Device Binding:

UPI transactions are often linked to a specific device. Users need access to the registered device and must authenticate transactions through the designated UPI app.

Secure Channels:

UPI transactions are conducted over secure channels using encryption protocols. This helps protect the confidentiality and integrity of user data during transmission.

Tokenization:

Tokenization involves replacing sensitive data (such as card numbers or account details) with a unique identifier (token). This helps reduce the risk of unauthorized access to sensitive information.

Transaction Limits:

UPI transactions are subject to predefined limits, both in terms of the maximum amount per transaction and daily transaction limits. This helps mitigate the potential impact of unauthorized transactions.

Risk-Based Authentication:

UPI incorporates risk-based authentication, which means that additional authentication measures may be triggered for higher-risk transactions or under certain circumstances, enhancing security.

Secure Mobile App Environment:

UPI apps are designed to operate within secure mobile app environments. Security features within the app help protect user credentials and transaction data from unauthorized access.

Regulatory Oversight:

UPI is regulated by the Reserve Bank of India (RBI), and the NPCI sets standards and guidelines to ensure the security of UPI transactions. Compliance with regulatory requirements adds an additional layer of security.

Regular Audits and Security Assessments:

Participating banks and financial institutions conduct regular audits and security assessments to identify and address potential vulnerabilities, ensuring the ongoing security of the UPI ecosystem.

UPI is a system that enables peer to peer online payments for users holding different bank accounts, to send and receive money or to pay directly to merchants from their Smartphone without the need to enter bank account information or net banking UserID / Password.

UPI has built on the Immediate Payment Service (IMPS) platform.

1.10.1 How it works

For using Unified Payment Interface, users need to create a Virtual ID or Virtual Payment Address (VPA) of their choice to link it to any bank account. This process doesn't require either the payee or payer to share bank details. The VPA acts as their financial

address and users need not remember beneficiary account number, IFSC codes or net banking user id/password for sending or receiving money.

Registration

1.10.2 Steps for Registration:

User downloads the Unified Payment Interface application from the App Store / Banks website. User creates his/ her profile by entering details like name, virtual id (payment address), password etc.

User goes to "Add/Link/Manage Bank Account" option and links the bank and account number with the virtual id.

Generating M-PIN:

User selects the bank account from which he/she wants to initiate the transaction. User clicks on the given options as required.

Performing a Unified Payment Interface Transaction **PUSH sending money using virtual address** User logs in to UPI application.

After successful login, user selects the option of Send Money / Payment. User enters beneficiary's / Payee virtual id, amount and selects account to be debited. User gets confirmation screen to review the payment details and clicks on Confirm. User now enters MPIN.

User gets successful or failure message.

PULL-Requesting money

User logs in to his bank's UPI application.

After successful login, user selects the option of collect money (request for payment). User enters remitters / payers virtual id, amount and account to be credited.

User gets confirmation screen to review the payment details and clicks on confirm. The payer will get the notification on his mobile for request money.

Payer now clicks on the notification and opens his banks UPI app where he reviews payment request.

Payer then decides to click on accept or decline.

In case of accept payment, payer will enter MPIN to authorize the transaction. Transaction complete, payer gets successful or decline transaction notification. Payee / requester get notification and SMS from bank for credit of his bank account. **Advantages** With UPI, user's bank account can be used as a wallet with a simplified two-factor authentication which eliminates the need to store funds in any other wallet.

Use of Virtual ID makes it more secure since there is no need to share credentials. UPI transaction can be made via IMPS in real time, which makes it available 24*7.

Users can link multiple bank accounts to a single Smartphone. Hence sending or receiving money across banks is easier.

For merchants, it is Suitable for electronic Commerce and a mobile Commerce transaction as well as it resolves the Cash on Delivery collection problem.

Banks can create their own application interfaces as UPI provides flexibility and an open architecture.

Security Measures

- Beware of Mobile phishing: always download legitimate UPI applications from bank's official website, and be cautious before you download it from App store.
- Keep strong passwords for your phone as well as for your UPI application.
- Do not share MPIN with anybody (not even with bank), and be suspicious of unknown callers claiming to be from your bank.
- Use biometric authentication if possible.
- Update your mobile OS and applications as often as possible to be secure from vulnerabilities.
- It is advisable for users to enable encryption, remote wipe abilities and anti-virus software on the phone.
- Keep your SIM card locked with a Pin to avoid misuse, in case of loss or theft of the mobile device, you can contact your subscriber to block the subscription of the SIM card.
- Avoid connecting phones to unsecured wireless networks that do not need passwords to access.

1.11 History of Google pay

Originally launched as Android Pay, the service was released at 2015 Android Pay was a successor to and built on the base established by Google wallet which was released in 2011. It also used technology from the carrier-backed Google had acquired its intellectual property in February 2015. At launch, the service was compatible with 70% of Android devices, and was accepted at over 700,000 merchants. [Google Wallet still powered web-based Play Store purchases and some app-based peer-to-peer payments, for instance in Gmail.

On January 8, 2018, Google announced that Google Wallet would be merged into Android Pay, with the service as a whole rebranded as Google Pay. This merger extends the platform into web-based payments integrated into other Google and third-party services. It also took over the branding of Google Chrome's autofill feature Google Pay adopts the features of both Android Pay and Google Wallet through its in-store, peer-to-peer, and online payments services.

The rebranding began to roll out as an update to the Android Pay app on February 20, 2018; the app was given an updated design, and now displays a personalized list of nearby stores which support Google Pay. The rebranded service provided a new API that allows merchants to add the payment service to websites, apps, Stripe, Braintree and Google Assistant. The service allows users to use the payment cards they have on file in their Google Account.

Google Wallet was the company's first mobile payment system, developed for Android devices in 2011. In 2015, it was renamed Android Pay, with Google Wallet refocused to strictly peer-to-peer (P2P) payments.

In 2018, Google announced that Google Wallet would join the other payment offerings under the Google Pay branding. Google Wallet was then renamed Google Pay Send.

Google Pay is available for contactless payments on Android devices. The peer-to-peer functions and account access are available on iOS. However, when using an iPhone or Apple Watch for NFC payments, only Apple Pay is eligible for this use case.

1.11.2 When Was Google Pay Launched

Google Pay, often referred as G Pay is founded on May 26, 2011. Starting initially as Google Wallet, the digital payments platform has changed its name to Android Pay later on September 11, 2015. The app was then launched as Tez before finally settling on the name Google Pay on August 28, 2018.

Google Pay serves as a digital wallet-cum-online payment system developed by Google. The Google-powered digital payments platform enables the users to make contactless payments and purchases online via android phones, watches and tablets. iOS is another platform that supports G Pay for the users of India and the United States but with some restrictions. Google Pay works with Android Lollipop 5.0 and above.

The second most popular UPI platform in India helps the users to pay other merchants and individual users via the Tez mode, using QR codes, and through phone numbers.

The app is currently available for the users of 42 countries, as of 2021.

1.11.3 About Google Pay

Google Pay serves as a digital wallet-cum-online payment system developed by Google. The Google-powered digital payments platform enables the users to make contactless payments and purchases online via android phones, watches and tablets. iOS is another platform that supports G Pay for the users of India and the United States but with some restrictions. Google Pay works with Android Lollipop 5.0 and above.

Google Pay, often referred as G Pay is founded on May 26, 2011. Starting initially as Google Wallet, the digital payments platform has changed its name to Android Pay later on September 11, 2015. The app was then launched as Tez before finally settling on the name Google Pay on August 28, 2018.

1.11.4 What are the different method of digital payments

After the launch of Cashless India, we currently have ten methods of digital payment available in India. Some methods have been in use for more than a decade, some have become popular recently, and others are relatively new.

1: Banking Cards

Indians widely use Banking cards, or debit/credit cards, or prepaid cards, as an alternative to cash payments. Andhra Bank launched the first credit card in India in 1981. Cards are preferred because of multiple reasons, including, but not limited to, convenience, portability, safety, and security. This is the only mode of digital payment that is popular in online transactions and physical transactions alike. Nowadays, many apps are being launched with the sole purpose of managing card transactions like Cred, Square, etc.

2: Unstructured Supplementary Service Data(USSD)

USSD was launched for those sections of India's population which don't have access to proper banking and internet facilities. Under USSD, mobile banking transactions are possible without an internet connection by simply dialing *99# on any essential feature phone.

This number is operational across all Telecom Service Providers (TSPs) and allows customers to avail of services including interbank account to account fund transfer, balance inquiry, and availing mini statements. Around 51 leading banks offer USSD service in 12 different languages, including Hindi & English.

3: Aadhaar Enabled Payment System (AEPS)

AEPS is a bank-led model for digital payments that was initiated to leverage the presence and reach of Aadhar. Under this system, customers can use their Aadhaar-linked accounts to transfer money between two Aadhaar linked Bank Accounts. As of February 2020, AEPS had crossed more than 205 million as per NPCI data.

AEPS doesn't require any physical activity like visiting a branch, using debit or credit cards or making a signature on a document. This bank-led model allows digital payments at PoS (Point of Sale / Micro ATM) via a Business Correspondent(also known as Bank Mitra) using Aadhaar authentication. The AePS fees for Cash withdrawal at BC Points are around Rs.15.

4: Unified Payments Interface (UPI)

UPI is a payment system that culminates numerous bank accounts into a single application, allowing the transfer of money easily between any two parties. As compared to NEFT, RTGS, and IMPS, UPI is far more well-defined and standardized across banks. You can use UPI to initiate a bank transfer from anywhere in just a few clicks.

The benefit of using UPI is that it allows you to pay directly from your bank account, without the need to type in the card or bank details. This method has become one of the most popular digital payment modes in 2020, with October witnessing over 2 billion transactions.

5: Mobile Wallets

Mobile Wallets, as the name suggests, are a type of wallet in which you can carry cash but in a digital format. Often customers link their bank accounts or banking cards to the wallet to facilitate secure digital transactions. Another way to use wallets is to add money to the Mobile Wallet and use the said balance to transfer money.

Nowadays, many banks have launched their wallets. Additionally, notable private companies have also established their presence in the Mobile Wallet space. Some popularly used ones include Paytm, Freecharge, Mobikwik, mRupee, Vodafone M-Pesa, Airtel Money, Jio Money, SBI Buddy, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, etc.

1.12 Bill Payment on Google Pay

Bill Presentment

Once you register a Biller on your Google Pay App, You may be able to view your current and future bill details or eligible recharge plans or statement from that Biller as and when they are available. Ensure that you check your bill details carefully prior to making any payments. In case of any discrepancies, please contact Your Biller.

Scheduling your Bill Payments

Payment realisation time will vary depending upon the Biller you select. When Google Pay receives a payment instruction from you, you authorize us to send instructions to Payments System Providers to debit your Funding Account and remit payment to the said Biller on your behalf. Payments are subject to the policies and procedures of such Billers and Payment Participants. We are not liable for (i) delays in payment realisation by the Biller; (ii) delay, failure or reversal of Transactions; or (iii) your failure to schedule payment dates in a timely manner. You are responsible for any consequences resulting from late payment including the levy of a late fee charge or any other penalty by such Biller.

Bill Reminders

In addition to your own records of bill payment requirements, Google Pay may also send you reminders to pay your bill. This will help you schedule your bill payments in time.

Payment History

You may access information about your bill payment requests through the Google Pay App. You should always verify and confirm Your bill payment requests against any statements or payment records provided by the Biller.

Prepaid Recharges

Google Pay facilitates the recharge of Your prepaid mobile, data or other accounts. The actual mobile, data or any other service service is provided by the prepaid service providers like telecommunications service provider whose account You hold ("**Prepaid Service Providers**"), or by their distributors and aggregators and not by Google Pay. You hereby

agree that You will be solely responsible for selecting an appropriate plan as may be offered by the Prepaid Service Providers, and for compliance with its terms. You understand that the plans provided on Google Pay are for reference purposes only. The plans may not be up-to-date and may have changed. You must check with your Prepaid Service Provider for the latest plans and details prior to making a transaction.

Ad-hoc Bill Payments

You may also choose to enter an ad-hoc amount for bill payment or recharging, however acceptance of it will be solely at the discretion of the Biller. You are responsible for the accuracy of the details entered by You to make a payment or recharge your account. You further agree that Google Pay will not be liable for any failure on the part of any Biller in effecting a recharge or other bill payment or for any issue related to the quality of service provided by the Biller, and any dispute relating to the same shall be resolved directly between you and the Biller.

Refunds. Refund of payment amount for bill payment including mobile recharge or for any payment debited from your account for which the bill payment or recharge is not delivered, will be solely as per the terms or policies of the Biller, and you agree that Google Pay will not be responsible for the same.

1.13 How Does UPI Work

India has taken a major step towards achieving a cashless economy with the advent of the Unified Payment Interface (UPI). The new payment model allows you to use your smartphones as a virtual debit card. It has also made possible the sending and receiving of money instant. The concept of QR code has eliminated the usage of digital wallets altogether. UPI is a single platform that merges various banking services and features under one umbrella. A UPI ID and PIN are sufficient to send and receive money. Real-time bank- to-bank payments can be made using a mobile number or virtual payment address (UPI ID).

UPI is an initiative taken by the National Payments Corporation of India (NPCI) together with the Reserve Bank of India and Indian Banks Association (IBA). NPCI is the firm that handles RuPay payments infrastructure, i.e. similar to Visa and MasterCard. It allows different banks to interconnect and transfer funds. Immediate Payments Service (IMPS) is also an initiative of NPCI. UPI is considered as the advanced version of IMPS. UPI has made the money transfer process a lot easier. You do not have to remember the receiver's account number, account type, IFSC, and bank name. Instead, you can do the money transfer only by knowing their Aadhaar number, mobile phone number registered with the bank account, or UPI ID. You can set up UPI ID on one of the apps that support UPI service. Mostly, a UPI ID begins with your mobile number followed by '@' symbol and ends with the app you are using. For example, if your mobile number is 90xxxxxx60 and if you are using Paytm app, the UPI ID can be '90xxxxxx60@paytm'. The ID can be set up by providing the details of your bank account on the app. The app will send an OTP to your registered mobile number to make sure that you are an authorised person. Once you enter the OTP, you will be prompted to create a PIN for the UPI ID. Upon completing the registration, you can choose any mobile number from your contacts and send money. You can also request money from anyone on your contacts list.

The unified payments interface or the UPI is an interface via which you can transfer money between bank accounts across a single window. This means you can send or receive money or scan a quick response (QR) code to pay an individual, a merchant or a service provider to shop, pay bills or authorise payments.

To enable payment using your phone, all you need is a mobile payment application and the virtual address of the payee (that reads something like merawalashop@xyzbank). This implies you can make payments directly to the accounts of a vendor or a person, in one step. There is no repetitive step involved. For example, entering bank details or other sensitive information each time you need to make a payment.

It is simple, free of charge and instantaneous. UPI allows you to make transactions 24/7, throughout the year. Currently, one can transfer upto INR 1 lakh in a single UPI transaction.

UPI was launched in 2016, is the brainchild of the National Payments Corporation of India (NPCI), the umbrella organisation that oversees retail payment systems in India. The NPCI is governed by the central banking authority, the Reserve Bank of India, and its primary goal is to drive India towards becoming a digital economy.

1.14 How to Use UPI to Transfer Money

UPI mobile applications allow you to transfer money in multiple ways. Whether it is a mobile number, QR code, UPI ID, or account number- each of these methods is equally easy to use. Explained below is the process that you need to follow to transfer money through either of these methods.

Sending money through UPI is easy and safe. You may send money using any of the following ways-

- **Selecting a Contact/Entering Mobile number** – Sending money is as simple as sending a message. Just select a phonebook contact or enter a mobile number, specify the amount to be transferred and enter your PIN. That's it! Your payment will be completed in a few seconds.
- **Scanning a UPI QR code** – You can also send money through UPI by scanning the receiver's QR code. All you need to do is open the mobile payment application like Paytm on your phone, click on 'Pay', and select 'QR code'. Scan the QR code of the receiver and enter the amount to be paid. Now enter your PIN and your payment will be completed in a few seconds.
- **Entering UPI ID** – To send money through UPI ID, all you need to do so is open the mobile payment application, and enter the receiver's UPI ID. After this, you need to enter the amount that needs to be transferred and verify the transaction by entering your MPIN. Your transaction will be completed in a few seconds.

Entering Account Number & IFSC – This the traditional way of payments and it is also supported on UPI. You may enter the account number & IFSC of the person you want to send money to, specify the amount and enter your PIN. Your payment will be completed in a few seconds.

You can transfer money through UPI by following these steps-

Open the mobile payment application such as Paytm that supports UPI transactions in your mobile phone.

Log in to the application using your credentials

Click on ‘To Mobile’ option on the home screen of the Paytm app

Enter the mobile number or select the receiver’s contact from your phone’s contact list

Click on ‘Pay’ and enter the total amount to be transferred

Select the bank account from which you want to send the money

Enter your security PIN to confirm the transaction and click on ‘Confirm’

The entered amount will now be deducted from your bank account and will be credited to the receiver’s account

You will receive a receipt of the transaction on your mobile application

How to Use UPI to Pay Bills

After logging in to your UPI payment application such as Paytm on your mobile phone, follow these steps-

Open the Paytm mobile app and locate the section, ‘Recharge & Bill Payments’

Click on the type of bill you want to pay, such as electricity, DTH, etc. Select your operator/electricity board

Enter your bill amount and/or any other details, if required

Provide your UPI PIN to confirm the transaction

Click on ‘Confirm’ Your bill will be paid instantly!

Note that you can easily learn how to use the Paytm UPI mobile application by following the above steps and you can easily make payments and/or set up reminders for all your bills, starting from electricity, water, rent, mobile, DTH, broadband, Gas, etc.

Steps To Create a UPI Account

You can set up a UPI account in five simple steps:

To enjoy the benefits of cashless payments and instant money transfers through UPI, you need two things: your smartphone and a bank account of a UPI-member bank.

Your mobile number must be registered as part of your information with the bank. Majority banks in India are member banks as of today. In 2016, 21 banks allowed UPI. This has now increased to 216 banks in 2021.

The next step is to download any UPI supporting app on your smartphone. Some popular examples of UPI apps are PhonePe, Paytm, Google Pay, BHIM, MobiKwik, Uber, SBI Pay and BOB UPI.

Once the download is complete, you will be asked to create a virtual ID (identity) by the app. That is your unique ID to make or receive any UPI payment. Your bank will then send a one-time password or an OTP to your mobile number to confirm that it is indeed your bank account.

Once the verification is through, you can set up your Virtual Payment Address (VPA).

1.15 Benefits of Using UPI

Having explained what UPI payment is, let us examine its benefits. Using UPI for your everyday transactions can prove to be incredibly useful if you consider the below advantages.

UPI means simplified e-banking and online payment systems.

It allows you to transfer funds instantly via your mobile phone.

You can use it for multiple purposes, including paying your utility bills or paying at the local grocery shop.

You do not need to carry cash as the UPI system doubles like your digital wallet. UPI also eliminates the risk associated with having cash all the time.

You do not need to enter the bank details of the recipient while sending money.

You can also receive money by sharing your UPI ID, which is usually your mobile phone number registered with your bank.

1.16 Things to remember about making UPI payments

For UPI transactions, both senders and beneficiaries should have downloaded the same UPI app on their phones.

You will need the UPI ID of the beneficiary, along with yours, to initiate a fund transfer. You will be able to see the UPI ID of the receiver in your UPI application.

You simply need to enter the UPI ID and transfer amount and click on the 'Pay' option, and the funds will be transferred instantly.

You can also enter the recipient's phone number, which should be linked to their bank account. This is another simple way of directly transferring funds in the bank account of the beneficiary.

You can use UPI to pay grocers, merchants, and other retailers. For such payments, you can scan their QR codes and enter the amount you wish to transfer.

While making online payments using food delivery apps and similar other apps, you can select the UPI payment option. Doing this will take you to the UPI application on your phone. You need to enter your UPI PIN, and the money gets debited from your bank account.

You can also receive money using UPI simply by sharing your UPI ID or the phone number linked to your UPI application and bank account with the sender.

Points to be remember for Secure Transaction

UPI Apps:

- Use a secure and trusted UPI app provided by a registered bank or financial institution.
- Popular UPI apps include Google Pay, PhonePe, Paytm, BHIM, and others.

Secure PIN:

- Set a strong and secure UPI PIN to authorize transactions on your UPI account.
- Never share your UPI PIN with anyone, and do not save it on your device.

Linking Bank Accounts:

- Link only the bank accounts that you actively use to your UPI app.
- Regularly check and verify the linked bank accounts in your UPI app.

Verification of Recipient:

- Verify the recipient's UPI ID or VPA (Virtual Payment Address) before initiating any transaction.
- Be cautious when making payments to unknown or unverified UPI IDs.

Transaction Limits:

- Be aware of your daily and per-transaction limits set by your bank.
- Some banks allow users to customize these limits based on their needs.

Secure Network:

- Use a secure and trusted internet connection, preferably a private and password-protected Wi-Fi network, when making UPI transactions.
- Avoid using public Wi-Fi networks for sensitive transactions.

Check Transaction Details:

- Before confirming any transaction, double-check the details such as the recipient's name, UPI ID, and the amount.
- Verify the transaction details on the confirmation screen to avoid errors.

Transaction Reference Number (UTR):

- Note down the UTR (Unique Transaction Reference) number for each transaction.
- This number can be useful for tracking or resolving any issues related to the transaction.

Notifications:

- Regularly check transaction notifications sent by your UPI app and your bank.

- Report any unauthorized transactions or discrepancies immediately to your bank.

Update Apps:

- Keep your UPI app and smartphone operating system updated to the latest versions to ensure you have the latest security features.

Secure your Device:

- Use a strong passcode or biometric authentication to secure access to your smartphone.
- Enable screen lock features to add an extra layer of security.

Customer Support:

- Save your bank's customer care number and the customer support number of your UPI app for quick assistance in case of issues.
- **Simplicity:** UPI simplifies digital transactions by linking multiple bank accounts to a single mobile app.
- **Interoperability:** Users can seamlessly transfer money between different banks.
- **24/7 Availability:** UPI operates around the clock, offering flexibility and convenience.
- **Instant Transfers:** Real-time fund transfers make transactions quick and efficient.
- **Mobile-Friendly:** UPI transactions are conducted through mobile apps, aligning with mobile-centric lifestyles.
- **Financial Inclusion:** UPI promotes inclusivity by providing access to digital transactions for individuals without traditional banking facilities.
- **Security Measures:** Multi-factor authentication, including UPI PINs, ensures secure transactions.
- **QR Code Support:** UPI facilitates easy payments through QR codes for both individuals and merchants.
- **Reduced Cash Dependency:** UPI supports the government's push towards a less cash-dependent economy.
- **Innovation and Integration:** UPI spurs fintech innovation, leading to improved user experiences and new financial products.

CHAPTER 2 :-LITERATURE REVIEW

Any research study in the discipline of social science research can be undertaken with a meaningful manner with reference to the studies conducted by the previous researchers. The review of the previous studies also enables the research to discover the research gap in the existing literature for the further the research.

They examined the consumer payment methods with respect to cash holdings and withdrawals which was decreasing since 2010. There was an increase in card payment system with respect to 2009 in the Year 2010, which resulted in less usage of paper currency. Since 2010 there was an increase in usage of Debit and credit card compare to cash transaction which slowly took a decline giving rise to prepaid Payments **(Kevin foster, Scott schuh, and hanbing Zhang (2010))**

In their study discussed how secure the internet network should be to make smooth transaction for all the parties and the merchants. The systems are made in such a way so that there is no fraudulent activity takes place people can use their card for transaction in a secure way so that no data is shared.

People mostly do digital transactions for e-commerce but they find internet I not secure to do so therefore some strict protocol be followed and managed to make transaction secure and the data is also protected **(Singh A et.al (2012))**

In his study highlighted the issues that were being faced or observed in developing country like India in using the e-payment system which was due to the low spread of internet and technology. The

paper focused on major issues such as security, rules, etc. IN a country like India there is a high risk where the poor's are given a chance to be informed about such facilities neither they are given any such information. **(Nitsure (2014))**

In their study analysed the factors that which was resulting in the adoption of internet banking in our country. It was found out that perceived reliability. Perceived ease of use and Perceived usefulness were the main reason for the adoption or usage of internet banking. **(Rakesh HM & Ramya JJ (2014)).**

They discussed in their paper that in India there has been a sudden surge in the usage of digitalised payment. But still there is almost 90% transactions which are done through paper currency. They had used the TAM (Technology Acceptance Model) in this study to find out the factors which are strengthening the e- payment system the factors are innovation, incentives, and legal frame work and customer (**Sanghita Roy, Dr.indrajit sinha (2014)**).

In the 21st century the usage of digital payment has increased over the years. The main focus here was to find out how where will in the digital payment system in future stand. Many papers have been examined to find out what are the views regarding the digital payment system. With the passage of time the Technology has been shifting very fast so with the innovation of technology the aim was to make people familiar with digital payment. The merchants also got a new platform to invest so as to cater the customers. Data was collected by following empirical method i.e. survey, interviews, etc. (**Dennehy & Sammon (2015)**)

Made a study on "Developing Consumer Adoption Model on Mobile wallets in Canada", in her study she did convenience sampling from where 530 respondents were selected and there after the Partial least square model was used to test the data. As per the analysis the result perceived usage, perceived ease of use and perceived security is related to each for forecasting the adoption of digital payment (**Sanaz Zarrin Kafsh (2015)**)

Has examined how internet and e-commerce has opened the gateway for digital payment system with the increment in technology people are adopting the new means of payment system and how they will be benefited and is there any pitfall of using it. When e- commerce was launched it was a unique way of trading so the digital payment is also a unique way of transaction which will also emerge as the ecommerce and in near future it will become the backbone of e- commerce. The future of these digital wallets will depend on the security and privacy that are provided by the companies as people are highly security concerns any pros and cons will decide the future of digital wallets. It is not only restricted to make transactions but it be used for booking airlines, movie tickets. Many offers are provided for making bill payments or buying any goods using these platforms. As the smart phones has removed many devices from our daily live and have clubbed in one device only so it is expected that digital wallet will also do the same which will become substitute for many other things. (**Bezhovski (2016)**)

CHAPTER 3 :-RESEARCH METHODOLOGY

Research is a systematic investigation to search for new facts in any branch of knowledge. Research helps to arrive at new conclusions. It enables to find solution to certain problems.

Research is often referred to as 'scientific inquiry' into a specific problem or solution. This is because; the search for facts needs to be undertaken systematically and not arbitrarily. The systematic approach to research enables the research to search for facts in rational manner and to arrive at logical conclusion, whereas, the arbitrary approach attempts to find solutions to problems based on one's Belief and imagination.

Pauline V. Young defines "social research is a scientific undertaking which, by means of logical and systematic techniques, aims to:

- Discover new facts or verify and test old facts,
- Analyse their sequences, interrelationships and casual explanations,
- Develop new scientific tools, concepts and theories, which would facilitate reliable and valid study of human behavior."

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them.

It is actually a voyage of discovery. We all possess the vital instinct of inquisitiveness for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown. This inquisitiveness is the mother of all knowledge and the method, which man employs for obtaining the knowledge of whatever the unknown, can be termed as research.

It is actually a voyage of discovery. We all possess the vital instinct of inquisitiveness for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown. This inquisitiveness is the mother of all knowledge and the method, which man employs for obtaining the knowledge of whatever the unknown, can be termed as research. Research is, thus, an original

contribution to the existing stock of knowledge making for its advancement. It is the pursuit of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research. The systematic approach concerning generalization and the formulation of a theory is also research. As such the term 'research' refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions(s) Towards the concerned problem or in certain generalizations for some theoretical formulation.

Objectives of Research

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies)
2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies)
3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies).
4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

Primary Data -:

- The data which is collected for the first time by the researcher is known as primary data.
- The researcher collects the data for the first time therefore it is also known as First hand data.

Secondary Data -:

- The secondary data are those data which is already been published.
- The secondary data are known as second hand data, the reliability of Second data is less as compared to primary data.
- The Secondary data are time saving and economical [SAMPLING TOOLS AND TECHNIQUES:](#)

There are various statistical tools which are used in analyzing data. The following tools are used for representing and analyzing data

- QUESTIONNAIRE
- TABLES
- DIAGRAM (PIECHARTS)

The sampling tool used in this project is Questionnaire. The set of questions was prepared and send to the respondents through mail and mobile no.

The respondent had to just tick the option they feel is suitable for them. [DATA](#)

COLLECTION

The study is based on secondary data. The secondary information will be collected from different publish materials Vis. Books, journals, and various websites etc.

QUESTIONNAIRE METHOD OF DATA COLLECTION

The method use for data collection in this project is questionnaire. The list ofquestion was prepared as to collect data.

The questionnaire contains the questions regarding UPI payment.

QUESTIONNAIRE

1. For Transactions, Which UPI app are most used by the people?
 - Google Pay
 - BHIM
 - Phone pe
 - Paytm

2. What kind of difficulties people face while using the UPI app?(Problems in using UPI)
 - Bank server down
 - Transaction failed
 - Money get transferred within 3 days
 - No difficulties

3. What is the impact of COVID-19 on the usage of UPI?
 - More digital
 - Only digital
 - Same as before

4. How likely people are move back to cash payment after the pandemic?
 - Most likely
 - Somewhat likely
 - Unlikely

5. How frequently do you use online money transfer services?
 - Daily
 - Weekly
 - Monthly
 - Rarely
 - Never

6. Which online money transfer platforms do you currently use?
 - UPI (e.g., Google Pay, PhonePe)
 - Mobile wallets (e.g., Paytm, PayPal)
 - Bank transfers
 - Cryptocurrency transfers
 - Other (please specify)

CHAPTER 4:- OBJECTIVE OF THE STUDY

The objectives behind the selection of the topic and preparing project report on "study on digital money of UPI payment" are as follows.

1- To understand the Unified Payment Interface (UPI) system's growth.

2- To assess UPI's position in the digital payment ecosystem.

3- To know the progression of UPI in retail digital payment.

4- To understand the review of people in UPI payment.

An objective study on digital money, specifically focusing on UPI (Unified Payments Interface) payments, would involve a comprehensive analysis of various aspects. Here's a breakdown of key areas that could be considered in such a study:

User Adoption and Usage Patterns:

- Analyze the growth in the adoption of UPI payments among different demographic segments.
- Evaluate usage patterns, frequency, and average transaction values.
- Understand the factors influencing users to choose UPI over traditional payment methods.

Security and Trust:

- Assess the security features implemented in UPI transactions.
- Analyze user perceptions and trust levels in UPI as a secure payment method.
- Examine incidents of fraud or security breaches and their impact on user trust.

Financial Inclusion:

- Evaluate the role of UPI in promoting financial inclusion.
- Assess how UPI has contributed to banking the unbanked and reaching remote areas.
- Explore challenges and opportunities for further financial inclusion through UPI.

Impact on Cashless Transactions:

- Study the impact of UPI on reducing cash transactions.

- Analyze trends in the shift from cash to digital transactions.
- Examine factors influencing the preference for cashless transactions and potential barriers.

Economic and Business Impacts:

- Investigate the economic impact of increased UPI transactions on businesses and the overall economy.
- Evaluate the cost-effectiveness of UPI for businesses compared to traditional payment methods.
- Analyze the role of UPI in promoting entrepreneurship and small business growth.

Regulatory Environment:

- Examine the regulatory framework governing UPI payments.
- Evaluate the role of regulators in fostering innovation and ensuring consumer protection.
- Assess any regulatory challenges or gaps that may impact the growth of UPI.

Technology and Infrastructure:

- Investigate the technological infrastructure supporting UPI transactions.
- Analyze the scalability and reliability of UPI systems.
- Explore advancements in technology that could enhance UPI services.

Challenges and Opportunities:

- Identify challenges faced by users, businesses, and financial institutions in the UPI ecosystem.
- Explore opportunities for further improvements and innovations in UPI services.
- Assess the role of collaborations and partnerships in addressing challenges.

Global Comparisons:

- Compare UPI with similar digital payment systems globally.
- Analyze success stories and learnings from other countries' experiences with digital money.

Future Trends and Innovations:

- Predict future trends in UPI payments.
- Explore potential innovations and technological advancements that could shape the future of digital money.
- Assess the adaptability of UPI to emerging technologies like blockchain and cryptocurrencies.

OTHER OBJECTIVES OF UPI

1. **Interoperability:** UPI is designed to enable interoperability among banks and financial institutions, allowing users to transfer funds seamlessly between different banks. This interoperability helps in creating a unified platform for various financial entities.
2. **Simplify Transactions:** The UPI system simplifies the process of making payments and transfers by providing a single platform for various banking services. Users can initiate transactions easily using their smartphones, eliminating the need for multiple steps or visits to a bank.
3. **24/7 Availability:** UPI operates round the clock, allowing users to make transactions and payments at any time of the day. This ensures convenience and accessibility for users, reducing dependency on traditional banking hours.
4. **Mobile-Centric:** UPI leverages the widespread use of smartphones to make transactions. Users can link their bank accounts to mobile applications, making it convenient to initiate and authorize payments using their mobile devices.
5. **Single Identifier:** UPI uses a single identifier called the UPI ID, which is often the mobile number linked to the bank account. This simplifies the identification process, making it easy for users to receive funds without sharing complex bank details.
6. **Enhanced Security:** UPI transactions are secured through multi-factor authentication, including device-specific PINs or biometric authentication methods. This ensures a high level of security for users conducting transactions through the UPI platform.
7. **Promote Digital Transactions:** UPI aims to promote the adoption of digital transactions and reduce reliance on cash transactions. It aligns with the broader goal of creating a digital economy and reducing the dependence on physical currency.
8. **Financial Inclusion:** UPI contributes to financial inclusion by providing a platform for individuals who may not have access to traditional banking services. It allows them to participate in digital transactions and access a wide range of financial services through their mobile phones.

CHAPTER 5:- HYPOTHESIS OF STUDY

A hypothesis is an assumption, an idea that is proposed for the sake of argument so that it can be tested to see if it might be true.

In the scientific method, the hypothesis is a constructed before any applicable research has been done, apart from a basic background review.

A hypothesis is usually tentative; it's an assumption or suggestion made strictly for the objective of being tested.

A hypothesis is something more than a wild guess but less than a well-established theory. In science, a hypothesis needs to go through a lot of testing before it gets labelled a theory. In the non-scientific world, the word is used a lot more loosely.

The hypothesis framed for this research topic.

- 1. Hypothesis:-** maximum number of people use E- wallet as digital payment service.
- 2. Hypothesis:** there is no significant impact of customer's age on usage of digital payments.

Hypothesis related to Adoption and Usage:

H1: There is a positive correlation between the ease of use of UPI and the frequency of its adoption among users.

H2: Users with higher digital literacy are more likely to adopt UPI as their preferred mode of payment.

Hypothesis related to Security and Trust:

H3: Users' confidence in the security features of UPI positively influences their trust in the platform.

H4: Implementation of additional security measures, such as biometric authentication, enhances users' perception of UPI as a secure payment method.

Hypothesis related to Financial Inclusion:

H5: UPI has a positive impact on financial inclusion by providing access to digital transactions in previously underserved or unbanked populations.

H6: The availability of UPI services in remote areas is associated with an increase in financial inclusion.

Hypothesis related to Impact on Cashless Transactions:

H7: Increased usage of UPI is negatively correlated with cash transactions, indicating a shift towards a cashless economy.

H8: Factors such as convenience and accessibility contribute significantly to the preference for cashless transactions using UPI.

Hypothesis related to Economic and Business Impacts:

H9: Small and medium-sized enterprises (SMEs) that adopt UPI experience positive economic impacts, such as increased sales and cost savings.

H10: UPI transactions contribute to the overall growth of the economy by reducing reliance on traditional banking methods.

Hypothesis related to Technology and Infrastructure:

H11: The scalability and reliability of UPI technology positively influence user satisfaction and adoption.

H12: Ongoing technological advancements will lead to an improved UPI infrastructure and increased user engagement.

Hypothesis related to Challenges and Opportunities:

H13: Users' concerns about transaction security and privacy negatively impact their willingness to adopt UPI.

H14: Collaborations and partnerships between financial institutions and technology providers are critical for addressing challenges and fostering innovation in the UPI ecosystem.

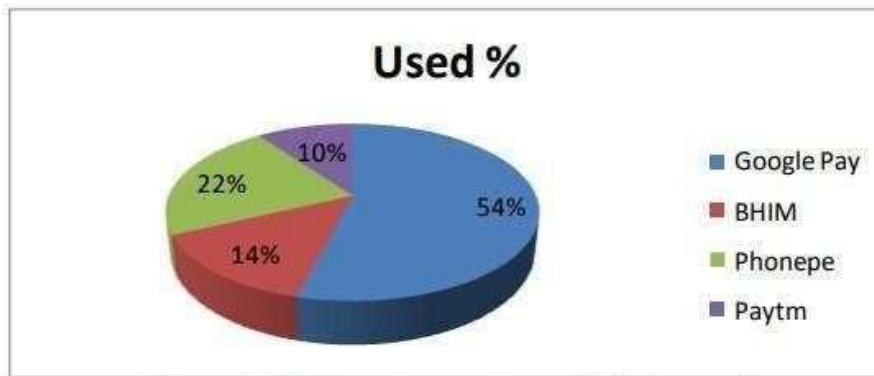
Hypothesis related to Global Comparisons:

H15: Lessons learned from global experiences with digital payment systems can inform the continued development and success of UPI.

H16: Unique cultural and regulatory factors influence the adoption and success of UPI in comparison to global digital payment systems.

CHAPTER 6:-DATA ANALYSIS AND INTERPRETATION

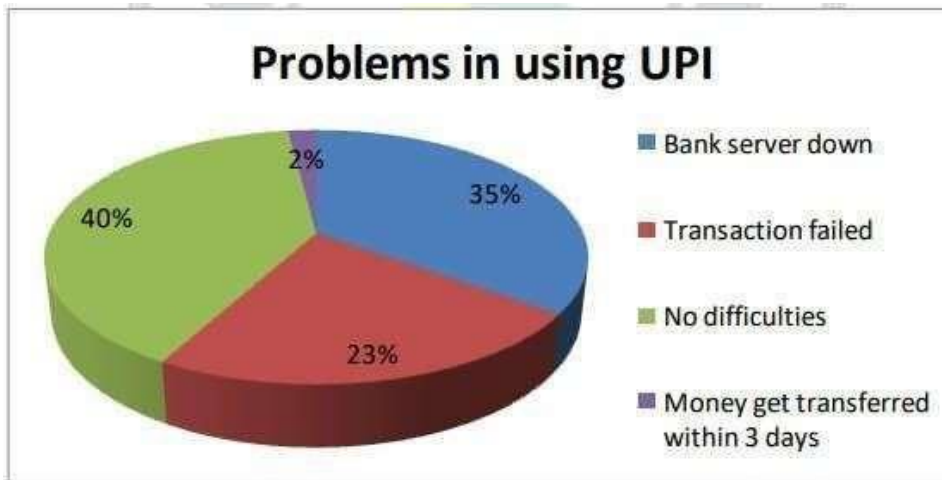
Q.1 For transactions, which UPI app are most used by the people?



Interpretation: -

- From the above data, it is observed that the Google Pay app is the most used UPI app i.e. 54%. After Google Pay, Phonepe(22%) is used most by users.
- Reasons for more use of Google Pay and Phonepe apps can be cashback, offers & discounts. Usage percentage of BHIM & Paytm app is 14% and 10% respectively.

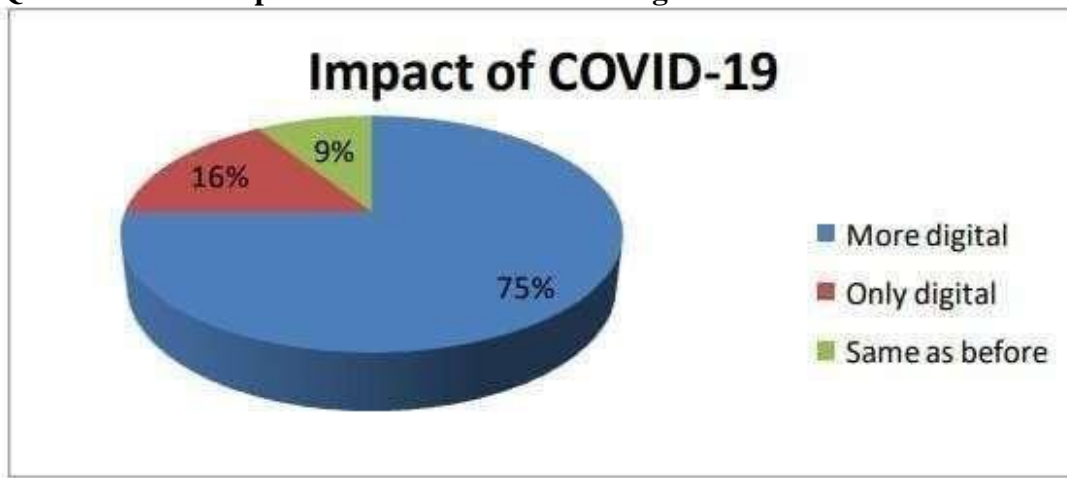
Q.2 What kind of difficulties people face while using the UPI App?(problems in using UPI)



Interpretation: -

- From the above data, there are 2 major problems faced by UPI app users
- i.e. Bank server down(35%)
- Transaction failures(23%). 40% of users seem to have no difficulties while making transactions. 2% of users mentioned the problem that money gets transferred within 3 days.

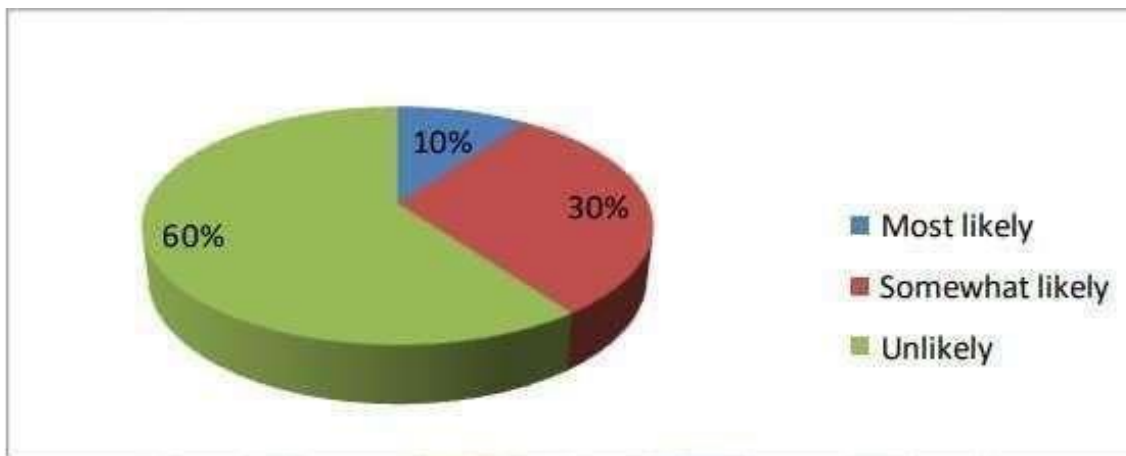
Q.3 What is the impact of COVID-19 on the usage of UPI?



Interpretation: -

- From the above data, it is observed that there is a higher use of digital payment methods than cash payments i.e. 75% of users use digital methods for making transactions.
- Around 16% of users use only digital payment methods. 9% of users still make payments as before.

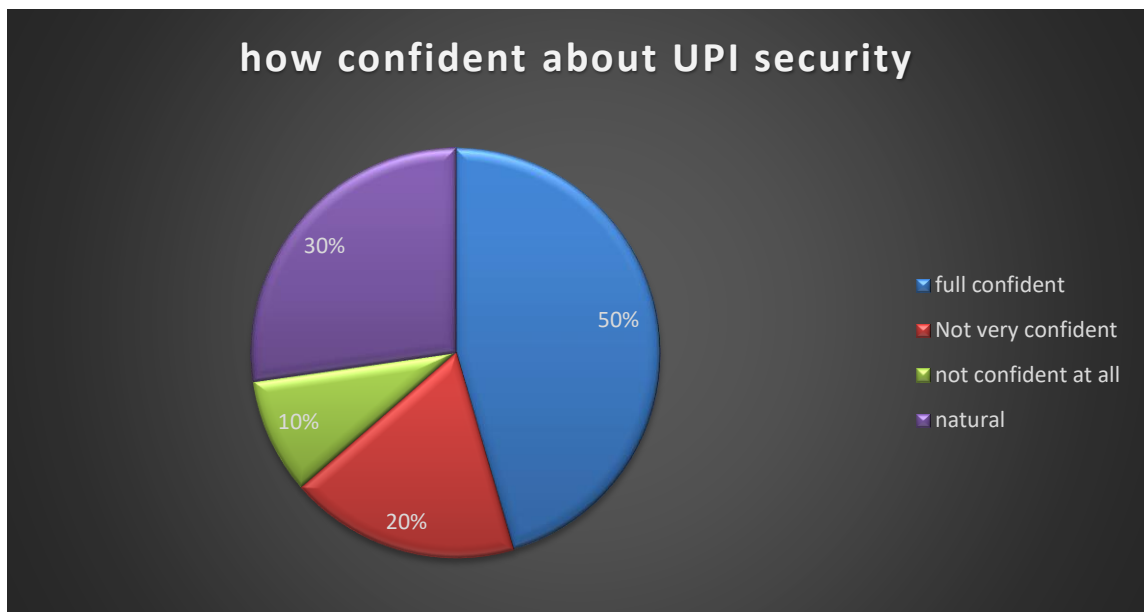
Q.4 How likely people are move back to cash payments after the pandemic?



Interpretation: -

- From the above data, the majority of users(60%) find digital payments convenient, safe and secure. 30% of users might consider moving back to cash payments.
- On the other hand, 10% of users mention security concerns as a reason for returning to cash payments

Q5. How confident are you in the security of your transactions when using online money transfer services?



Interpretation: -

- From Above information , as per positive aspect the feedback from people that 50% are fully very confident about UPI security and also 30% People are also Agree to feel secure about UPI transaction.
- From the Above information, As per Negative aspect The feedback from People that 20% people not very Confident about UPI security and Online Transaction.
- From all the feedback 10% of the people are not at all confident about UPI Security.

CHAPTER 7:- FINDINGS

- If you are sending money from UPI application, then receiver should have to register to UPI application at other end. Otherwise you cannot able to send money by mobile number, then you can send money by entering account number and Ifsc code.
- Till now UPI supports only for Android users so other users should wait for NPCI for developing software for other platforms.
- UPI is still in starting stage and common problems like server issues are more.
- There is no separate customer care line if any problem in payments like payment in pending and payment is failed but money is not refunded.
- UPI is in initial stage, so most of the Banks are adopting this technology and this leads to problem in maintaining servers 24 hours.
- UPI mainly targets the smart phone users and the number of smart phones are increasing day by day but the Digital literacy is too less.
- Till now, there is no transaction charge but for maintaining servers and for other infrastructure facility Banks may start applying charges.
- UPI mainly requires Internet connection but in India Data connection is not available everywhere.
- UPI requires Mobile number which is connected to Bank account but most of the times still in rural areas there is no link between mobile and bank account.
- In most of the UPI I'ds you can get the Phone number of the person with the details of the App for which UPI I'd is created .
- Other than the you can get the name o the person by entering the UPI I'd in new transaction section.
- UPI payments currently rely on the settlement of the transacting banks with the RBI, Digital Ruppe will betransacting directly from RBI.

- The digital rupee is no different from your normal rupee it can be used to do normal transactions like NEFT, UPI.
- The digital rupee will be operated by RBI and not by bank intermediaries in the case of UPI where each bank has a different UPI.
- Currently, UPI payments are made using the digital equivalent of existing currency notes. That means every rupee transferred via UPI is backed by physical currency.
- The digital rupee will be legal tender in and of itself and need not necessarily be backed up by physical currency.

❖ **While Unified Payments Interface (UPI) has revolutionized digital payments in many ways, users may face certain challenges or problems while using UPI. Here are some common issues:**

Transaction Failures:

- **Network Issues:** Connectivity problems or server issues may lead to transaction failures.
- **System Downtime:** Occasional maintenance or technical glitches in the UPI system can result in transaction failures.

Security Concerns:

- **Phishing Attacks:** Users may be vulnerable to phishing attempts leading to unauthorized access to UPI credentials.
- **Device Security:** Inadequate security measures on the user's device may compromise UPI transactions.

Limited Merchant Acceptance:

- **Merchant Readiness:** Not all merchants may be equipped to accept UPI payments, limiting its usability in certain locations.
- **Educational Gaps:** Merchants and users may lack awareness or understanding of UPI, leading to hesitation in adoption.

Complexity in Setting Up UPI:

- **Onboarding Issues:** Some users may find the initial setup process confusing, especially those who are less familiar with digital platforms.

- **Bank Integration:** Users may face challenges linking their bank accounts to UPI apps due to various reasons.

Lack of Standardization:

- **Variability in Apps:** Different UPI apps may have varying user interfaces and features, causing confusion among users.
- **Inconsistent Processes:** Users might find differences in the processes followed by different banks for UPI transactions.

Transaction Limits:

- **Daily Limits:** Users may encounter restrictions on the maximum amount they can transact in a day, which might be inconvenient for large transactions.

Fraudulent Activities:

- **Unauthorized Transactions:** Users may fall victim to unauthorized transactions if their UPI credentials are compromised.
- **Social Engineering Attacks:** Scammers may use social engineering tactics to trick users into revealing sensitive information.

Dependency on Smartphones:

- **Smartphone Requirement:** UPI relies heavily on smartphones, excluding those without access to such devices.
- **Network Dependency:** Users in areas with poor network connectivity may face difficulties in initiating transactions.

Compatibility Issues:

- **Device Compatibility:** Some older smartphones or devices may not be compatible with certain UPI apps.
- **OS Updates:** Users may encounter issues if their operating systems are not updated to meet the app's requirements.

Redressal and Customer Support:

- **Inefficient Redressal:** Users may face challenges in resolving issues related to failed transactions or unauthorized access.
- **Limited Customer Support:** Some users may find it difficult to access timely and efficient customer support services.

CHAPTER 8:- SUGGETIONS

- UPI is giving benefits like cash backs, discounts etc. Government should invest in "How to be a cashless" in form of seminars or TV advertisement.
- The security is the biggest concern among the consumer's and can be considered as a key factor for the adoption the UPI payments.
- In India there is lack of internet connectivity in rural areas and some parts of urban areas. Government should invest in providing high speed internet and accessibility in low cost. If internet connectivity will increase, then online fund transfer will also increase.
- E-literacy campaigns should be implemented for removing the problems faced by customers while using such services.
- As trends and consumer preferences are constantly changing, the Consumer behavior towards UPI (Unified payments interface) is improving. Based on the day-to-day life.
- The important aspects which affect online payment application are Non- credit of money and Payment delay due to network issues and some other issues related to bank infrastructure and due to the Smartphone.
- Majority of the people use UPI payment application for their own convenience and preference, consumer believe that the Using of the UPI payments improves the quality of decision making of buying product, and UPI payments can offer customers a wider range of banking services and Payment options.

- Government should conduct more awareness programs for online and banking customers regarding various services offered by NPIC such as UPI, Bharat bill payment system etc. to prevent payment frauds.
- Turn on two-factor authentication unauthorized access to your accounts. Even if you have shared your account details with somebody, SMS-based two-factor authentication becomes helpful as it is only received in your mobile number. So, two-factor authentication is a must fact keep your digital transaction safe.
- This might seem basic and simple advice, but it is fundamental to ensure your digital transaction ecosystem is safe and secure. Use upper and lower case alphabets, special characters, numbers to make a unique password and yes, remember to store it privately.
- View and read messages that you receive after each transaction, keep a record of any inconsistent balance deductions and immediately inform the bank or payment platform you are using.
- Keep track of your financials Most of the users do not go through their financials regularly. In addition, we tend not to keep track and cross-check digital payments and transfers.

OTHER SUGGESTION ON DIFFERENT FACTOR

Continuous Technological Advancements:

- **Real-time Settlements:** Work towards reducing the settlement time for UPI transactions to enhance the speed and efficiency of fund transfers.
- **Integration with Emerging Technologies:** Explore integration with emerging technologies like blockchain to improve transparency, security, and traceability of transactions.

Enhanced Security Measures:

- **Advanced Authentication:** Introduce and promote the use of advanced authentication methods such as biometrics (fingerprint, face recognition) for UPI transactions to enhance security.

- **Fraud Detection and Prevention:** Invest in robust fraud detection and prevention mechanisms to safeguard users against potential security threats.

User Education and Awareness:

- **Educational Campaigns:** Launch awareness campaigns to educate users about safe online practices, phishing prevention, and the importance of securing UPI credentials.
- **Regular Updates:** Keep users informed about the latest security features, updates, and best practices through regular communication channels.

Interoperability and Collaboration:

- **Global Interoperability:** Explore opportunities for global interoperability to facilitate cross-border transactions seamlessly.
- **Collaboration with Other Payment Systems:** Strengthen collaboration with other payment systems and financial institutions to create a more integrated financial ecosystem.

Financial Inclusion Initiatives:

- **Rural Outreach Programs:** Implement targeted programs to increase UPI adoption in rural and underserved areas, promoting financial inclusion.
- **Simplified Onboarding:** Simplify the onboarding process for individuals who may have limited access to traditional banking services.

Merchant Integration and Incentives:

- **Merchant Benefits:** Offer incentives and benefits for merchants to encourage wider acceptance of UPI payments.
- **Integration with Small Businesses:** Focus on integrating UPI into the payment systems of small businesses, street vendors, and local establishments.

Customer Support and Redressal Mechanisms:

- **Robust Customer Support:** Strengthen customer support services to address user queries and concerns promptly.
- **Efficient Redressal Processes:** Implement efficient redressal mechanisms for dispute resolution to enhance user confidence.

Innovation and Future-Ready Features:

- **Voice-Activated Transactions:** Explore the implementation of voice-activated transactions for users with limited literacy or disabilities.
- **Integration with Wearables:** Explore partnerships with wearable device manufacturers to enable UPI transactions through smartwatches and other wearables.

Regulatory Framework:

- **Dynamic Regulations:** Work closely with regulatory bodies to ensure that the regulatory framework evolves in tandem with technological advancements, fostering innovation while maintaining security and consumer protection.

Environmental and Sustainability Considerations:

- **Green Initiatives:** Implement environmentally friendly practices in UPI operations, considering energy efficiency and reduced carbon footprint.

CHAPTER 9:- CONCLUSION

UPI developed the m-payment technology by facilitating mobile phones to be used as the main payment device for giving and accepting payments. In distinction to all or any of payment systems, it is said that UPI is the most advanced payment system in the world. UPI payment system permits cash transfer between any 2 bank accounts by employing a sensible phone. It permits a client to pay directly from a bank account to completely different merchants, each online and offline, without the trouble of writing MasterCard details, IFSC code, or internet banking/wallet passwords. It aims to change and provide one interface to cash transfers: straightforward, quick, and hassle-free. These options of UPI motivate the respondents of service sectors to adopt the tool and therefore the higher than study revealed that there additionally a major distinction found between the gender towards the adoption of UPI. The use of smartphones, the supply of an internet verifiable identity, universal access to banking, and therefore the introduction of biometric sensors in phones can proactively encourage UPI transactions and findings discovered that the respondent has a positive angle towards the UPI dealing for ushering in a less-cash society in the Asian country.

UPI has enabled mobile phone to be used as a primary payment device for making and accepting payments. UPI leverages high teledensity in India to enable every bank account holder to make digital transactions using a mobile phone. India, which has a poor merchant payment acceptance infrastructure UPI, enables even the smallest merchant to start accepting digital payments without the need for any POS machine.

UPI has done away with the need to know the complicated payment details of the transacting parties, which makes payments easy and seamless for transacting parties. Compared to all other payment systems it would not be misplaced to say that UPI is the most advanced payment system in the world. With its standard set of APIs, UPI has allowed different banks to communicate with each other and has enabled interoperability between disparate bank payment systems.

In UPI there are no intermediaries like in card networks, which allows for low transaction costs and instant settlement. While all other digital modes of payments like cards etc. take days to complete the transaction and settlement process, UPI allows payment to be completed in seconds. UPI works on a safe, secure and robust platform with ample security features to make it more secure than any extant payment systems. Introduction of biometric authentication in UPI will not only make payments more secure but will also take a huge leap towards integrating next generation technology with current payments system. UPI can be a great enabler for financial inclusion in India and allow a huge set of population to be a part of digital economy.

CHAPTER 10:-BIBLIOGRAPHY

- [1] Reserve Bank of India (2017) Handbook of Statistics on the Indian Economy. Reserve Bank of India.
- [2] Committee on Digital Payments, Ministry of Finance—Government of India 2006, Chapter 3, Section 3.1, p. 29.
- [3] Reserve Bank of India Annual Report 2015-16, Reserve Bank of India, 2016, Chapter 8, p. 89
- [4] Committee on Payments and Market Infrastructures, Bank of International Settlements (2015) Statistics on Payment, Clearing and Settlement Systems in the CPMI untries. Committee on Payments and Market Infrastructures, Bank of International Settlements, Switzerland.
- [5] Government of India (2007) Payments and Settlements Systems Act. Gazette of India, Government of India, New Delhi.
- [6] Reserve Bank of India (2012) Payment Systems in India Vision 2012-15. Department of Payment and Settlement Systems, Reserve Bank of India.
- [7] Government of India (2016) Gazette Notification No 2652, Gazette of India, Government of India, New Delhi.
- [8] National Payments Corporation of India (NPCI) (2016) NPCI Presents Unified Payments Interface (UPI) System, NPCI Press Release. 11 April 2016, National Payments Corporation of India (NPCI), Mumbai.
- [9] National Payments Corporation of India (NPCI) (2016) NPCI's Unified Payments Interface (UPI) Set to Go Live, NPCI Press Release. 25 August 2016, National Payments Corporation of India (NPCI), Mumbai.
- [10] Reserve Bank of India (2009) Payment Systems in India Vision 2009-12. Department of Payment and Settlement Systems.