

M-Commerce with Google Wallets: Impacts of Mobile Payment on E-Commerce

Miss Jaya Raj
Asst Professor, Computer Department
Mahila P.G.Mahavidhayalay
Jodhpur, India
e-mail: jaya_raj09@rediffmail.com

Software Developer
Jodhpur, India
e-mail: rishiveenita@gmail.com

Mrs. Veenita Mathur

Mrs.Mona Vyas
Jodhpur National University
Jodhpur, India
e-mail: monavyas09@gmail.com

Abstract- In a recent *Forbes* CIO Network post, Machaalani and Harper boldly predicted that the shopping mall as we know it today will be much different 10 years from now. "Instead of loading up carts with goods to purchase in store, consumers will try on or sample the products in store, quickly scan and purchase items they desire, and have them delivered to their homes within hours."

As mobile technology is growing, so is the payment technology, which now enables end-to-end payment processing in context of associated business (sales) transactions, making it possible to conduct an entire business transaction along with associated end-to-end payment processing, over the mobile channels, offering enormous flexibility to customers, as to how, where, and when they can initiate their business transactions in real time.

Mobile payment, referred to as mobile money, mobile banking, mobile money transfer, and mobile wallet generally refer to payment services operated under financial regulation and performed from or via a mobile device

The payment processing industry, keeping in line with the potential and constantly increasing growth of the mobile commerce, has floated a variety of mobile payment processing solutions and models, that can be leveraged to relevant mobile communication services such as GPRS, USSD, NFC, Wi-Fi, Bluetooth, SMS, WAP etc.

Many business organizations, across all industry sectors, have quickly identified the emergence of business grade mobile technology and have strategically adopted mobile channel as one of their key ecommerce business channel to

conduct their sales, service, and marketing operations and business processes, relating to their mobile commerce business models

Keywords- NFC, Mcommerce, Google Wallets

I. WHAT IS MOBILE PAYMENTS

Mobile payment, also referred to as mobile money, mobile banking, mobile money transfer, and mobile wallet generally refer to payment services operated under financial regulation and performed from or via a mobile device.

Financial institutions and credit card companies as well as Internet companies such as Google and a number of mobile communication companies, such as mobile network operators and major telecommunications infrastructure and handset multinationals such as Ericsson have implemented mobile payment solutions.

When a payment is made through mobile devices, such as mobile phones, smart phones or Personal Digital Assistants (PDAs), it falls under the category of mobile payments. With mobile phones now being such a widespread consumer device, mobile operators worldwide are looking for ways to establish themselves in the payments segment, which has to date been largely dominated by financial institutions.

Mobile payment is an alternative payment method. Instead of paying with cash, check, or credit cards, a consumer can

use a mobile phone to pay for a wide range of services and digital or hard goods such as:

- Music, videos, ringtones, online game subscription or items, wallpapers and other digital goods.
- Transportation fare (bus, subway or train), parking meters and other services
- Books, magazines, tickets and other hard goods.

Mobile payment is defined as:

“Payment for products or services between two parties for which a mobile device, such as a mobile phone, plays a key role in the realization of the payment.”

II. MOBILE PAYMENT VALUE CHAIN

To understand the value chain for mobile payments, it is necessary to first understand the generic value chain for payments. A typical payment value chain is depicted in Figure2



FIG1:- Typical Payment Value Chain

The payment value chain as depicted in Fig2, involves four major entities – the functionality of each is briefly described in Table 1.

Entity	Description
Customer	<ul style="list-style-type: none"> • Purchases goods/services from the merchant • Gives validation of his/her credentials to the issuer • Makes the final payment – direct cash, cheque, credit, debit or through m-payment
Merchant	<ul style="list-style-type: none"> • Merchant generates bill as per the goods/services purchased by the customer • Sends bill to the acquirer • Registered with the acquirer/issuer • Receives final payment – directly from customer as cash, or else from issuer
Acquirer/Service Provider	<ul style="list-style-type: none"> • This can be a financial institution, a card association or mobile network operator • Acts as an intermediary between the 'Issuer' and the merchant
Issuer	<ul style="list-style-type: none"> • The party that authorises the payment as per the generated bill against select customers • Has details of user's credentials in its database • Performs authentication and authorisation of the transaction parties – customer and merchant • Can be a financial institution (bank), bank cards or third party card issuer

Table 1: Payment value chain – description of entities

The value chain for a typical mobile payment-based system is shown in Figure-3



Step 1: Customer purchases goods; bill gets generated; shows handset to the installed M-payment reader or traditional POS device in order to make payment. Merchant accepts the payment through the reader, which is connected to the acquirer.

Step 2: Acquirer has 'merchant's account'. It handles merchant information and transaction details; the network used for switching transactions is either the operator's network or an existing traditional payment network.

Step 3: Issuer authorises the amount and manages mobile accounts; after validating the customer's credentials, the issuer approves the generated bill

Step 4: Acquirer notifies the merchant regarding the same and the merchant issues purchased goods/services to the customer. Customer pays bills and gets his account re-charged

FIG2:-Mobile Payment –value chain

III EVOLUTION OF MOBILE PAYMENTS

The Global Mobile Commerce Forum, which came to include over 100 organizations, had its fully minuted launch in London on 10 November 1997. It was founded by Logica and Cellnet.. Over 100 companies joined the Forum within a year, many forming mobile commerce teams of their own, e.g. MasterCard and Motorola.

Mobile commerce was born in 1997 when the first two mobile-phones enabled Coca Cola vending machines were installed in the Helsinki area in Finland. The machines accepted payment via SMS text messages. The first mobile phone-based banking service was launched in 1997 by Merita Bank of Finland, also using SMS.

In 1998, the first sales of digital content as downloads to **The Google Wallet Mobile App** launched in September 2011 and the m-Commerce joint venture formed in June 2011 between Vodafone, O2, Orange and T-Mobile are recent developments of note. Reflecting the importance of m-Commerce in April 2012, the Competition Commissioner of the European Commission ordered an in-depth investigation of the m-Commerce joint venture between Vodafone, O2, Orange and T-Mobile are recent development.

IV MOBILE COMMERCE-BUSINESS CONTEXT

Mobile commerce is not only an extension of an eCommerce business model but also an innovative commerce model, where in a variety of commerce

transactions are conducted over mobile channels. In mobile commerce, many business organizations, in addition to traditionally established channels (field sales, branch offices, front offices, web channel etc) use mobile channels to conduct their business operations in sales, service, and marketing areas.

A typical mobile commerce ecosystem, in addition to end-customers, comprises of multiple participants including business organizations, retailers, telecom network service providers, mobile transaction processing service providers, payment gateway service providers, acquirers, intermediaries, issuer banks, and a variety of settlement service providers. In a mobile commerce business model, end users will be able to buy the products and services from the merchants (or business organizations) and make payments for services and products through their mobile devices. The services and products are either directly delivered to the customers through their mobile devices (if they are content based services) or else shipped to their addresses through shipment and fulfillment processes. As part of the mobile commerce model, users will be able make the payment in a variety of ways over the mobile channels, either using their credit/debit cards or through cardless

III. GOOGLE WALLET

Google Wallet is a free digital wallet that securely stores your credit cards, debit cards, offers and more. With Google Wallet, you can shop in stores, buy online, and send money. You can shop and save in stores by storing all of your loyalty cards and offers on the Google Wallet app and tap and pay to checkout if you have an NFC-enabled Android device. You can also use the Google Wallet Card to spend your Wallet Balance to purchase in stores or withdraw cash from ATMs.

In addition, you can use Google Wallet to buy online on Google Play and other Google products and on select Android apps and sites, wherever you see the Buy with Google button. You can also send money to anyone in the US with an email address with the Google Wallet app or through Gmail.

IV. HOW GOOGLE WALLET WORKS

A digital wallet is an app on user phone or other mobile device that allows user to store virtual versions of items user would normally find in a physical wallet, like credit cards, bank account information, gift cards, coupons or customer loyalty cards, and even things like event tickets and boarding passes. The information may be stored either on

the device itself or in the cloud, and can be used at bricks-and-mortar locations or online.

The Google Wallet concept banks on a couple of spreading technologies, including smartphones and **near-field communication (NFC)**. NFC is a short-range wireless technology that lends user smartphone all sorts of new capabilities.

For instance, user can use an NFC-enabled phone to pay for things, from parking meters and pet supplies to sandwiches and much more. Visit a merchant who's equipped with an NFC checkout system, and with NFC smartphone he/she can complete what's called a **contactless payment**. Tap or wave user phone near the NFC terminal, user enter PIN (personal identification number) and its done. user don't even need a paper receipt because the store can send an electronic copy directly to your e-mail account.

To get started, user download the Google Wallet app to your smartphone or tablet. Only a smattering of Android mobile devices have NFC as of mid-2013, but by 2014, some experts expect about half of smartphones to ship with NFC chips, and Forrester Research foresees more than a quarter of phones in the US having the technology by 2016

However, even if user current phone has NFC, user cellular carrier must also enable user device to use NFC with a digital wallet, and most carriers are not doing this. As of June 2013, only Sprint, Virgin Mobile, US Cellular and Metro PCS offered any smartphones that work with Google Wallet and NFC in the U.S. These include devices from Samsung , LG and HTC. The Google Nexus 7 And Google Nexus 10 tablets also allow you to use NFC.

If you don't have a compatible phone and carrier, you can sign up for Google Wallet online. You can basically use the service to speed through checkout at sites all over the Web, as well as for some other non-NFC uses that we'll discuss shortly.

Once user have downloaded the app or signed up online, user can set up Wallet with his/her credit cards, gift cards, loyalty cards and more so user will have the option to pay with whatever source he/she can choose. Of course, to use Wallet at all, user needs to find stores that actually have the equipment to read the NFC chip in user phone.

Google anticipated this infrastructure problem. Rather than build a proprietary network of terminals, the company made Wallet compatible with MasterCard's PayPass system, which is already available at around 200,000 locations in the U.S. Major chain stores including Walgreen's, Subway, Jamba Juice, Macy's, Footlocker, Old Navy, American Eagle Outfitters, CVS and Radio Shack are already on board with the Wallet concept and will soon have NFC readers if they don't already.

Quick, painless payments are only one component of Google Wallet. On the next page, will discover Google's ultimate plan: to totally replace your analog leather wallet (perhaps to the great relief of cows everywhere).

V. GOOGLE IMPACT PAYMENTS ON ECOMMERCE

1) *New Consumer Expectations*

First, Google Wallet will almost certainly change customer-shopping expectations.

directly into Google Wallet. This means that shoppers will be able to easily redeem deals directly from Google Wallet. As Google has already pointed out, Wallet is a mobile application, which means that there is no reason it cannot do much more than a traditional Wallet or credit card. Specifically, it might store loyalty card information, keep track of gift card purchases, or even integrate with personal finance software to warn shoppers when a purchase will put them over budget. All of these features should make it far more convenient than credit cards.

All of these conveniences and deal makings will likely change consumer expectations online too. If shopping in a store just requires a quick wave of a phone and a tap, why should ecommerce purchases require a customer to fill out a long checkout form? Shouldn't an online shopper be able to store a Google Wallet on a desktop, laptop, or tablet too? Shouldn't online purchase just be one click away? These are the sorts of questions that consumers may start to ask in the age of phone payments, and how these questions are answered may impact online retailing.

2) *Affect on the eCommerce Industry*

Despite targeting physical retailers and other services providers, the technology will affect how customers shop, the payments they use and how transaction data is managed. If a fast, secure system is developed, Google Wallet could become an instant success.

3) *Card Present Transactions*

Ecommerce merchants will want to ask some questions of their own. For example, brick-and-mortar stores generally play less in payment card processing fees than online merchants pay, since the former's transactions are said to be "card present." But Google Wallet, which clearly does not require customers to carry around a piece of plastic, produces "card present" transactions that enjoy better rates and better protection of charge backs than what online purveyors pay for their "card-not-present" transactions.

The implication here is that there will be a clear inequity. Ecommerce merchants will — at least for the time being —

continue to pay higher rates for a transaction that is essentially the same as Google Wallet.

4) *Using NFC Technology*

Google is attempting to form an open commerce system that will allow consumers to pay using near field communication (NFC) technology while acquiring promotions. This activity will occur with the simply tap of phone against a reader in an offline manner.

Shoppers at land-based stores will be able to make payments using the card stored on their Android phone. Shoppers will wave the smartphone near the NFC equipment which accepts the transaction. The device will then transfer back any promotions and deals

5) *Changes in Security*

A second potential implication for online sales has to do with credit card security and Payment Card Industry (PCI) compliance and is, at this point, hypothetical and speculative, but it does make good sense for merchants and consumers while creating a possible challenge for online competitiveness, which is why it is discussed here.

Although it seems that Google Wallet is still sharing consumer credit card data with merchants via NFC, it does not need to. Rather, instead of carrying out the transaction on the merchant's network, it is at least feasible that Wallet or similar mobile applications could use the phone to complete the transaction in a fashion somewhat similar to how [Square](#) or [PayPal Bump](#) manages them.

6) *Additional Features*

Since the Wallet is a mobile application, Google intends to have more features than a physical wallet and credit cards. For instance, it can be used for store loyalty information, track gift card purchases and integrate with personal finance software. This is far more convenient than standard credit cards.

The Google Wallet could change the way customers shop, interact and live their lives. This is one of those inventions that is game changing. As long as Google can maintain a high level of security and effectively process transactions, this application will be one of the most useful inventions ever created.

II. CONCLUSION

- Perception of Mobile Payments is different in different parts of the world.
- The Developed world is moving towards NFC enabled contact less Mobile Payments, with industry consortia (GSMA, Mobey Forum) advocating replacement of SIM with multi application UICC to support NFC.
- Cross-border payment services like SEMOPS continue to prevail as remote payment services.
- E-Money will continue to be the driver for Mobile Payments in under developed nations.
- Mobile Payment solutions for Financial Inclusion need to be affordable and operationally simple to have maximum acceptance form the communities.

REFERENCES

- [1] MobileWalletWP.pdf
- [2] Google Wallets Impact on Payment by The CITE
- [3] Mobile Payments: Risk, Security and Assurance Issues: www.isaca.org/mobile_payments
- [4] Market Brief: Mobile Payments. www.portioresearch.com

- With its mixed population, India requires different mobile payment solutions to different communities

[5] *Ashok Goudar, "Mobile Transactions and Payment Processing"*