

# Cashless Economy

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**05/04/2017**



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# Introduction :



Figure: Cashless Society

- **An economic state whereby financial transactions are not conducted with money in the form of physical banknotes or coins, but rather through the transfer of digital information between the transacting parties.**
- **A cashless economy is one in which all the transactions are done using cards or digital means. The circulation of physical currency is minimal.**



# Objectives :

- **Introduction of universal payment systems.**
- **To curb generation of black money and corruption.**
- **To reduce tax avoidance and money laundering.**
- **To reduce the difficulties in transporting the money.**
- **Minimization of the wastage of money in printing of physical notes, coins.**



- **Generation of black money and Increased corruption by physical cash.**
- **Criminal activities related to cash(money laundering, robberies etc).**
- **Long lasting bank transactions.**



## Paper 1

- **Title :**  
**“Next Generation Smart Transaction Touch Points ”**
- **Name of authors :** K. V. Kuganathan, Gihan N.Wikramanayake
- **Year of Publication :** 2014

## Paper content :

- 1 The provision of mobile application to perform banking transactions while enabling merchant payments through a SMART card.
- 2 The new local initiative for mobile payments which will promote the acceptance and adoption of cashless payment mechanisms.



## Paper 2

- **Title :**  
**“The Implementation of a full EMV Smartcard for a Point-of-Sale Transaction ”**
- **Name of authors : Oludele Ogundele, Pavol Zavorsky, Ron Ruhl, Dale Lindskog.**
- **Year of Publication : 2012**

## Paper content :

- 1 **Technical standard for smart payment cards, payment terminals and automated teller machines.**
- 2 **Introduction of changes in payment card environment and point of sale terminal.**



## Paper 3

- **Title :**  
**“IDA-Pay: an innovative micro-payment system based on NFC technology for Android mobile devices ”**
- **Name of authors : Luca Mainetti, Luigi Patrono, Roberto Vergallo.**
- **Year of Publication : 2014**

## Paper content :

- 1 **The evolution of modern mobile devices towards novel Radio Frequency (RF) capabilities, such as Near Field Communication (NFC).**
- 2 **An innovative and secure NFC micro-payment system based on peer-to-peer NFC operating mode for Android mobile phones.**





## Paper 4

- Title :  
“E-WALLET Properties ”
- Name of authors : Mia Olsen, Jonas Hedman and Ravi Vatrapu.
- Year of Publication : 2014

## Paper content :

- 1 intention to replace the existing physical wallet, with its notes, coins, photos, plastic cards, loyalty cards etc.



# Credit Card Payment System :



Figure: Credit Cards

- Type of electronic payment system that involves the use of a plastic card with a magnetic stripe that retains information of the cardholder's credit account made with a bank.
- Printed bank card number with the ISO 7812 numbering standard.
- Universal size: 85.60 mm \* 53.98 mm.



# Working of CREDIT Cards :

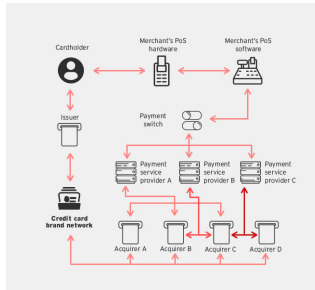


Figure: Credit-card payment system

- Consumer
- Merchant
- Issuer
- Acquirer
- Card brand
- Payment Service Provider





Figure: Europay Master Card and Visa

- **EMV cards are smart cards that store customers data on integrated circuits in addition to magnetic stripes .**
- **Chip and Pin Authentication method.**
- **It can be read by radio-frequency identification (RFID) technology.**



- **The introduction of dynamic data is what makes EMV cards so effective.**
- **Reset mechanism through card interface functions.**
- **It supports various verification methods such as online pin, offline pin , digital signature.**
- **Extremely difficult to duplicate the data which are stored in chip.**
- **Silver lining technology to reduce the pos frauds.**



# NFC Payment System



Figure: Near Field Communication

- **NFC is the technology that enables contactless payments.**
- **NFC is a set of communication protocols that enable two electronic devices, smartphone and payment terminal to establish communication by bringing them within 4 cm (1.6 in) of each other.**
- **NFC offers a low-speed connection set up used for social networking, for sharing contacts, photos, videos or files.**



- **Support devices with single or multiple NFC adapters.**
- **Support communication with active (readers, phones) and passive (smart cards, tags) devices.**
- **Allow NFC handover to Bluetooth or WiFi.**
- **Allow card emulation with secure element or host card emulation.**





Figure: Apple-Pay

- **Apple Pay is a mobile payment and digital wallet service by Apple Inc.**
- **Supported Device:**
  - iPhone 6, 6 Plus, iPhone 6S, 6S Plus, iPhone 7, 7 Plus, iPhone SE, and later..
  - iPad Air 2, iPad Pro and iPad Mini 3 and later..
  - Apple Watch-compatible devices.
  - macbooks with mac'OS Sierra.





# Apple-Pay Working

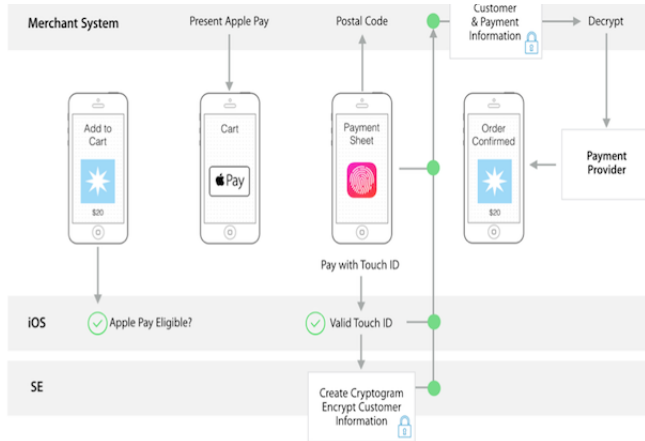


Figure: Apple-Pay Working



# Ways to use Apple-Pay

- Set up Apple Pay on iPhone.
- Set up Apple Pay on Apple Watch.
- Using Apple Pay.
- Update and remove.
- Is it safe?

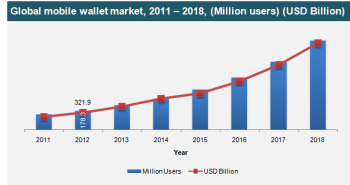


Digital  
Wallet



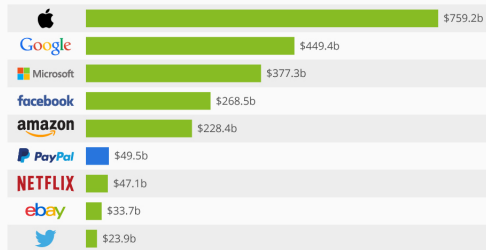
- A digital wallet refers to an electronic device that allows an individual to make electronic transactions.
- A digital wallet has both a software and information component.
- The software provides security and encryption for the personal information and for the actual transaction.
- The information component consists of your shipping address, billing address, payment methods, and other credential information.





## How PayPal Measures Up Against Other Tech Giants

Market capitalization of selected U.S. tech companies\*



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\* as of July 20th, 10:00 AM EDT  
Source: Yahoo! Finance

statista



- **The unique combination of a NFC based mobile wallet and card provides flexibility, convenience and financial control to consumers, in addition to encouraging the use of the latest technology.**
- **Consumer education remains an area of acute interest for banks to implement use of Eco friendly financial services.**
- **Adopting Mobile based, Card base solution will reduce the physical printing money, which will have greater impact on economy growth.**
- **Green IT banking based practices in banking are critical to the future development of the nation and national progress.**



- ❶ K.V. Kuganathan, Gihan N. Wikramanayake ,“Next Generation Smart Transaction Touch Points”,IEEE 2014.
- ❷ Oludele Ogundele, Pavol Zavarsky, Ron Ruhl,“The Implementation of a full EMV Smartcard for a Point-of-Sale Transaction“, IEEE 2012.
- ❸ Luca Mainetti, Luigi Patrono, Roberto Vergallo,“IDA-Pay: an innovative micro-payment system based on NFC technology for Android mobile devices”,IEEE 2012.
- ❹ Sana Nseir , Nael Hirzallah, Musbah Aqel,“A Secure Mobile Payment System using QR Code“,IEEE 2013.
- ❺ Mia Olsen, Jonas Hedman and Ravi Vatrapu,“E-wallet Properties”,IEEE 2011.



# Any Questions



