

WILL DIGITAL WALLETS REPLACE CREDIT AND DEBIT CARDS?

Siddhi Sawant¹, Dr. Archana Wafgaonkar², Mr. Deepak Singh³

¹Student, SIBMT, Bavdhan, Pune.

²Assistant Professor, SIBMT, Bavdhan, Pune, India.

³Vice Principal, SIBMT, Bavdhan, Pune, India.

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ABSTRACT

Digital payment wallets have become increasingly popular in the past few years. The covid-19 pandemic has provided a further push to its usage. Customers are using payment cards stored in their digital wallets to make instore and ecommerce payments as more merchants accept digital pays as form of payment. The rising smartphone shipments and efforts from various wallet pays to increase their acceptance in global markets, the plastic cards may soon be replaced by digital wallets and virtual cards.

1. INTRODUCTION

Digital wallets have become quite popular globally over the last few years. There are three major digital wallets providers globally that allow POS terminal payments-Apple, Google and Samsung. Apple Pay and Samsung Pay can be used with their respective smartphones, Google Pay and can be used with any android smartphone. Alipay is the leading digital wallet in China that can be used at POS terminals for instore payments.

Other digital wallet pays such as Amazon Pay, PayPal are available globally while WeChat is available in China that can be used for ecommerce mobile payments. Mobile payments are expected to rise at a growth rate of 27% between 2020-2025 and is expected to become second most popular payment method after debit card payments.

| Digital Wallet | Active Users |
|----------------|--------------|
| Alipay | 1.2 Bn |
| WeChat | 1.15 Bn |
| Apple Pay | 441 Mn |
| PayPal | 305 Mn |
| Samsung Pay | 51 Mn |
| Amazon Pay | 50 Mn |
| Google Pay | 39 Mn |

Keywords: Digital Wallets, Mobile Payments, Financial Technology, Payment Systems, E-Wallets, Mobile Banking, Google Pay, Banking Finance, E-commerce Payment

Objectives

- Provide an in-depth examination of the rise and impact of digital payment wallets in the financial landscape.
- Emphasize the increasing usage and acceptance of digital wallets, particularly as influenced by the COVID-19 pandemic.
- Recognize key players in the digital wallet market, such as Apple Pay, Google Pay, Samsung Pay, and Alipay, illustrating their market presence and user statistics.
- Analyse demographic factors, including age and income, that impact the adoption of digital wallets among different user groups.
- Discuss trends in digital wallet usage, focusing on both in-store and online payment scenarios to understand consumer behaviour.
- Aim to educate readers on the current status and future possibilities of digital wallets, emphasizing their convenience, growing adoption rates, and positive environmental impact.

Additionally, the text explains the underlying technologies of digital wallets, their varying acceptance across different regions, and the environmental benefits of reducing plastic card usage. Ultimately, it seeks to inform readers about the current state and future potential of digital wallets, emphasizing their convenience, growing adoption, and positive environmental impact.

2. LITERATURE REVIEW

Digital payment wallets have become increasingly popular in the past few years. The covid-19 pandemic has provided a further push to its usage. Customers are using payment cards stored in their digital wallets for instore and ecommerce payments. More merchants accept digital pays as a form of payment.

The rising smartphone shipments and efforts from various wallet pays to increase their acceptance in global markets. Plastic cards may soon be replaced by digital wallets and virtual cards.

Digital Wallet Acceptance Methods

Digital wallets can be used for instore purchases and online ecommerce and mobile commerce purchases. Apple Pay, Google Pay, Samsung Pay and Alipay allow their wallets to add different types of payments cards such as credit, debit, prepaid and gift cards. These wallets convert the smartphone to be used as a physical contactless card at merchants point of sale terminal.

The digital wallets allow any amount of transaction to be performed at POS terminal unlike the physical contactless card where there is a limit up to which a contactless transaction can be done. Other digital wallets such as WeChat, PayTM can be used at merchants point of sale using a QR code technology where the digital wallet holder scans a QR code to make the payment. These digital wallets are linked to a card or a bank account. Currently Amazon Pay and PayPal offer limited or no facility to perform instore retail transactions.



Digital wallets can also be used to perform ecommerce transactions. The wallet provider has a facility to perform an in-app transaction within the mobile application being used to purchase goods or services or the merchant integrates the wallet functionality to allow customer to make the payment with a push notification. This eliminates the need for card holder to key in the card number for every online purchase.

Problem statement

Will the increasing popularity and widespread adoption of digital wallets eventually lead to the phasing out of traditional credit and debit cards?

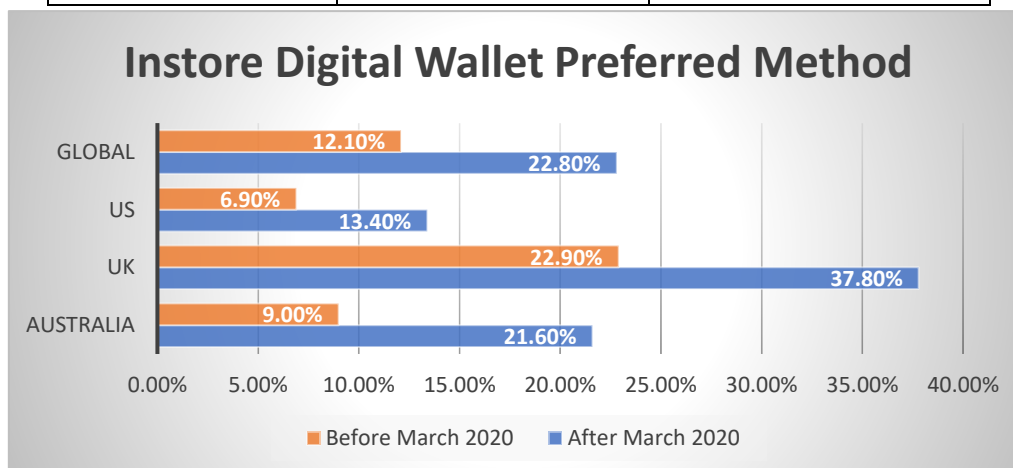
3. DATA ANALYSIS

The trends in digital wallet usage show that the usage of digital wallet as a preferred payment method for instore payments has jumped from 12.10% to 22.8% globally since the pandemic started. The pandemic has certainly accelerated the use of digital wallets at instore payment method. This shift has been observed as contactless payments have become more popular since they allow customers to do contact free payment and reduce the amount of time they spend at payment tills.

During the pandemic, shoppers have turned to online shopping more frequently than ever before. Digital wallets provide ease of online payments as they do not require consumers to key in the card number every time and provide In-app payment options. The usage of digital wallets as a preferred online payment method has increased globally from 28.3% to 35.2%.

The smartphone ownership has increased globally from 49.40% in 2016 to 80.63% in 2021. There are 6.37 billion smartphone users globally. The total number of mobile users is approximately 90% out of which 80% own a smartphone. The rapid increase in ownership of a smartphone has aided significantly in the usage of digital wallets.

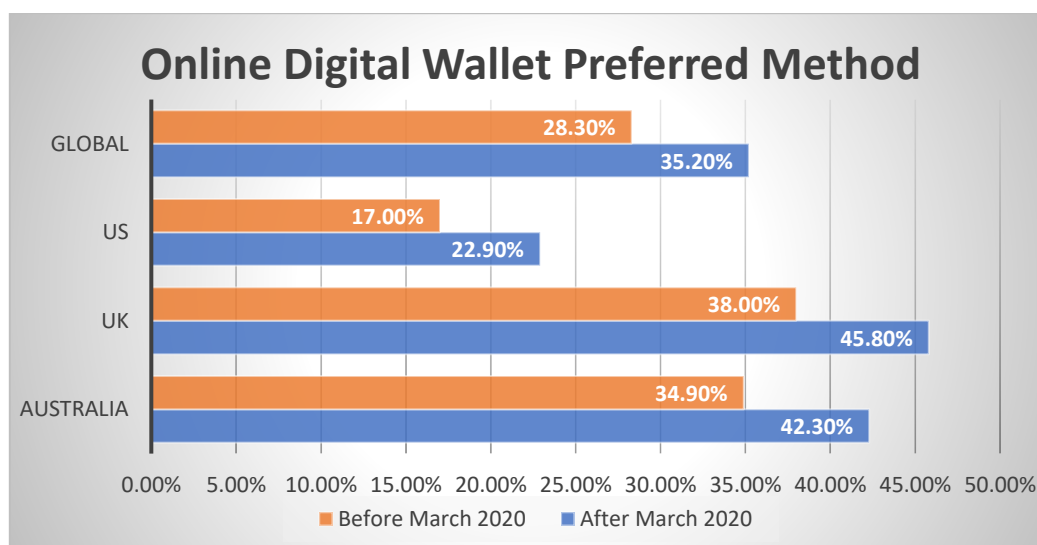
| Locality | After March 2020 | Before March 2020 |
|-----------|------------------|-------------------|
| AUSTRALIA | 21.60% | 9.00% |
| UK | 37.80% | 22.90% |
| US | 13.40% | 6.90% |
| GLOBAL | 22.80% | 12.10% |



The data illustrates a significant growth in the specified metric across Australia, the UK, the US, and globally after March 2020. The UK shows the most substantial increase, while all regions demonstrate a positive trend, indicating that the pandemic has likely accelerated the adoption or usage of services that were already on the rise. This suggests a lasting change in consumer behaviour that could have implications for future market strategies.

| Locality | After March 2020 | Before March 2020 |
|-----------|------------------|-------------------|
| AUSTRALIA | 42.30% | 34.90% |
| UK | 45.80% | 38.00% |
| US | 22.90% | 17.00% |
| GLOBAL | 35.20% | 28.30% |

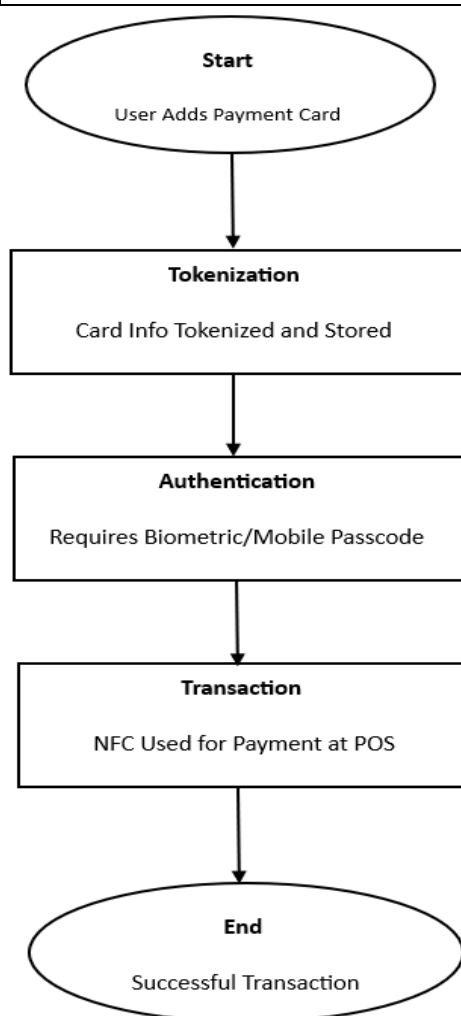
The data indicates a general upward trend in the specified metric across Australia, the UK, the US, and globally after March 2020. The UK exhibits the most significant increase, while all regions show positive growth. This trend suggests that the pandemic has played a crucial role in shifting consumer behavior, leading to increased engagement or acceptance that may continue in the future.



How do Wallet Pays work?

All major wallet pays such as Apple Pay, Google Pay and Samsung Pay use Near Field Communication (NFC) for making retail instore transactions payments at point of sale. Apple phones use a mobile secure element to store sensitive card information and keys. Samsung phones use Host Card Emulation (HCE) in combination of hardware and software Trusted Execution Environment (TEE).

| Feature | Description |
|--------------------|---|
| Payment Technology | Near Field Communication (NFC) |
| Apple Security | Mobile Secure Element for card information storage |
| Samsung Security | Host Card Emulation (HCE) + Trusted Execution Environment (TEE) |
| Tokenization | Dummy card number (token) stored instead of actual card info |
| Authentication | Requires biometrics or mobile passcode |



Security in Digital Wallets

There is a fear amongst customers about security of digital wallets. Digital wallets are more secure compared to plastic cards. There is a possibility the physical cards can be skimmed at fraudulent POS terminals or at ATM machines. Since, Digital wallets work in a different way. The sensitive card related information such as card number, expiry is stored in a secure location within the mobile smartphone. Also, digital wallets do not store the actual card number. Whenever, a payment card is added to the digital wallet, the card is tokenized by the digital wallet provider and a dummy card number known as token is stored in the device. Hence, even if the device card information is retrieved by an attacker, the token information is useless from payment perspective.

Another secure feature of digital wallets is authentication. Digital wallets require the transaction to be authenticated using biometrics or a mobile passcode. In case of wallet of physical cards gets stolen, the physical cards could be used to make fraudulent transactions. Even if the mobile smartphone is stolen, it cannot be used without biometric authentication even for performing transactions below the CVM limit.

Competition to Digital Wallets

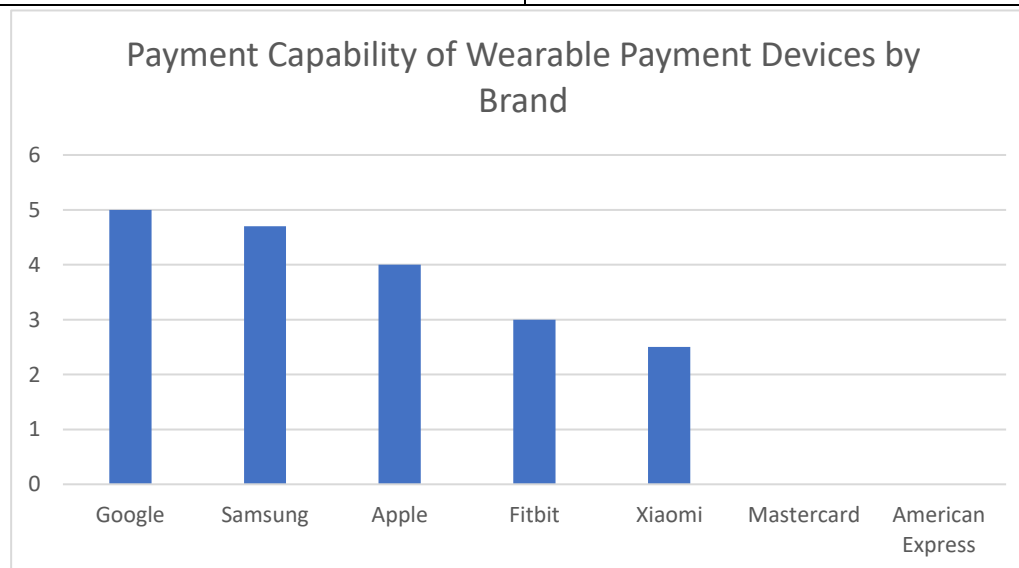
The market share of digital wallets as compared to credit and debit cards is very small. However, there is fierce competition amongst the digital wallet providers. The digital wallets are now facing competition from Buy Now Pay later providers such as Klarna and

Buy Now pay later services offer customers to split payments into equal monthly instalments with or without upfront payment option and offer other similar features such as digital wallets. Buy Now Pay Later is currently operating in the ecommerce space and becoming popular as more customers like the idea of buying now and paying later in interest free instalments more lucrative as compared to traditional credit cards.

What's the future of wearable payment devices?

Digital wallets are getting increasingly popular in wearables. Google, Samsung, Apple, Fitbit, Xiaomi are all leading brands which have smart watches that are capable of provisioning payment cards in the watches. Mastercard is working on wearable payment systems with clothes and fashion accessories. Xiaomi has teamed up with Alipay in China while American Express has tied up with fitness brand Jawbone.

| Brand/Company | Development |
|------------------|--|
| Google | Smartwatches with payment card capability |
| Samsung | Smartwatches with payment card capability |
| Apple | Smartwatches with payment card capability |
| Fitbit | Smartwatches with payment card capability |
| Xiaomi | Partnership with Alipay for payment |
| Mastercard | Developing wearable payment systems |
| American Express | Collaboration with Jawbone for fitness wearables |



The data reveals a dynamic landscape in the wearable payment technology sector, with several major brands enhancing their smartwatches to include payment functionalities. The partnerships and collaborations signify a strategic approach to innovation in this space, focusing on convenience, security, and the integration of lifestyle and payment solutions. This trend is likely to continue as consumer demand for seamless, on-the-go payment options grows.

4. FINDINGS

1. Increased Popularity: Digital wallets have seen a significant rise in usage, especially during the COVID-19 pandemic, as they offer a convenient and contactless payment method.
2. Major Providers: The leading digital wallet providers globally include Apple Pay, Google Pay, Samsung Pay, Alipay, and WeChat Pay, each with a substantial user base.
3. Growth in Mobile Payments: Mobile payments are expected to grow at a rate of 27% between 2020-2025, potentially becoming the second most popular payment method after debit cards.
4. Shift in Payment Preferences: The pandemic has accelerated the shift towards digital wallets for both instore and online payments, with a notable increase in their usage.

5. Smartphone Penetration: The rise in smartphone ownership has significantly contributed to the adoption of digital wallets, with 80.63% of the global population owning smartphones as of 2021.
6. Generational Usage: Younger generations (Millennials, Gen Y, Gen Z) are more likely to use digital wallets compared to older generations (Baby Boomers, Gen X).
7. Environmental Impact: Digital wallets can help reduce the environmental impact of plastic cards, which are not easily recyclable and contribute to significant waste.

5. CONCLUSION

Digital wallets accounted for 21% of all POS transactions and 44% of all ecommerce transactions globally. Even if Digital wallet providers such as Apple and Google are investing billions of dollars to make seamless and frictionless transactions the plastic cards are here to stay. Plastic cards are here to stay in medium term and Digital wallets will coexist with credit and debit card comfortable using digital wallets, especially the older generation.

Card issuers have realized the environmental impact of the expired credit and debit cards and are now moving towards ecofriendly solutions such as recycled ocean plastic or biodegradable plastics. In longer term there is a possibility that digital wallets will replace plastic cards as contactless acceptance at POS and ATMs becomes universal. Cards will become virtual and integral part of digital wallet payments.

6. SUGGESTIONS

1. Overview of Digital Wallets

Define what digital wallets are and outline their key features. Provide a brief overview of how payment methods have evolved, leading to the rise of digital wallets.

2. Current Trends in Adoption

Analyse statistics regarding the use of digital wallets versus traditional credit and debit cards. Discuss demographic factors that impact the popularity of digital wallets among consumers.

3. Benefits of Digital Wallets

Explore the advantages offered by digital wallets, such as enhanced convenience, robust security features, and seamless integration with other financial services. Highlight case studies of leading digital wallets (e.g., PayPal, Venmo) and their user experiences.

4. Shifts in Consumer Behaviour

Investigate how consumer preferences are changing in Favor of digital wallets. Explore factors that drive user decisions, such as ease of use, security assurances, and loyalty programs.

5. Global Perspectives on Payment Methods

Compare how different countries adopt and utilize digital wallets. Discuss how cultural norms and economic conditions affect consumer payment preferences.

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