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Factors Affecting Adoption of Digital Payment Systems: A Case Study on Allahabad City, Uttar Pradesh

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Abstract

After the demonetisation of currency in India, there has been rapid change in the area of payment systems. The purpose of this paper was to investigate on the factors that influence adoption electronic payment systems in Allahabad City and recommend a model for effective adoption of digital payment systems. A mixed research approach was used to fulfil the objective of the study, that emerge through the review of existing literature and Expert opinion from the related area of digital payment systems in Allahabad. The study was conducted on the basis of Technology-Acceptance-Model (TAM) and Porters' Five Force Model. At the end of the study it is concluded that, the effective factors of digital payment systems are; lack of ICT infrastructure, security, lack of trust, lack of digital literacy and habit of use traditional approach of payment. The study suggested a series of measure which could be taken by the experts of the related area as well as the related review. These measures provide the recommendation for effective adoption of digital payment systems.

Keywords: Digital Payment System, Technology Acceptance Model (TAM), Critical Success Factor (CSF), Electronic Commerce.

Introduction

A payment system is set of banking procedure, instruments and fund transfer between two banks or financial institutions that ensure the virtual circulation of currency. The Bank of International Settlements (BIS) indicates that, "Payment system is a set of instruments, principals and procedures for transfer of funds among the user of the system. It is an agreement between a defined group of users and the operator of the system and the transfer of fund is made through a digital infrastructure". Whereas, a cashless transaction refers to the circulation of currency over the internet, with the help of electric devices. It is a hypothetical stage or situation in favour of alternative means of exchange. All the transactions are done with the help of plastic cards, mobile wallets, and other digital medium with minimal or no physical circulation of currency. Cashless transaction discussed widely especially after demonetization because the world is experiencing a rapid and increasing use of digital methods of transaction. The transactions which would historically have been undertaken with goods (in barter system), and cash are often now undertaken electronically through electronic devices and medium like, credit cards, debit cards, money wallets, IMPS, RTGS, NEFT etc. The effectiveness and reliability of the payment systems contributing in the economic efficiency as transfer of fund from customers' account to beneficiary account. According to (Shon & Swatman, 1998) an exchange of funds

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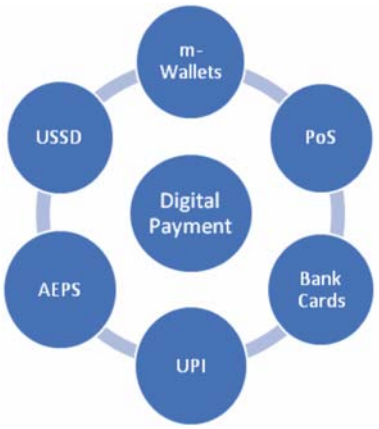
initiated via an electronic communication channel, or payment through signals linked directly to deposit or credit accounts (Gans & Scheelings, 1999). However, with the help of literature review we can addressed that the term payment system is a complete set of instruments, intermediaries, rules and regulations, procedures, and a system which facilitate the circulation of currency in the country or country area.

Payment system facilitating the economic transactions and circulation of funds becomes an important factor for the development of economy. The payment system also helps in the effectiveness of monetary policy, in the development of goods and services market, and the stability of financial and monetary system. The acceptance of digital payment services has been rapid in many part of the world and around 50 per cent increase in the usage of e-banking in leading countries (Tero Pikkarainen, 2004). According to the study the probability of spending habits increases with the usage of digital payment (Prelec & Simester, 2001; Soman, 2001; Soman & Cheema, 2002) which increases the spending amount also (Prelec & Simester, 2001; Soman, 2001) and the consumer habits also affected by the modes of payment (Chartterjee & Rose, 2012; Prelec & Simester, 2001; Soman, 2001; Soman & Cheema, 2002). Hence, there are huge options of digital payment in India. The government also support with different schemes like, Digital India, Make in India, BHIM App, Bharat QR Code etc. With the new technology and extending variations on the traditional payment system from barter system to mobile payment consumer and organisation have begun to adopt digital payment methods specifically towards digital transformation of the country. But still there is lots of untouched internet area which are lacks of Internet facility due to various reasons. This paper tries to fill this gap with identified factor of digital payment.

This paper is a primary framework for studying the adoption of digital payment systems and analysing strategies of current market actors, such as banks, mobile network operators, merchant etc. Factors were identified with the help of extensive literature review and substantial studies which claims to be useful in this respect. With the help of current study, we aim to integrate different constructs related to methods of digital payment and factors influencing digital payment system in India. This paper also attempted to confirm the implementation of digital payment systems as a means of facilitating online transaction through model.

Methods of Digital Payment Methods in India



According to National Institute of Transforming India (NITI Aayog), Government of India, there are six methods of digital payment systems in India. Payment methods that are not only based on the internet connectivity but also on the basis of basic featured Global System for Mobile communication (GSM) based mobile phone, these methods are: Mobile Wallets (m-Wallets), Point of Sale (PoS), Bank Cards, Unified Payment Interface (UPI), Aadhar Enabled Payment System (AEPS), and Unstructured Supplementary Service Data (USSD). Evolution of Internet banking through Credit Cards in the year 1940 followed by Automated Teller Machine (ATM) (1960) and Debit Cards (1970), plastic cards has been come into picture as a medium of digital payment systems. That was the era of plastic card in India. In late 1980s India achieved another milestone in the history of digital payment systems as online banking and PayPal. PayPal was the US based company which send money through email address from sender to the receiver. With the help of online banking end user doesn't depend

on the plastic card and make transaction through laptops and desktops. Banking through Smartphone comes into picture in the year 2000 where users easily make payment through their internet based mobile phones. During 2002-2015 private competitors come up with new mode of mobile payment called wallets. Mobile wallet is a way to make payment through Smartphone without using physical plastic card. User can make through Person to Person (P2P) mode where customer transfer funds from one account to another account via internet. Near Field Communication (NFC) is an advanced contactless technology that allows two devices like Smartphone and a payment terminal to talk each other within a close environment. User can also make payment through electronic cheques with the help of mobile devices.

Theoretical Framework of Technology Adoption

From the available theories of Technology Adoption we selected Technology Adoption Model (TAM) as a part of our research. TAM is one of the most widely used theories for technology adoption. The criteria of selecting the theory were the ability to represent the true picture of our research on factor identification of digital payment systems. To put user value perceptions into the context of new service and to derive the meaning managerial implications we also create a mode with the help of porters' five force model.

TAM is a theory that explains the user adoption of technology at the organisational level. The theory provides belief about the new technology, use of technology, intention to use, and usage of technology (Heijden et al.,2003). According to Devis (1989) and Devis et. al. (1989), Perceived usefulness and Perceived ease of use are the beliefs that helps to predict attitude which influence intended to use technology. (Dwivedi et al, 2017). The technology which enhances the performance and productivity in the workplace are the perceived usefulness and perceived ease of use is the degree of effort needed to the adoption of technology. The key element of TAM is Behavioural Intent (BI) which leads to the desired actions of the researcher to use IS. TAM is a vigorous model that is frequently used to study acceptance of information communication technology (ICT) (Forman & Goldfarb, 2006). According to Gibbs et al. (2007), TAM is information theory which is used to understand the adoption and use of technology. This theory also helps to understand the policy maker and adopters come to accept and reject the use of ICT in business.

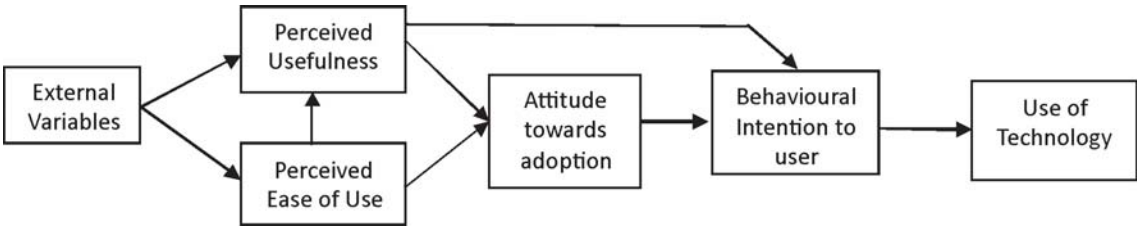


Figure 1: Technology Adoption Model (TAM)

According to Jayawardhena & Foley (2000), changes in factors like technology, culture, commercial and legal with the commercial forces of services market drives the development of financial services. Whereas, Javalgi & Ramsey (2001) proposed that IT & telecommunication, socio-cultural, commercial and legal (government) factors impact the diffusion of global e-Commerce. We made the modified model, so that framework describes the better meaning of adoption of digital payment systems. In the given model fig. 2, Merchant involve in promoting the digital payment systems through various Government policies are the "supplier power", consumer power are the (buyer power), alternate payment services ie. Traditional services are

the "barriers to entry", and new e-payment services are the "substitutes" of the model. Thus, the resulting model incorporates the contingency factors with the five force model of Porter (1998).

Four factors in the framework, ie technological factor, Socio-cultural factor, economical factor, and Legal (Government) factor are uncontrollable individual market participants. Hence these factors are known as "Contingency factors". Other five factors of the framework are known as the "Competitive factors" which are describing the main competitive forces of digital payment systems.

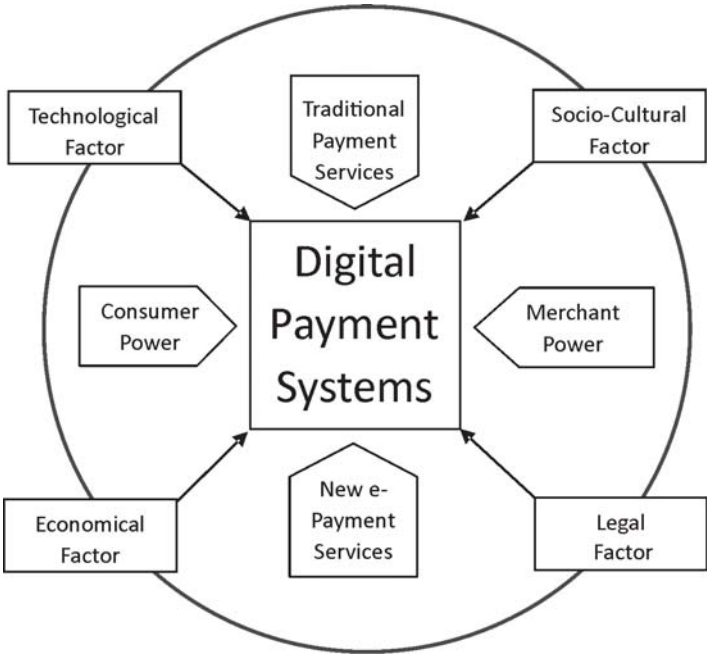


Figure 2: Factors framework impacting the Digital Payment Systems

From the figure 2, it is evaded that the overall framework of digital payment model covers all major aspect of the market. There are consumer and merchant power which we can say that the controllable/individual power and traditional and new e-payment services as uncontrollable/ organisational power. The four types of factor ie Technological, Socio-culture, Legal and Economical factor affect the system the individual as well as organisational environment of digital payment systems.

Case Study of Allahabad City

According to census 2011, Allahabad has the highest populated city of Uttar Pradesh with the population of 5,954,391. There are total 71 districts in Uttar Pradesh. Allahabad is situated at the confluence of three holy rivers of India namely River Ganga, River Yamuna and River Saraswati. Allahabad is also known for one of the best academic ambience, there are six national level Institutes/Universities including NIT Allahabad and Allahabad Central University. In comparison to Indian literacy 74 percent, it has 72.32 percent of literacy rate. Apart from the academic milestone Allahabad has oldest High Court of India. By interview of the expert from different domain about the digital payment it is observed that, digital literacy play an important role to accelerate the adoption of digital payment system. People on higher position of their

organisation don't use digital mode of transaction due to; lack of digital literacy; security reasons; lack of infrastructure; lack of trust etc.

Finding and Conclusion of the Study

The purpose of our paper was to review the previous study on digital payment systems to analyse different factors that impact on the adoption of digital payment systems, and to give direction to the future research in this emerging field. A framework was proposed with four contingency and five competitive factors used to categorise the literature review.

Contingency factors in the framework represent the external factors that are influence the digital payment systems in the Indian market. On the basis of our findings the four contingency factors influence the major part of the market.

CF1: Socio-cultural factor are the important factor for the adoption of wirelss and online transaction medium (Bohle & Krueger, 2001; Sundqvist et al., 2002; Mahmood et al., 2004). The sub-factors covers under this category are economic conditions of the country, traditional payment culture and trust on payment methods.

CF2: One of the least studied factors in the domain of digital payment systems is legal and regularity factor. Lack of contemporary research in this area keeps this area unexplored.

CF3: The economic structure of the payment system is quite unstructured. There is no tracking system of cash transactions. Hence online payment systems are needed, so that government easily track the currency in the market.

CF4: Innovations and advancement in the technological environment have driven the development the digital payment systems in India. This is the most examined area by most of the researchers (Antovski & Gusev, 2003; Kungpisdan et al., 2004a; Me, 2003; Pradhan et al.,2005).

Competitive factors describe the different players and their relative power to influence the digital payment systems. On the basis on related literature review there are four factors has been listed as a competitive factors of digital payment systems.

CF5: Although consumer has habit to use the traditional payment method however, that consumer easily influence on the development of new technology for digital payment. New payment services contribute to their success and may currently be insufficient.

CF6: Merchants play an important in the area of payment systems both as adopter and the promoters of the new payment system. There are few more studies which are examined the role of merchants as an adopter of new technology (Mallat & Tuunainen, 2005).

CF7: The success of new technology on traditional systems is a positioning of the new systems. Present payment system suffers with the infrastructure and security problems so that the traditional systems easily dominate on the new technology systems. Further, several research show the development trend in the area of digital payment systems and identify the opportunities for digital payment systems in India.

CF8: The factor that is contributing low success on digital payment systems is a market of consumer. Consumer affects the market by its habits, likes and dislikes. Although consumer is an important part of payment market. The main aim of the organisation is to target the ultimate consumer, so the predetermined target of the organisation achieved.

The findings of this paper evident that the importance of digital payment system as an important electronic transformation activity. This paper identified critical success factors and sub-factors which are relevant for effective adoption of digital payment system in India with the help of

porters' five force model. Findings also demonstrate eight factors in which four are contingency factors and others are competitive factors. Factor provides the points which are responsible for success and failure of digital payment system is India. Paper discussed the problem and barriers of digital payment system in India. According to the past studies, demographic variables can have an impact on digital payment (Banerjee et al., 2005) but few studies (Sevgi Özkan, 2010) ignored the impact of demographic variable on e-payment. The authors present their views and recommendations related to key factors and suggested the major barriers among those factors facing by the customers during the transaction process. The research also provides a success model develop on the basis of factors. It also included validation of the model with the help of experts from the academicians of relevant field. There are some unsolved issues which need to be further discussion but due to the limited scope of this study, the issues related to technical as well as political aspect of the country.

Implications of the Study

Globalization and integration of the Indian markets with the growth in the private capital flow have motivated the policy maker/government to revise and reform the payment system with the settlement of security to ensure the effective and opportunely transaction. The study is contended to represent an important contribution related to theoretical deliberations and analysis of factors that gives the value to the system developer and policy maker working with digital environment. The model develops in this study reflect the factor which motivate or make barriers during transaction process of the customer. Research into electronic commerce is still in its infancy but it is believed that the finding contributes the further implementation of digital payment system and also contribute in the study of e-commerce. Further, more research is needed in this domain of digital payment systems. There should be multi-cultural comparison of payment cultures and preferences also needed. However, to identify the specific needs for digital payment services and to examine the cooperation strategies that enable sustainable service development for the market. Future research on this area could take a more holistic approach to develop technology and to compare between the technologies.

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