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ELECTRONIC TRANSACTION: A MODERN DIGITAL WALLET THROUGH ROBUST TECHNOLOGY

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ABSTRACT

A digital wallet is a convenient and secure way to store and manage your payment information. With a digital wallet, you can make purchases online or in person without having to enter your payment details each time. You can also use your digital wallet to send and receive money, track your spending, and view your transaction history. Some digital wallets even allow you to earn rewards or cash back on your purchases. To use a digital wallet, you will need to create an account with a provider and link your payment methods, such as a credit or debit card. Once your account is set up, you can start using your digital wallet to make payments quickly and easily. Importance of Digital Wallets: Digital wallets, also known as e-wallets, have become a major part of modern technology. Many people use digital wallets for transactions rather than other payment methods. There are several reasons why digital wallets are so important. Digital wallets allow for faster, more convenient, and more secure transactions. They can help reduce the risk of fraud and other security threats. Digital wallets can also help users manage their finances more effectively. They are increasingly popular among consumers. Digital wallets eliminate the need for carrying a physical wallet for transactions. They allow users to send money to friends and family across the world. Digital wallets eliminate the need for a bank account for transactions. They are helping developing countries participate in the global finance market. There are three different types of digital wallets and they are as follows: Closed Wallet: Closed wallets are digital wallets that are created by companies that deal with products or services, and allow users to transact only with the issuer of the wallet or other users of the same wallet. Examples of closed wallets include Ola Money and Amazon Pay. Semi-Closed Wallets: Semi-closed wallets are digital wallets that allow users to make transactions at listed merchants and stores by making both online and offline payments. In order for merchants to accept payments from these wallets, they must sign an onboarding agreement with the issuer of the wallet. Paytm Wallet is an example of a semi-closed wallet. Open Wallets: Open wallets are digital wallets that can only be issued by banks or institutions partnered with another major bank. These wallets allow users to make the same transactions as semi-closed wallets, but also offer the additional feature of being able to withdraw money from ATMs.

KEYWORDS: Cash, Checks, Debit cards, Credit cards, Mobile payments, Electronic bank transfers, QR code, UPI, Paytm, Google Pay, Amazon Pay, JIO Money Freecharge, Yono SBI, Airtel Money, Payzapp, MobiKwik, Oxigen, Ola money, PhonePe, MSwipe, Axis Bank Lime, PayUmoney, ICICI Pockets, Citrus.

Preamble: A digital wallet, also known as an e-wallet, is an electronic device, online service, or software program that allows one party to make electronic transactions with another party bartering digital currency units for goods and services. This can include purchasing items either online or at the point of sale in a brick and mortar store, using either mobile payment (on a smartphone or other mobile device) or (for online buying only) using a laptop or other personal computer. Money can be deposited in the digital wallet prior to any transactions or, in other cases, an individual's bank account can be linked to the digital wallet. Users might also have their driver's license, health card, loyalty card(s) and other ID documents stored within the wallet. The credentials can

be passed to a merchant's terminal wirelessly via near field communication (NFC).[1-4]

Increasingly, digital wallets are being made not just for basic financial transactions but to also authenticate the holder's credentials. For example, a digital wallet could verify the age of the buyer to the store while purchasing alcohol. The system has already gained popularity in Japan, where digital wallets are known as "wallet mobiles". A crypto currency wallet is a digital wallet where private keys are stored for crypto currencies like bitcoin.[5]

A QR code (an initialism for quick response code) is a type of matrix barcode (or two-dimensional barcode) invented in 1994 by Japanese company Denso Wave. A barcode is a machine-readable optical label that can contain information about the item to which it is attached. In practice, QR codes often contain data for a locator, identifier, or tracker that points to a website or application. QR codes use four standardized encoding modes (numeric, alphanumeric, byte/binary, and kanji) to store data efficiently; extensions may also be used. The number of ways in which merchants can collect payments from their customers, for example, credit cards, digital wallets, direct debit, offline payment, etc.[6]

In a store, perhaps you use cash, credit cards, or mobile payment options like Apple Pay. Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.[7]

Payment mode

Cash

Checks

Debit cards

Credit cards

Mobile payments

Electronic bank transfers

Types of payments

There are several types of payments available

Cash (bills and change): Cash is one of the most common ways to pay for purchases. Both paper money and coins are included under the larger category of "cash." While cash has the advantage of being immediate, it is not the most secure form of payment since, if it is lost or destroyed, it is essentially gone. There is no recourse to recoup those losses.[8]

Personal Cheque (US cheque): These are ordered through the buyer's account. They are essentially paper forms the buyer fills out and gives to the seller. The seller gives the cheque to their bank, the bank processes the transaction, and a few days later the money is deducted from the buyer's account. With the increasing trend toward fast payment, cheques are seen as slow and somewhat outdated.[9]

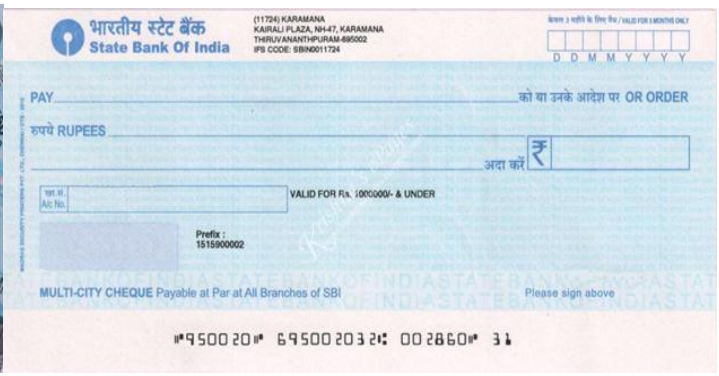

Figure-1: Payment modes.

Debit Card: Paying with a debit card takes the money directly out of the buyer's account. It is almost like writing a personal cheque, but without the hassle of filling it out.[10]

Credit Card: Credit cards look like debit cards. But paying with a credit card temporarily defers the buyer's bill. At the end of each month, the buyer receives a credit card statement with an itemized list of all purchases. Therefore, rather than paying the seller directly, the buyer pays off its bill to the credit card company. If the entire balance of the bill is not paid, the company is authorized to charge interest on the buyer's remaining balance. Credit cards can be used for both online purchases and at physical retailers.[11]

In bank account-based systems the funds move from the payer's account to the payee's account within the books of financial institutions providing payment services. The need for physical transportation of cash has changed to transporting payment instructions for making the required bookings. The diagram illustrates a typical sequence of payment operations.

Unlike NEFT and RTGS, the service is available 24/7 throughout the year including bank holidays. Unified Payments Interface (UPI) - UPI is best payment system for instant fund transfer below to Rs. 1 lakh. There is no charge on payment transfer.[12]

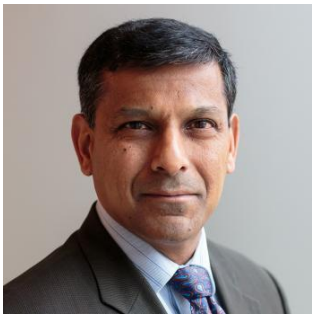

Figure-2: Father of UPI.

Raghuram G. Rajan [Born: 03-02-1963] launched the pilot program in Mumbai on 11 April 2016. Banks have started depositing their UPI-enabled apps on the Google Play store from August 25, 2016. He is father of UPI.

The Google Pay app is now the Google Wallet app. This change is to simplify how you store and use cards and passes. Google Wallet is a secure and private digital wallet that gives you quick access to payment cards, passes, tickets, keys, or IDs that you choose to store on it.[13]

Unified Payment Interface (UPI) was developed by the National Payments Corporation of India (NPCI) which was established by the Reserve Bank of India (RBI) and Indian Banks Association (IBA). It enables real time, person to merchant transactions, inter-bank peer to peer transactions. It was introduced on 11th April, 2016.

There are more than 100 million active users of UPI platform. You can read about the National Payments Corporation of India (NPCI) – An Overview of Objectives, Products in the given link. Payment Apps or mobile wallet refers to the payment services operated under financial regulation and is performed using a mobile device. The concept of paying using cash, cheque, debit or credit card is off lately becoming outdated. The new payment mechanism which involves payment for a transaction using the mobile wallet or mobile money transfer is gaining momentum. The concept of mobile payment is gradually being accepted and adopted across the globe in different ways. The exclusive first patent defined as 'Mobile Payment System' was filed way back in the year 2000. In some of the developing countries, the mobile payment mechanism is being used as a means of extending financial services to those people who are known as underbanked or unbanked and it is estimated that they constitute close to 50% of the global adult population, as per the reports from Financial Access of 2009 - 'Half the World is Unbanked'. They are mostly used for micropayments. Types of Mobile Payments There are five different types of models for mobile payments and they are Card-based payments Mobile Wallets Contactless Payments NFC (Near Field Communication) Carrier Billing (Premium SMS or direct carrier billing) Direct transfers between the payer and payee bank accounts on real-time based operations Payment App NFC For the last few years, Near Field Communication (NFC) payment applications have been gaining more attention with considerable popularity. This revolutionary payment system has gained enormous fame across the country. Innovation in NFC payment encryption transforms your mobile into a safe and easy way to pay. NFC is a short-range wireless networking technology that enables data sharing between two remote devices up to 10 cm or so. This is supported by large payment card networks, such as Visa, MasterCard, and American Express. To pay at any store's cash table, placing the phone next to the scanner would be enough to capture the transaction. It is an addition of the standard RFID (Radio Frequency Identification), which integrates a smart card and a reader in one unit. However, it is crucial to ensure that the mobile has built-in NFC technology and it is enabled for the payments, just like Bluetooth is enabled in a phone to share data. Working of NFC Payments. To make the payment complete an NFC reader and payment devices are need to be close together, then the NFC chips interchange encrypted data. This mechanism lets the checkout function very fast and secure and makes NFC payments one of the most reliable and easy forms of payment. This is why NFC-powered payments like Android Pay and Apple Pay are becoming a popular customer payment choice. Using radio waves that are close to RFID labels used in factory, shop, and other wireless tracking applications, the contactless connection between the two devices is generated. NFC chips use a common 13.56MHz RFID frequency that only operates when both chips are positioned very near to each other. Several digital eWallet payment applications use NFC for enhanced protection since digital wallets communicate with NFC readers only when the person opens the app on the smartphone and picks the payment card to complete the payment. Another security benefit of NFC is that only one NFC payment device is connected to the NFC readers at a time. This reduces all the chances of accidentally paying a nearby customer for other's purchases. NFC also enables its users to store their credit/debit cards on their smartphones. This allows the users to not to carry physical cards on their wallets for purchasing at online or offline stores.[14]

What is E-Wallet or Mobile Wallet? A mobile wallet or e wallet app or e wallet is an app that consists of your debit and credit card information which helps the users to pay for goods and services digitally using their mobile devices. Popular online payment apps or payment apps or e wallet list in India include:

Paytm
Google Pay
Amazon Pay
JIO Money Freecharge Yono SBI
Airtel Money
Payzapp
MobiKwik
Oxigen
Ola money
PhonePe
MSwipe
Axis Bank Lime
PayUmoney
ICICI Pockets
Citrus and so on.

How does Mobile Wallet/Payment App Works? In the case of First Payment using Online Payment Apps Registered users will input their phone number and the provider will send them an SMS along with a PIN. The user will enter the received PIN, authenticating the number. Now the user has to input their credit card information or another payment method if required (not required if the account has already been added) and will proceed to validate the payments. For Subsequent Payments through E Wallet Apps the user will have to re-enter the PIN to authenticate and validate the payment process **Features of E-Wallets**: Instant Payments. The money transfer between the payer wallet and the payee wallet will happen within a matter of a few seconds, instead of hours or business days in an e wallet account. The feature provides huge benefits as payments can be

done anytime and from anywhere making fund transactions immediately and this will increase the control of personal and business funds. Managing Virtual and Physical Card Operations. The emerging technology has helped the e-wallet app to store the user's credit or debit card data, which can be used to make money transactions at anytime from anywhere across the globe. The evolution of e-wallet simplifies the user's finances and it conveniently helps to aggregate all their cards in one central space. A mobile wallet or payment app is safer to carry all your cards with you as it avoids the user to physically carry the credit card. The software helps the app to encrypt the card data without storing the card number using high-grade security. Bill Payments by Payments App is one of the critical mobile wallet features as most of the youngsters prefer to pay bills online be it for shopping, groceries, restaurants, movie tickets booking, flight tickets booking, rent, tuition, utilities, loans, and so on. With the digital cash moment gaining pace, mobile wallets are indeed becoming a part of essential services for a common man.[15]

Easy and Fast Self – Registration: The main intention of the introduction of e-wallet is to save people's time, efforts and ease to do the transaction. The simple self-registration process comes in handy for the users which pushes them to go for the app without thinking twice before using it. Usually, the self – registration process has the following steps. Downloading the app and running it on the mobile phone. Signing up for it by providing the necessary data. Confirming the registration setting up of password and login. Linking up with debit or credit card or bank account, as per requirements. Adding money in the wallet. Finally using the wallet. Though the registration flow is a one-time process, it makes a crucial first impression that lasts forever. Payments: To and From Respective Bank Accounts. A payment app will allow for instant money transfer to any bank including an individual's account in the same bank as well as transfer to another person's account held in different banks. The payment app owner will have a variety of options for sending and receiving business or personal money within just a few clicks from wherever you are and at any time based on the requirement. One has to first download the online payment apps in their smartphones. Most of the payment apps download is available in both Android and IOS based phones.[16]

Security: The moment mobile financial services come into the picture, individuals prefer the highest security to adopt it. It is essential for money transactions to be safe and secure from one end to another. Payment Mobile Apps can be secured with a lot of robust technologies such as passwords, one – time passwords through SMS, point to point encryption, security questions, biometrics, out of band authentication and so on. Despite the proven fact that digital wallets are more safeguarded when compared with credit cards, the growing concerns of safety in consumers' minds remains the main obstacle to adopt payment apps. Merchant Payments using Contactless Technologies The up-gradation of technology has many merchants across the globe who are realizing the need to use various mechanics that accepts digital wallets. Most of the retail clients have made arrangements to make in-store payments using the mobile wallets via contactless methods be it using QR – code or near field communication and so on. NFC or Near Field Communication is a contactless remote technology that works within a close distance say up to 10 cm and it provides people with secure payments between the point of service devices and their respective smartphones. Quick Response Code or QR code is one of the popular forms of payment methods and it is very similar to a bar code. The user has to first scan the QR code either using a smartphone or a camera which interprets the bar code and a related application or a web site open through which payment can be made. Most of the payment apps provide NFC and QR payment facilities as the demand for the contactless transaction and the convenience which it offers to the users is growing seamlessly. Coupons, Rewards, Discounts. The use of payment apps and e-wallets provides its users with coupons, discounts, rewards, loyalty points, and so on. Digital wallet solutions will have tie-ups with many firms that provide offers, discounts, coupons on using the payment apps. The e-wallets form an ideal environment to provide deal-seeking consumers with a huge range of benefits and helps mobile wallet app to stand out in the market. Benefits of Payment Apps & e-wallets The following are the list of benefits or e wallet advantages: Customer Convenience The best advantage of using a payment app is customer convenience as they will be able to make payments using their mobile phones either using the contactless payments or by scanning QR code instantly. The payment apps India can be made by using either Samsung Pay or Android Pay or Apple Pay. One can easily leave the cash and cards at home and use their phones to make payments instead. Payments made using a mobile wallet is often easier and faster than swiping or inserting the cards. Secure way to make payments Payments made using mobile phone apps allow the user to use the cell phone to make in-store purchases. These apps use a technology which is called as Near – Field Communication (NFC) all you have to do is to tap or wave your phone to make payments at the point of service (POS) terminal. Most of the time, these apps use either encryption or protected code to minimize the threat to the personal data of users. Your original card number will not be stored on the device or with the retailer and instead, the system will mask the card numbers by assigning them with a random number or token for each purchase. If in case, a hacker tries to hack

to gain access to store data or your device, they will only get useless information. E-Wallets offers a great level of security for the financial data of the users. The user can add a fingerprint or PIN or Password as an additional layer of security for the phone to enhance the surveillance coverage. Improves Cash Flow. The introduction of e-wallets has improved the cash flow in the markets. For starters, most of the customers prefer to pay their bills using debit/credit cards over the traditional method of cash payments. Most of the mobile payment processors will transfer funds to a business account under three days. A faster way to make payments All the users have to do is tap, pay and go. With the increase in the number of people who use mobile phones, the e-payment system has gained momentum worldwide. All one has to do is to simply wave or tap the phone in front of an NFC compatible terminal, with this single action, the user has approved the transaction. This will result in a contactless transaction, despite securing the card number which is never revealed, in addition to this, the process is faster when compared to using debit or credit card which needs to be inserted in the device or for swiping purpose. Integrates Loyalty Programmes The use of mobile payments makes it possible to integrate loyalty and reward programs as customer information will be stored in the app. For example: being able to send customers a coupon when they are close to your store. This will help the customers to automatically receive the reward points or coupons for every transaction which they make. Drawbacks of using Payment Apps & e-wallets/e-wallet Disadvantages. The following are the list of drawbacks or e wallet disadvantages: Security Security remains one of the top concern amongst the owners and customers. It has been found the half of the mobile payments are not safe and secure. Adoption of users remains slow Most of the customers prefer to stay in their comfort zone, that is they either prefer to make payments using cash or debit or credit card. Though mobile payments are tied to a credit card or debit card or bank account, customers prefer to swipe their card or insert their cards in the terminals instead of waving their phone over the terminal. Expensive Technology Though it is a proven fact, that using mobile payments is less expensive than the traditional POS systems, it still requires new hardware including that of a terminal or smartphone which supports Near Field Communication. It is impossible to make payments, if you still possess an old credit or debit card terminal or if you do not have a smartphone. One should also have a strong internet connection and updated infrastructure is a must to process mobile payments. Difficult to Read Terms and Conditions It is a must and mandatory for the users of mobile payment apps to understand the terms and conditions. Like any other business agreement, the business owners will have to first read and understand the terms and conditions which come in with the payment apps. If in case, the user fails to read the fine print mainly when it comes to processing fees, then you will be in for an unwelcome surprise when you open your invoice at the end of the month.[17]

Payment Apps and e-Wallets

PhonePe: PhonePe is an Indian digital payments and financial technology company headquartered in Bengaluru, Karnataka, India. PhonePe was founded in December 2015, by Sameer Nigam, Rahul Chari and Burzin Engineer. The PhonePe app, based on the Unified Payments Interface (UPI), went live in August 2016. It is owned by Flipkart, a subsidiary of Walmart. Founder: Sameer Nigam (Co-Founder & CEO), Rahul Chari (Co-Founder & CTO), Burzin Engineer (Co-Founder & CRO).

Paytm: Paytm [Headquarter: B-121, Sector 5, Noida, Uttar Pradesh, India (acronym for "pay through mobile") is an Indian multinational financial technology company that specializes in digital payments and financial services, based in Noida. It was founded in 2010 by Vijay Shekhar Sharma.

Amazon Pay: Amazon Pay [Headquarter: Seattle, Washington United States] is an online payments processing service owned by Amazon. Launched in 2007, Amazon Pay uses the consumer base of Amazon.com and focuses on giving users the option to pay with their Amazon accounts on external merchant websites. As of March 2021, the service became available in Austria, Belgium, Cyprus, Denmark, France, Germany, Hungary, India, Republic of Ireland, Italy, Japan, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States.

Freecharge: [Headquarter: Gurugram, Haryana India] Freecharge is an Indian financial services company based in Gurugram. It allows users to pay bills such as electricity, gas and telephone, as well as recharge mobile, broadband, DTH and metro cards. In addition, it enables the users to invest in mutual funds and get credit through Freecharge EMI. Owner is Axis Bank. Founded: August 2010; 12 years ago. Founder: Kunal Shah, Sandeep Tandon.[18]

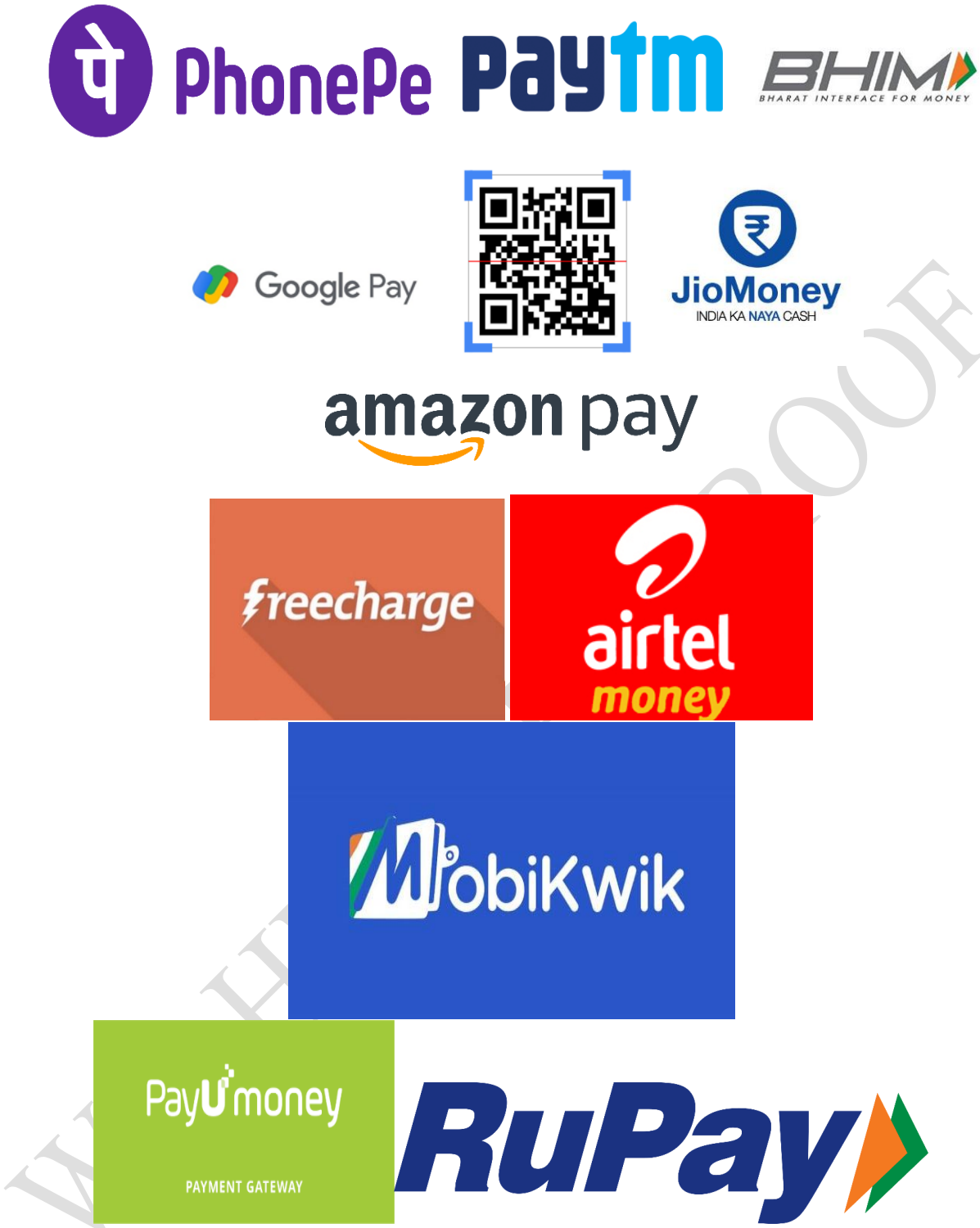

Figure-3: Payment apps.

Airtel Money: Airtel Payments Bank is an Indian payments bank with its headquarters in New Delhi. The company is a subsidiary of Bharti Airtel. On 5 January 2022, it was granted the scheduled bank status by Reserve Bank of India under second schedule of RBI Act, 1934. Headquarters: New Delhi, India. Owner: Bharti Airtel. Founded: 23 November 2016; 6 years ago. Founded: 23 November 2016; 6 years ago. Headquarters: New Delhi, India. Founder: Anubrata Biswas.

Table-1: Advantages & Disadvantages of e-wallet.

Payment Type	Advantages	Disadvantages
Cash	1. One of the most common and easiest forms of payment. 2. Many customers will expect you to accept cash. 3. You won't have to pay any fees to accept cash.	1. Customers might not want to make large purchases with cash. 2. Storing cash at your place of business or home, or transporting it to the bank, can be dangerous. 3. Ensuring your register is stocked with bills to make change can tie up money you could use for other business purposes. 4. Counting money at the end of each day is time-consuming.
Checks	1. May lead customers to make more frequent or larger purchases. 2. Allows customers to safely make large purchases. 3. You won't have to keep as much cash in your store. 4. You won't have to pay any fees to accept checks.	1. After depositing a check, you'll need to wait for the bank to process the check and put the money in your account. 2. There's a risk that someone will try to pay with a fake check, or that a check will "bounce" if the customer doesn't have enough money and you won't receive the payment.
Debit, Credit and Prepaid Cards	1. May lead customers to make more frequent or larger purchases. 2. Allows customers to safely make large purchases. 3. Can be quicker and more convenient for customers at checkout than cash or checks. 4. You won't have to keep as much cash in your store. 5. You don't have to worry about bad checks or fake cash. 6. Allows foreign travelers to more easily make purchases.	1. You'll have to wait for the transaction to process before getting money in your account. This usually takes between one and three days. 2. You may have to pay transaction fees, a small percentage of the transaction. Debit cards generally have lower fees. 3. You will need to purchase or rent a device to accept payment (called a point-of-sale device). 4. You may be responsible if a customer uses a fake or stolen card to make a purchase. 5. If a customer disputes a charge (i.e., initiates a "chargeback"), the transaction may be reversed and you won't receive a payment.
Mobile Payments	1, May lead customers to make more frequent or larger purchases. 2. Allows customers to safely make large purchases. 3. Can be quicker and more convenient than accepting cash or checks. 4. You won't have to keep as much cash in your store. 5. You don't have to worry about bad checks or fake cash. 6. Mobile payments may be more reliable than card-based transactions in some areas. 7. If you sell items at markets, conferences or trade shows, you can bring your mobile payment system with you. 8. Allows foreign travelers to more easily make purchases. You'll have to wait for the transaction to process before getting money in your account. 9. This usually takes between one and three days. 10. You may have to pay transaction fees, which is usually a small percentage of the transaction. 11. You will need to purchase or rent a device to accept payment (called a point-of-sale device). 12. You may be responsible if a customer uses a fake or stolen payment information to make a purchase.	1. You'll have to wait for the transaction to process before getting money in your account. This usually takes between one and three days. 2. You may have to pay transaction fees, which is usually a small percentage of the transaction. 3. You will need to purchase or rent a device to accept payment (called a point-of-sale device). 4. You may be responsible if a customer uses a fake or stolen payment information to make a purchase. 5. If a customer disputes a charge (i.e., initiates a "chargeback"), the transaction may be reversed and you won't receive a payment.
Electronic Bank Transfers	1. Allow you to receive large payments without paying fees. 2. Allows customers to safely make large purchases. 3. Can be quicker and more convenient than accepting cash or checks. 4. You won't have to keep as much cash in your store.	1. Non-business customers might not feel comfortable transferring money directly from their bank account to your business. 2. You'll have to wait for the transaction to process before getting money in your account. 3. You may need to set up this type of transaction with your bank and the customer's bank, which isn't always easy.

	5. You don't have to worry about bad checks or fake cash. 6. Could be a good option if you sell products or services to other businesses.	
Mobile Wallet	1. Mobile Wallet payments allow customers to pay without using a physical card 2. Often more secure to customers than using a physical card as the data is encrypted and cannot be seen 3. All smartphones are now equipped with a mobile wallet 4. Quick, efficient checkout process can encourage customers to make more frequent purchases	1. Requires you to rent or own a device to process the "tap" to complete the transaction
QR "Quick Response" Codes	1. Contactless payment option for customers who want a hands-off experience 2. Enabled in all smartphones and does not require a specific app for customers to access 3. Does not require a POS or payment terminal to complete transactions	1. Requires a strong Wi-Fi connection 2. May require customers to input credit or debit card information more than once since information is not automatically stored
AutoPay	1. AutoPay is very easy to set up for customers 2. Beneficial for subscription services or recurring payments 3. Ensures on-time payments that aren't reliant on customers being reminded to submit payment 4. Less time spent following up with customers to remind them to submit payments	1. Overdraft payments occur more often with AutoPay resulting in reverse transactions 2. Customers may forget about the AutoPay they've set up and request refunds after the fact
Email Invoicing	1. If your business is providing services, email invoicing immediately following the service allows customers to pay and receive a receipt automatically 2. Allows you to streamline your reporting and manage data securely, connecting with your CRM and accounting systems 3. >More efficient and environmentally friendly Quicker transactions and less follow up required to collect payment	1. Primarily for service providers and less useful for retail, consumer goods or online businesses 2. Potential for lost emails or being flagged as "junk mail"

JIO Money: Jio Payments Bank is an Indian payments bank, which started operating in 2018 and is owned by Reliance Industries. Reliance Industries was granted an in-principle approval by the Reserve Bank of India (RBI) to establish a new payments bank under the Banking Regulation Act, 1949. Founded: 3 April 2018; 4 years ago. Founder: Mukesh Ambani. Headquarters: Navi Mumbai, India. Key people: Vivek Bhandari (Chairperson), Srikrishnan H (MD & CEO).

Google Pay: Google Pay (formerly Android Pay) is a mobile payment service developed by Google to power in-app, online, and in-person contactless purchases on mobile devices, enabling users to make payments with Android phones, tablets, or watches. Users can authenticate via a PIN, passcode, or biometrics such as 3D face scanning or fingerprint recognition. As of 2022, it is currently available in 46 countries. In 2022, a companion app named Google Wallet was released.[19]

MobiKwik: MobiKwik is an Indian payment service provider founded in 2009 that provides a mobile phone-based payment system and digital wallet. Customers can add money to an online wallet that can be used for payments. In 2013 the Reserve Bank of India authorized the company's use of the MobiKwik wallet, and in May 2016 the company began providing small loans to consumers as part of its service. Founded: April 2009; 13 years ago. Founders: Bipin Preet Singh, Upasana Taku. Headquarters: Gurgaon, Haryana, India.

PayUmoney: PayU is a Netherlands-based payment service provider to online merchants. The company was founded in 2002, and is headquartered in Hoofddorp. It allows online businesses to accept and process payments through payment methods that can be integrated with web and mobile applications. As of 2018, the service is available in 17 countries. The firm is owned by the Naspers Group, which also owns a stake in one of its sister companies, Founded: 2002. Founder: Jose Velez, Martin Schrimpff, Arjan Bakker, Grzegorz Brochocki, Nitin Gupta, Shailaz Nag.

BHIM: BHIM (Bharat Interface for Money) is an Indian mobile payment app developed by the National Payments Corporation of India (NPCI), based on the Unified Payments Interface (UPI). Launched on 30 December 2016, it is intended to facilitate e-payments directly through banks and encourage cashless transactions. It was named after the Dalit leader Dr Bhimrao Ambedkar.

Figure-4: Electronic transaction.

RuPay: RuPay (portmanteau of Rupee and Payment) is an Indian multinational financial services and payment service system, conceived and launched by the National Payments Corporation of India (NPCI) on 26 March 2012. It was created to fulfil the Reserve Bank of India's (RBI) vision of establishing a domestic, open and multilateral system of payments. RuPay facilitates electronic payment at all Indian banks and financial institutions. NPCI maintains ties with Discover Financial, JCB to enable RuPay card scheme to gain international acceptance. Introduced: March 2012; 10 years ago. Owner: National Payments Corporation of India.

Companies are continuously seeking ways to reduce costs and improve efficiency by managing payments makes a difference. Cash-based payments are manual and prone to inefficiencies and fraud. Bank-account based instruments require electronic transfers of payments to reap all the benefits. With the development of information technology and the wide adoption of computers, networks, mobile telephones and other e-based solutions, methods for payment have moved to a new level of efficiency. In particular electronic applications offer possibilities to simplify and facilitate payment procedures. Initiation, transportation and bookings of payments can currently be made immediately to anywhere in the world. Payments can be finalized without any manual or paper-based routines.[20]

One major development trend that significantly impacts trade is the increased use of payment methods where the credit institutions become part of the payment chain. To postpone the payment due date, many more consumer payments are based on credit cards. Corporate customers use factoring. This has given banks a central role. For all payment instruments, the payment service providers must be connected to each other in order to facilitate the transportation of funds between the different institutions. The instruments should be harmonized and thus use inter-operable procedures.

CONCLUSION

A digital wallet is a type of electronic device or software that allows users to make transactions digitally or electronically. This can include sending or receiving money, or making payments at online and offline stores. Digital wallets are popular because they are easy to use and offer a wide range of applications. They also eliminate the need for users to enter the recipient's bank details in order to make a payment. The possibility to make and receive payments "both domestically and internationally" through a variety of channels eases the task of trading partners by ensuring their goods or services are properly paid for and that issued payments are safely applied and routed to the right bank accounts. The increased variety of payment methods and channels has however produced challenges arising from the impact of greater regulatory change, forcing trading partners and their financial institutions to comply with rules and guidelines. These can sometimes slow down the process and require additional steps to "for example" check the identity of the counterparties, ensure payment instructions are correctly issued by authorized parties, or reduce the fees applied by banks for payments transactions. Competition from existing players and new entrants, as well as the impact of rapidly advancing

internet and mobile technologies, are additional elements in the choice of the payment instrument and the channel to use.

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