



IJMRBS

ISSN 2319-345X
Vol. 5, No. 2, April 2016

International Journal of Management Research and Business Strategy

www.ijmrbs.com



MEGHANA PUBLICATIONS

www.meghanapublications.com

A STUDY ON DIGITAL WALLETS AND MOBILE PAYMENTS

Jayadatta S^{1*}

*Corresponding Author: **Jayadatta S** ✉ jayadattaster@gmail.com

Today in this digitalized world of technological empowerment full of opportunities the growth of mobile commerce, or the purchase of goods or services using mobile technology heavily depends on the acceptance, availability and reliability of the mobile wallet systems. A mobile digital wallet which is enabled for mobile phones is a complete payment app which enables the consumers to pay at stores at the point of sale with a mobile phone. All the integrated payment related services like the management and storage of receipts, coupons and offers and loyalty cards are done by digital wallet which is associated with a credit card. An Individual's bank account can also be linked to the digital wallet. Some of the ID documents like health card, loyalty card and driving license can also be stored on the phone. The credentials can be passed to a merchant's terminal wirelessly via Near Field Communication (NFC). Today all over the world mobile payment is adopted in different ways. Nowadays we all find ourselves carrying hard cash less because we can easily make our purchase with payment cards and also track our spending online, moreover it is safer and secure than carrying \$350 to buy the latest I pad Mini. Some of the major private funding organizations such as the Bill and Melinda Gates Foundation, United States Agency for International development and Mercy Corps are using mobile payments. As a means of extending financial services to the community known as the "unbanked" or "underbanked" in most of the developing countries including India mobile payment solutions have been deployed. In light of the technology advances and innovations in digital wallets and mobile payments the paper tries to highlight various types of mobile payment systems, opportunities and challenges, future growth and prospects of mobile payments and digital wallets.

Keywords: Mobile, Digital wallets, Near field communication, Payment, Technology, Empowerment, Credit card

INTRODUCTION

Today the diffusion of technology-based payment solutions hinges on addressing the needs, perceived or real, of consumers whose adoption will determine whether any specific mobile payment system becomes a standard. A number

of domestic companies and International companies have been successfully developing and integrating mobile payments for some time and India is at the forefront of such technology. According to a recent study made by Deloitte predicts that by the end of 2015, 70% of the mobile

¹ Assistant Professor, Department of Management Studies (MBA), Anjuman Institutes of Technology and Management, Bhatkal- 581320, Karnataka State, India.

payment users will be under the age of 40 years and that the annual expenditure of these Millennials (also referred to as Generation Y) will reach almost \$2.45 tn dollars in US alone. Since the turn of the millennium mobile payment solutions have become a hot topic after a chequered history of successes and failures by many service providers. A highly fragmented market has been created, while the number of diverse stakeholders and solution providers has created many opportunities in the mobile payment domain.

NXT-ID Inc, Apple Inc, Google Inc, PayPal Holdings Inc, Visa Inc and American Express Company today continue to be the biggest players in the digital payments sector with improved technology and products which are catered to the customers. Recently HDFC Bank has introduced their own digital wallet in India and termed it as "Future of Mobile Payments". To make the platform Independent HDFC has allowed non HDFC Bank users also to use their digital wallet besides HDFC Bank account holders. While making a payment Digital wallets meet RBI's 2 step verification process and are now increasingly used by shoppers and consumers especially in E-commerce and retail segment. As per the latest estimates, last year in India Rs. 1.2 lakh crore worth of digital payments were made, out of which 20% were accomplished on mobiles. The usage and popularity of digital wallets are increasing day by day although only 3% of the transactions were done using a digital wallet. In online commerce, PayPal initially added convenience by introducing passwords and e-mails. Fingerprint recognition feature, Touch ID is used by Apple Pay today for online shopping which replaces passwords with biometric security. As consumers still perceive debit and credit cards as a major convenience

for most of the online transactions, digital wallets will need even stronger value propositions to displace entrenched card-based payments. To a certain extent the biggest hurdle for digital wallets has been the lack of NFC-enabled terminals. User experience and security are the key deliverables from digital wallets. Over the years hackers have successfully committed various forms of fraud pertaining to credit card such as skimming, counterfeits, phishing mails/calls, account takeovers etc. Taking the recognition for this threat, the Europay MasterCard Visa (EMV) standard was introduced to help negate such security threats with smartcard chip and pin security measures. According to a recent study by Statista, the mobile payment transaction value at the global value stands at \$235.4 bn, out of which \$29 bn comes from Western Europe; \$37 bn from North America and \$74 bn comes from the Asia Pacific. Also the number of mobile payment users is expected to surge to 163.6 million users in Asia Pacific, 90.7 million users in North America and 101.3 million users in Africa by 2016. Using mobile wallet to make online payments for a variety of things includes a small step. Having your favorite mobile wallet app you can register for free using an e-mail id and a password. Once you are logged into your account, you can simply select a suitable payment method among various popular alternatives like debit card, credit card, ATM transfer, net banking transfer etc. Then after this money can be added to mobile wallet for making online prepaid mobile payment and postpaid payment, DTH recharge, electricity bill payment, landline phone bill payment, Gas bill payment, datacard bill payment etc.

What is Digital Wallet?

An electronic device that allows an individual to

make electronic commerce transactions is termed as a digital wallet. This can include purchasing items on-line using a smartphone or with a computer to purchase something at a store. Digital wallet is also a system that securely stores user's payment information and passwords for numerous payment methods and websites. Digital wallets can be used in conjugation with mobile payment systems that which allow the customers to pay for purchases with the help of their smartphones. They can also be used to store loyalty card information and digital coupons. It is also known as an e-wallet.

REVIEW OF LITERATURE

The theoretical underpinnings of technology adoption and payment as well as banking were examined, with a particular focus on empirical studies dealing with mobile technology adoption, mobile commerce, mobile payments and wallet adoption. The literature review specifically addresses the consumer perspective with respect to mobile payment system adoption.

Studying adoption, Venkatesh *et al.* (2003) explored the variables affecting consumer integration of new information technology innovations. They collectively formed a model called the Unified Theory of Acceptance and Use of Technology (UTAUT) and suggested that individual reactions to using information technology directly affect intentions to use information technology that in turn influences the actual use of information technology. Lu *et al.* (2005) suggested that behavioral sciences and individual psychology are strong determinants of adoption of mobile technology. They suggested that while perceived usefulness and perceived ease of use are strong variables in consumer willingness to adopt mobile technology, variables

such as personal innovativeness and social influence must also be taken into consideration in determining consumer acceptance. Carlsson *et al.* (2006) explored the variables concerning adoption rates of mobile devices and services, conducted by testing the applicability of the UTAUT model. They found that variables such as performance expectancy, effort expectancy, and attitude toward using were directly related to behavioral intention.

Lee (2005) investigated the impact of perceptions of interactivity on consumer trust and transactions in mobile commerce and concluded that trust does in fact play a significant role in determining consumer transaction intentions. Lin and Wang (2006) examined the factors that contributed to customer loyalty in mobile commerce; perceived value and trust were found to be directly related to customer satisfaction and customer loyalty; customer satisfaction was also suggested to positively affect customer loyalty; and habit was proposed to determine customer loyalty. They also found that customer loyalty was directly affected by perceived value, trust, habit, and customer satisfaction. Customer loyalty was evaluated to be a strong determining factor in acceptance of mobile commerce. Pavlou *et al.* (2007) studied the drivers of consumers to participate in mobile commerce by examining three interrelated behaviors including getting information, giving information, and purchasing with mobile devices. Mobile purchasing involves satisfying exchange relationship between products/ services offered and the mobile device that uses Wireless Application Protocol (WAP).

A literature review was carried out to determine the current state of m-payments and future directions for research. A multi-phase approach to the literature review process was adopted,

following established procedures and criteria adopted by other scholars in the IS field (Dibbern *et al.*, 2004; Dahlberg *et al.*, 2007; Finney and Corbett, 2007; Dezdar and Sulaiman, 2009; Okoli and Schabram, 2010). The aim of this research was to build on the literature review that was conducted by Dahlberg *et al.* (2007) as their review of m-payment literature spanned from 1999 to 2006 and it continues to be a highly cited paper. Similar to Dahlberg *et al.* (2007), papers were broadly classified against the contingency theory which was used as part of the framework in their review of literature. The contingency theory of technology adoption emphasises the importance of environmental influences such as cultural, social and economic factors, which in turn impact consumer and merchant adoption. The contingency theory is useful for the classification of m-payment research as m-payment services differ in each country due to differences in payment technology infrastructure, regulation, laws, or habits (*ibid*). For example, the M-Pesa system in Kenya uses SMS technology while other m-payment systems use technologies such as QR code or NFC technology, depending on the regulations of the host country. The contingency theory of adoption suggests that there is no 'best' model for successful innovation around m-payment systems (Au and Kauffman, 2008; Ondrus *et al.*, 2005). The underlying assumption of the contingency theory is that there is no single best way to organize and that any one way of organizing is not equally effective under all conditions (Ginsberg and Venkatraman, 1985; Dahlberg *et al.*, 2007). Three categories were identified using the contingency theory lens: 1) legal, regulatory and standardization, 2) technology, security and payment architectures; and 3) social, cultural and economic. Papers that

addressed a number of these categories but none in-depth were classified as multiple categories. Using these four categories and the categories of stakeholders in an m-payment ecosystem, a 7x4 matrix was created to classify the papers in the review of the m-payments literature. To establish trends in m-payment research, the first phase of the search was to determine the scope of the review process and source material. As m-payments have been researched since 1999 and published in a wide range of academic journals and conference proceedings, many authors focused their search on Google Scholar as it is universally accessible. Papers that were not peer-reviewed (book chapters, trade papers) were excluded from the search. Searches were based on the descriptors 'mpayments' and 'mobile payments' and the resulting papers were then filtered, based on the most cited between 1999 and 2014. A second search using the same descriptors was conducted to identify the dominant topics in the most recently published academic papers over the past year (2013-2014). Papers that did not discuss mpayments in detail (mobile banking, m-commerce) were excluded.

Major Objectives of the Study

1. To study about the mobile payment service provider model
2. To highlight the ten mobile payment systems
3. To study some of the major critical areas digital wallets would aspire to offer
4. To conduct a SWOT analysis on 5 major companies providing mobile payment services
5. To study the future prospects of Indian digital wallets

Mobile Payment Service Provider Model

There are four potential mobile payment models

which are as follows:

1. **Operator-Centric Model:** More independently mobile operator acts to deploy mobile payment service. From the user mobile account (airtime) the operator could provide an independent mobile wallet. Today for most of the existing payment networks a large deployment of the operator-centric model is severely challenged by the lack of connection. Thus it is very important that both in banked and under banked environment the mobile network operator should handle the interfacing with the banking network to provide advanced mobile payment service. In most of the emerging countries pilots using this model have been launched but they did not cover most of the mobile payment service use cases. Payments were necessarily limited to remittance and airtime top up.
2. **Collaboration model:** This model necessarily involves the major collaboration among banks, most of the mobile operators and a trusted third party. Collaborative model is considered by 86% of the participants as having the greatest potential for long term propagation as per the inquiry done by the Smart Card Alliance.
3. **Peer to Peer Model:** In this particular model the mobile payment service provider acts very much independently from mobile network operators and financial institutions to provide the mobile payment. For example the MHITS SMS payment service uses a peer to peer model.
4. **Bank-Centric model:** Here in this model a bank deploys major devices or mobile payment applications to customers and also ensures that merchants have the required Point of Sale (POS) acceptance capability. Quality of

Service (QOS) assurance is provided by most of the mobile network operator who are used as a simple carrier and also bring their knowledge and experience to deliver effective quality oriented service.

Highlights of the Ten Digital Wallet Mobile Payment Systems

Today certain loyalty cards and payments let you earn rewards or entries to contests but they do add up. Digital wallets always make your wallet unnecessarily thick and heavy. Perhaps it is the time to swap the system again and this time for something that you have always been carrying around and it's your Smartphone. Today Smartphone apps hold your payments and loyalty card information as well. Apple's Passbook and Google wallet are two of the more popular digital wallets which we often hear about, but if they are not your fancy, there are also plenty of other digital wallets that carry perks and benefits that many customers may prefer.

1. Google Wallet

Waving your Smartphone or tapping it on the machine to make your payments instead of tapping your credit card on NFC machine at the checkout counter is the best option today. Linked to your Google account it will be able to identify the credit card information. For this to work, Google wallet requires Near Field Communication (NFC) technology available, which unfortunately is available only on certain tablets and smartphones. You can necessarily link your credit card or debit card to your Google account and you can leave your wallet at home—but at the moment it only works with credit cards and phones from the US and only in US and some western European countries. Currently, it supports 20+ merchants on the ground and

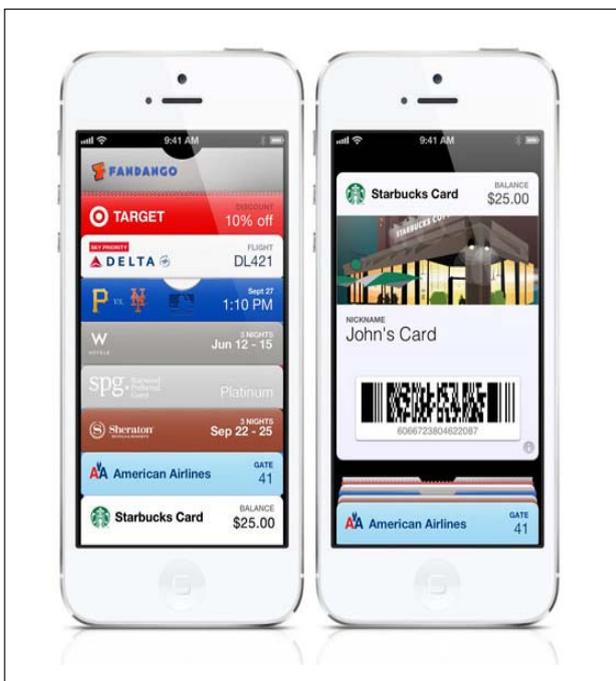
online, promising many more merchants to come.

2. Apple's Passbook

Apple's Passbook helps you to manage your



movie, airline tickets, concerts as well as coupons and loyalty cards especially for selected merchants using IOS 6 operating System and relies on scanning 2D barcodes. By using Apple's Passbook you can get time based notifications and location when you are near a Café where



you can use your loyalty card or when your airline, concert ticket or movie is almost nearing its due date. Unlike Google Wallet, you cannot use your credit or debit card for purchases in store; however you can use BillGuard to view your bank balance and other related relevance information on your iPhone.

3. Lemon Wallet

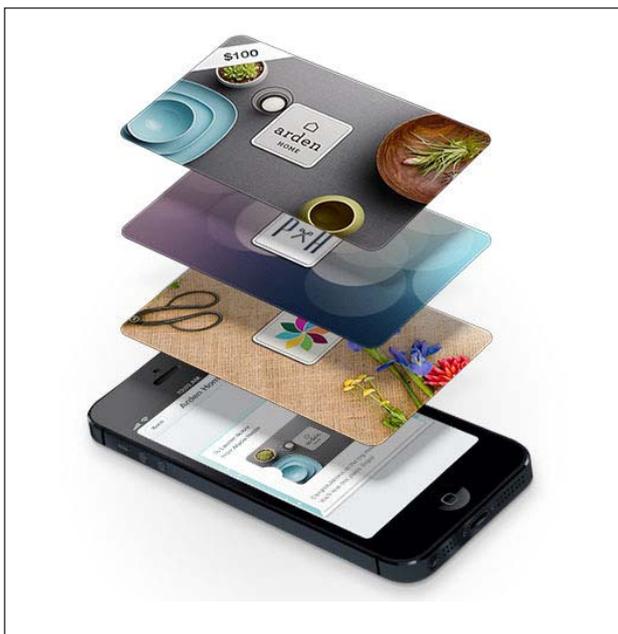
It is one of the very powerful app that allows you to store and use your credit and debit card, insurance member and loyalty cards which is available for Apple iOS, Android and Windows Phone Lemon Wallet. It turns all the information into a barcode to be scanned by the merchants. Checking your balance and transactions from within the app can also be done by connecting the payment cards to customer's bank account. The App is protected with a 4 Pin Passcode; it will ask you to input the Passcode again even when accessing your other cards within the app. Allowing you to take pictures of receipts for tax purposes or to track your own spending is one more good feature of this app.

4. Square Wallet



Similar to that of lemon wallet, square wallet is available on iOS and android with a few additional cool features. Instead of paying directly with the credit card here you link your credit card to the app; it requires the use of merchant cards which is why square wallet works only with their list of merchants. As it is location based the store knows that you are ordering something and it will charge it to the card linked on your square account.

5. Isis



It comes with its own cash card and is preloaded with \$10 that which helps you to start spending. It also allows you to manage your coupons, loyalty cards and redeem offers from merchants and works with an NFC enabled Android smartphone. You can remote freeze your wallet and wireless connection if it gets stolen as the wallet is also PIN protected. The wallet is also protected by a special chip called secure element which prevents the card from being counterfeited.

As of now it accepts only 3 payment cards and can be used in a few stores in the US.



6. Geode by iCache

Try geode if you don't have NFC. Geode is an iPhone case that which features a much cooler alternative. Credit cards and loyalty cards can be stored in the app with Geode, we can then use the Geocard (provided) to act temporarily as the card we select. Customer should just flick the card and start swiping. All the data from the Geocard will be removed and the customer can select the next card information to activate once he is done with his work. For loyalty cards to perform, all a customer need to do is to take a picture of the barcode section of each card. For scanning purposes the barcode will be displayed in E-Ink quality. The app has a biometric scanner



that takes the customer’s fingerprints for authentication thus keeping all the information secure.

7. Chirpify

To buy, sell, send and receive money Chirpify lets you use social media apps like Instagram and Twitter. Chirpify uses PayPal to send or receive money and the customer has to first register for an account on their website. Suppose if you are selling something or want to start a fund raiser you can necessarily create a listing via Instagram with captions like ‘\$5 #instasale’ to sell, ‘\$0# instagimme’ for a giveaway, ‘\$10#instafund’ for a donation.



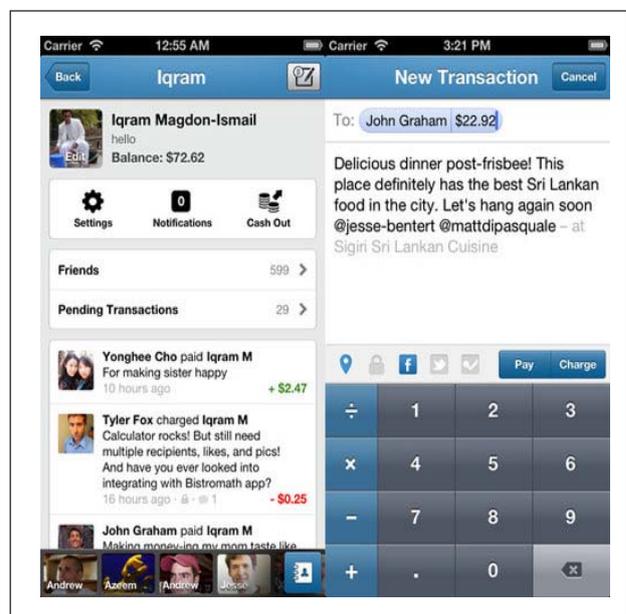
On your Chirpify account dashboard a listing will then be created which looks like follows:

The transaction is completed when other Chirpify members willing to buy your item simply comment ‘Buy’ on Instagram or reply with ‘Buy’ on a tweet. Making donations or sending money between friends can also be done by Chirpify users via Twitter. Whenever money enters your Chirpify account there is a 5% transaction fee.

8. Venmo

Venmo is an app for transferring money between friends and is available for Blackberry, iOS and Android. You can link your bank account, credit card or debit card once you have your Venmo

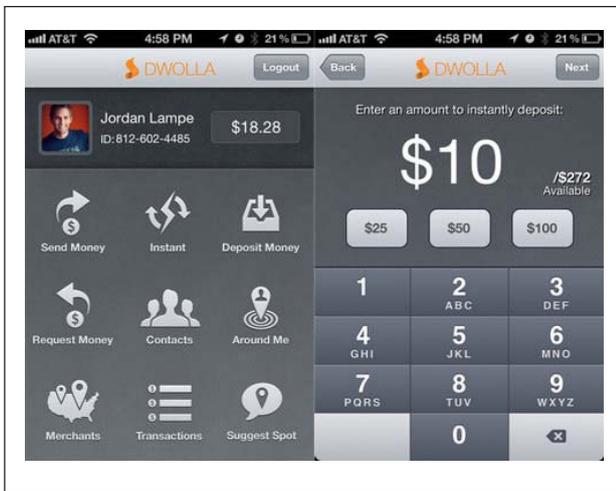
account. It works almost similar to Paypal but only between two parties with Venmo accounts. Having Venmo the amount you want to transfer and sending money is like writing an e-mail to a friend. You can even share the transaction with a message on Twitter, Facebook or Foursquare. You can access your main account via their website but you can make your transactions via your Smartphone. With a few simple SMS Commands Venmo also works via SMS. Even though Venmo is a free app as of now it currently works with major US banks and phone numbers.



9. Dwolla

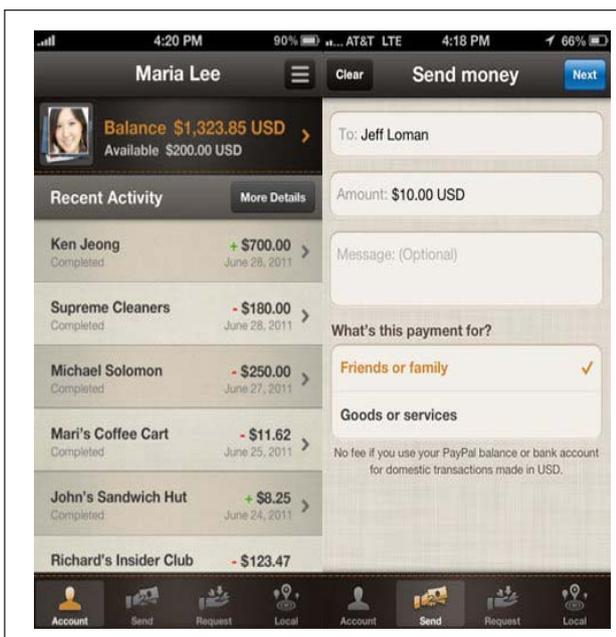
It is another mobile payment app which is available for android and iOS with a high number of merchants that recognize their service. Via registration on their website it connects directly to your respective bank accounts. You can easily transfer funds to friends on Twitter, Facebook and LinkedIn with Dwolla. Whenever you don’t have cash with you it’s a great way to settle your rent, or even payback your friend for fronting you the taxi cab or even last night’s drinks. The app also contains an in built app that locates merchants

that accept the payments via Dwolla. Within the app itself you can also track your transactions.



10. PayPal

PayPal today is another very famous service that can send money between friends and other PayPal users. Available for both Android and iOS just like you would do transaction on the PayPal website you can easily send money to other users. It also allows you to view your account transactions in detail. Recently via a card reader with the PayPal Here App, PayPal is also entering mobile payments. But it's still a long way to go as



at the moment it's still in the 'invitation only' stages of testing. PayPal is one of the world's largest internet payment companies as of now. PayPal moved \$228 bn in 26 currencies across more than 190 nations in the year 2014 generating total revenue of \$7.9 bn. In the same year, e-Bay announced plans to spin-off PayPal into an independent company by mid 2015 and was complete on July 18, 2015.

Major Critical Areas Digital Wallets Would Aspire to Offer

Based on the secondary data and the research conducted given below are some critical areas digital wallets would aspire to offer:

1. Consolidating payment cards including gift cards: In today's world consumers do not want to fumble around at the Point of Sale (POS) trying to figure out if they have a branded gift card, loyalty card or a store gift card. In addition to their main mode of payment which could be a debit card or a credit card. The former payment tools can go unused for this reason. Having them all loaded necessarily into a digital wallet that which also contains debit and credit cards could be a huge benefit to consumers. Consumers can get the most out of their gift cards and loyalty programs as it may simplify and streamline the wallet experience.
2. Offering savings options through offers and deals: The perception of the retailer can be improved if mobile wallets could help consumers save money. Also digital wallets could evolve to give consumers seamless access to coupons, rebates, rebates submission options and pop up deals. This responds to consumer's insatiable appetite for various deals and also provides the retailer with much more additional ways to drive spend

and garners loyalty. According to a recent study conducted on digital wallets technology, 59% of consumers would consider allowing the retailers to know as to where they are in-store in exchange for exclusive savings and values.

3. Categorizing spending: Currently categorizing spending could be a great boon for digital wallets even though budgeting apps have proven to be popular. It is a natural evolution to add a budgeting feature to the digital wallet as consumers continue to look for ways to budget. Today younger consumers are moving away from having bank accounts and deep banking relationships and this could also offer a more convenient snapshot of spending for this audience.
4. Capturing the paper receipts: All the paper's in a consumer's wallet including paper receipts could be captured by using digital wallets. A physical wallet has the potential to connect all the relevant coupons, deals, loyalty and payment whereas mobile wallets focus only on making debit cards or credit cards "mobile" may be missing some value.

SWOT Analysis on 5 Major Companies Providing Mobile Payment Services

A SWOT analysis on five mobile wallet solutions that enable paying through the phone at the POS as the primary modality of payment:

1. Apple Pay

In late 2014 Apple Pay was introduced with grand fanfare and also appears to have grown in acceptance by users and merchants ever since. At one of the Apple Events recently Tim Cook announced that Apple Pay is now accepted at over 7,00,000 locations.



STRENGTHS

- Currently in the marketplace Apple Pay offers the best user experience for making mobile payments
- Apple Pay with the help of Visa and MasterCard pioneered the concept of tokenization for mobile payments. The potential to effectively eliminate traditional card fraud associated with magstripe based credit cards is possible by authentications.
- Proprietary TouchID sensor is used to provide a new easy way to pay using successfully integrated biometrics. In this system the wallet loads automatically without having to launch an app thereby providing a smooth user experience, when the customer presents the phone near the NFC enabled contactless payment terminal.

- The token is stored in a secure element while the payment credentials are stored in the cloud (does not need an internet connection to use Apple Pay)
- Card provisioning and enrollment is essentially automatic via iTunes or even by taking a photo of the card
- Can be used as a app as well as can be used in NFC enabled POS.
- Apple has managed to bring most of the banks/ credit unions as well as payment networks to execute a near textbook perfect launch. To attract the affluent apple customers as part of their customer base more financial institutions are signing up and also to compete for the 'top of wallet 'spot in their customers mobile wallet.

Weaknesses

- Merchant Adoption: Still there is no much support for NFC Contactless terminals limiting the use of Apple Pay for a fair number of businesses.
- Another major limitation with Apple Pay is that here are no rewards program (the card used to pay may have rewards though)
- Android user base is effectively ruled out which has a significant number of users in the US and worldwide because as Apple Pay is proprietary to the iOS Ecosystem.

OPPORTUNITIES

- Apple Pay will gain more attraction and people will try Apple Pay increasing adoption as more of the newer iPhones get sold.

The launch of Apple watch recently also opens up Apple Pay to older iPhones (5S, 5C) which may also add additional users who have not upgraded themselves to the newer iPhones

The more number of locations accepting Apple Pay will grow as we see more merchants adopting NFC enabled terminals to support EEMV liability shift in 2016.

THREATS

- Du to some of the reported low-tech fraud activity Apple Pay has been in news recently. Even though none of these has anything to do with the security measures Apple put in place in designing Apple Pay. Yellow Path for provisioning cards for users is the weakest link in the whole scheme. Also Financial Institutions launched Apple Pay without much time to account for newer security threats as such.

FINAL ANALYSIS

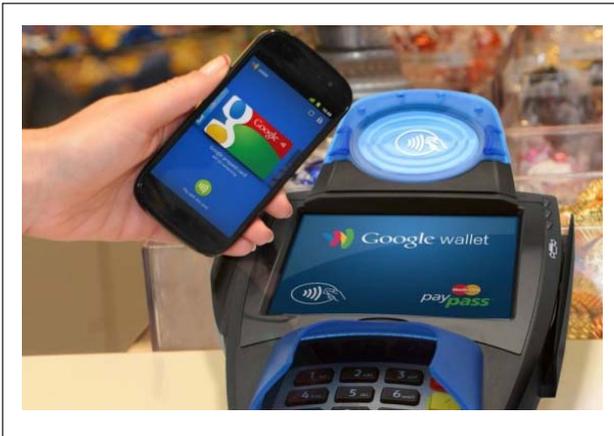
As of now Apple Pay is a surprisingly solid offering for customers for 'version 1' and can only get better with time. As more Retail stores and similar other locations start to accept it and customers who use Apple Pay show strong affinity for paying with Apply Pay.

Android Pay/Google wallet with NFC

In US Google wallet was the mobile wallet pioneer in using NFC technology. However due to lack of telecom providers unwillingness to install the wallet as part of the new phones being sold and also because of lack of partnerships, it did not see early mainstream adoption. After the launch of Apple Pay, a major reboot to their wallet initiative was done by Google and it was also able to broke a partnership with Softcard (who is now defunct) to acquire some of its IP and is also planning to re-launch the wallet and the payments API Platform.

Strengths

- As a payment API rather than a proprietary



offering Google is planning to offer its new platform for payments (commonly known as Android Pay). This also allows Google to open up the API to device developers and manufacturers to build wallets that may result in mainstream adoption.

- In the US and the rest of the world Android has a very healthy user base. Its user base also tends to be younger and also more of a digital native.
- Google is opening up the playing field for more innovation by separating the Android Pay mobile payments API and the Google wallet with the proprietary offering. This may also allow financial institutions to finally integrate the mobile payments into their mobile banking offerings, which has always been a longstanding pipe dream for Google.
- The major intention of how it would use Hot Card Emulation (HCE) in this mobile payments/wallet strategy has not openly revealed by Google. In coming days ahead there is a very good chance that we may see HCE being integrated into the Android Pay API to support phones which do not have an NFC radio/secure element built in. The Android OS also provides built in support for HCE since its Kit-Kat and Lollipop release.

WEAKNESSES

- Android Pay has not been officially released whereas Apple Pay has already been launched and also gaining momentum. This late entry of Android Pay into the market may also impact market share.

Presently the design by committee hardly produces mind blowing user experiences. We will have to wait and see in future how Android Pay will be integrated into a variety of mobile payment offerings and also how the user experience will stack up against Apple Pay.

The success of the revenue share scheme Google has promised the Telcos to pre-install Google wallet in all newer handsets which needs to be proven after the product launch.

OPPORTUNITIES

- Today about 80% of the worldwide market share is controlled by Android. Google is betting on sheer volume of its user base to make this payment solution a success.
- After the API launch, financial institutions may be providing a more seamless payment experience, integrate the financial institutions into their mobile banking offerings and increasing loyalty when combined with their reward programs.

THREATS

- Google wallet does not have the first mover's advantage eventough it was launched first when compared to Apple Pay in terms of adoption because early launches were 'false starts' from a broad user acceptance perspective.
- According to Benedict Evans Analysis the ARPU (Average revenue per user) for Android

is one quarter of iOS users. This certainly poses a question as to how many android users may actively use the mobile payments/wallet.

- The notion of direct carrier billing is very frequently used in payments in developing nations like India and Africa.
- The success of Android Pay may not be imminent with Android's open model and fragmented ecosystem.

FINAL ANALYSIS

Android Pay may pay a challenging alternative for Apple Pay after its launch eventough it may be late to the party. The open API model may surely allow integrating payments into variety of devices, real world use cases and also applications like mobile banking. The success of this is something we will have to wait and see in future.

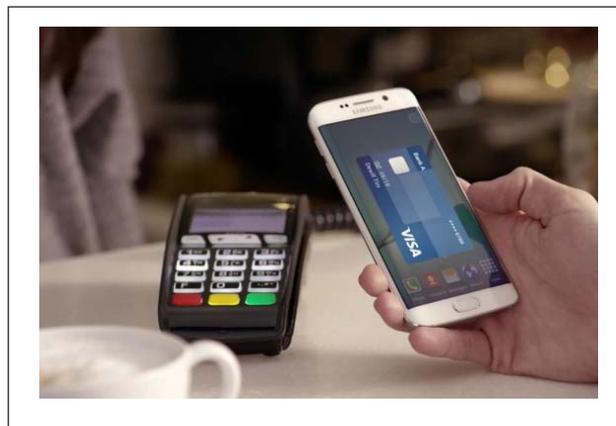
Samsung Pay (with Loop Pay MST)

The mobile payment startup Loop Pay was acquired by Samsung barely a week before Google's announcement of Softcard deals. This however has put Samsung in an interesting position where it is one of the first device manufacturers to provide a wallet which is offering directly competing with that of Apple Pay. At this point of time the plans of how Samsung will support Android Pay without stressing the relationship with Google is unknown.

STRENGTHS

- As of now Samsung Pay is directly aimed at Apple Pay in most of the capabilities being offered. As launch partners it has relationship with the major card networks and banks and it also supports tokenization and biometrics.

- Due to its inclusion of Loop Pay's magnetic secure Transmission (MST Technology) Samsung Pay boasts a much broader adoption rate (close to 90% of POS) for the terminals in US.



WEAKNESSES

- Samsung Pay was launched in the summer of 2015 and this delay provided a significant lead for Apple Pay which was launched in October 2014.

Samsung Pay stores credentials in the cloud; however, the token is transmitted from the cloud to the device at the time of purchase. This requires cellular or data connection which prohibits usage in areas which have no data connection or weak cellular signals. However Samsung Pay may fall back to LoopPay's MST to complete the payment.

Customer must launch the app to use Samsung Pay to make a payment near the terminal unlike that of Apple Pay.

There are no in-app purchases and Samsung Pay only supports POS purchases (both NFC and existing magstripe)

OPPORTUNITIES

- Off late there is a discussion that Samsung may waive off all fees associated with its new

mobile payment service. Also it won't charge the usual 0.0015% fee on each transaction

- As Samsung Pay is launched in Korea and US at the same time it would be very much interesting to observe the success of this in International Market.
- Samsung Pay also supports to Private Label credit cards whereas Apple Pay does not supports it
- With the intention of making MST available to most of the Android family of phones Samsung may decide to make the Loop Pay technology a hardware chip which could be resold to device manufacturers
- With the slower growth of NFC terminals in US there may be a result in the timing advantage for Samsung Pay with Loop MST technology. Most other mobile wallets rely on NFC capabilities

THREATS

- With the announcement of Android Pay API by Google, it is unclear how Samsung would promote their offering and differentiate it when they will also have to install Google wallet in their phones
- Most of the merchants who decide to upgrade may move to an NFC card reader to future proof their investments with the EMV liability shift. This puts into serious question how long Samsung will be able to maintain the benefit and also advantage offered by the Loop Pay acquisition

FINAL ANALYSIS

With a similar feature set Samsung Pay may be the first direct competitor to Apple Pay to launch

in the US. Samsung has also built the S6 and S6 edge devices to be a premium offering and also wants to go ahead on with Apple iPhone 6 and iPhone 6 plus.

While many industry analysts question Samsung's strategy to drop some of the features loved by the Android users (like waterproof, replaceable batteries) the S6 lines of phones may also provide a very strong alternative to the iPhone 6 and 6 plus. Apple also stole the news for the record number of phones sold in Q4 (approx 78 million) with Samsung losing the top spot but still managing to sell a relatively close 75 million phones worldwide (according to Techcrunch). Samsung still has a comfortable lead/user base with a 24.7% world Smartphone sales market share compared to Apple's 15.4%. Samsung Pay will surely manage to keep a spot in the mobile wallet payments race if user base upgrades to S6 device.

MCX/CURRENTC/PAYDIANT WALLET

It is pretty hard to analyze a mobile payment wallet, which only a few have used in Beta. MCX is the merchant conglomeration that is building their own mobile wallet to bypass the interchange fees paid by merchants to the payments network.



Using Paydiant's QR Code/ cloud wallet technology to their in-store payments MCX is basing its mobile wallet. Pay Pal acquisition of Paydiant really came as a surprise to many and also saw the industry consolidating under a few well funded players.

STRENGTHS

- MCX is backed up by a powerful conglomeration of merchants.
- Will also provide offers and coupons through the wallet.
- Earning of rewards from participating merchants reward program.
- It allows paying from gift cards, bank accounts and select merchant branded private label credit cards.
- Keeps customer transaction(SKU Level) data which is internal to merchants.

WEAKNESSES

- User QR- code technology, doesn't provide a fluid POS experience as compared to Apple Pay and other mobile wallets
- It does not accept major credit cards which are backed by payment networks like Master card/Amex/Visa/Discover(also future plans to support these are unclear as well).
- Customers bank checking account is one of the primary funding sources which the customers may be unwilling to share due to security reasons.
- MCX CurrentC initiative was launched almost two years ago but still it hasn't been rolled out to general public.

OPPORTUNITIES

- By eliminating the swipe fees paid to card networks MCX promises to pass along significant savings to customers.
- As an example by using CurrentC wallet in a gas station MCX says customers may see savings in the order of 10 to 20 cents per gallon. This may be a powerful behavioral change which customers may support in the long run when they see savings in action.
- Also one of the main reasons for consumers to try out the CurrentC wallet.

THREATS

- A late launch into the market may surely see Current C face the same fate as that of Softcard which never attained much attraction irrespective of a huge marketing spend and expenditure.
- Customers who may choose to take the easy payment route may confuse themselves with too many choices for mobile payments at the POS.
- CurrentC may face a 'most seamless way to pay' challenge instead of a 'top of the wallet' card problem.

FINAL ANALYSIS

Starbucks is successfully using the QR code method of payments for their mobile payments. As of now from a customer's point of view it remains to be seen if people will be motivated or willing to link their bank accounts to save interchange fees for a merchant in trade for nominal rewards, offers and coupons.

PayPal Wallet

PayPal does not provide a mobile wallet in the traditional sense. In a specified geographical area

PayPal app allows you to tap into a list of merchants who accept PayPal. PayPal also allows to make a payment using your PayPal funding sources by checking into the merchant when you are in the location (either using the app or by automatically sensing a PayPal beacon at a store). PayPal provides secure payments at POS by using your picture taken at the time of



application enrollment.

STRENGTHS

- The user experience makes it quite very easy to pay with the PayPal app. Check in can be made automatically or manually if the PayPal app senses a BLE enabled Beacon at the merchant store.
- PayPal mostly uses the bank ACH funding to minimize the swipe fees paid to card networks and PayPal has a rich portfolio of 'cards on file' for moving the funds in and out.
- Low incidences as well as effective fraud fighting methods are one of the core strengths of PayPal. It also has already tokenized millions of deposit bank accounts.
- By acquiring Paydiant, as of now PayPal can also support QR code-based payments at a

POS terminal. This also provides lot of synergies with the MCX merchants.

WEAKNESSES

- User adoption for the PayPal wallet has been relatively low. While we do not have actual number of usage and users, we are yet to see users actively using PayPal wallet to make mobile POS payments (On the contrary a similar initiative by square was discontinued due to lack of mainstream adoption).
- With the Paydiant acquisition PayPal's mobile wallet strategy at this moment remains unclear. The question of will PayPal wallets compete with CurrentC or manage as a standalone offering remains unanswered?

OPPORTUNITIES

- Acquisition of Paydiant may help PayPal to crack the POS payment issue. Eventough PayPal made a neat integration at the Home Depot stores, where we could pay with PayPal phone number and a pin at the POS; this never really took off due to lack of employee education.
- PayPal could necessarily use the Venmo acquisition to convince the younger crowd into a rebooted mobile wallet offering.

THREATS

- The biggest threats are the other mobile payments/wallet offerings that have had a head start.
- PayPal suffers an identity crisis on the mobile payment/wallet world while strong in the online payment arena.

FINAL ANALYSIS

Payment surely has made some significant acquisitions in the payment space with Venmo/ Braintree and Paydiant. PayPal also has an impressive existing user base with numerous bank accounts and cards on file for each customer. For more than a decade, they also have been fighting payments fraud, which puts them in a unique position when it comes to fraud fighting capabilities.

FUTURE PROSPECTS OF INDIAN DIGITAL WALLET

Today India is experiencing tremendous growth in the use of mobile as well as internet. As per the recent estimates, there are just under a billion cell phone connections in India as of now and the country also adds around 6-7 million cell phones every month in usage. The conversion of cell phone users to mobile users is fast growing, although the number of internet users is still low in comparison- around 200 million users. Also as per the telecom Industry estimates, 65% of all the new internet users in India experience their first internet surfing activity via mobile. Reserve Bank of India has been updating the rules associated with flow of money in the virtual economy on a much periodic basis as internet and mobile penetration continues to increase and result in increased digital commerce. India's monetary system is also tightly controlled by the central bank, which not only looks at the core functions like rates control and inflation targeting, but is also the central regulatory body to which all scheduled as well as unscheduled banks, non banking financial companies and co-operative banks report to pre-paid instruments

Through the first decade of this century as the digital commerce grew in India, RBI acted on

defining how the payment services will necessarily evolve. Due to strict and stringent know your customer and anti money laundering regulations; India has a limited peer to peer money transfer activity. The role of the agent in the money transfer activity is tightly governed and is clearly defined. In line with this regulatory function, RBI has set guidelines for prepaid payment systems in India, aligning with the payment and settlement system act 2007 (which was later modified in 2014). Additionally RBI has also insisted on the two factor authentication principle for all online transactions in India after this act was passed. In India the RBI guidelines substantially restricted the use of prepaid instruments or wallets. The central bank also notified four types of wallets based on demanding varying degree of adherence from those offering the wallet services (including entities which are not regulated by the central bank directly). These types are Closed, semi-closed, semi open and open. Given the regulatory requirements around the withdrawal guidelines and end use, the closed and semi-closed wallets have grown in the last 5 years in India while semi open and open versions had very few takers.

Wallet Services

As mobile commerce certainly grew in the first half of this decade, several payment gateways started operations in India, which could also sign up with specific merchants to reduce the pain which is associated with individual two factor transactions. There was also a movement from closed wallets (establishment specific) to semi closed wallets (group of contracted establishments using the wallet). In the last few years given the mushrooming of

Digital commerce and also the blanket

implementation of two factor authentication requirements.

Repurposing Wallets

So far wallets have performed a need gap function – i.e., making it convenient for individual merchants to not invest in two factor authentication by acting as an intermediary. Some of the semi closed or semi open ones do have other functions like storing card details for easy reloading of money as well as account and expense reporting, but these value added functions have been very basic and also never scaled.

Thinking like a Bank

Today wallet providers are thinking like a no frills, limited service bank, rather than an e-commerce interface. In fact, RBI now certainly gives them an option to actually become a bank- a payment bank. Such a bank while primarily focusing on payment services will boost remittances and banking for the unbanked. The business opportunity to become a Payment bank is huge and in the long term, committed wallet providers will definitely keep an eye on it.

Value Added Services

Wallet providers can always invest in new services- areas like spend management are very nascent in India. If a wallet becomes big enough to sit on top of a large enough ecosystems of money movement, such value added services can easily be offered at a small fee.

CONCLUSION

Digital wallet will surely revolutionize how people will spend their money in the future. In the coming days ahead people will experience much more simple and easy financial transactions through

their smart phones. According to this paper digital wallet seeks to revolutionize currency, spending. PayPal has certainly been developing the digital wallet concept for the last ten years. PayPal looks to connect and also make money transferable beyond smart phones. In the near future the development of digital wallet will change consumer's lifestyle. Digital wallet applications need to expand to the point where there are no much barriers preventing users from the ability to use a digital wallet application. For digital wallets and mobile payments to work successful technology needs to be widely available in businesses and all credit cards needs to be accepted for use in applications. Valid forms of identification certainly need to be made available within applications and any other item that a user would keep in a wallet should also be made available (coupons, customer affinity cards etc.). It is also very much inevitable that all types of credit cards will be available for use through digital wallet applications, so development should necessarily shift focus to the issue of valid identification. This may also require some work with establishments and the government, due to the major restrictions that go along with identification. When using digital wallet service security will be the main concern for the users. Therefore, providers who are providing the service needs pay special care in protecting user's information from identity thefts and frauds. One way of protecting the user's information could be through strong encryption of the data. If the entire user's information encrypted as a Passcode it will be harder for outsiders to steal the information.

Furthermore, to prevent any malicious software that could permeate into the device the digital wallet system has to accompany anti-virus

software. If the device is able to filter the viruses in the first place, it will be surely less likely to be hacked.

More importantly digital wallets hold the promise of that momentous day when a consumer can certainly leave their home without a wallet. With recent developments ranging from the advent of the smartphones to unbundled network tokenization, that day is surely closer than ever before. Also the history of payments innovation offers a clear cut guide to success for digital wallets. The path for the banks is also more uncertain, but builds on clear strategic imperatives and historical moats. Following them will surely ensure the continued relevance of banks even as a broad range of players do accelerate innovations around how consumers move, pay and also manage their money.

REFERENCES

1. https://en.wikipedia.org/wiki/Digital_wallet
2. <http://www.mobilepaymentstoday.com/blogs/how-apple-killed-the-digital-wallet/>
3. <http://www.investopedia.com/terms/d/digital-wallet.asp>
4. <http://www.hongkiat.com/blog/digital-wallets/>
5. <http://www.hongkiat.com/blog/mobile-payment-systems/>
6. <http://digital.guide/top-10-best-digital-wallets-for-mobile-payment-system-fast-secure/1020/>
7. <http://www.mobilepaymentstoday.com/articles/digital-wallets-the-rise-of-promising-platforms-and-whats-needed-to-break-through-with-consumers/>
8. <http://thefinancialbrand.com/50720/mobile-payments-digital-wallet-analysis/>
9. <http://www.yuvaengineers.com/digital-wallet-technology-riyazuddin-khan/>
10. <https://www.capgemini.com/blog/capping-it-off/2015/03/the-future-of-indian-digital-wallets>
11. <https://www.theclearinghouse.org/publications/2015/2015-q3-banking-perspective/future-of-digital-wallets>



International Journal of Management Research and Business Strategy

Hyderabad, INDIA. Ph: +91-09441351700, 09059645577

E-mail: editorijmrbs@gmail.com or editor@ijmrbs.com

Website: www.ijmrbs.com

