



BCA 409: SPECIALIZATION (E-COMMERCE) E – COMMERCE TECHNOLOGY – 2

UNIT-1

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“Education is the most powerful weapon which you can use to change the world.”(Nelson Mandela)

What Is an Electronic Payment System?



- Simply put, electronic payments allow customers to pay for goods and services electronically. This is without the use of checks or cash.
- Normally e-payment is done via debit cards, credit cards or direct bank deposits. But there are also other alternative payment methods such as e-wallets and cryptocurrencies.
- So if you're looking to move your business online and create an online store, you'll need to have an ecommerce payment system in place to accept payments online.
- It can also be called Digital Payments.

Pre-requisite(Requirements) of E-payment system

- The success or failure of any on-line payment systems depends not only on technical issues but also on user's acceptance. The user's acceptance depends on a number of issues such as advertisement, market position, user preferences etc.

1. Atomicity

- Atomicity guarantees that either the user's on-line payment transaction is completed or it does not take place at all. If the current on-line payment transaction fails then it should be possible to recover the last stable state. This feature resembles the transactional database systems, in which either a transaction is committed or rolled back.

2. Anonymity/Privacy

- Anonymity suggests that the identity, privacy and personal information of the individuals using the on-line payment methods should not be disclosed. In some on-line payment methods, it is possible to trace the individual's payment details. In case of purchases using Debit Card, it is possible to find out the purchase details as that information is registered at the vendor and the bank's databases. So some on-line payment systems like



Pre-requisite(Requirements) of E-payment system

3.Scalability

- As the on- line payment methods are getting more and more acceptance of the users, the demand for on- line payment infrastructure will also be increasing rapidly. Payment systems should handle the addition of users without any performance degradation. To provide the required quality of service without any performance degradation, the payment systems need a good number of central servers. The central servers are needed to process or check the payment transactions. The growing demand for the central servers, limits the scalability of the on- line payment systems.

4.Security

- Security is one of the main concerns of the on- line payment methods and it is one of the crucial issues which decide the general acceptance of any on- line payment methods. Internet is an open network without any centralized control and the on- line payment systems should be protected against any security risks to ensure a safe and reliable service to the users. When users are paying on- line they want to be sure that their money transaction is safe and secure. On the other hand, banks and payment companies and other financial institutions want to keep their money, financial information and user information in a secure manner to protect it against any possible misuse.

Pre-requisite(Requirements) of E-payment system

5. Reliability

- As in any other business activity, even in on-line payment methods, the user expects a reliable and an efficient system. Any on-line payment system would fail, despite of its advanced technological features, if it fails to get the users acceptance and pass their reliability tests. There are many reasons, which can make the system unreliable to the users. Some of them are Security threats, poor maintenance and unexpected breakdowns.

6. Usability

- Usability is an important characteristic of an interactive product like on-line payments. On-line payment systems should be user friendly and easy to use. Any on-line payment system with complicated procedures, complex payment process and other associated complications with the payment environment, can't get users acceptance. Poor usability of a web shopping or a payment method could also discourage on-line shopping. To make the online payments simple and user friendly, some of the on-line payment systems allow the users to make payments with minimum authorization and information inputs.

7. Inter operability

- In on-line payment Technologies, different users prefer different payment systems. The different payment systems use different kinds of currencies and the payment systems should support interoperability between them. If a payment system is inter operable, then it is open and allows other interested parties to join without confining to a particular currency. In the real life situation, there should be some sort of mutual agreement between various on-line payment systems to provide the interoperability. Interoperability can be achieved by the means of open standards for data transmission protocols and infrastructure. An interoperability system can gain much acceptance and high level of applicability than individually operating payment systems.

Types of E-Payment

E-PAYMENT SYSTEMS

Types of Electronic Payment Systems

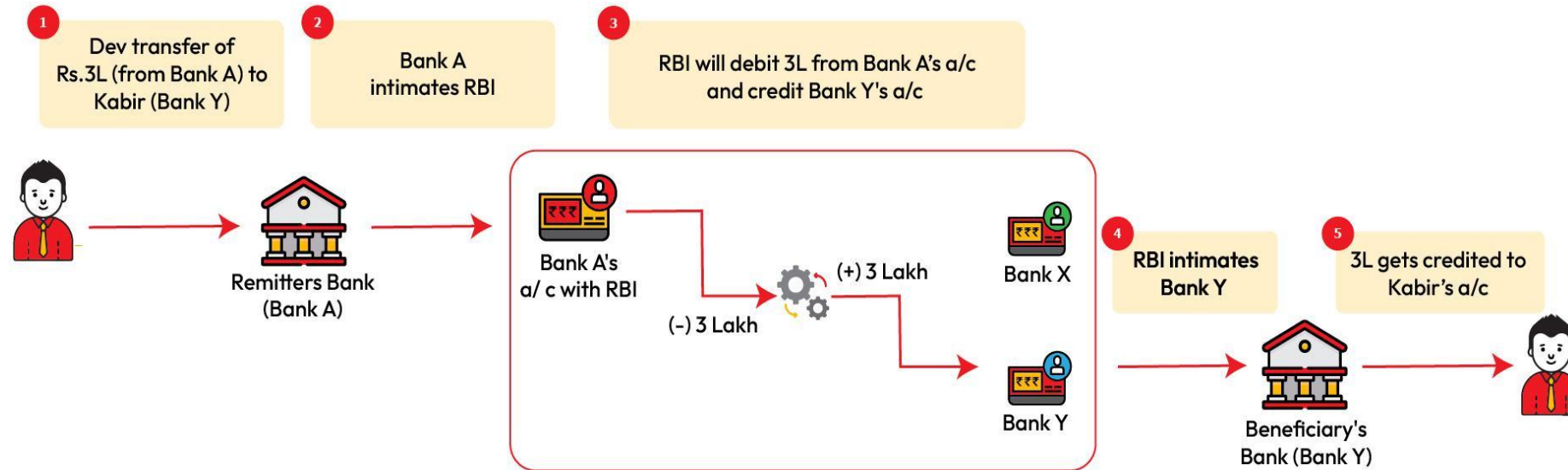


Types of E-Payment

- 1.Real Time Gross Settlement(RTGS)
- 2.Net Electronic Fund Transfer(NEFT)
- 3.Immediate Payment System(IMPS)
- 4.Unified Payments Interface(UPI)
- 5.Aadhar Enabled Payment Service(AEPS)
- 6.Mobile Wallets
- 7.Debit Cards
- 8.Credit Cards
- 9.E-Wallets

REAL TIME GROSS SETTLEMENT

RTGS (Real Time Gross Settlement)

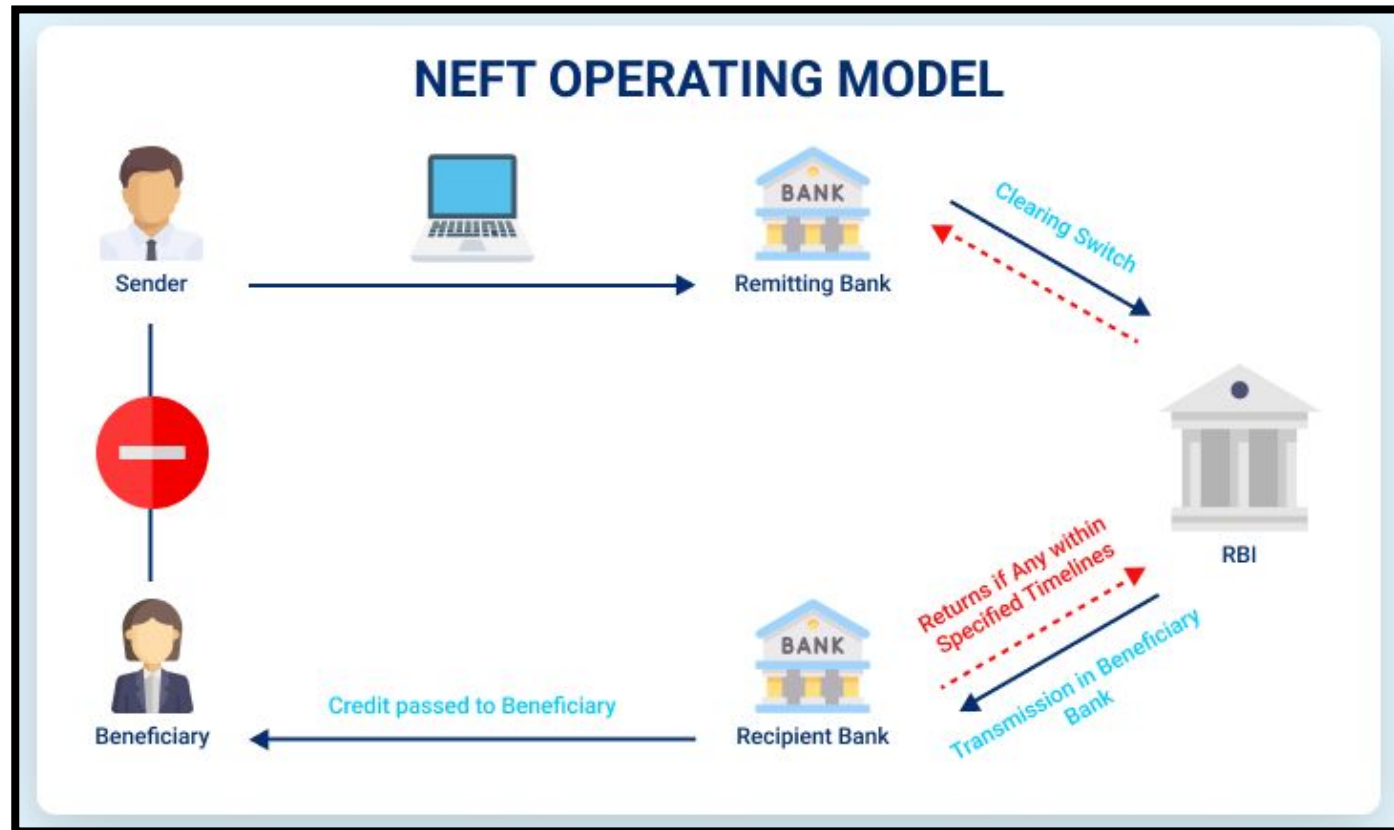


RTGS or Real Time Gross Settlement is an electronic method to transfer money from one bank to another bank on a real-time or gross basis **within the country**.

The term Real-Time means that the Payment is made instantly without any delay and may take around 30 minutes from receiving the request for remittance of funds.

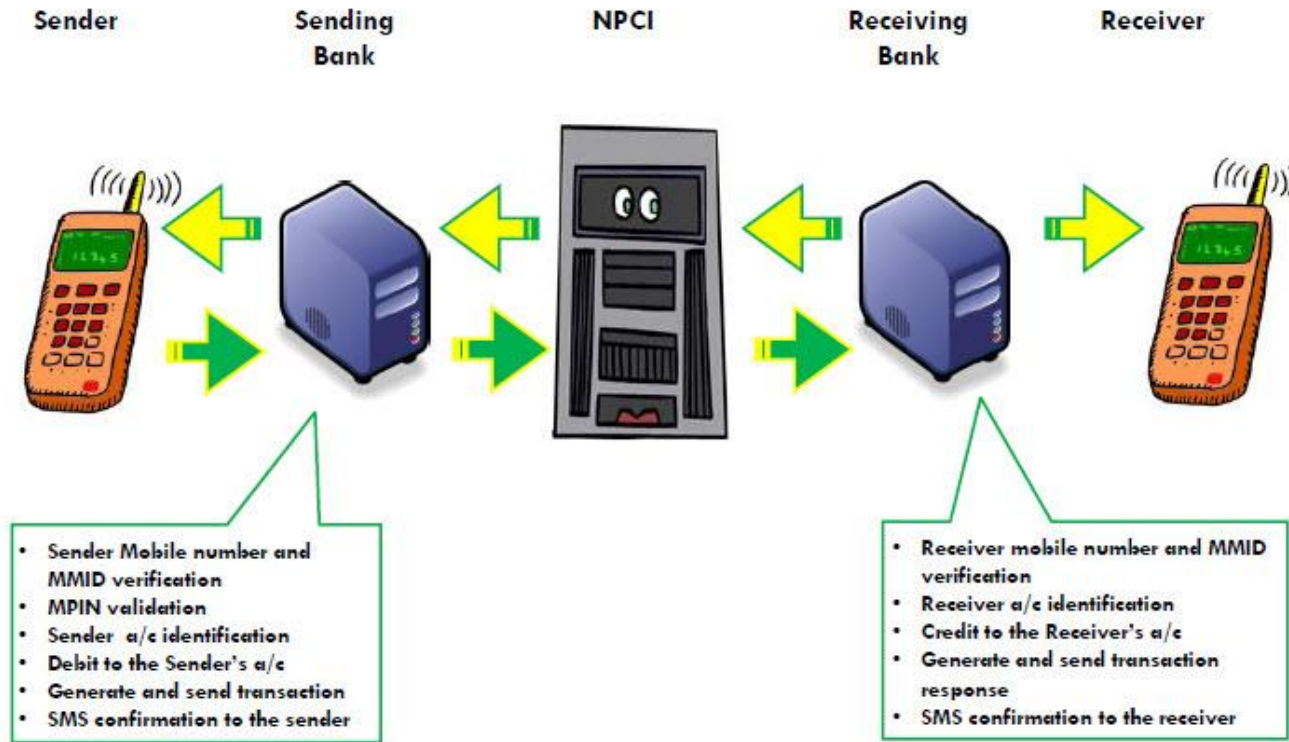
The Gross Settlement means the money is transferred on one to one basis.

NATIONAL ELECTRONIC FUND TRANSFER



NEFT is a one-to-one payment facility that is regulated by the Reserve Bank of India across various public and private sector banks. As per NEFT, one can transfer funds to another individual with an account in a different bank. However, to enable this facility, the concerned bank accounts must be NEFT-enabled. The payments as per the NEFT are processed and settled in half-hourly batches.

IMMEDIATE PAYMENT SYSTEM(IMPS)



- It is a real-time electronic fund transfer facility like NEFT or RTGS. IMPS service is convenient since it is quick, paperless and does not require one to have a detailed information related bank account to transfer funds.
- To avail the IMPS facility, one is required to have the beneficiary's mobile number linked to the bank account and the MMID. The IMPS payments can be made 24/7 and 365 days in a year.
- Thus, there is no disparity or hindrance in transferring funds with IMPS even during bank or public holidays.

UNIFIED PAYMENTS INTERFACE(UPI)

- It is a system that powers multiple bank accounts (of participating banks), several banking services like fund transfer and merchant payments in a single mobile application.
- Ex: BHIM, SBI UPI app, HDFC UPI app, etc.
- 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).

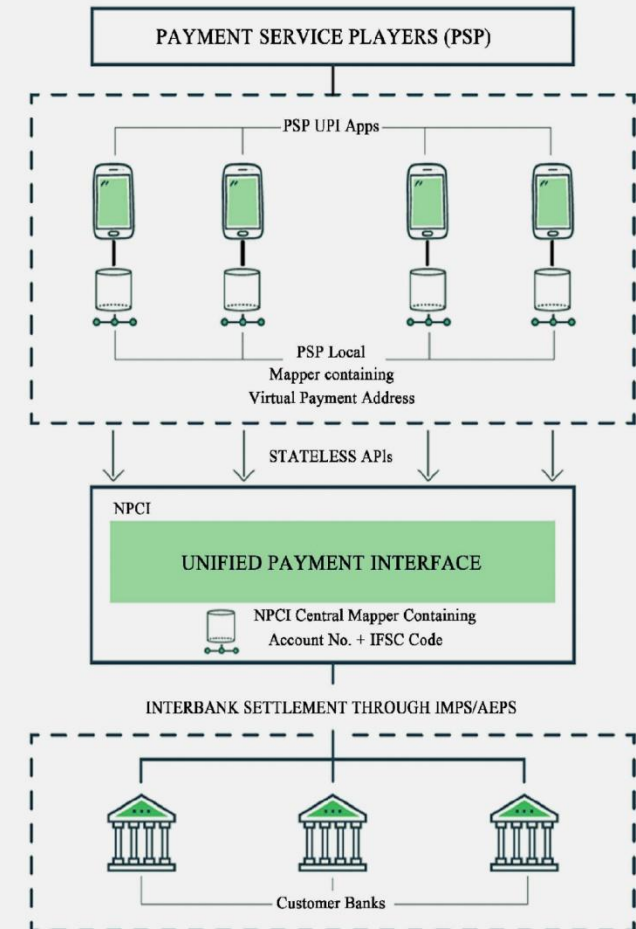
Who initiated UPI?

- 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 Ru-Pay payments infrastructure, i.e. similar to Visa and MasterCard. It allows different banks to interconnect and transfer funds. UPI is considered as the advanced version of IMPS.

What is UPI ID and PIN?

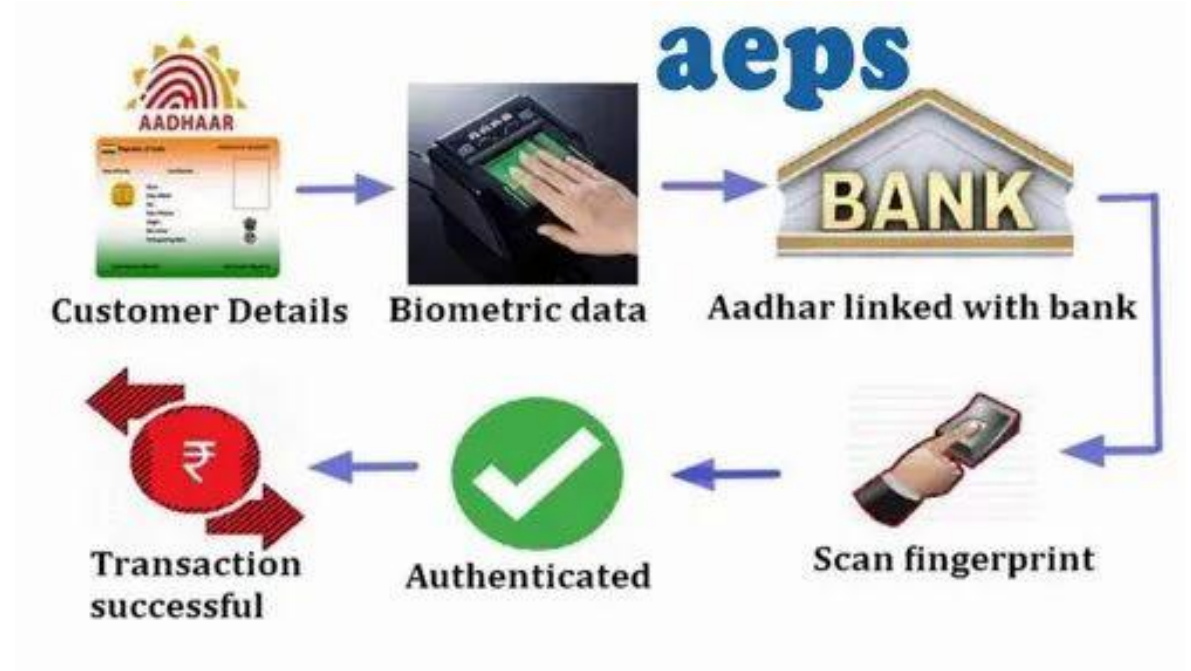
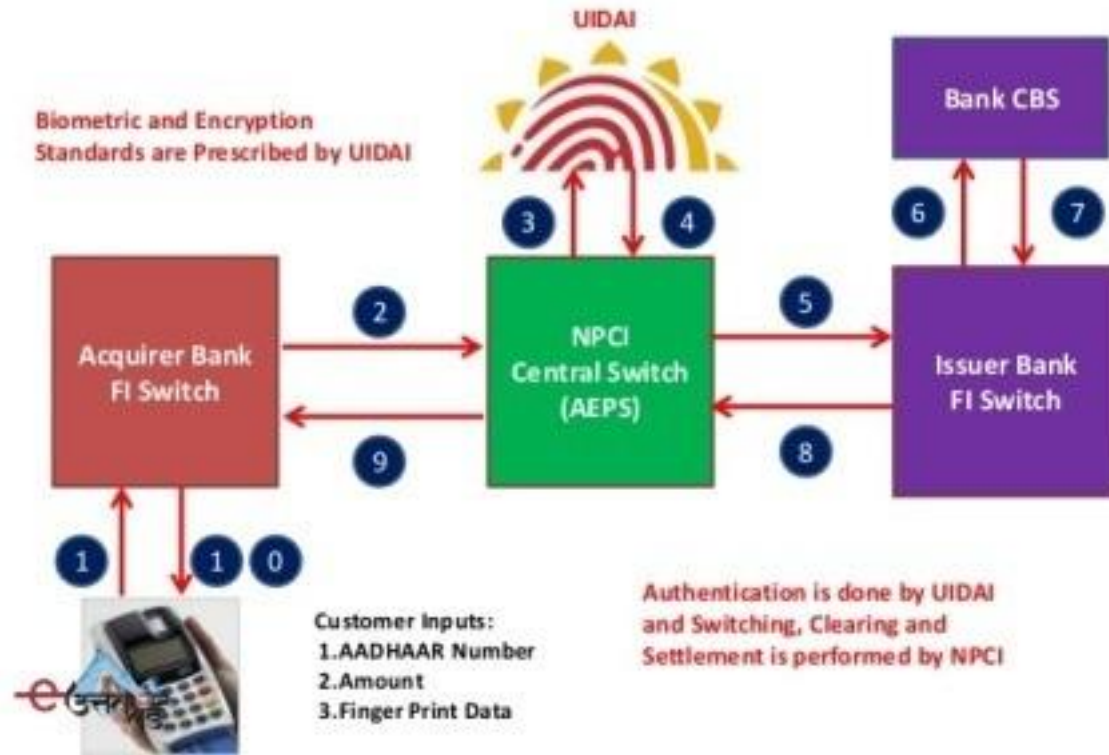
- A UPI ID is a unique identification for a bank account that can be used to send and receive funds. UPI PIN is a 4-digit personal identification number that must be entered to authorize the transfer of money via UPI. The PIN can be chosen by the account holder.

UPI's Modular API based Architecture



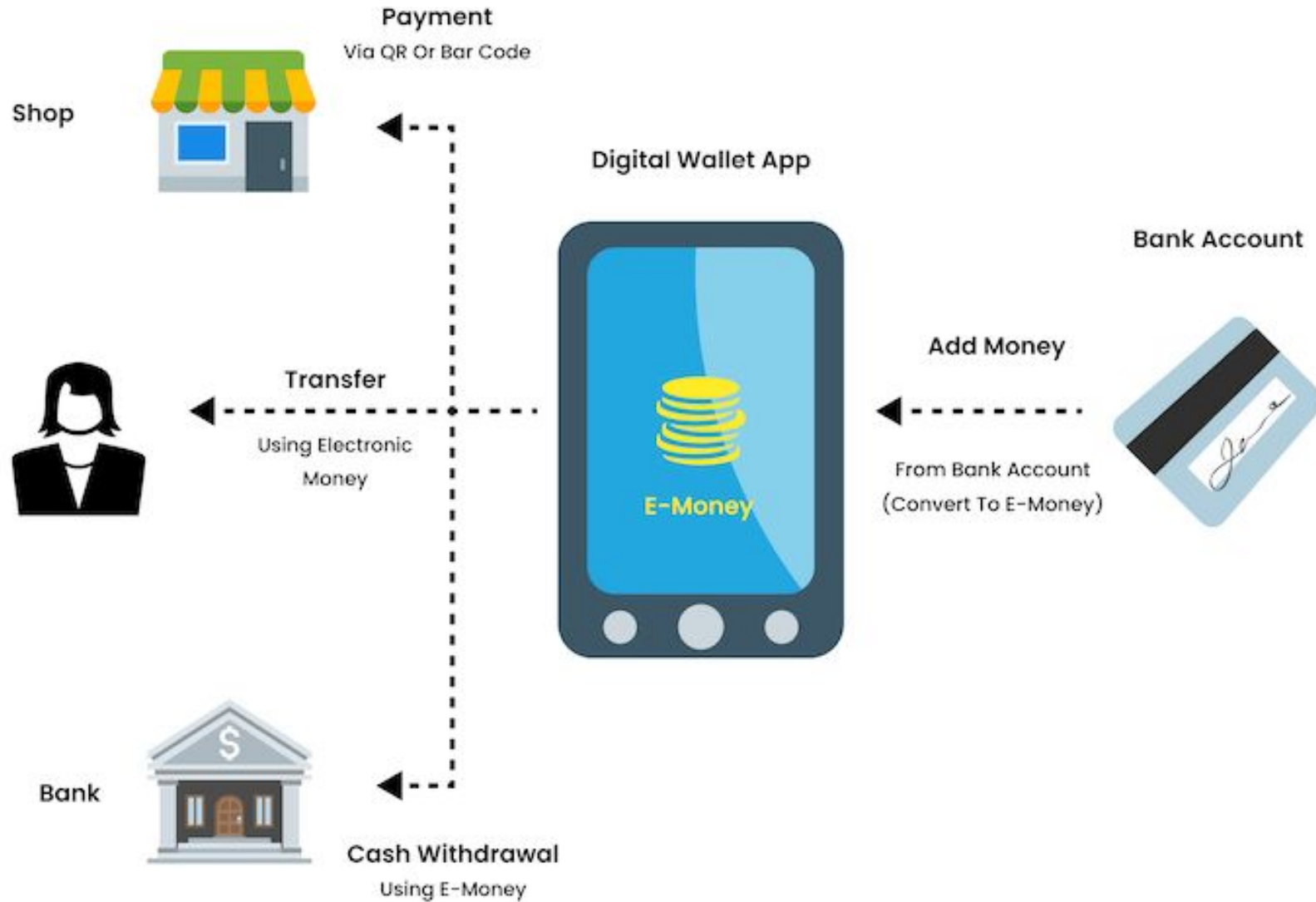
AADHAR ENABLED PAYMENT SERVICE(AEPS)

AEPS – Architecture



- It is an Aadhar based digital payment mode.
- Customers need only their Aadhar number to pay to any merchant.
- It allows banks to bank transactions. customers will need to link their Aadhaar numbers to their bank accounts.

MOBILE WALLETS

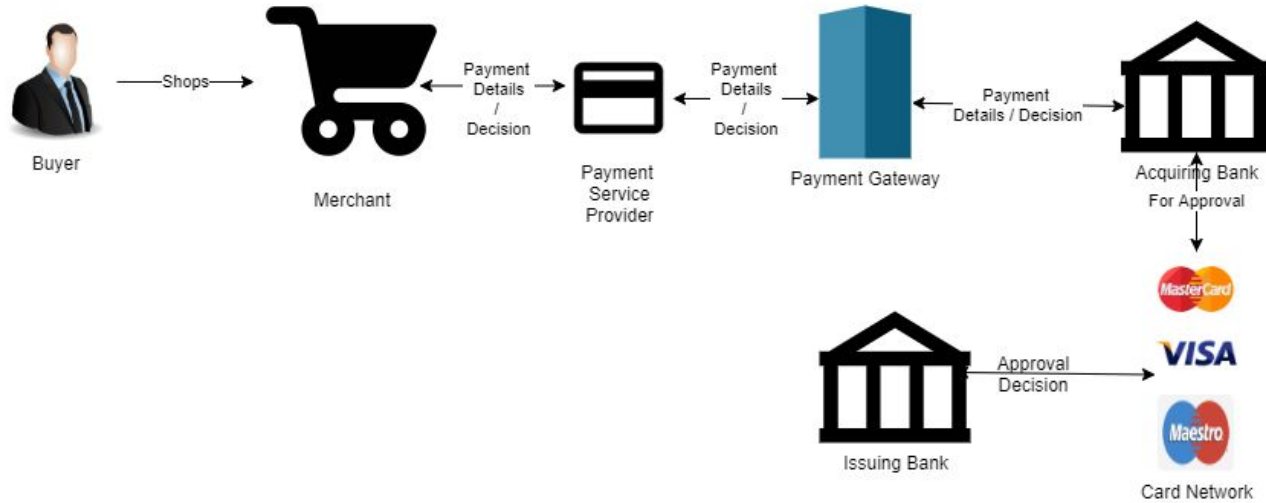


- It is a Virtual wallet that stores payment card information on a Mobile Device.
- They provide convenient ways to use Store-Payments.

DEBIT CARDS

Payment Processing Architecture

By Sriram
www.sriraminc.com

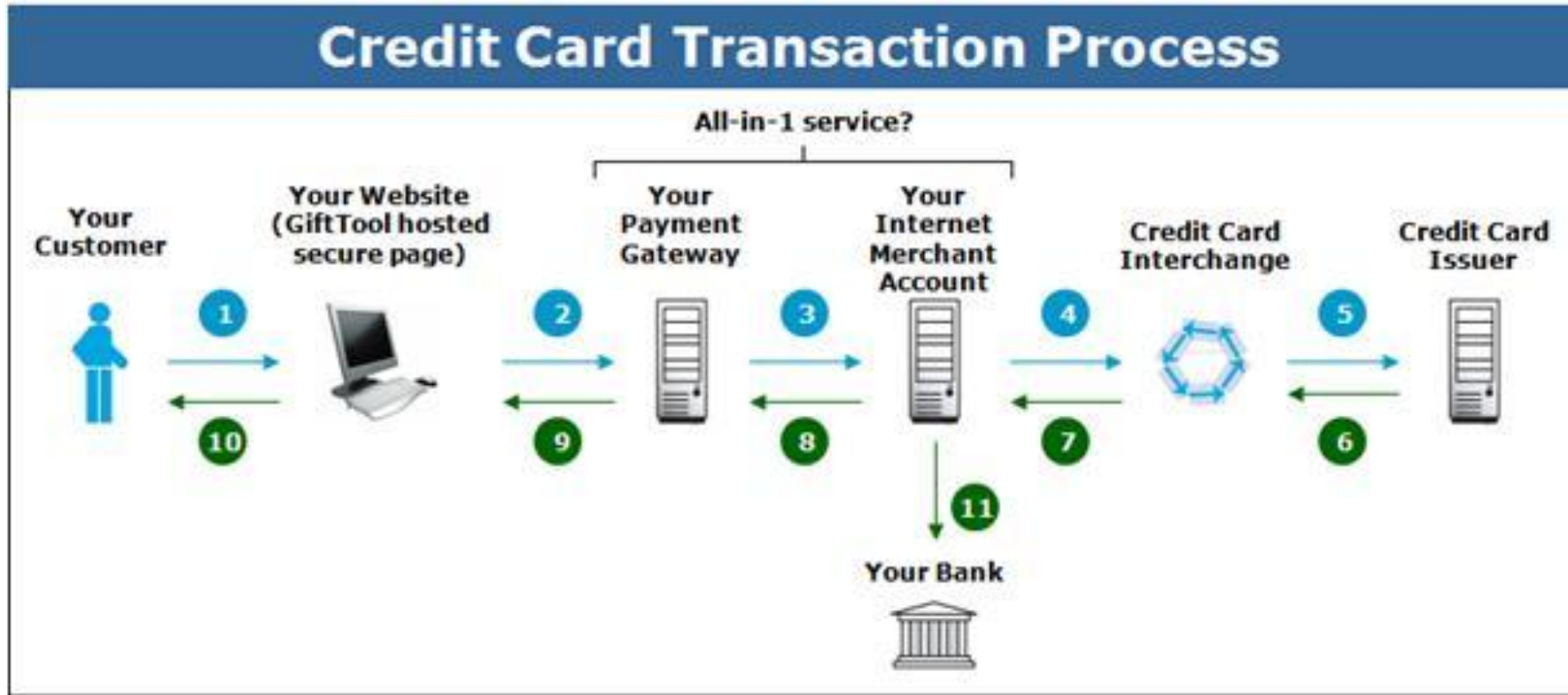


Payment Settlement Architecture



- It is a Virtual wallet that stores payment card information on a Mobile Device.
- They provide convenient ways to use Store-Payments.

CREDIT CARDS



- Plastic card issued by bank to purchase the goods / services
- Buyers cash flow is not immediately affected.

The metal chip that asks for your PIN when you put it in a machine!

The Contactless symbol. If this is on your card it means you can pay by Contactless!



Your card number for all the online purchases!

Your card expiry date

Magnetic strip thingy

Ah! so that's the CVV2 number

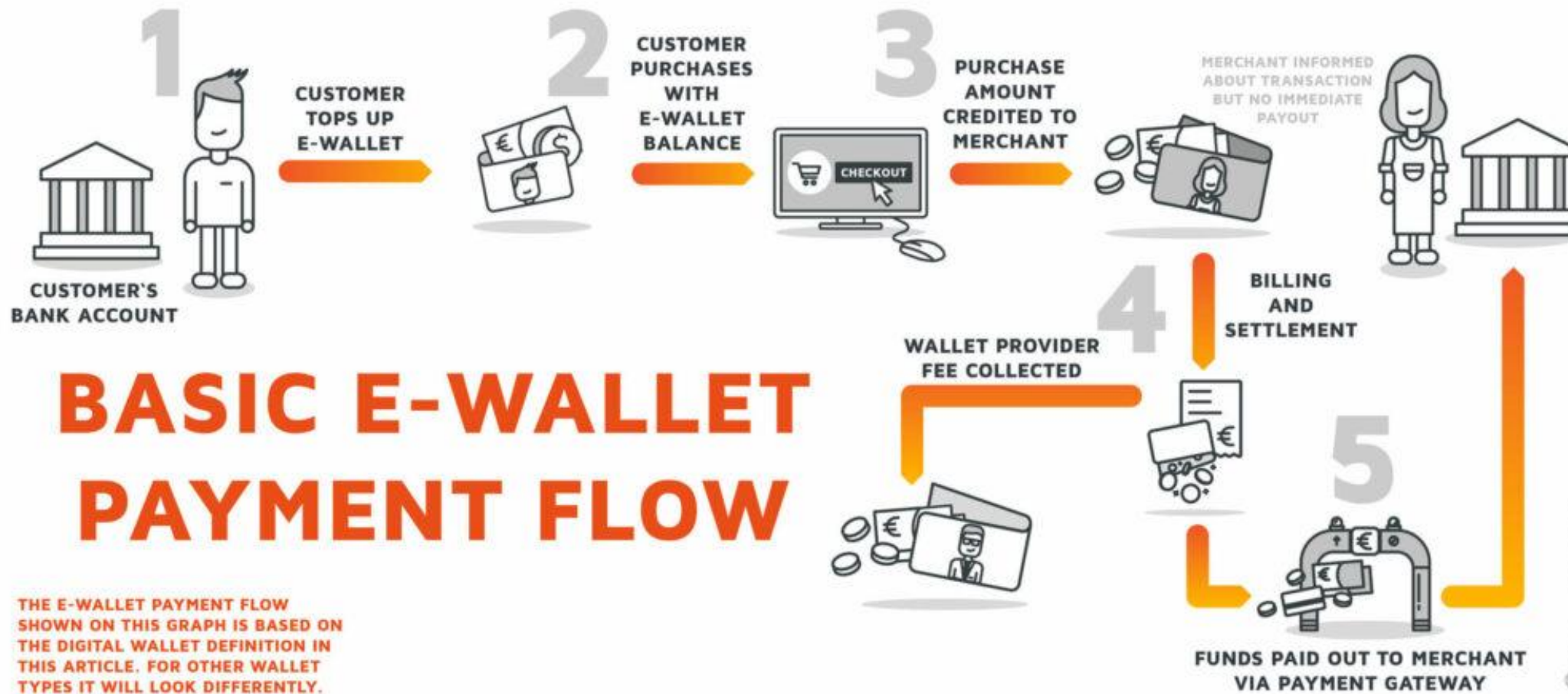


Sign your autograph here!

Shiny hologram for added security

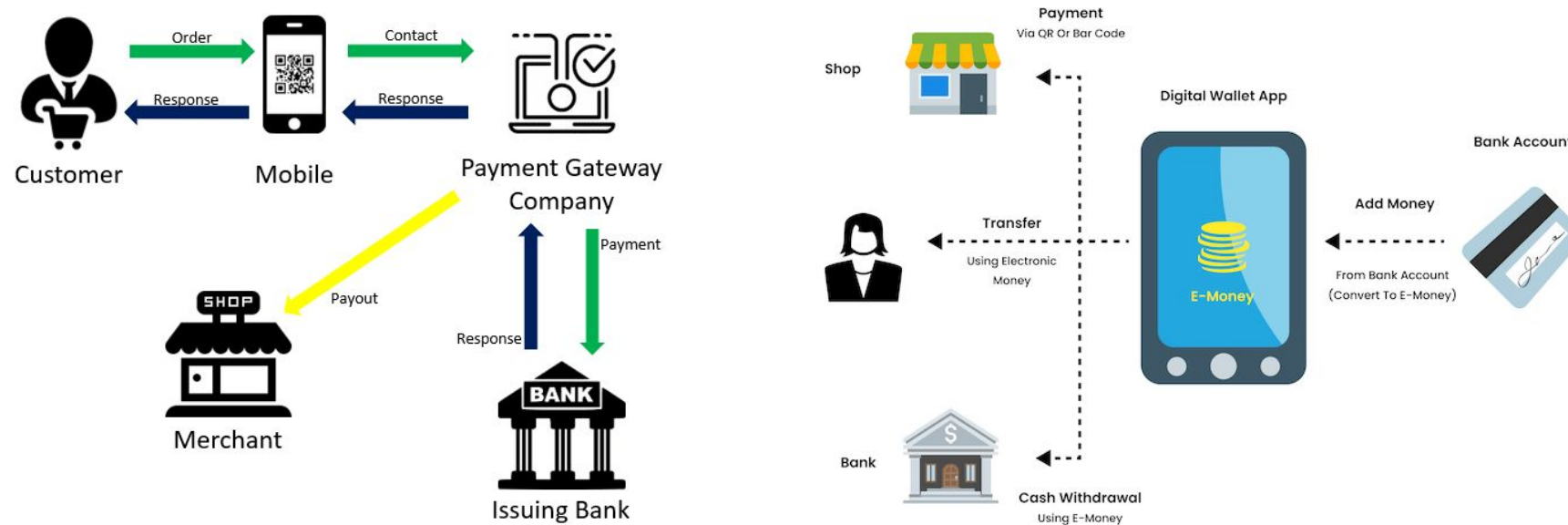
Your existing Open24 number

E-WALLETS



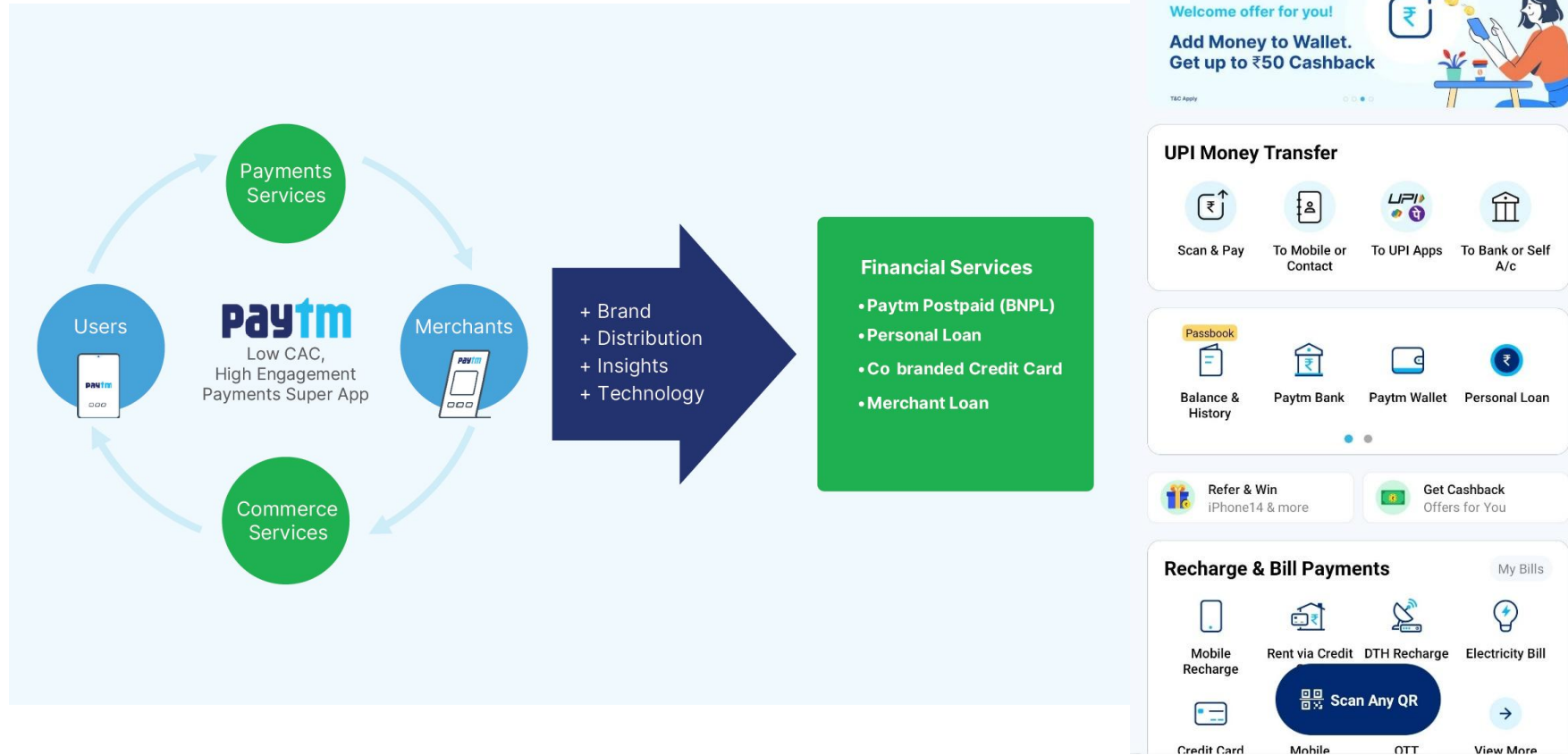
- E-wallet/ mobile wallet is the digital version of physical wallet with more functionality.
- User can keep his/her money in an e-wallet and use it when he needs.

What Is an Mobile Payment System?



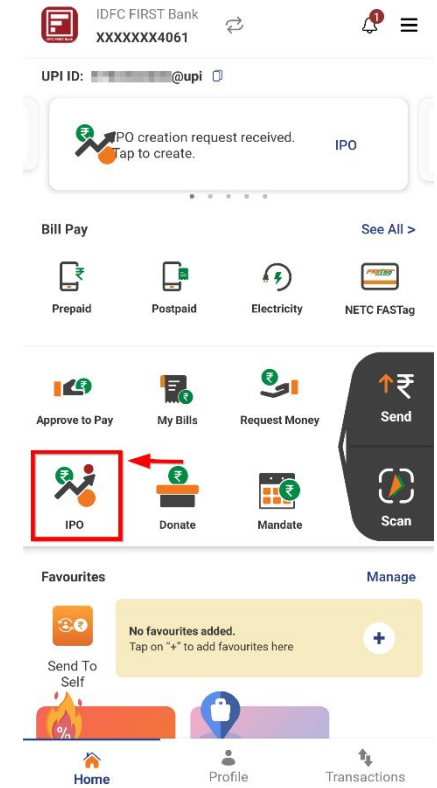
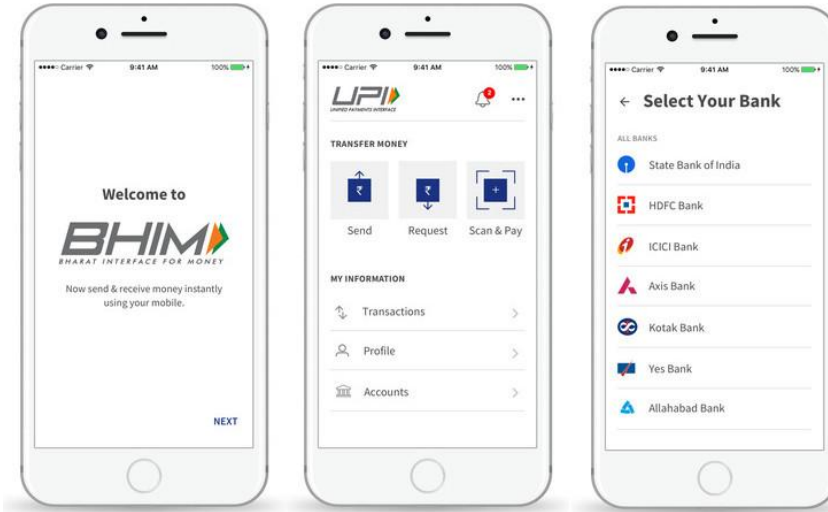
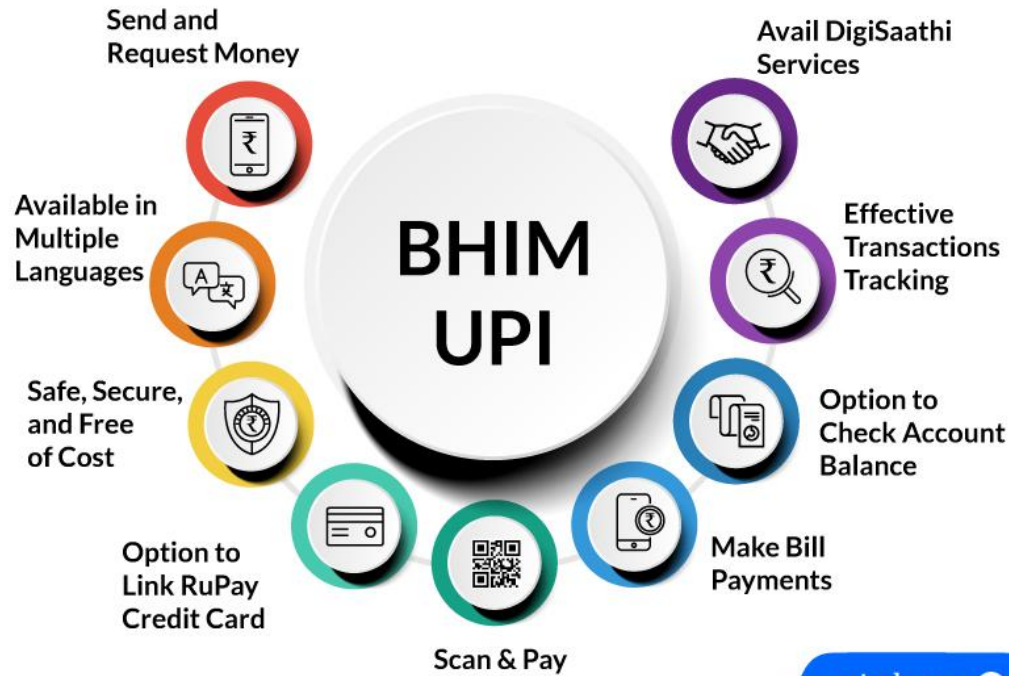
- A mobile payment is the transfer or payment of funds typically to a person, merchant or business for bills, goods and services, using a mobile device to execute and confirm the payment. The payment tool can be a digital (virtual or e-) wallet, mobile browser, or SIM toolkit / mobile menu.
- Mobile payment is one of the many mobile financial services (MFS) available today and is seen as a gateway to other mobile financial services such as, mobile banking, insurance, credit/lending and investment products. More recently consumers are adopting cryptocurrency for payments, trading, savings and investing.
- A mobile payment can be person to person (P2P) or consumer to consumer (C2C) transaction as well as consumer to business (C2B), business to consumer (B2C) or business to business (B2B) transaction. A P2P payment can be referred to as a mobile money transfer (MMT) while more commercial C2B, B2C and B2B transactions could be more strictly defined as mobile payments.

PayTM



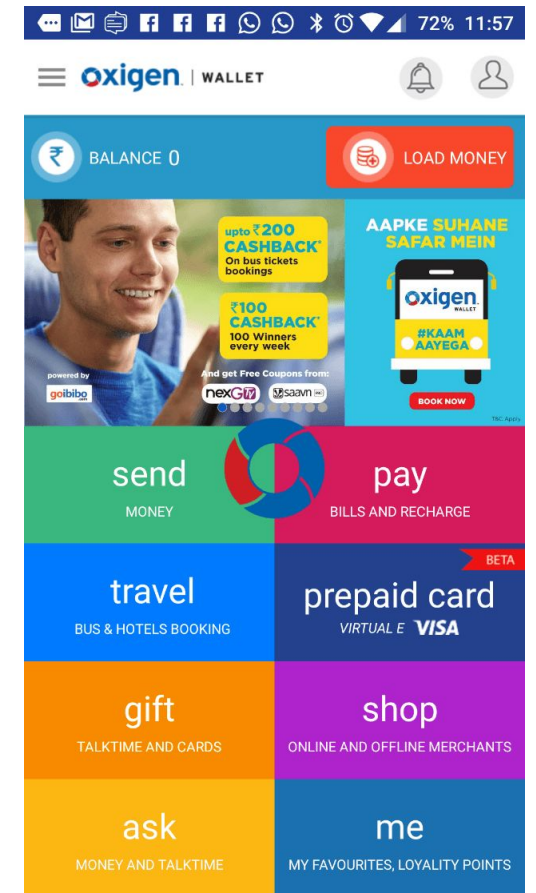
- Paytm wallet is a secure and RBI-approved digital/mobile wallet that can be used to meet almost all of your financial needs. You can add money to the Paytm wallet through UPI, internet banking, or credit/debit cards. Additionally, you can also send money from your Paytm wallet to a bank account or to another person's Paytm wallet at absolutely no extra charges.

BHIM (Bharat Interface for Money)



- Bharat Interface for Money (BHIM) provides fast, secure, reliable medium to make digital payments through your mobile phone using UPI (Unified Payment Interface) platform via Mobile App and USSD (Unstructured Supplementary Service Data) platform via *99# service.
- BHIM was launched by Hon'ble Prime Minister on 30th Dec 2016 and within 10 days, the BHIM app had 1 crore downloads from Android Play Store and over 2 million transactions across the UPI (Unified Payment Interface) and USSD (Unstructured Supplementary Service Data) platforms. BHIM is interoperable with other Unified Payment Interface (UPI) applications, and bank accounts. BHIM is developed by the National Payment Corporation of India (NPCI), a not-for-profit company for providing retail payment systems in the country under guidance from Reserve Bank of India.
- BHIM has been designed for quick and secure user on-boarding, sports a best-in-class and intuitive user interface and makes digital transactions seamless. BHIM has been a huge boon for merchants who can now accept payments directly into their bank accounts. All users, including merchants, get a ready to use VPA (virtual payment address) and an exclusive, ready-to-print QR code upon sign-up.

BHIM (Bharat Interface for Money)



- Oxygen Wallet, powered by Oxygen Services Pvt. Ltd. is India's first non-bank wallet, approved by Reserve Bank of India allowing customers to send and receive money through popular social networking platforms.
- As per a report published in April 2016 by VCCircle, the app claims to have 20 million users, and is accepted at around 9,000 merchant locations and 10,000 online sites.
- The services include money transfer, mobile & DTHTV payments, utility bill payments, gift cards, travel, movie ticket booking and Virtual Visa. Oxygen is the first online wallet allowing consumers to load cash in their mobile wallet. It enables individuals to transfer money, even if they don't have a bank account.
- Oxygen enables payments in different systems with various brand tie-ups.

Reference Link for Digital Payment System

Understanding Online Payments

- https://youtu.be/gG5kLlfZcik?si=eLB_JF2scuaprgRB

How UPI Payment Works & Benefits of UPI | Hindi

- https://youtu.be/EAux2r3AO3E?si=sE_qvcaiQaflpkeZ

NEFT, RTGS & IMPS Transfer - Limits, Charges & Timings

- <https://youtu.be/0F7pYIGdr5U?si=IJffJLw59mMXKDYG>

