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Evaluation of Mobile-Based Digital Payments and Challenges:
An Indian Context

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ABSTRACT

Owing to the higher usage of internet post and during COVID-19, attacks on IT infrastructure and digital payment have surged. This work undertakes the empirical study on mobile-based payment and determines the impact of post-demonetization, during COVID-19 and post COVID-19. Number of banks supporting digital payment, value in each transaction, monthly values are the factors that have been undertaken for this study. Data revealed higher usage of mobile-based payments. On the other hand, security challenges on payment have been explored by considering the world's leading regulations and standards prevailing on mobile-based payment. Major recommendations of financial regulators and CERT-IN have been included for the deeper understanding of employed security. This work will be immensely helpful to all the stakeholders aiming to understand the mobile payment trends on multi dimensions and strengthening the security in mobile-based payment to avoid any losses that may be incurred due to cyber-attacks.

KEYWORDS

Analyzing Digital Payments, Cashless Society, Digital Payment, Less-Cash, Payment Instruments Security

INTRODUCTION

We are living in the digital world driven by mobile phones that are sophisticated enough to act as a computer (Hutchesson et al., 2015; Kenney & Gortmaker, 2017). Collaboration, calling, and payment everything can be initiated with the help of mobile phones (Martínez-Cagigal et al., 2019). Nowadays, banks are carried in mobile phones. Transaction related to bill payment, transfer of fund and monthly installment payment can well be initiated with the help of mobile phones. In addition, apps related to wallet remains installed that can also be used for the payment. Equipped with smart phones, deep internet penetration, provider's offers and the government support are the key drivers encouraging the mobile based digital payment.

Digital payment based methods are widely used across the developed nations, and have drawn the attention of users, providers and regulators for a long time (Asokan et al., 2000). Developed

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countries, such as Norway, Japan, and Australia, are the leading countries relying immensely on digital payments. In some of the developed countries, usage of digital payment is reaching towards the optimum level. Countries such as Switzerland are reaching towards zero currency usage during payments (Singh, 2019). Tax evasion, crime control, and curb in parallel economy are some of the advantages of digital payment (Armey et al., 2014; Immordino & Russo, 2018). In addition, usage of digital payment leads to the growth in GDP. Digital payment is used in a range of industries that includes hospitality, medical, retail industry to name a few (Gupta et al., 2018; Hsieh et al., 2008; Rita et al., 2018). Digital payment is being promoted in developing countries, particularly in emerging economies (Hsieh et al., 2008). Owing to the benefit offered, this method of payment enjoys wide support from people and government across the world (Gichuki & Mulu-Mutuku, 2018). According to a prediction, digital payment will touch almost the entire population by the end of 2025 (Gichuki & Mulu-Mutuku, 2018).

To introduce this new payment instrument, Reserve Bank of India popularly known with its abbreviation 'RBI' acts as a chief regulator, advisor to the government of India, and policy formulator. In order to standardize the banking operations, RBI issues the standard operating procedures for the compliance at central level. All the scheduled banks irrespective of their management including private or public are bound to comply with the policies and guidelines circulated by RBI. In addition to payment instruments, it also deals with the financial fraud that happens in banks and the other financial sector. Advisory on security measures and standard operating procedures are issued from time to time.

Biometric identity is used across the world to establish one's identity with the help of digital method(Wildes, 1997). Unique Identification Authority of India (UIDAI) is a body created to implement the 'Aadhar Scheme' a digital identification of people residing within India. Unique Identification Authority of India (UIDAI) is a body created to implement the 'Aadhar Scheme' a digital identification of people residing within India. In the same line, in India, 'Aadhar', a biometric based identification method that draws analogy with the USA's social security number is used (UIDAI, 2020). 'Aadhar' is widely used and recognized to establish the identity of an individual. Under biometric identification, 'Aadhar' maintains the data related to one's iris and fingerprints and the same is acting as a key during the establishment of one's identity. Unique Identification Authority of India (UIDAI) is a body created to implement the 'Aadhar Scheme' a digital identification of people residing within India. Under this scheme, a person holding an 'Aadhar' account is identified with one's biometric details. 'Aadhar' is a preferred method to explore oneself and recommended to establish one's identity in ' Know your Customer (KYC)'. All the leading banks and other institutions across the country prefer 'Aadhar' based KYC over the other documents of identity due to presence of biometric details in 'Aadhar' and lack of biometric information in other cards. To strengthen the 'Aadhar' security, a new virtual 'Aadhar' number has been introduced recently. 'Virtual id' based method enables to hide the true details and prevents the leakage of one's personal information in the event network security is compromised. UIDAI has already issued nearly 1.272 billion 'Aadhar' and around 49 billion authentications done across the country that have utilized 'Aadhar' based biometric details (UIDAI, 2020).

Cyber-attack is a global challenge experienced across the world (Alatalu, 2020). Organizations, network infrastructure, and portals have not been spared by the attackers. In the present landscape, the cyber world can be categorized into resource owner, user, attackers and defenders. On one hand defenders are aiming to strengthen the security, on the other, adversaries evolve approaches that can penetrate the network system. This game is continuously going on. To deal with the issues relating to Information Technology (IT) including promoting, introducing, innovation in the field, the government of India has constituted the MeiTy (Ministry of Electronics and Information Technology of India). In order to gain effective control, several other entities with the nomenclature of autonomous bodies such as National Institute of Electronics and Information Technology NIELIT and CERT-IN (Computer Emergency Response Team-India) have been formed. Assisting the Ministry of Electronics and