

# The Role of Fintech and Smart Technologies in Digitalization of the Indian Economy

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**Abstract:** Digitalisation of an economy demands development of the means of digital resources like digital infrastructure, digital literacy, and government efforts to encourage its citizens to adopt it in sync with the resources. India, with its ambitious programme "Digital India" mission, has emerged as one of the leading countries to adopt a digital economy. Financial institutions by adopting smart technologies such as Artificial Intelligence and Blockchain offer great potential to support the digital India mission by promoting a presence-less, paper-less, and cash-less economy, which can turn India into a digitally empowered nation and a knowledge economy. This study describes the role of fintechs, AI, and Blockchain technologies in India's leaps towards a digital economy by observing their contributions towards promoting the digital India mission.

**KEY WORDS:** Fintech, Digital India, cashless economy, Digital economy, Artificial Intelligence, Blockchain.

## Introduction

India, with its ambitious flagship program, "Digital India", is one of the leading countries to adopt the digital economy. Digital India is an initiative of the Indian government, which attempts to make India a digitally empowered nation and an aware economy by using the latest technologies. Digital India also attempts to overcome the problems of financial exclusion by promoting presence-less, paper-less, and cash-less transactions. The Digital India mission cannot be accomplished without adopting a digital economy. Adoption of a digital economy requires embracing intelligent technologies for the purpose of automating the process of delivering financial services to the citizens of the country. Digitization of the economy involves the adoption of big data technologies such as artificial intelligence, blockchain, etc. The use of technologies to facilitate financial services by financial service provider companies in order to enhance and automate the use and delivery of offerings to consumers is known as "fintech." Fintech refers to products and services which availability is made possible because of advancements in the field of digital technology. To be precise, Fintech is technologically enabled financial services innovation that has the potential to result in new business models, applications, processes, or products with a meaningful impact on financial markets and institutions, as well as the provision of financial services (FSB, 2021). Nevertheless, fintech encompasses different elements that can be categorised into four different categories, i.e., asset-managing fintech, payments-related fintech, fintech engaged in financing activities, and other fintechs.

Over the last few years, financial institutions have been going through a paradigm shift in the way they offer services. Dramatic digital transformation has completely changed their roles and responsibilities, from production to distribution of the services. There are various focus areas in which fintech has been making its significance felt. However; adoption of open banking regulations and adoption of data at the core of business models are two of the premier areas in which fintech has been able to make a wave. The advent of open banking and neo banking technologies are also playing vital roles in achieving a digital economy in India. Growth of any economy is not possible without ensuring the equitable participation from all parts of the society. Lack of financial literacy and awareness retards the economic progress of a country. With a focus on achieving sustainable development, the Indian economy also requires an attempt to overcome the barriers of financial inclusion, which includes challenges like providing formal credit access to the large number of people in rural areas who have been hitherto denied the same. With the emergence of technologies such as ATM, debit and credit cards, and internet and mobile banking, etc., in banking sector, the existing problem of financial exclusion is resolved to some extent. These technologies have brought a positive change in the urban areas to a great extent notwithstanding same could not be said to be true for a great chunk of the rural population, which is still unaware of these developments and is not a part of the formal banking system.

This study aims at to understand the concept of the Digital India mission and its contribution towards the digital economy in India. This study also wishes to study the role of Fintech in promoting a cash-less, presence-less, and paper-less economy in India and to understand the role of Artificial Intelligence and Blockchain technology in offering financial services.

## Objectives Of the Study

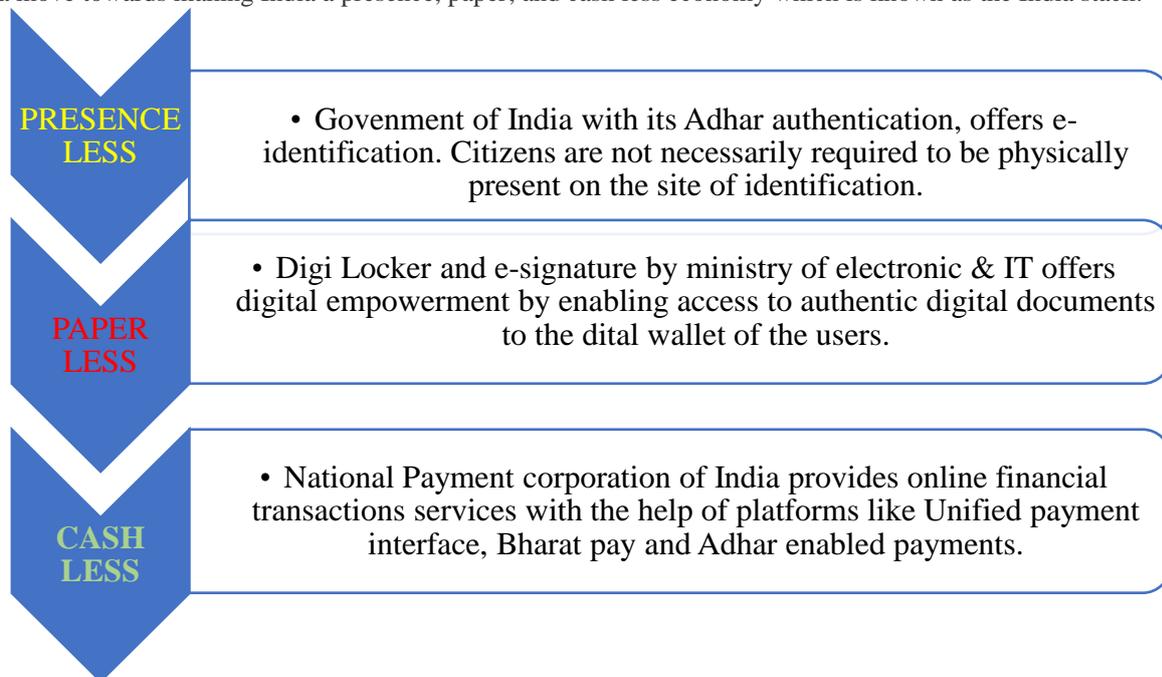
1. To understand the concept of the Digital India mission and its contribution towards the digital economy in India,
2. To study the role of Fintech in promoting a cash-less, presence-less and paper-less economy in India,
3. To study the role of artificial Intelligence and blockchain technology in offering financial services in India.

## Research Methodology

This study uses descriptive research methodology for the purpose of understanding and explaining the concept of digital India and the contribution of fintech towards it. The study uses secondary data collected from various published journals and reports from internet sources and government websites, for the purpose of understanding and analysing the role of fintech and smart technologies in promoting a presence less, paper-less, and cash-less economy in India.

### India's Progress Towards a Digital Economy

According to a report by Mckinsey, by the year 2025, digital economy will create 60-65 million jobs. With the digital India mission, launched in July 2015, India is aspiring for improved digital infrastructure such as increasing internet accessibility among people, with a special focus on linking rural areas to broadband internet connectivity. This programme targets empowering the country to become more digitally advanced. In order to make India a digitally empowered nation and open digital economy to thrive, the Indian government has essayed several guidelines and norms during past few years. Some of these reforms include granting licences to small finance banks, payment banks, and unified payment interface. These reforms are intended towards reinforcing the payment system in India by including the unbanked population in the formal financial folder. The government of India is also pushing through a move towards making India a presence, paper, and cash less economy which is known as the India stack.



Several key indicators have seen an influx as a result of these reforms and initiatives. The government's unrelenting efforts are aimed at not only opening basic bank accounts to promote financial inclusion, but also managing the money flows in and out of accounts. This is achieved by opening millions of accounts under the Jan Dhan scheme, and then crediting the benefits and subsidies directly into accounts of beneficiaries. Transferring various subsidies, such as subsidies for liquid petroleum gas, fertilisers, etc., in addition to, transferring amount of various social securities' pension schemes, such as old age pension, pension for the disabled, and Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), and so on, directly into the accounts of the beneficiaries, has also been instrumental in increasing inflows into bank accounts. This inflow of funds into accounts is referred to as cash inflow, would entice the unbanked to open a bank account, connecting them to formal banking services.

#### E-governance platforms under the Digital India initiative

**e-Stamp:** E-stamp paper is a method of paying stamp duty to the government electronically. To ensure a quick and trouble-free payment process, the government has replaced the conventional paper and Franklin stamping approach with a digital plan. This service is currently available in 22 Indian states. In July 2013, the Indian government started the e-stamping service. This project attempted to reduce fraud and errors in the stamp duty payment process. The Central Record Keeping Agency (CRA), also known as the Stock Holding Corporation of India Limited (SHCIL), has the ability to issue e-stamp certifications in India. Authorized Collection Centres (ACCs) are designated middlemen, such as a scheduled bank or post office, who are in charge of issuing e-stamp paper in place of CRA.

**e-Way bill:** A waybill is a receipt of permit or licence provided by a carrier that contains details such as consignees' and consigners' name, instructions about the shipment and the consignment, consignee, and information about transportation, which includes the route through which consignment will be carried, as well as the point of origin and destination. An electronic Way Bill (E-Way Bill) is a compliance technique in which the person causing the movement of goods uploads pertinent information via a digital interface before the start of the consignment journey and generates an e-way bill by using the GSTN number on the GST site.

**GeM:** The Government e-Marketplace (GeM) is a kind of online shop which makes an attempt to deliver all the services and goods required by different public sector enterprises and government organisations. This is a kind of one stop solution for e-acquisition of a gamut of commonly used products by government officials. GeM aspires to enhance the speed, clarity, and efficacy of obtaining the goods and services by government employees. It employs strategies such as demand aggregation, reverse and online auctioning, and e-tendering etc., in order to maximize the return and satisfaction level of purchasers.

**TReDS:** The Trade Receivables Discounting System is a plan for establishing and managing an institutional structure to facilitate the financing of MSMEs' trade receivables from corporate and other customers, including government departments and public sector undertakings (PSUs), through various financiers.

**GSTN:** Goods and Service Network is a not for profit, non-government organization that manages the GST Portal's whole operation. It is rightly claimed to be the mother-database for all things related to GST. The GSTN serves as a linking channel between taxpayers

and the government, with the goal of bridging the gap in communication between the federal government, state governments, and individual taxpayers. GSTN is the first-of-its-kind shared IT infrastructure for taxation that connects state and federal governments. This portal assists both the federal and state governments in tracking and recording all financial transactions conducted by firms, and it will require GST registration and a corresponding GSTIN (GST Identification Number).

**Tax:** The new income tax site (<https://www.incometax.gov.in/>) was released by the Central Board of Direct Taxes (CBDT) on May 20, 2021. From June 7, 2021, the new e-filing portal will be available. The new portal must be used to file ITRs and complete other tax-related procedures. The portal has a new design that makes it easier to complete all tax-related chores in a streamlined manner. The e-filing platform is used by taxpayers to file their income tax returns (ITR). The portal can also be used to request refunds and file grievances, in addition to filing ITRs. The site is used by the Internal Revenue Service to obtain responses from taxpayers who have questions. All correspondence about penalties, exemptions, and appeals is also done through the portal.

**BBPS:** The Bharat Bill Payment System (BBPS) is an RBI-designed system that provides consumers with integrated, accessible, and interoperable bill payment services across regions, as well as transaction certainty, reliability, and security. It provides bill payment services to clients through a web of agents/retailers/banks, as well as online channels such as banks' Internet banking, mobile applications, and so on, allowing for several payment mechanisms such as Cards, UPI, AePS, e-Wallets, Cash, and quick confirmation. It will aid in the transition to a cashless world by allowing bill payments to be transferred from cash to an electronic channel.

**PCR:** A Public Credit Registry (PCR) is a database that contains all information about current and potential borrowers. Borrowers from both the business and retail sectors are included. The goal is to collect all the essential data about an entity's/corporate's/outstanding individual's loans and payback history in a single huge database.

**Adoption of open banking:** It refers to as an ecosystem, which provides data from a tangle of financial institutions to the end user through application programming interfaces (APIs). APIs enable an application to connect and collaborate with other applications, as well as sharing of data in a smooth manner. Using an application programming interface, the open banking system sits on top of the traditional banking system (API). It allows third-party developers and fintech companies to create apps and services, these services include those that provide instant payments, improved financial transparency for the account holding customers, and also the opportunity for resells and cross sells, so one can stay connected to the traditional banking system in a more streamlined and digital way. It involves the notion of neo banking technologies which will be employed on a regular basis in the future. The API has enabled getting a loan approval and completing the KYC procedure on mobile phones in seconds, with the customers' confirmed data already on file with the banks. With all these technologies adoption of open banking has contributed immensely towards digital India mission.

#### **Role of Fintech in making India a presence-less economy.**

Till march 2022, 1,329,755,378 Aadhaar has been generated, 69,542,059,751 Authentication, and 11,548189573 e-KYC has been done. 960,000,000 bank accounts have been linked to Aadhaar out of 110,000,000,0 bank accounts till the end of march 2022. Fintech companies are using these essentially virtual platforms in order to provide presence-less financial services in India.

#### **Role of Fintech in making India a paperless economy**

Paperless India is an initiative of government of India which aims at facilitating paper less transactions by eliminating or reducing use of papers in a work environment. Ministry of Electronics and Information Technology through platforms like Digi Locker, promotes process of digitization, which is done by converting and storing documents in digital form. Digi Locker is a highly secured platform which is based on cloud computing, provides access to store, verify, and use documents in electronic or digital form. The online availability of essential government services such as e-ITR filing, e-applications for various needful services like proof of residence, passport, LPG and electricity connections etc., has significantly reduced the use of paper.

Fintech companies and platforms are one of the biggest beneficiaries of the growth of digital infrastructure in India. People in India can now access most of the financial services such as opening a new bank account, transferring funds, trading in the stock market, investment in crypto currencies, buying an insurance service, taking loans, etc. on their mobile phones within minutes without too many hassles. Fintech is also a great saviour when it comes to saving time. Opening a bank account or approval of a loan which could have taken several days erstwhile now can be done in just couple of hours. Fintech institutions also enjoy competitive edge over their traditional counterparts in terms of the reduced operating costs, as most of the documents are stored on cloud and verification can be done from remote, it saves not only the printing costs, but cost of visit for the verification of the documents as well.

#### **Role of Fintech in making India a Cashless economy**

Cash less India is an initiative of Indian government, that aims at a shift in Indian economy from cash-based to cash-less, by digitizing the means of payments and money transfers. Owing to acceptance and ease of cashless transactions, people are tilting towards it and have started keeping most of their savings deposited with their bank accounts, which results into increased inflows of money, leading to a surge in the liquidity in the banking system. Increased liquidity especially in terms of saving accounts and current accounts deposits, means banks now have more money to lend and, thus, support the growth of the country, and that too at reasonable rates of interest. Digital transactions involve automated documentation of all the transactions, which increases transparency and reduces the use of black money. In addition to that, transparency involved in a cash-less economy, boosts tax payments by the citizens, which increases the revenues of the government. Since carrying cards and other means of online transactions is considered safer carrying a large amount of cash, this feature of the cash-less economy provides another edge over the cash-based economy.

In recent years, especially after demonetization, online transactions and cashless payments have seen a substantial surge in volume. The Digital India mission has emphasised on providing internet infrastructure, and campaigns like digital literacy, combined with it, have catalysed the process of technology adoption. In the last couple of years cashless transactions have gone up exponentially, with government shifting focus to transform India into a cashless economy. On this note, actual conditions concerning cashless transactions have improved a lot. At the moment, there is an option known as **code payments**, a payment mode by which one can

use a smartphone-based payment app to read a QR code or barcode and make a payment. We see not just banks but also business operators other than deposit-handling financial institutions entering into the area of code payments, which encompasses new payment services. Fintech institutions with the help of enabled digital technologies, are playing very important role in the field of cashless payments. A variety of fintech entities such as UPI technology, e-wallet, payment banks, Aadhaar pay, Bharat Bill Payment System etc., are thus providing services in this area. After UPI gaining popularity India's cashless payments have achieved new heights. According to a data from national payments corporation of India cashless transactions on the Bhim UPI platform in the month of January-2022 stood at 8.32 lakh crore while there were 461 crore total number of transactions.

#### **Role of Artificial Intelligence in Provision of Financial Services in India**

The use of computers and algorithms to augment and imitate human intelligence is known as **artificial intelligence (AI)**. AI provides adaptive pattern recognition by combining enormous amounts of data with sophisticated statistical approaches to provide the best guess answer to any tightly specified problem with a whole set of problems. The financial services sector was among the first industries to recognise the potential of the Big Data revolution, as well as the influx of new technology that has accompanied it, including AI. AI is a strong technology that is already extensively being used in the financial services industry. As per the 2018 Growth Readiness Study Asset managers who embrace big data and analytics grow their revenue 1.5 times faster than the rest of the financial services industry (Human and Machine for an Alpha Advantage, 2018). Creating alpha, improving operational efficiency, boosting product and content distribution, and controlling risk are all pillars of the AI transformation.

Financial institutions are turning to AI technologies to create greater client experiences, minimize costs, and unleash new revenue streams as they pursue digital transformation and customer experience. Traditional financial institutions are either establishing domestic skills or joining hands with fintech companies in order to avail themselves of the benefits of AI. According to a NASSCOM-CMR survey on AI adoption in India's financial services sector, the top priority for financial institutions is to improve customer experience, followed by automation of back-end business processes, and effective compliance and risk management, as well as marketing and clever automation of manual-intensive procedures." (Artificial Intelligence for Banking, Financial services and Insurance Sector, 2018)

#### **Use of Artificial Intelligence by Financial Institutions**

**Sales and Distribution:** Financial institutions are using AI in the area of sales and distribution for the purposes of Cross-selling and upselling, segmentation of customers, recommending specified products to customers, customer churning analysis, targeted distribution, and analysis of the behaviour of customers, etc.

**Customer Operations:** E-KYC for customer onboarding, Portfolio Management, Customer Service Management, Chatbots for increased efficiency, and query resolution, etc. are some of the areas in which artificial intelligence is being used in customer operations by financial institutions.

**Product and Solutions:** Artificial intelligence is also instrumental for financial institutions in pricing, offering personalized products to customers and providing financial services catering to the specified needs of customers.

**Risk Management:** Claims Forecasting and Investigation, Underwriting Automation, Portfolio Risk Analysis are some of the areas in which services of artificial intelligence is being leveraged as a tool of risk management by financial firms.

**Fraud Management:** Financial institutions such as banks, microfinance, NBFCs, insurance companies and capital market firms use AI for Fraud detection and inspection, and anomaly prediction for the purpose of fraud management.

**Anti-Money Laundering (AML):** Artificial intelligence plays a vital role in back-office operations, such as reducing false promise, intelligent customer and transaction segmentation. These efforts involve activities related to AML.

**Reporting and MIS:** Financial functions such as smart reconciliation, automation of audit and Invoice, smart accounting, Intelligent document check, trail and variance analysis etc., with the use of AI have been upgraded to the next level.

**Compliance Management:** Artificial intelligence is also being used extensively by financial institutions for the purpose of Image recognition for digitisation of documents, automated legal disclaimers, and smart text extraction, etc.

The Indian financial services industry is actively working to address some of its long-standing concerns, including those of falling margins and rising non-performing assets (NPAs). Owing to the arrival of non-conventional financial firms, shifts in customers' preferences, and stricter regulation and compliance duties, the sector is also ripe with scope for development and growth. The AI revolution has arrived at the right time, given the current state of challenges and opportunities in the financial sector. With the government's aim to unify public data systems and banks' march towards open frameworks, the concept of artificial intelligence has begun to be mainstreamed in the Indian financial services sector. With AI playing a big role in boosting strategies and corporate decision-making in the near future. financial services industry is likely to harvest the benefits of AI-driven technologies by adopting them to cope with the changing demands. AI will progressively be used to support strategic decisions in financial firms. In the days to come, there will also be a greater emphasis on employing AI models to shrink the gaps between the banked population and those who are devoid of formal banking services, insured and uninsured, in rural and semi urban regions. In rural areas, several applications, like AI-driven credit scoring, micro-insurance, and delivery systems, could witness widespread acceptance.

While artificial intelligence is capable of transforming the Indian financial services industry, it will have to overcome the issues related to the existing system by embracing various regulatory and compliance norms all over the world, such as the GDPR, transforming front and back-office operations; and realizing the return-on-investment impact to ensure the highest level of customer satisfaction.

#### **Use of Blockchain Technology in Provision of Financial Services in India**

Blockchain is a technology which uses decentralised storage, also known as distributed ledger technology, to record all peer-to-peer transaction data. It keeps previous blocks while also adding new blocks, making it secure and immutable against manipulation of virtual records, transactions, and other data available. Financial organisations require data for running various operations, faster and more accurate this data is received and shared, the better it is for the business. Blockchain is ideal for accessing information since it saves data on an immutable ledger that can only be read by permissioned network members. A blockchain network can

keep records of transactions relating to orders, production, payments, accounts, and many other operations. The reason is that members share a single version of the truth, one sees every piece of information about a transaction from the very outset to the completion of the transaction. This gives more confidence and allows users to take advantage of new possibilities. Because of its special characteristics of receiving, storing, and delivering information, blockchain technology has received proliferated interest from financial firms. Due to this, the use of blockchain in rendering financial services like know-your-customer (KYC), anti-money laundering (AML), trade monitoring, settlement, and clearing, smart assets, and collateral management have gained significant popularity in the financial services industry.

The growth of blockchain in the Indian financial industry is on par with that of its counterparts around the world. Ever since cross-border trade credit has been available in 2016, various Indian service providers are also making strategic tie-ups with multinational consortia to gain exposure. Blockchain is being prototyped by a number of industry-specific consortia for a variety of applications. Besides the banking and finance industries, payments, bill discounting, digital identification, and supply chain financing services have embraced the underlying blockchain technology the most. In addition to these industries, a slew of insurance companies, and major Indian stock market players are also looking into blockchain. According to publicly accessible information, Indians are expected to have an investment well over \$10 billion in cryptocurrencies, Indian government is also actively embracing blockchain for the registration of land, motors lifecycle management, agricultural insurance, and electronic health record management. This speaks volumes about the country's knowledge, desire, and rate of adoption of the blockchain technology.

### Conclusion and discussion

India, with its ambitious flagship programme **Digital India**, is aspiring to attain a digital economy. Adoption of smart digital technologies like artificial intelligence and blockchain, is enabling citizens to be part of India stack, which envisages a presence-less, paper-less and cash-less, economy. Fintech companies are adopting Aadhar authentication and e-KYC, which enable consumers to avail services without being physically present at service delivery points. This is making a significant contribution towards a presence less economy in India. Adoption of Unified Payment Interface (UPI) and open banking & neo banking technologies has given a big push to India mission to achieve a cash-less economy. Ensuring online availabilities of various essential government services such as e-ITR filing, online applications for residential proof, passports, LPG & electricity connections, etc., has reduced the use of paper in the work environment to a great extent. Fintech companies with the adoption of smart technologies such as AI and Blockchain are enabling the delivery of most of the financial services on mobile phones of the consumers. AI and Blockchain technologies are capable of creating greater customer experience as they aspire to digital transformation, with convenience, safety, and security of the customers' data being the utmost priority. AI and Blockchain technologies are also of great benefit to the companies to embrace them, as they enable cost minimization, and unleash new revenue streams. Adoption of these technologies also allows fintech institutions to rethink their operations, achieve a higher level of customization, and disintermediate financial business.

While the Digital India programme has been a successful campaign which has propelled India to emerge as one of the fastest among major economies to adopt digital economy (Digital India Portal, 2022), it has to overcome several challenges, such as positive changes in the urban areas notwithstanding true for the majority of the rural population, which still lacks the awareness of these changes, and is not a part of the formal banking system. Citizens must have access to digital infrastructure and be digitally literate in order to benefit from the program, which is especially important in rural and remote areas. Apart from these, adoption of new age technologies has to be taken under the purview of legal compliance and guidelines as these technologies use a huge amount of both structured and unstructured data.

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