MOBILE PAYMENTS BY MILLENNIALS

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Abstract. *Trust is at the core of any payment method and it plays a crucial role in the adoption of new payment systems. Individuals need to trust in one another in order to validate any monetary system developed. With the evolution of the payment methods, shifting from paper-based to electronic-based, build consumers' trust has become a vital element for the success of businesses in the payment systems. The younger generation always tend to try something new and promote to use it in case it would give any benefits. The rapid growth of mobile technology among the world's population has led many companies to attempt to exploit mobile devices as an additional tool in the business of sales. All these events led to develop mobile payments that became quickly very popular among the millennials generation and later on used intensively by people from other ages. In this sense the aim of this paper is to go over the most used worldwide mobile payments at the moment and investigate their impact.*
Key words: Mobile Payments, Adoption, Influencing factors, Millennials.

JEL CLASSIFICATION: M310, M370, M150

1. INTRODUCTION

The 21st century can also be understood as an era of digital revolution where technology has penetrated almost every aspect of our lives. With the invention of mobile technology in 1973 by Martin Cooper, no one had realized that such an innovative tool, over a period of time, would offer much more than just being one of the primary sources of communication. Over the years with the advancement in scientific technologies and integration of different ICT tools with the mobile devices led to the inception of smartphone in 1992. The concept of personal data assistance (PDA) came into existence where the mobile phones were given the potential of managing various additional tasks of the individuals apart from offering connectivity. In addition to that, with the coming of Web 2.0 and greater scope for interactivity between multiple different users created numerous opportunities for the enterprises in the domains of learning, commerce, entertainment and many more. What was witnessed was a convergence between the physical and virtual space where virtual is gradually overcoming the challenges which the physical tends to offer. One such important change was the launch of e-commerce and the idea of market-at-doorstep. With multiple varieties of online stores offering a diverse range of products to the user through a single window of operation was truly in itself a big game-changer for the existing markets all across the globe. The consumer was no longer limited to the geographical boundaries of his/her state rather was exposed to such a space where knowledge on any kind of commodity situated anywhere across the globe, could be accessed at any point of time via ICT [1].

The widespread use of smartphones and technological advances in Near-Field Communication technologies are quickly transforming mobile payment systems. These technologies have made it possible for consumers to use their smartphones to pay for their purchases through various payments systems as Apple's Pay, Google Pay, Square etc. These mobile payment systems, commonly referred to as mobile wallets, are designed to eliminate the need for consumers to carry multiple credit cards in their wallets, thereby making it more convenient for consumers to shop. Mobile wallets represent a major advance in mobile marketing because they are another major channel through which marketers can better reach and serve customers in a very personalized way. Realizing the potential benefits of mobile wallets for both marketers and consumers depend on the

speed of adoption of this technology [2]. While the global adoption of mobile payment is a new concept, many industries are making progress toward attaining the right mix of market forces and consumer acceptance. Despite no being on the leading positions on Mobile Payments Readiness Index [3] and very advanced infrastructure at Point of Sale (POS) system and a proactive government. However, consumer adoption is crucial for the success of mobile wallets. Currently, consumer adoption of mobile wallets is in an advanced stage but marketers are eager to see widespread adoption of this technology. Thus, there is a real practical need for a better understanding of the factors that could influence mobile wallet adoption. Although much research has been conducted on various aspects of mobile commerce and payment systems, research on the adoption of mobile wallets is limited. The goal of this study is to add to the emerging research on mobile wallet by investigating consumer adoption of this technology among the millennial's generation.

The purpose of this article is:

- Go over concept and most popular (common used) mobile payment systems
- Define the advantages and disadvantages from using these payment gateways
- See their impact over the millennial generation, that represent the main consumer ages

2. CONCEPT

Financial sector is undergoing a structural change with arrival of disruptive innovators from outside the industry. One of major innovations in the field is mobile payments, defined as a digital device wallet. Mobile payments are regulated transactions that take place digitally through any mobile device that supports it. More commonly these kinds of services are defined as mobile wallets. In a mobile wallet app, you can securely add and then store the bank details associated with your debit or credit card (some mobile wallet apps allow you to add more than one card). So instead of using your physical card to make purchases, you can pay via your mobile device [4]. The most common use case met for mobile payments are micro-transactions or the regular and daily small payments. The entire process of payment is pretty straight forward and pretty similar with a traditional debit card payment, but without its presence and with an additional fee added by the mobile gateway providers. The generic mobile payment flow is presented in Figure 1.

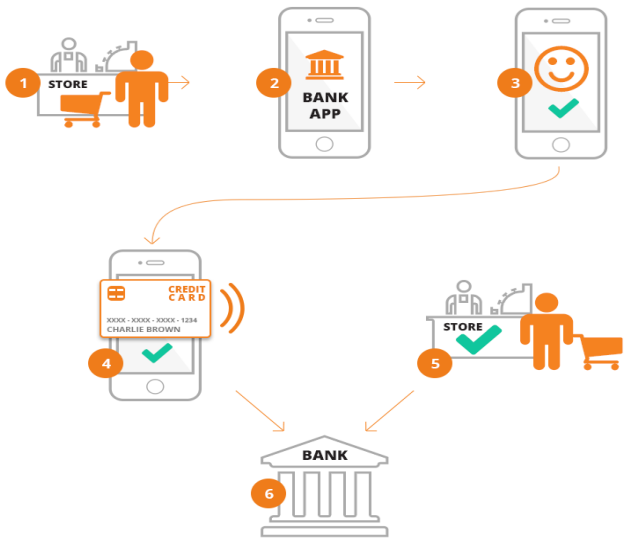

Figure 1. Mobile Payment Flow

3. COMMON MOBILE PAYMENT TYPES

In present we can see a variety of mobile payment technologies used within different terminal, but the most common or worldwide used are:

- NFC
- Magnetic Secure Transmission
- Sound Waves-Based
- Quick Response Code

NFC Mobile Payments

Near Field Communication (NFC) payments are payments that enable the usage of mobile wallets and contactless payments. NFC enables two devices, i.e. NFC-enabled card reader and a mobile phone, to communicate wirelessly when they're near each other, with an approximate distance of two inches or less. In order for this to work, both devices need to be equipped with the NFC chip [5].

Magnetic Secure Transmission (MST) Payments

Magnetic secure transmission (MST) is fairly similar to NFC. MST payments generate "magnetic" signals to establish a connection between the user's mobile device and the POS terminal. This signal is similar to the magnetic connection created when traditional credit cards are swiped through the POS terminal. MST technology can work with most NFC-ready POS terminals that accept contactless payments [5].

Sound Waves-Based Payments

Sound wave-based (or sound signal-based) mobile payments enable contactless mobile payments through sound waves. Transactions are processed through unique sound waves containing encrypted payment data. The terminal sends sound waves to the mobile device to securely transmit the payment details. Then the user's phone converts that data into analogue signals that complete the transaction. The sound-based payment technology is fairly secure as it uses tokenization among other encryption methods, as well as authentication through PIN / Password or biometrics [5].

Quick Response (QR) Code Payments

The name QR code is the trademark of a type of matrix barcode created in 1994 for the Japanese automotive industry. It has since been used in many contexts, including as a mobile payment method which particularly popular in China. When a QR code is scanned, the horizontal and vertical patterns of the matrix are decoded by the software on the user's smartphone. Then they are converted into a string of characters when captured with the phone's camera. After the information is processed, the phone may open a browser link, confirm payment information and verify geolocation, among other operations [5].

QR payments can be processed in the following ways:

- The user scans the QR code: The user scans the QR code on his smartphone with an app allowing QR code payments. They confirm the price, if required, before tapping to finalize the payment.
- The merchant scans the customer's QR code: When the total transaction amount is set by the merchant, the user opens the app allowing QR code payments. The app displays a unique QR code identifying the user's card details. The merchant scans this code with a QR code scanner, finalizing the transaction.

App-to-app payments: Both the customer and the merchant open the relevant apps. The customer scans the merchant's unique QR code displayed on the merchant's app, through their own app. The customer then confirms the amount to pay and tap to process the payment.

4. MOBILE PAYMENT GATEWAYS

Payment market is a place where usually controlled by big fishes, some exceptions might be a niche or monopole marketplace. The most used world wide mobile payment gateways are:

- Apple Pay
- Google Pay
- Cash App
- Samsung Pay

Apple Pay

Apple Pay is a mobile payment and digital wallet service by Apple Inc. that allows users to make payments in person, in iOS apps, and on the web although Apple Pay web support is limited to the Safari browser only. It is supported on the iPhone, Apple Watch, iPad, and Mac. It digitizes and can replace a credit or debit card chip and PIN transaction at a contactless-capable point-of-sale terminal. Apple Pay does not require Apple Pay-specific contactless payment terminals; it works with any merchant that accepts contactless payments. It is similar to contactless payments, with the addition of two-factor authentication via Touch ID, Face ID, PIN, or passcode. Devices wirelessly communicate with point of sale systems using near field communication (NFC), with an embedded secure element (eSE) to securely store payment data and perform cryptographic functions, and Apple's Touch ID and Face ID for biometric authentication [6].

Google Pay

Google Pay (stylized as G Pay; formerly Pay with Google and Android Pay) is a digital wallet platform and online payment system developed by Google to power in-app and tap-to-pay purchases on mobile devices, enabling users to make payments with Android phones, tablets or watches. In addition to this, the service also supports passes such as coupons, boarding passes, student ID cards, event tickets, movie tickets, public transportation tickets, store cards, and loyalty cards [7].

Cash App

Cash App (formerly known as Square Cash) is a mobile payment service developed by Square, Inc., allowing users to transfer money to one another using a mobile phone app [8].

Samsung Pay

Samsung Pay is a mobile payment and digital wallet service by Samsung Electronics that lets users make payments using compatible phones and other Samsung-produced devices [9].

5. ADVANTAGES AND DISATVANTAGES OF MOBILE PAYMENTS

E-commerce has changed the way people used to do business. It is not limited to making electronic payments on the internet only, but it also it provides the opportunity to buy movie or airplane tickets, download music, buy a book, or search the worldwide markets for desired products in any time at any place. While enabling these kinds of services, preventing fraud, protecting consumers' privacy, application technology, and computer security become major issues to maintain the provision of appropriate services. The successful management of these issues is likely to ensure the future progress of e-commerce and its online payment systems including mobile payments. The findings of the study suggest that although there are a large number of online payment services available to consumers, the use of payment cards dominates this industry. Similarly, the SSL security protocol is found to be highly effective in providing secure payment transactions over the internet. The use of payment cards for online purchases has developed a huge user base due to simplicity and familiarity of its use.

A list of **advantages** made based on observations can be considered as:

- Purchases that are time and place independent
- Avoidance of queue
- Increased availability of payment instruments
- Complement to cash
- High with small payments and purchasing digital content and services
- Contactless and one-click payments
- New simpler and safer solutions
- Economy of scale as user base rises
- Merchants, financial institutions, and telecom operators are highly trusted
- User and device Authentication

Research findings suggest that the use of mobile devices for making online payments is increasingly becoming popular due to a large user base of mobile phones. This payment method best suits micropayments and offers more convenient and secure payment transactions if appropriately implemented. Electronic cash systems are under way in achieving high uptake by consumers despite their strength to cater small and varied payments. A central challenge, for all these payment methods, is the provision of an authentication system that must ensure the security and convenience of each transaction made [10].

Factors affecting consumer adoption of mobile payment services were also examined. The findings also suggest that mobile payment industry has to overcome certain security and authentication challenges in order to a make a steady progress in future. Mobile payment service providers need to implement the proper security and privacy governance programs. Latest technology like biometric authentication and radio bar-codes should be used in order to boost security and improve the efficiency of mobile payment systems. As these technologies advance and the market base expand all barriers for adoption of mobile payments will be eliminated. Taking in consideration the technical progress and investigations, consumers that are out of millennials age range still face difficulties.

As most common reported **disadvantages** for mobile payments can be considered:

- Complicated procedure of registration
- Maintenance of separate financial accounts
- Complex service numbers and codes
- Increased cost of transaction and high premium pricing
- Privacy concerns
- Frauds

6. MILLENNIALS MOBIL PAYMENT STATISTICS

According to Mercator Advisory Group's Customer Monitor Survey Series Payments survey of June 2018, nearly all millennials own smartphones and 70% of millennials use their mobile phones to pay for goods and services including 40% who use universal mobile payment apps such as Apple Pay or Google Pay. Millennials, in general, are less likely to have checking accounts than older adults, and those who use mobile payments are no exception [11].

When comparing millennials who use mobile payments and those who don't, millennials using mobile payments have slightly higher incomes than non-users, but are also more likely than average consumers and especially millennials to have savings accounts at a bank or credit union (77% of millennials who mobile pay vs. 71% of millennials and 74% of all adults) and have investment

accounts or use online brokerage services. Millennials using mobile payments are more likely than average millennials to use credit cards, and are just as likely as average millennials to pay their balance in full, but less likely than average consumers to do so (59% of millennials who pay by mobile vs. 60% of millennials vs. 66% of all adults) [12].

Millennials have less access to credit and those that mobile pay may tend to spend more than those who don't pay with their phones. While issuers are starting to relax credit policies, young adults are forced to seek alternative financing to get the credit they need to make purchases. Given their stage in life, millennials are more likely to need to pay fees to use checking accounts or for the use of a debit card. And, yes, millennials are more likely than average to pay overdraft fees for their checking account and those who pay by mobile are even more likely to do so (18% of millennials who use mobile payments vs. 14% of millennials and 9% of U.S. adults). But, that doesn't mean they are making bad financial decisions, or are worse than other millennials. They are just getting used to their financial freedom.

CONCLUSIONS

This article reviewed the modern mobile payment systems that are commonly used within the millennial age range on a worldwide level.

Everything that is related to mobile economy has become a hot topic that penetrated and continues to do it on all types of business affairs. All these topics rely on young, but in the same time high end technology. Mobile payment gateways have already not small impact on the transaction world and caught attention of big fishes from this area (like MasterCard, Visa etc.). Despite the frauds and bad experience that a percentage of people faced, it's always a risk for any type of software system when it is released on the market. The main goal is to report and help them to grow and close as soon as possible all the system weaknesses. As far as this system has attraction from the main labor force it has impact over many economic industries it should be taken as an option for any business to be promoted.

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