International Journal of E-Services and Mobile Applications
Volume 14 • Issue 1

Leveraging Financial Inclusion Through Technology-Enabled Services Innovation:
A Case of Economic Development in India

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ABSTRACT

The majority of the Indian population is not getting the advantages of inclusive growth and development in India, referred to as financial inclusion, which has become a challenge for the Indian economy. The paper aims to investigate the use of available technology-enabled financial services and their role for financial inclusion in the current COVID-19 situation and the reaching of rural and semi-urban India. The research is based on the in-depth analysis of the government policies and Fintech in the light of India's situation during COVID-19. The study reveals that the government showed the intent by opening a vast amount of banking accounts (411 million accounts) for financial inclusion in around six years. With radical changes in mobile subscribers and 4G, internet, and smartphone growth, India is close to achieving financial inclusion with full potential. However, significant change and development can be attained only if the government provides and motivates citizens to adopt the innovation services for financial inclusion.

KEYWORDS

Financial Inclusion, Financial Services, Information Technology, Innovation, Mobile Payment

INTRODUCTION

Indian economy is progressing at the pace of approximately 7% annual growth, except during the COVID 19 pandemics, intending to achieve sustainable development by including a maximum number of citizens from all levels/sections and rural areas of the society. The government of India and banks initiated various measures favouring financial inclusion from 2000 onwards, but the impact was not satisfactory initially. The impact was seen visible only after 2016 and post demonetization in India. However, the lack of awareness, financial literacy, and infrastructure is still causing a severe impact on the growth of financial inclusion. Based on this, we define three fundamental challenges: reaching the masses and providing banking to unbanked citizens, reaching the masses to secure unsecured citizens, and funding unfunded citizens as the Indian economy majority is driven by cash-based.

The banking industry of India is worth approximately US$2.5 trillion in 2020, which serves 1.4 billion citizens of the country and millions of small, medium and big businesses of the country. As per the KPMG-CII report (2020), India is the fifth-largest banking industry globally by 2020, but due to COVID 19, the growth is substantially slowed down. To permanently provide banking to unbanked

DOI: 10.4018/IJESMA.289633

citizens, the banking services and banking sector must be aligned with information technology to bring innovative financial services to citizens using technology, such as debit cards and credit cards—ATMs (automated teller machines), internet banking (Vuković et al., 2019), mobile banking (Pejic Bach et al., 2019), payment wallets, etc. To address the problem of this cash crunch, many banks, institutions, businesses, information technologies (IT) infrastructure, and telecom companies have launched various services to cater to the need of ordinary citizens and make the country a cashless digital-enabled economy, which brings transparent financial practices in place and thus helpful for economic development and sustainability.

This paper is focused on the various e-service innovations for financial inclusion based on existing resources, such as banking technologies, mobile phones, mobile applications and the Internet, and postal services available in India through the post office. The paper discusses how such technology-enabled e-services and mobile applications help India deliver underserved or unserved citizens, thus overcoming the digital divide.

Background

Financial inclusion had been one of the biggest challenges for India since its independence since the Indian economy is primarily cash-based. It could be due to a lack of infrastructure and lack of commitments from all stakeholders. Still, Indians are persistent about using digital technologies to do financial transactions. Two events forced Indian citizens to accept and use financial services using the digital medium—demonetization in 2016 and COVID 19 pandemics in 2020. Citizens feared that cash might have contamination of COVID 19 virus. Many countries witness the demonetization in the past; USSR in 1991, Ghana in 1982, UK in 1971, Congo, Myanmar in 1987, Nigeria in 1984, North Korea in 2010, Pakistan in 2016, Australia, and Zimbabwe. So, demonetization in 2016 in India is not among the first ones at the global level. However, this act is new in the digital revolution and digital service revolution, especially for financial inclusion in India. E-service innovation is described as the art and science of creating innovative e-services that customers or citizens are willing to pay for and use in the digital world exemplifies many fundamental challenges (Chew, 2014).

Financial Inclusion

Financial inclusion has been described to provide financial services as the cheapest and affordable cost to the poor and low-income segment of the society, where these services are not available or affordable for people. The Financial Access Initiative (FAI) has recognized that at least 2.5 billion adults (approximately half of the worlds adult population) worldwide do not have access to formal savings of credit instruments either through banks or alternative financial institutions (such as microfinance institutions).

Tremendous growth has been observed in volume and complexity in the banking and financial services industry during the last few decades (Leeladhar, 2006). However, the reachability of the banking sector is still questionable and varies across the countries (Beck et al., 2007). Banks usually focus on regular and stable income customers who can provide floating income, such as salaried employees and establishing businesses. Therefore, the lower operating cost can be achieved by most of these clients as they conduct high-value and less frequent transactions (Chakravorti, 2017).

As per Chakrabarthy (2006) research, the bank prefers to service high-net-worth customers from branches while migrating high volume transactions to other low-cost channels like ATMs (typically for cash withdrawals and balance inquiries) and Internet or even mobile banking (bill payments, cheque book request, balance inquiries and fund transfers between accounts and wallets). It becomes difficult for banks to offer these services to the poor (low-income people) as they typically conduct low-value and more frequent transactions and maintain limited balances (almost zero) in their accounts (Chakrabarty, 2006). Moreover, poor, with lower literacy levels and no prior exposure to banking, find it extremely onerous to carry out self-service banking through ATMs or on the Internet. Thereby, adequate, low-cost solutions for the poor unbanked is not widely available so far.

Chopra et al. (2015) indicate that financial inclusion requires broadening and deepening the reach of banking. Technology can play a vital role in making financial inclusion a reality. Thus, the development and advancement of banking technology and mobile technology have enormously impacted banking. The reach and richness of mobile technology, which can be easily integrated with banking technology and infrastructure, have the potential to provide banking services at minimum possible cost and more efficient manner through mobile phones across the geographies (Suoranta et al., 2004), which may reduce the need for banks to be physically close to their customers thus further facilitating the banking operations, but may result in lower costs and enhanced security (Davis et al., 2009; World Bank, 2008).

Mobile Applications, Technology, and Financial Services Innovation

Unnithan et al. (2001) investigated the evolution of the banking sector on the adoption of e-banking, including mobile banking focusing on India and Australia, suggesting there is enormous potential available for banking channels in India. This potential is due to its functionality (always on) and flexibility to do banking virtually 24*7, anywhere, anytime, with anyone (Karjaluoto et al., 2002; Pegu, 2000). Mobile banking and banking services have been continuously evolving via mobile phone or digital assistance due to rapid innovations in telecommunications (Barnes et al., 2003; Scornavacca et al., 2004). Usage of mobile phones allows the consumer to access low-cost self-service banking options, access funding, make payments and get information about additional e-services (Clarke et al., 2006). However, convenience and security are highly relevant for the unbanked consumer interested in doing transactions electronically. Indian mobile bank users have various concerns, such as digital security, user-friendliness, remembering passwords, awareness of applications software's and its standardization, financial frauds, and others (Sharma et al., 2009).

Innovative Services and Financial Inclusion in Developing Countries

The study published by African Development Bank in 2013 (Faye et al., 2013) indicates that the mobile and telecom revolution in Africa helps achieve financial inclusion goals. Many countries in Asia (e.g. the Philippines, Bangladesh, India, and Myanmar) enable financial services through mobile banking for financial inclusion. Governments offer many technologies-enabled services in various countries for financial inclusion and economic development, briefly summarized in Table 1.

Persons with lower literacy levels and no prior exposure to banking find it highly onerous to carry out self-service banking through ATMs or on the Internet. M-Pesa is the perfect example of how financial services can be provided through innovative services using technology and how maximum potential can be achieved (Morawczynski, 2009). Evidence suggests that a large number of small and microtransactions can be profitable on mobile-enabled saving accounts. The role played by bank branches can be replaced by the Business Correspondent (BCs). The role of BC is to perform the banking services on behalf of banks, such as cash services, opening bank accounts using mobile, issuing small amounts of credits (Uzma et al., 2019). However, the critical challenge to successfully implement this concept lies in identity creation, verification, and entitlement establishment of the person to open/ enable mobile-enabled savings account (Chopra et al., 2013b). This issue can be addressed with the Aadhar project and providing a Unique ID to every citizen (Jain et al., 2015).

TECHNOLOGY-ENABLED BANKING AND FINANCIAL SERVICES INNOVATIONS IN INDIA

Financial inclusion can be possible with financial services provided either by traditional branch-based or through technology-enabled e-services. The technology-enabled banking model includes Internet banking, mobile banking, telebanking, phone banking, doorstep banking, electronic fund transfer, electronic clearing services, electronic clearing cards, smart cards, ATMs, etc. Based on technology, these innovative financial services are classified into three categories (Chopra et al., 2013a): Online

Table 1. Financial inclusion and innovative services

Country	Innovative Services	Functionality	Results
Bangladesh	Dutch Bangla Bank	The support for agent & network provided by telecom operators (Bangla link & City cell)	Availability to rural and unbanked people using mobile phones.
Kenya	M-Pesa (Vodafone)	Micro Insurance product to farmers	30 Million transactions handled by 30 27000 agents per day. 19% of airtime transactions are done through M-pesa.
South Africa	WIZZIT and MTN Money	Mobile-enabled financial services	WIZIT has 250,000 subscribers, a Network of 42000 home shops using Flash Mobile Cash by Eezi
Tanzania	Mobile financial services	B2P, B2B, Micro Saving, Insurance, Loans, and credit history information	Achieved 4.3 million recorded financial transactions between 2007-2014
India	EKO	SBI and ICICI Bank have BC, which provides all end-to-end banking and financial services.	The target is to achieve an 80% unbanked population.

Direct Banking (Personal computer/Internet Banking/Kiosk Banking), ATM (Mobile ATM/Point of Terminal), Smart Card Based, and Mobile Banking.

Online Direct Banking

Digital banking is also referred to as online banking, e-banking, and virtual banking in India. The Indian banking system is presented in Table 2.

Table 2. Indian banking systems

Type of entity	#
Public Banks	12
Private Banks	22
Foreign Banks	44
Regional Rural banks	56
Cooperative Banks (Urban)	1485
Cooperative Banks (Rural)	96000
Cooperative Credit Institutions	Not Known
ATMs	234,244

All the banks offer an e-banking/internet banking range of e-services to their customers. These services are divided into non-transactional and transactional base services listed in Table 3.

All banks in India offer the above-listed services through e-banking, and the urban population often uses these services. However, the rural and semi-rural population has the problem of using these services because of lack of awareness, lack of Internet and infrastructure availability, and

Table 3. Transactional and non-transactional services

Non-Transactional Services	Transactional Services
• Account balance information • Information of recent transactions • Availability of bank statements • Cheque image availability • Cheque book request • Availability of periodic bank statements • Application download for e-banking and m-banking	• Money transfer between accounts • Utility bill payments • Payments to any other accounts • Online Investments and payments • Buying and selling equality • Loans and related transactions • Credit cards related services • Bill payments

proper knowledge of using these services. Nevertheless, the current demonetization situation and its consequences force most of the population to go cashless and adopt e-banking. The adoption rate of e-banking services will be very significant in the coming six months as government policies and government motivation will play critical drivers.

ATM

The ATM/Mobile ATM/Point of Terminal (POS/POT) and card-based technology has become widely used in the early 90s. At the initial stage, ATMs were expensive, big in size, difficult to maintain and replace. Therefore, this technology took time to adapt and accept for many countries, while Africa and Asia delayed almost two decades in their implementation. Therefore, due to lack of proper telecom infrastructure and 24*7 power supply issues, it got delayed to penetrate India. Now, the scenario has changed due to the telecom revolution after Reliance JIO, investment in infrastructure, energy policies, and the role of financial institutions. Major financial institutions have started deploying the POS/POT devices, Mobile ATMs in urban and rural India, which provide the same functionality at a fraction of cost (Ketley, 2009). Most banks have allowed using each other's Debit/Credit cards in each other's ATMs, which reduced the operational cost significantly. Commercial banks have migrated all of their customers to the digital channel in some countries, using debit/credit cards at ATM and POS devices. However, Indian businesses are really on cash at a large and only big business using digital payment gateways. Therefore, demonetization and various schemes offered by the government and financial institutions will motivate every business and individual to go cashless. The cost of implementing plastic cards has reduced dramatically in recent times, so this seems to be a much cheaper option. Still, processing takes a little more time as the daily transaction has to be uploaded offline at the banking server site (Davis et al., 2009).

Mobile Based Services

As per the telecom regulatory authority of India, 1153.77 million wireless subscribers are there, and out of that, 760 Million users are smartphone users in India. This radical growth is evolutionary for launching mobile-based financial services across India. Another catalyst in the growth is Reliance JIO, which achieved 405 million customers in less than five years using aggressive marketing and promotions (Haq, 2017). Therefore, mobile-based financial services can be the best option for financial inclusion in India. Mobile technology-based financial services are available through mobile phone with Sim Took Kit (SIM), Short Message Services (SMS), Unstructured Supplemental Service Data (USSD), Mobile App and through Interactive Voice Response (IVR) mechanism.

SIM Tool Kit (STK) with a mobile phone is one of the popular options being used in developing countries (Kumar et al., 2011) and has been successful in various developing countries for financial inclusion, including Ghana and Kenya (Appiahene et al., 2019). Unstructured Supplementary Data Services (USSD) with mobile phones are based on telecom technology interfaces between mobile phones and application programs to send a text. It is similar to short message services (SMS). Each type

requires the customer to memorize the codes to initiate the transactions (Soni, 2010). However, there is a need for training in rural India as most of the SMS and instructions in mobile are in the English language. Therefore, step-by-step training manuals and guides are available with mobile screenshots to ensure that customers and agents efficiently process the transactions. The comparison of various technology options for financial inclusion can be possible. It should include security, complexity, ubiquity trust, scalability, and cost for achieving scalable financial inclusion.

Mobile SMS and mobile USSD based applications are universally accepted as most mobile handsets (low and high end) support them. Besides, nowadays, to deal with m-banking and mobile commerce, providers provide the user with quick reference guides to assist them in memorizing the codes and using the Application. High security and reliability are there in USSD as mobile network operators offer the most reliable telecommunication format with the Voice (IVR) and SMS. Mobile STK is user-friendly and provides customer-friendly options. However, uploading the STK menu becomes unreliable sometimes (especially on low-end phones). POS-based mobile machines and Mobile ATMs are fewer complexes from a usage point of view as an agent can be deployed at the village centre/Kiosk, which can help novice users to perform transactions.

Voice IVR is comparatively easy, but the operational cost is high compared to mobile USSD and SMS-based applications. The concern areas are security, the ability to scale up, and the initial trial stage. Using this technology, there is no need to remember a PIN or hold smart cards. Therefore, authentication is based on the user's voice recognition (unique in terms of frequency).

UIDAI AADHAR

Many other innovations are in the first phase of implementation, and some of them are evolving to achieve the scale and benefits of economic development and financial inclusion. UIDAI Aadhar uses fingerprint and IRIS recognition technologies to allocate unique Identification for 1000 million people in India, which has potential and may become the real success mantra for financial inclusion as the government started issuing various financial schemes for the underprivileged citizens in the country (Dubey et al., 2015).

Interbank Mobile Payment System

Interbank mobile payment system (IMPS) is a service developed to offers instant interbank electronic fund transfer using mobile on a 24x7 basis.

Mobile ATMs

Mobile ATMs are going through constant innovations and are being adopted by many financial institutions across the country. Radio Frequency Identification (RFID) and Near Field Communication (NFC) enabled technologies are integrated with mobile technologies to provide financial services.

Bank of India and Financial Services

Bank of India is a commercial bank, and it has come up with various financial services as listed in Table 4 and their functionality for go cashless and go digital.

Business Correspondents

As per the Reserve Bank of India (RBI), which is the regulatory authority in India and law mandate, any transaction on an account involving cash has to be made within the physical branch and premises of the bank. As per the new rule, RBI has permitted to have the appointment of BCs to accept deposits and make cash payments on behalf of banks, provided such transactions have to be updated at the banking branch or site within 24 hours. Such change has been possible with the help of managerial capabilities of business correspondents and integrated information technology-enabled solutions. Therefore, banking functionality can be readily available in remote regions, and the transaction data

Table 4. Available financial services at the bank of India

Service Name	Available Financial Services
Star Token	State of the art, fully-fledged internet banking, book railway tickets, tax payments, airline bookings, utility bill payments, fund transfer across banks, star token, mobile app for all services.
USSD Banking (*99#)	By dialling (*99#) from a registered phone, can make merchant payment, fund transfer can be downloaded on a smartphone
Chiller	Instant fund transfer, DTH and mobile recharge, utility bill payment, QR codebase transactions, split bills and pay
Mobile Banking	Fund transfer mobile app, air/train ticket booking, 24*7 money transfer through IMPS, ATM branch locater, and much more
Prepaid Cards	Money pre-loaded and reloadable, simple to operate at POS and e-commerce, available to any amount up to Rs 50,000
EasyPay	Send money, request money, pay credit cards
Cards at POS.	Make payment with debit/credit card, swipe at merchant outlets

can be uploaded at the banking site either online or offline (Chopra et al., 2015). BC's system is directly connected to the Banking site, and in case of offline, the data is stored temporarily at the BC's Backend Server and later on (maybe at the end of the day), it is transported to the Core Banking System (CBS). Based on these, it can be Tier2 (when no storage server is needed, financial data directly being transferred to CBS) or Tier 3 Architecture (in case of offline, when storage server is needed to store transactions temporarily) (Chopra et al., 2015).

It has been observed that No-one technology has emerged that can be best suited for the purpose. Few technology options at the front end (directly accessed by people) and back end (indirectly accessed through BC) promise financial inclusion. Therefore, it has become apparent that continuous improvements and innovations in technological development are needed to meet the demand for more complex products and keep pace with growing business (Chopra et al., 2013a).

EKO

EKO is the service provided by SBI, ICICI Bank, and Yes Bank in India started in 2007 (Ranganathan et al., 2014). Every retail outlet and counter has been converted into a low-cost distribution and payment infrastructure as an extension of the bank to enable small-small, low-value financial transactions by EKO India financial services private limited.

In business correspondents of ICICI, SBI helps do branch-free banking using very low budget cell phones and retail distribution (Chandwani et al., 2018). It offers no-frills account money transfer products and plans to add additional products linked to the account. The model has SMS, IVR, USSD, and Application based multi-model approach using mobile technology. No-frills accounts, deposit, withdrawal, and remittance services are available with this. Eko uses both its name and the brand name of SBI and ICICI.

FINANCIAL INCLUSION: DEMONETIZATION AND COVID 19

Chakravorti (2017) argues that financial inclusion policies are bank-led rather than telecom-led. Much success has been observed in telecom-driven financial inclusion in Kenya and Ghana, where telecom companies can provide financial services to the rural and semi-rural population. The financial inclusion approach in India is based on the supply side (Krishnamoorthy, 2019). The RBI priorities promote safe, efficient, accessible, inclusive, interoperable, and robust payment systems. Therefore,

India has created the National Payments Corporation of India (NPCI) and its subsidiaries. Indian financial inclusion goals are based on the bank-led model rather than telecom-led models. Therefore, Aadhar enabled (Universal ID) payment services are essential to play a vital role. However, recently every telecom company has been allowed to open e-wallet (payment options), such as Airtel Money, Jio Money, M-Pesa (Vodafone), etc., and has limited functionality for financial inclusion.

The government of India has announced several promotions and motivational schemes for financial services adoption post demonetization to solve the cash crunch, and a chaotic situation arises in the economy. Every day new schemes and government announcements take taking place.

To cope with the cash crunch and demonetization situation, some of the services are easy from a functionality and operating point of view, and we are going to demonstrate the selected one:

- **Credit/Debit Card:** This method is most prevalent in urban India. It has the following five steps process; Merchant sales person swipe the card on the machine, enter the amount to be paid, the customer is asked to enter 4 or 6 digit PIN, the machine generates two receipts, the customer gets the message on the mobile to get updated balance and amount deducted. The PIN is confidential and must not be shared with anyone.
- **Unstructured Supplementary Data Services (USSD):** These services can be used without the Internet. The cost to use this service is Rs.0.50 per transaction, but this fee is waived for certain transactions.
- **Unified Payment Interface (UPI):** This is a consortium of 30 banks in India. First to call your bank customer care and generate the MPIN. Download the Application, generate the virtual payment address in the Application, link all the bank accounts with virtual payment address, insert the beneficiary details and authenticate through MPIN.
- **Mobile Wallet or E-Wallet:** More than 50 digital purses/wallets are available in India, which can be used for payment, shopping, fund transfer. The Digital wallets/purse include PAYTM, Forecharge, Freecharge, Jio Money, Oxygen, Airtelmoney, Mobikwiki, S.B.I. Yono, Artel Money, Ola Money, PayUMoney, ICICI Pocket, Citurs, Payzapp, Amazon Pay, Google Pay, etc. These wallets are filled and recharged from your bank account to debit/credit card, and these are secure to do the transaction without sharing the account and card details. This is becoming very popular in India. From time to time, these wallets offer desirable offers, coupons, and discounts. During COVID 19, maintaining social distance and fear of coronavirus contamination in currency, these two situations forced citizens to use it. It is becoming beneficial to customers and businesses to use it. It is estimated that mobile app and wallets will account for 2022 almost US$400 billion.
- **Aadhar Enabled Payment Systems (AEPS):** This will be most important for financial inclusion in remote locations in the country where ATMs and bank branches are minimum. One can link Aadhar and bank account to get all the banking benefits without a passbook and password. This is useful for Aadhar to Aadhar fund transfer, opening the bank account, cash deposit and cash withdrawal, and balance inquiry. A banking agent can transfer funds by authenticating a biometric finger, and much literacy is not required.

DISCUSSION

No technology can do wonders until the end-user adopts it. Today, various technologies and technological solutions can cater to the need for financial inclusion and address the country's cash crunch situation. Still, there is no single technology solution that can best serve the purpose. Range of technological challenges and solutions are available with limited advantages, standardization, and challenges in achieving interoperability, cost, and critical mass in India.

There is a need for financial services universally. However, the reach of financial services is limited, with an upper and wealthy segment of people in urban areas with more comprehensive options than low-income and poor people in rural and backward places. These unbanked poor and low-income

people are forced to accept informal, expensive, and riskier ways to fulfil their financial needs. Banks are the gateway to even the most basic forms of banking and financial services (Chopra et al., 2015). However, despite continuous growth and expansion, banking infrastructure (through branch and ATM networks) cannot serve the masses due to limited outreach and the high cost of delivery.

The cost of cash to Indian consumers is among the highest in the world in terms of time spent getting cash and fees (Chakravorti, 2017). The study is based on 70 countries, and India stands far behind even lesser developed countries, such as Kenya, Nigeria, or Egypt. Therefore, the solution is digital financial services. However, digital infrastructure is not up to the level as India ranks moderately according to the digital revolution index (Mehta et al., 2020).

Out of billion mobile phone subscribers in India, only 30% uses smartphones. Internet and internet connectivity is a big issue, with most of the mobile internet users in cities. As per Google India and BCG report, by 2020, In India, the growth of digital transactions will be ten times higher than the current in 2020 (Bhatt, 2019). Therefore, demonetization is becoming a significant force for a cashless economy and financial inclusion in the country.

Today, a range of technology-enabled solutions are available that can address requirements for financial inclusion in steps. However, there is no single technology solution that can be best suited for the purpose in general. Various options co-exist in different forms with limited standardization, challenges in achieving interoperability, critical mass, and higher costs. To succeed in the long term, there is a need to build a financial services inclusion strategy considering the citizens' needs, context, influences, and drivers. Technology can be a significant enabler or handicap. The significant attributes that an appropriate technology needs to have are; Suitable, Cost-Effective, secure, proven and scalable, longevity (Hoffmann, 2006). As per Chopra et al. (2013a), financial inclusion requires broadening and deepening the reach of banking. Technology can have a critical role to play in making financial inclusion a reality. Innovation and development in technology, such as ATMs, mobile connectivity, core banking, and BCs, have enormously impacted banking. Rapid penetration of telecom and mobile technologies and their integration with banking infrastructure has the considerable potential to enable banking services to reach and low cost with seamless and more efficient (Suoranta et al., 2004), which may reduce the need for banks nearby of their customers physically. The bank personal can be substituted by technology. The role of business correspondents and bank agents will be pivotal with better security and cheaper price (Davis et al., 2009; World Bank, 2008).

India has the most significant and fastest-growing digital consumer market with almost 560 million internet subscribers and 1.2 billion cell phones, and .8 billion smartphones. The data rates are $0.09 Per GB, the cheapest in the World. India has a digital future, and exploiting the full potential of e-services and mobile apps is a mere way to achieve full financial inclusion. Financial inclusion requires integrating all stakeholders for better options, choice, and change mechanisms (Dwivedi et al., 2003). All financial inclusion processes must be seamlessly integrated (Ho et al. 2009) in an aligned manner using better IT and banking governance systems (Rigoni et al., 2010).

CONCLUDING REMARKS

Technology-enabled innovative services and mobile applications have a significant role in financial inclusion and the country's inclusive growth and economic development. There is a need for diffusion and adoption of these services as 95% of the Indian economy is cash-based, and only more than 1% of Indians pay income tax out of 1.4 billion (Niti Ayog, 2016). In this paper, we have focused on financial inclusion and services innovation using technology and their impact on the current Indian. In the paper, we have noted that demonetization and COVID 19 situations force adopting the innovative financial services available, resulting in financial inclusion for economic development and a transparent cashless digital economy in India. However, having a wide range of financial services available in-country, but reach richness, adaptability, acceptance, awareness, and security with literacy is a big concern in rural India. Therefore, COVID 19 and demonetization forces every citizen to adopt

innovation services and go cashless with various motivation schemes by the government. Based on observations, we argue that various environmental factors may impact the relationship between financial inclusion and innovative digital services. Since there are various cases of lots of success for achieving financial inclusion, there have been pieces of evidence that draw attention to the level of risk associated with e-governance programs for financial inclusion (Goel et al., 2012a; Goel et al., 2012b; Chouhan et al., 2012). The real impact of e-services and mobile applications on the financial inclusion and cashless economy will reflect soon. India then will be in a position to draw detailed outcomes in terms of economic development.

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