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# A Critical Evaluation Ofrecent Trends in Digital Payment Systems in India

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**ABSTRACT**

Today, innovation is a key to competitiveness and national progress. The importance of innovation is reinforced both by globalization and by rapid advances in new technologies as well as recent government initiatives, which has subsequently given rise to new forms of competition and opened new markets for the creation and delivery of innovative products and services. Dean Kamen has said that every once in a while, a new technology, an old problem and a big idea turn into an innovation.

The innovations in the financial industry have come a long way since their inception. This industry has matured and new entrants have come up with numerous technological innovations. Payment and settlement systems play a vital role in improving overall economic efficiency of any country. The central bank of the country acts as a catalytic force in the development of national payment systems. In India, the payment and settlement systems are regulated by the Payment and Settlement Systems Act, 2007 (PSS Act).

A digitally empowered nation can better compete in the dynamic world. Our country possessing huge manpower resources, if utilized efficiently, can achieve the title of a developed nation. This paper focuses on the innovations in digital modes of payment in the recent time and also throws light on the threats associated with digitalization of the payment system. The methodology used in this research work is of secondary nature.

**Keywords:** Digital payments, cash less economy, cyber security threats.

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**INTRODUCTION**

With the transformation in the way people indulged into buying and selling of products and services changed the way from conventional paper-based cash transaction to digital payment systems. Nowadays, there is a firm consensus that a stable financial industry is a pre-requisite for the exploitation of an economy's growth potential.

The Payment and Settlement Act 2007, defines digital payment as any electronic funds transfer which is initiated by a person by way of instruction authorization, or order to a bank to debit or credit an account maintained with that particular bank through electronic means and includes POS (point of sale) transfer; ATM transaction, direct deposit or withdrawal of funds, transfers initiated by telephone, internet and card payment. The process of payment is an important component of financial intermediation; it facilitates the flow and transfer of money to various agents of economy. In 1979 Michael Aldrich propounded a new technology which gave the consumer the provision to make purchased over the electronic medium. Subsequently, Google came up with Google Checkout in 1996.

In the same context, the Indian government encourages cashless transactions in the form of RuPay cards, UPI, USSD and mobile banking. But the big question arises what has pushed the rapid growth in the use of digital methods of payment. To name a few, government policies like:

- Relaxation of KYC for small transactions
- The process of KYC made easier by the use of exemptions of Aadhaar in authentications, and
- Several initiatives have been taken such as Demonetization, Digital India and Make in India by the government.

With the advancement in the financial technology, there has been a remarkable increase in the usage of digital payment systems. There were a number of factors which contributed to the rapid growth in the number of people opting for digital payment methods. Some of them were – a good internet connectivity, innovation in financial sector and many more. However, in context to Indian economy, the major push was demonetization which led to an increase of about 271% (amounting to Rs 191 crore) growth in digital payments. As per RBI's "Vision

2018", the department had identified four strategic pillars for achieving its vision which are Responsive Regulation, Robust Infrastructure, Effective Supervision and Customer Centricity.

[The Digital India Programme, a flagship programme of the Indian Government was launched on July 2015 by Prime Minister Shri Narendra Modi. The overall theme of the Digital India Campaign has been to transform India into a less cash economy. "Faceless, Paperless, Cashless is one the professed role of Digital India."]

**LITERATURE REVIEW**

- Karamvir, Sheokand and Neha Gupta in the Indian Journal of Economics and Development (2017) lay down the pillars of Digital India. They have aptly explained the impact of digitalization on different sectors of Indian Economy. They have concluded their research on the note that digitalization

will not only increase the standard of living but will also help the country to become a developed nation.

- Karamjit Kaur and Dr. Ashutosh Pathak (2016) have opined in their research paper titled "E-Payment System and E-Commerce in India", that e-payment usage is unevenly spread. He has pointed the need of complete security of digital channels in order to promote digitalization in India.
- Jain P. M. 2006 in the article "E-Payments and E-Banking" opined about the growth pattern of cashless transactions system. He has pointed out need for quick yet safe modes of e-payments and communication networks.
- IOSR Journal of Business and Management conducted a research on "Introduction of Cashless Economy in India 2016". It cited that the introduction of digitized economy in India can be seen as a right step in the right direction. It will help in growth and development of the Indian economy thereby bringing in high literacy rate, right attitude of people and efficiency of digital payment system.
- Lawrence J. Trautman (2016) In his study on 'E- Commerce, Cyber, And Electronic Payment System Risks' highlights the growth of online commerce in the recent past. Also, he brings to light the types of risks associated with digital payment mechanisms.
- In the IOSR Journal of Economics and Finance (2016), the author Saba Abid puts forward a comparative analysis of different payment methods in terms of their value. She concludes with her findings that the share of paper-based transactions have shown a decline over the past few years.
- Ratan Watal Committee Report (December 2016): In the report the committee has thoroughly evaluated the growth in digital payments, factors causing inefficiencies in digital payment mechanism, necessity of being digital, global best practices in this field. The committee lays down several recommendations for the current government to enact upon.
- The Boston Consulting Group (2017): This study has been made on the future of digital payments in India and worldwide. It has laid down a ten point agenda for payment service providers.

**RESEARCH METHADOLOGY**

Research objectives:

- To discuss the existence of digital payment methods.
- To study the benefits of e-payment systems
- To analyze the implications of digital payments.
- To suggest ways to mitigate the risks associated with these payment systems.
- To foresee the opportunities of the emerging market for digital payments.

To attain the objective of our research, secondary data was collected from different websites, journals, and newspapers were consulted to make it an effective one. Various websites and government were taken as reference for collecting the data.

**Research background:**

Digital payment is a method to make payments without the use of cash. It is also referred to as e-payment system. The Government of India launched the Digital India Programme on 1st July, 2015 to strengthen the economic infrastructure of country. The programme was designed to ensure that the government services (like subsidy) are available by electronic means.

Indian economy has been growing at a fast pace. India is ranked 7th place among the largest economies in terms of GDP. In order to empower this position further, the Digital India Initiative was introduced to ensure that every person in the country possesses the basic knowledge and understanding of financial matters.

The government of India has started providing its citizens with e-governance services on a wider scale. The aim is to increase efficiency and transparency in the government departments. Under the electronic clearing service credit scheme, 1995, a series of e-payment instructions were issued to replace paper instruments. The Real Time Gross Settlement System (RTGS) in March 2004 and National Electronic Fund Transfer System (NEFT), 2005 were one of the major innovations in the financial sector of India. NPCI was formed in 2008 as a regulatory body of digitized transactions. NPCI is responsible for the introduction of RuPay card, BHIM and Unified Payment Interface.

**Key modes of electronic paymentsystems:**

- **Creditcard:** Credit cards can be used for everyday spending, online shopping, and paying bills etc. In India, Andhra Bank first introduced credit cards in the year 1981. The major drawback of using credit card is the payment of a heavy rate of interest on the borrowed sum. Also, in case of delayed payment of principal and interest the borrower is liable to a penalty. Setting aside its limitations it is widely used.
- Debit card: Its other name is ATM card, and is a prepaid instrument. An individual must have a bank account in his name in order to possess a debit card. It was introduced in the year 1994. Debit card allows an individual to carry out cashless transactions. He/she is saved from the effort of carrying cash. However, it has its pertinent demerits. One needs to maintain a minimum balance in his bank account in order to use a debit card. Also, the PIN needs to be frequently changed in order to avoid theft/fraud.
- **Internet banking:** E-banking/Virtual banking is an electronic payment system that allows the customers to make payments, transfer money or to check account balance and aids in performing many other financial transactions without the haste of visiting the bank branch. Every technological innovation in finance comes with some frauds, threats to the security and privacy of customers. In this case, hackers can access all the account information of any person and misuse the owner's funds.
- **Real time gross settlement:** It can be defined as the continuous settlement of funds transfer individually on an order by order basis. The minimum limit for an RTGS transaction is Rs 2 lakhs. Once the funds settlement takes place in the books of the Reserve Bank of India, the payments are final and irrevocable.

- **Aadhaar enabled payment system (AEPS):** It is a new cashless method introduced by the National Payments Corporation of India to banks, and other financial institutions using 'AADHAAR' number and online UIDAI authentication. It is a way to get money from the bank account or transfer cash from one account to another. This system does not require any signature and the person need not visit branch.

- **E-wallet (mobile wallet):** It is the most viable means of making payments in today's world. It is a secure, convenient and portable tool for shopping online. E- wallets were introduced in 2006 by the name Wallet365.com [A Joint Venture of Times of India Group and Yes Bank]. However, it failed to build a customer base mainly due to the following factors: two-third of India's population lives in rural areas and hence remains aloof from technological innovations; lack of financial literacy, habit of holding cash.

There has been a significant rise in the number of digital wallet service providers in the past five years. Some of the major digital service providers are listed below along- with their shortcomings:

• **UPI- Unified Payment Interface:** To facilitate the online payments, UPI offers a set of standard API specifications. Its aim is to provide a single interface across NPCI systems to maintain efficiency and giving a superior quality customer experience.

**Threats:** The UPI app can be developed with customization by a bank. There is a risk of misuse by the third party sellers of the app, who are involved in the task of app development. If proper care is not taken, a chance of risk of losing privacy is at a higher side.

• Mobile wallets: A Virtual wallet that serves the purpose of carrying a credit or a debit card. They are categorized into three categories:

o Open Wallet like M-PESA by Vodafone and ICICI Bank

o Closed Wallet like Flipkart e-wallet

o Semi-closed Wallet like Paytm, PhonePe, etc.

**Threats:** Such wallets are vulnerable to several risks like Phishing and Vishing attacks, spoofed SMS messages (purports to be from their PSP in order to encourage the user to call a compromised number), SIM swap based attacks, etc.

• Unstructured supplementary service data (USSD): A session based transmission protocol used by cellular telephones to communicate with the TSP (Telecom Service Provider). It is an in-built feature of a phone.

**Threats:** USSD command requests and responses can be tampered by a hacker. In case a phone is lost, an adversary may make fraudulent transactions.

**RESEARCH OBSERVATIONS AND FINDINGS**

To understand how the digital payment systems had an impact on the various sectors of economy we would first discuss the need for a digital payment system. The need for a safe, reliable, secure and a faster method of payment gave birth to the innovative system of cashless payment systems. India has successfully joined other countries in revolution of digital payments a lot faster than past where we often lagged in adopting new technology especially in financial sector.

The statistics suggest that in 2012, 86.6%of payments were cash payments but with major push of demonetization in 2016 and the Digital India campaign, the usage of digital methods of payment has increased by almost 271% by 2018.The popularity of these payment systems is due to a number of reasons one of which is the huge youth population, tremendous increase in the number of smartphones, increase in internet usage, security ,attractive offers and giant initiatives by the present government like Digital India.

In a study conducted jointly by Google and Boston Consultancy Group it was suggested that Indian digital payment ecosystem will be worth US dollar 500 million by 2020 and the study also predicted that this sector would contribute to 15% of India's Gross Domestic Product in the coming couple of years. Some of the key predictions of this study about the changes caused due to the digital payment systems in India were as follows-

The major services for which Indians would preferably make digital payments are online shopping, bill payments, utility and movie tickets.

- By 2020 the consumer payment segment will constitute of non-cash transactions like debit/credit cards, internet banking, wallets and unified segment.
- The digital transactions which currently constitute 22% of all mobile consumer payments will exceed the cash transactions by 2023 in the Indian Economy.
- Indian consumers almost 90 percent is likely to use digital (non-cash) payments for both online and offline transactions. Offline points of sale will eventually contribute to 60 percent of digital payments.

In India especially in non-metro cities close to 60% of respondents in the above mentioned study observed that the discounts offered and other attractive offers were the major reason for using a digital payment method. If we put this into simple terms, a digital payment transaction in India was initially used because they were able to save more which encouraged the service providers to offer more incentives, which subsequently implied the digital payment systems were money saving proposition for those using it.

For a business owner the customer is the king and the customer satisfaction is the priority when it comes to payment methods. At times, it can be an arduous and time consuming process and hence providing with numerous payment options which provides convenience and faster check out ultimately helps in increasing sales volume and consumer satisfaction. According to RBI's data, the number of digital transactions in the retail sector amounted to 799 crores and was valued at 7.48 lac crore.

The Indian digital payment eco system has seen a lot of changes over the past decade. They have led to various advancements in the financial sector. But, the digital medium of payment comes with its own flaws which have been discussed below:

- MALWARE- The applications and programs that are intentionally designed to promote fraud. These applications compromise with the security of computers and smart phones which gives cyber criminals access to sensitive customer data.
- PHISHING- These risks are associated to the cases where the customer is trapped by using unauthentic and fake mails and text messages and is asked to disclose account related information.
- PUBLIC NETWORKS – Accessing your internet banking or mobile banking by using a public Wi-Fi exposes the device to cyber criminals and thus is a threat to the privacy of account related data.
- RANSOMWARE- This risk is when the hacker hacks the device of the victim and blocks the device as well as the account at the user's end to get monetary benefits.

The Indian Computer Emergency Response Team (A nodal agency within the Ministry of Electronics and Information Technology to deal with cyber security threats) has reported 'a surge in the number of incidents relating to security of cashless transactions. Till October 2016, with close to 39,730 security incidents such as phishing, scanning, website intrusions, and virus code and defacement were reported.

Mr. Stephane Nappo once rightly said that one of the major cyber risk is to assume that they do not exist. Risks should not hinder the path of transformation from conventional payment mechanisms to less cash transaction but efforts should be made at either ends to minimize the above risks.

- The institutions must put an effort to closely look at this in a layered approach to data privacy and security. It should aim at providing protection at every level of the digital payment mechanism such as stronger authentication and identification measures and better access control measures.
- On the other- hand the user needs to be careful before indulging into digital transactions. The user at his end should ensure to have security protection on the device, always prefer using a strong password, never share the account related data with anyone and the OTP should also be kept confidential.

**THE FUTURE AHEAD-**

The scope of digital payments has become broader with the recent development in the financial sector in respect to the technological advancement. The major financial institutions have come up with the unique system of issuing{NFC} Near Field Communication Cards worldwide facilitating contactless payments. The major smartphone companies have accelerated the process of digital payment by eliminating the need for carrying a plastic card separately and have also made payment secure and convenient. Samsung Pay and Apple Pay are the most popular mediums in the field of companies having their own digital payment platforms.

The blockchain technology when supplemented with digital payment systems will result in positive outcomes in the form of adding an additional layer of security in the transactions and will also decrease the fees charged

by asterCard and VISA.

The payment sector is the most dynamic section of the financial sector which has underwent drastic and continuous changes. But before putting into a conclusion it's the level of trust of the customers that will define the direction of penetration of the digital payments.

**CONCLUSION**

On the completion of the research paper the researchers have successfully come to the conclusion that the digital payment mechanism is the future of payment systems in India.

With the constructive efforts of the government as well as the participation of the other financial institutions public as well as private the scope of digital payment system looks promising. The focus area should now be to convert the opportunities in this field into viable, economical and sustainable ventures and a proper implementation of the digital payment systems. To grab the maximum positive outcome from this transformation is very vital for both the payer and the payee.

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