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FINTECH IN INDIA – A STUDY ON HOW FINANCIAL TECHNOLOGY COMPANIES DIGITALIZE PAYMENTS

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List of Abbreviations

- FinTech – Financial Technology
- UK – United Kingdom
- IT – Information Technology
- US – United States
- ICP – Innovative, capability and Potential
- ICT – Information and communication Technology
- ULIP – Unit Linked Insurance Plan
- VC – Venture Capital
- PE – Private Equity
- M&A – Merger and Acquisition
- FSB – Financial Stability Board
- BCBS – Basel Committee on Banking Supervision
- IOSCO – International Organization of Securities Committee
- PWC – Price Water Coopers
- CGAP – Consultative Group to Assist the Poor
- EU – European Union
- AI – Artificial Intelligence
- BMS – Block Chain Management System
- TCS – Tata Consultancy service
- IBM – International Business Machines
- NBFC – Non-Banking Financial Corporations
- HDFC – Housing Development Finance Corporation
- B2C – Business to Customers
- B2B – Business to Business
- KYC – Know Your Customer
- InsurTech – Insurance Technology
- RegTech – Regulation Technology

- RBI – Reserve Bank of India
- SME – Small and Medium sized Enterprises
- DBS – Development Bank of Singapore
- API – Application Program Interface
- MSME – Micro, small and Medium sized enterprises
- PMJDY – Prime Ministers Jan Dhan Yojana
- IOT – Internet of Things
- S&P – Standard and Poor's
- 3G – Third Generation
- 4G – Fourth Generation
- ASSOCHAM – Associated Chamber of Commerce and Industry of India
- eWallet – Electronic Wallet
- GOI – Government of India
- NASSCOM – National Association of Software and services Companies
- NPCI – National Payment Council of India
- P2P – Peer to Peer
- DTH – Direct to Home
- Mn – Million
- Bn – Billion
- eCommerce – Electronic Commerce
- PFRDA – Pension Fund Development Authority
- AMC – Asset Management Companies
- NPS – National Pension System
- INR – Indian Rupee
- UPI – Unified Payment Interface
- YOY – Year Over Year
- POS – Point of Sale
- 2G – Second Generation
- GPRS – General Packet Radio Service
- eKyc – Electronic Know Your Customer

- EMI – Equal Monthly Installment
- USD – United States Dollar
- CAGR – Compound Annual Growth Rate
- SEBI – Securities and Exchange Board of India
- ATM – Automatic Teller Machines
- BFSI – Banking, Financial Service and Insurance
- IRCTC – Indian Railway Catering and Tourism Corporation
- IIT – Indian Institute of Technology
- BITS – Birla Institute of Technology and Science
- SG GSC – Societe Generale Global Solutions Centre
- UBS – Union Bank of Switzerland
- ICICI – Industrial Credit and Investment corporation of India
- TRAI – Telecom Regulatory Authority of India
- IRDA – Insurance Regulatory and development authority
- BHIM – Bharat Interface for Money
- BBPS – Bharat Bill Payment System
- BBPOU – Bharat Bill Payment Operating Unit
- BBPCU – Bharat Bill Payment Central Unit
- IDRBT – Institute for Development and Research in Banking Technology
- ECB – External Commercial Borrowing
- FDI – Foreign Direct Investment
- CERSAI – Central Securitization, Asset Reconstruction and Protection Interest Registry of India
- CSO – Common Service Centre
- NOFN – National Optical Fiber Network
- NII – National Information Infrastructure
- MDR – Merchant Discount Rate
- GIFT – Gujarat International Finance Technology City
- ITP – Institutional Trading Platform
- USSD – Unstructured Supplementary Service Data

- AML – Anti Money Laundering
- QR Code – Qick Response Code
- GMV – Gross Merchandise Value
- TV – Television
- MMT – Metal and Mineral Trading
- GTV – Gross Transaction Value
- MEIFY – Ministry of Electronics and Information Technology
- FY – Financial Year
- IMPS – Immediate Payment Service
- NEFT – National Electronic Fund Transfer
- RTGS – Real Time Gross Settlement
- VP – Vice President
- GDP – Gross Domestic Product
- LPID – Lower Parel Innovation District
- GST – Goods and Service Tax
- MOU – Memorandum of Understanding
- NPA – Non-Perform Asset
- OTP – One Time Password

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Abstract

FinTech companies have grown tremendously during the last decades and generated great impacts on traditional financial institutions and led to enormous alteration in the ways of providing the financial services. The continuous development of the financial services has stepped into a new stage, where new entrants impact incumbents even more and many challenges accompanied by threats might come to light. Questions started to appear about how fintech's revolutionize payments, since the new entrants provide the same services of the incumbents in an effortless manner.

FinTech has been rapidly penetrating the financial markets by filling in the gaps left by the existing financial institutions and significantly improving the user experience. Firstly, the research briefly described the historical evolution of Fintech. In the subsequent sections, the paper aimed to demonstrate the innovative changes from Fintech in different areas in Indian payments system, including the online banking and the payment process for customers. Additionally, the research also identified Fintech's ecosystem and regulations. Based on which, the study analyzed how financial technologies companies changing the face of Indian payments.

The choice of this research topic was driven by the fact that previous research about FinTech focused solely on the evolution of FinTech companies and their segments, but studies have been neglected how they revolutionize payments in a country where cash payments are dominated. Also attempt has been made to understand how Paytm revolutionize digital payments in India. This study answered the research question through a qualitative method and the empirical data has been gathered from interviews with Paytm founder and the countries FinTech hub chief. The finding of the thesis revealed that demonetization by the government led to a broad adoption of digital payments in India.

INTRODUCTION

Financial service globalization can be seen as the convergence of the national financial system with international financial markets and institutions , requiring the liberalization of the financial and capital market sectors by a national or regional government. In particular, after the Second World War, the wave of financial globalization was mostly dominated by Western or developed countries with their active participants in the process of financial globalization, while the remaining developing countries jumped on the train of financial globalization far later, which happened around the early 1980s and started to engage in the pro-globalization process.

The general goal for most financial institutions with the advent of financial globalization was to evolve from conventional banking enterprises and to tap into the global financial service market and to gain and gain a greater competitive advantage by cultivating strategic alliances and collaborations with other financial and non-financial service institutions in order to have a greater competitive advantage In particular, the advancement of internet technology has changed the strategy, scope and competitive environment of the global financial services industry and at the same time, the transition of most developed countries to privatize and deregulate their financial sector, to provide a specific blend of consumer segments and to become more customer-focused. The globalization of the financial services sector is not a new phoneme; however, today's global financial interconnection and deep dependencies have rendered innovation and technology more flexible for the majority of financial service institutions.

As the financial service has experienced a significant shift from local banking to a more global presence, consumer expectations and desires have changed at the same speed due to the evolution in technology. Many financial services firms began to invest extensively in new technology in the late 1970s and early 1980s, which were considered by many as the golden era of modern investment banking. During the Dot-Com era, this steep rise reached its heights, where companies such as Google, eBay, Paypal or Amazon managed to outlive the Dot-Com Bubble to become an absolute market leader in their industry today, and others such as Pets.com or Broadcast.com could not survive the bubble and were branded as a complete flop.

In the financial services market, conventional banking has always been a key component, but the rapid growth of technology around the world has changed the economic and financial services markets. The phenomenon of Financial Technology or for short, FinTech (Schueffel 2016) and Lee (2015) define FinTech in its report as the amalgamation of overall financial products and services available to end customers through new technical innovation and digital solution, rapidly disrupting and transforming the historically known financial service and capital market. Not only has the newly disrupted disruptive FinTech modified and produced several new business models at the same time, but it has also changed the expectations and demands of the consumer. Various types of finance, resources and societies, such as banking and financial legislation, investment and banking sectors, and payment and transaction services, have modified and disrupted these noticeable changes.

While technology has been one of the cornerstones of the financial services industry, it was only after the financial crisis that changed the mindset and laid the groundwork for FinTech's future proposed that financial infrastructural and regulatory inefficiency and market failure could be linked to the root and cause of the recent Global Financial Crisis, and a new strategy was more than necessary as a new medium that needs to have the potential to fill the financial service market gap. Not only in the operations of different financial and non-financial companies, but at the same time, the increasing interconnection of the Internet and Personal Computer has created new electrical services for the general public that have the power to minimize the gap between the financial service sector and the needs of the consumer. These new types of solutions are designed to be used by end users with ease and at the same time to use the highest level of technology and digital transaction speed, and are less centralized in their business models, allowing them to function more independently of the larger multi-national financial service firms.

The financial services industry has undergone a continuous digital transition since the 1980s, when the first banks started to offer digital-based services to their customers over the Internet, from the online payment portal Paypal to the decentralized online cryptocurrency BitCoin, the modern age of online-based financial services has just arrived. The emergence of FinTech has encouraged the provision of alternative types of services to the general public through emerging companies such

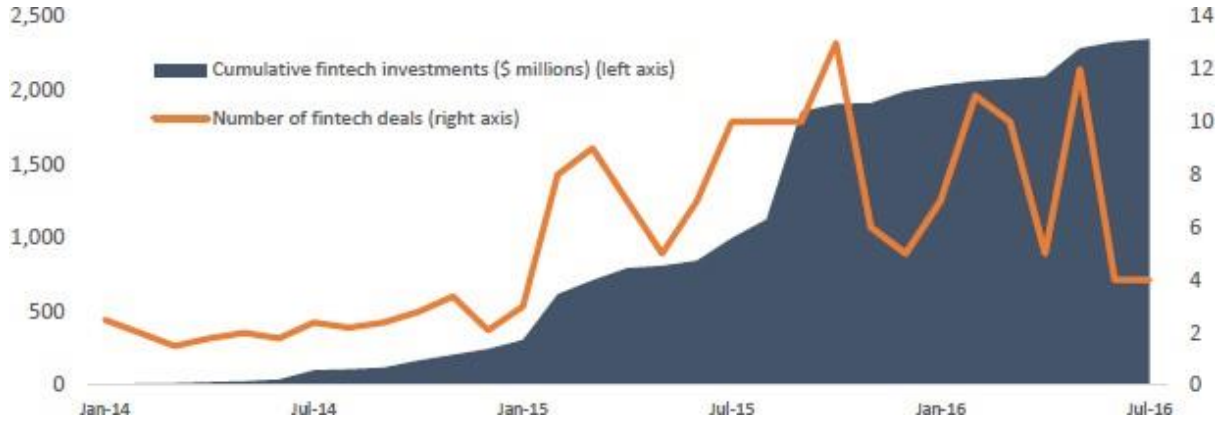
as FinTech start-ups in the areas of payments, borrowing and lending, investment and most significant financial transaction security.

Financial technology is one of the most commonly used concepts currently used for analysis in the finance industry. The use of new disruptive technology in the field of finance is financial technology (FinTech). The use of creative and revolutionary technologies for the provision of financial services is fundamental. Fintech reached its height in the late 2010s as a philosophy. Fintech has resolved this need for greater investor protection through the provision of creative and safe financial services. The need for financial services at a more affordable rate, which offers versatility and quicker speed, may be attributed to the other explanation for the emergence of Fintech. The primary reason for FinTech's rise has been the 2008 global financial crisis. The Global Financial Crisis was the time where individuals lost faith in the financial system and were searching for something that would give them more certainty about their investment.

In the words of Dorfeitner *et al.* (2017) "*FinTech is basically the composition of companies or group of companies providing the modern, innovative and financial services through technologies" while Sanicola (2019) said "FinTech is about both, promoting the technology to enhance the use of financial and also about the promotion and growth of digital consulting".*

Internationally, technology is driving a wave of disruption in finance that is transforming the way that economies are organized, and services are provided. From simple money transfer to complex trading systems built around artificial intelligence and machine learning, technology is making financial services more available, cheaper, more creative and more effective. Investments in FinTech firms have risen from $930 million in 2008 to $22.3 billion in 2015 since the onset of the financial crisis. In the developing world, as a hub for financial service innovation and experimentation, India is overtaking early pioneers such as Kenya and the Philippines. A combination of ambitious government policies on financial inclusion and digital services, a strong technology and innovation base, and a huge outstanding market for financial services means that Indian fintech companies have invested more than $2.5 billion.

Figure 1 Growth of Indian FinTech Industry.



Source: KPMG Analysis (2016)

Fintech is a relatively young industry in India, but it has gained a lot of attention because of its rapid growth and potential effects on both the financial sector and the general population. It is heavily discussed in the media and is spoken about frequently by senior politicians. It is not really well understood either. The aim of this report is to provide an overview of India's fintech environment, looking at where the market is, where it could go and how connections with the UK could benefit from it. To do this, we will use the context of market processes as an empirical method in which to research the market. This framework enables one to analyze the market from a micro point of view (buyers and sellers), the macro level of policies and legislation, as well as the meso level of support functions and infrastructure.

India's financial services industry is heading towards digitization, driven by a change in customers' preferences, who prefer more personalized services. Owing to the growing penetration of smartphones and the internet, customer preferences are shifting. This has resulted in a rapid growth in India's financial technology (FinTech) industry. In India, financial services are changing from the conventional 'one size fits all' approach to a more customized service strategy. In addition, different initiatives for technology-enabled inclusion have been led by the Government of India and regulators. In this trend, FinTech play a significant role. As they provide personalized services

and superior customer experience via digital channels, the adoption of FinTech's' products among customers has increased significantly.

The paper is organized as follows section 1 includes review of related literature. Section 2 provides an in-depth knowledge of the evolution, growth and support from government for FinTech sector. Section 3 contains FinTech ecosystem, the policy and regulatory framework of FinTech in India. Section 4 provides an insight into India's biggest FinTech company Paytm and also features interviews from Paytm founder and Mumbai fintech Hub Chief.

CHAPTER ONE
REVIEW OF RELATED LITRATURE

Introduction

The literature reviewed in this section describes and examines the supporting theories that are related to the topic selected. The researcher performed a comprehensive literature survey to determine the nature and scope of the empirical research work done on the subject and the research gap. This chapter presents the analysis of current research literature which is divided into four parts.

The subdivisions are:

- Studies on the concept of Innovation.
- Innovation in India: An overview
- Studies on Financial Innovation
- Studies on Fintech

1.1 Studies on the Concept of Innovation

The word innovation has Latin origins and began to appear in English in the mid-1500s, and not unforeseen, according to the google word-use graph, the use of "innovation" has steadily increased since then. Innovation means, "a new or special element" (Webster). The importance of innovation has long been recognized by economists, market academics and practitioners (e.g. Aghion & Howitt, 1992, 1998; Ahlstrom, 2010; Christensen & Raynor, 2003; Mokyr, 1990); While scholars may express a different view on many aspects of innovation research, and the findings may be inconsistent (e.g., Shafique 2013; Wolfe, 1994), they generally view innovation as a positive net. Even before Schumpeter (1934,1942) emphasized the role of (radical) innovation in creative destruction, writers such as Adam Smith wrote about the role of technological improvement on society and factories and the role of innovators:

“All the improvements in machinery, however, have by no means been in the invention of those who had occasion to use the machines. Many improvements have been made by the ingenuity of

the makers of the machines, when to make them became the business of a peculiar trade; and some by that of those who are called philosophers or men of speculation, whose trade is not to do anything, but to observe everything; and who, upon that account, are often capable of combining together the powers of the most distant and dissimilar objects." (Smith, 1776)

Despite this recognition of the relevance of innovation among early social scientists, Schumpeter's Austrian School placed innovation at the center of economics and explained its role in economic growth and industrial transformation. In addition to Schumpeter, several management scholars have also studied innovation and its impact on organizational outcomes. According to Thompson (1965), innovation is "the generation, acceptance and implementation of new ideas, processes, products or services."

Thompson's definition above and the review of innovation writings point out that innovation is not limited to new products, but also includes new processes, organizational structures and policies (Daft, 1982; Damanpour, 1991; Goswami & Mathew, 2005). For example, Baregheh, Rowley, and Sambrook (2009) analyzed the content of 60 different innovation definitions from multiple disciplines and found that many of them converge on the following: "Innovation is a multi-stage process through which organizations transform ideas into new / improved products, services or processes in order to advance, compete and successfully differentiate themselves in their respective fields."(1334).

Innovation is also rooted in social institutions such as education systems, social interactions, cultures and the structure of the labor market (Lam, 2000; Landes, 1998). In other words, the structure, communication and specialization of societies are key drivers of innovative activities (Damanpour, 1991; Kaplinsky, 2011; McCloskey, 2006, 2010). Not surprisingly, many people use the term "innovation ecosystem" to describe "collaborative arrangements through which firms combine their individual offerings into a coherent, customer-oriented solution" (Adner, 2006).

The European commission defines innovation as the renewal and enlargement of the range of products and services and the associated markets; the establishment of new methods of production, supply and distribution; the introduction of changes in management, work organization, and the working conditions and skills of the work force. In simple terms, innovation involves the use of new ideas. Innovation is a term that can refer to a process, attribute, or result. There is a difference between invention and innovation. Innovation should not be synonymous with invention;

invention may not necessarily lead to innovation. This distinction is made clear by Freeman (1982) when he notes that "an invention is an idea, a sketch or a model for a new or improved device, product, process or system," whereas "an innovation in the economic sense is achieved only by the first commercial transaction involving a new product, process, system or device."

Various definitions of innovation included in the literature. "Innovation has consistently been defined as the adoption of an idea or behavior that is new to the organization (Bon & Mustafa, 2013). Thus, innovation is not exclusively the result of R&D; it is a multidimensional process, with multiple sources, most of the time coming from complex interactions between individuals, organizations, etc.

The innovation approach is to create ideas, refine them into a useful shape, and bring them to fruition in the marketplace where they can achieve greater efficiencies (Morris 2008). Innovation creates value for business. There may be interest from disruptive innovation leading to completely new products as well as from gradual innovation leading to changes in existing products.

Innovation is important because many businesses see it as a strong contributor in this innovation age, and to generate business and profitable growth that will boost the efficiency and competitiveness of an enterprise (Potters, 2009). Sustainable and profitable growth needs sustainable innovation practices within an organization (Gupta, 2007).

Innovation is management practice from a micro point of view: it focuses on the mission of the organizations, looks for unique opportunities, decides whether they suit the strategic strategy of the organizations, identifies the performance measures and constantly reassesses opportunities (Gaynor, 2002 in Lin and Chen 2007).

Innovation research may generally be viewed from the viewpoint of an individual, a company, and a country, with a focus on personal characteristics, innovation management, and competitiveness-source nations, respectively. Scholars from various backgrounds have been investigating creativity from different perspectives. They enriched this study area and made it possible for other researchers to obtain a deeper understanding of the essence of innovation (Lin and Chen, 2007).

1.2 Innovation in India: An overview

"We originally came to India for the low cost. We stayed because of the quality and now we are investing because of the innovation"- Dan Scheinman, Former Senior Vice President of Cisco Systems Media Solutions Group.

India's rapid economic growth after its economic reforms in 1991 led to a growing wisdom in Indian organizations and management (Jain & Sharma, 2013; Nair, Ahlstrom, & Filer, 2007) This research has covered a variety of topics and established many special facets of Indian management in areas such as corporate governance (George, Rao nicholson, Corbishley, & Bansal, 2015; Lockett, Wright, Sapienza and Pruthi 2002; Maheshwari & Ahmstrom, 2004; Ramani & Szirmai 2014). As indicated in the opening quote, Indian economic growth was driven by low-cost labor, particularly in the areas of information technology (IT), and an increase in private sector and foreign investment following the removal of capital restrictions (Chari and Banalieva, 2015).

In fact, it was a shrinkage of foreign reserves which helped stem the 1991 crisis and propelled the reform in financial and industrial terms (Li & Nair, 2007) as it did in China more than a decade earlier (Ahlstrom, Young & Nair, 2003; Harding,1987; Labor costs in IT and related industries stimulated the initial exports and led India to much- foreign exchange. Significant rises in domestic and foreign investments have contributed to the need for funding from a wide number of sectors of the economy (for example, Telecom, Media), to upgrade and enhance technology and productivity. Despite many issues of corruption and chronic poverty, India has been rising rapidly and clearly, increasing employment and profits, building a diverse middle class and implementing many modern management reforms (Ahlstrom, 2014; Cooke and Saini, 2015; Gupta & Wang, 2009).

Also, as economic growth slows recently, India is already in purchasing power parity (Giles, 2014) the 4th largest economy in the world and has grown into an innovation engine (Forum for the Future, 2013). In fact, while India's capacity to innovate has clearly contributed to the growth of its economy (fan, 2011), many argue that India will have more to depend on both innovation and entrepreneurship, which are crucial to both market and economic growth (Aghion & Howitt, 1992, 1998; Ahlstrom, 2010). (Chakraborty & Kumar, 2013; Kulkarni, 2013). Global consumers have begun to demand creativity in the delivery of services (Arora, Drev, and Forman, 2009; Schrage,

2011), and others have noted (e.g., Anand and Anand, 2009) that the poverty and social issues in India best address creativity in place of weak ones (Alvarez, Barney, and Newman, 2015; Bruton, Ahlstrom, & Si, 2015; George et al., 2015).

India has already gained attention from academics and public relations (Govindarajan & Ramamurti, 2013; Prabhu & Jain, 2015; Prahalad & Mashelkar, 2010; Rai, 2014) because of the potential to make low-cost, creative innovation. Cooper (2009) pointed out that India could take a more ambitious route towards growth rather than low cost paths pursued by many other emerging economies with its strong education system and leadership in software and IT services. The declaration 2010-2020 of the former Indian Prime Minister Manmohan Singh as India's Innovation Decade is a further proof of the vital importance of innovation to India's prosperity. As innovation is a especially important and interesting subject in Indian contexts, therefore, we intend to put together the various literatures that examine this phenomenon, to enhance its clarity and thus promote its study (Ahlstrom, 2010b; Christensen, 2006).

Though innovation was studied by academics in various fields, such as marketing, economy and engineering (e.g. Aghion & Howitt, 1992, 1998; Govindarajan, Kopalle & Danneels, 2011; McCloskey, 2006, 2010; Mokyr, 1990; Petroski, 1994) we concentrate primarily on management-oriented Indian innovation research (Christensen & Raynor, 2003; Nair & Ahlstrom, 2003). This involves work that discusses (mostly) business and product advancement structural, industrial and firm influences. We do not examine in general innovation research or specific sources, such as individual acceptance and distribution of new product innovations.

1.3 Studies on Financial Innovation

Allen (2011) reviews the proof of financial innovation's negative and positive impacts to economic welfare and ends with the argument that its results appear likely to have been positive rather than negative. In their research Beck, Chen, Lin, & Song (2012) tests the relationship between financial innovation and economic growth and volatility. The study also tries to measure the connection between financial innovation and the risk-taking and fragility of banks. In a standardized cross-country environment, the analysis used three levels of data from 32 countries, i.e. data at bank, business, and country level, to systematically examine the implications of financial innovation. The report established both the bright side of financial progress and the dark side. The study result

shows that financial creativity allows banks to take on more risks, which enables businesses and households to provide useful credit and risk diversification services. It would increase the performance of the capital allocation and economic development. Berk (2002) reviewed the literature on the effect of financial innovation on the monetary transmission process and how the central bank can achieve its ultimate objective of price stability. They argued that while the type of central bank instruments and current methods of monetary policy implementation that shift, the aims the policy makers are seeking to achieve by using these instruments remain relevant and achievable.

Bhatt (1987) looks at the essence and characteristics of financial progress and credit market evolution. The author talks about the role of policy involvement in speeding up the pace of financial growth. A creative bank case study is used to demonstrate developments necessary to fund small-scale farm and non-farm enterprises and to mobilize capital from middle- and low-income groups in developing nations. The key focus of this paper is the historical history of various acts taken by the Syndicate Bank, including revolutionary deposit schemes such as low transaction-cost pigmy deposits. Boot & Thakor (1997) discussed the implications for financial innovation in the design of financial systems. They start with assumptions about firms 'investment prospects, their measurable characteristics, and the positions of business banks, investment banks, and financial markets.

They discuss the choice of the borrower between bank and capital market financing, the choice of monitoring capability of the commercial bank, and the option of the investment bank whether to invest in financial innovation or not. Their key finding is that financial innovation is stochastically lower in a universal banking system than innovation in a financial system where the commercial & investment bank is functionally segregated.

The pricing effects of financial innovation in an economy are explored by Calvet, Gonzalez-Eiras, & Sodini (2004). The addition of non-redundant assets modifies the participation set endogenously, reduces the covariance between the dividends and the intake of participants and thus leads to lower risk premia. Financial innovation spreads across the diversified portfolio of new entrants in multisectoral economies across markets and has rich impact on the cross-section of projected returns. The price changes can also lead some investors to leave the markets and give rise to non-degenerate forms of participation turnover.

Over the past several decades, the model is consistent with many characteristics of financial 32 markets: strong innovation, higher participation, greater investor structure turnover, enhanced risk management strategies, a small rise in real interest rates, and a decline in risk premia. Chavan & Somanath (2011) explores the financial developments in the stock market, banking, and mutual fund industries.

New creative products in the insurance industry include the features of assured return, protection against inflation, social security, medical and hospitalization expenses reimbursement. Investor security, accountability, improved liquidity, reduced cost and risk reduction are characteristics of the capital market developments. The inventions of the mutual fund have the characteristic of diversification, risk management and a superior return on the competitive market. They concluded that current creative financially engineered goods lack inflation protection, and that this remains an area for insurance exchange, credit reinsurance market, carbon market, future properties, environment derivatives, freight derivatives, and inflation derivatives to grow.

Cristian (2012) has tried to provide a conceptual clarification on financial innovation and, thus, it is important to describe financial innovation. Providing the classification and functions of the financial innovation is also important. The study also focused on connecting financial technologies, markets and agents to each other. The inventions were listed as Inventions of Type A, Type C, Type B, D and E and Type F. The effect of these various forms of developments, with associated effects on economic policy, was also examined and their relevance is correlated with financial instability.

In the third LK Jha Memorial lecture, Crockett (1995) said that capital market developments have raised new challenges for economics and financial stability. The lecture's theme was that leveraging capital market innovation opportunities while reducing the risk of disruption is one of the main challenges that central banks and supervisory authorities face in both the developed and developing worlds. He has examined deregulation, volatility, increased data processing capacity, globalization and securitization, and so on as the key trends behind them and driving forces.

By analyzing the relationship 33 between product and process innovations, Damanpour & Gopalakrishnan (2001) concentrated on exploring the trend of acceptance of product and process innovations at firm level. The research focusses on 101 U.S. commercial banks. The breakthrough implemented between 1982 and 1993 was taken for the analysis and was divided into 2 six-year

cycles. The success metrics used were Return on Capital, Return on Assets and Executing Score. The study concludes that high-performance banks are more likely than low-performance banks to implement product and process technologies, and that the product-process pattern of adoption is more likely than the process-product pattern.

Guidotti (1993) proposed a context in which the domestic effects and the foreign dissemination of financial innovation can be investigated in the presence of currency substitution. Financial Innovation is explained in this study as the technological transition that affects the way individuals perform their transactions. The research offers a variety of insights; one is that financial progress contributes to a negative trajectory of the actual and nominal exchange rates. Another is that financial innovation's foreign transmission and domestic effects depend on how it affects a cross-border seigniorage transition.

Harsha (2011) attempts to conceptualize the word financial engineering, its driving factors, the need for creative product through financial engineering, and suggest strategies for the same. In his research Ibraheem (2013) explored the different methods used to solve various financial problems this is, on the instruments of financial engineering. He is also trying to find out if the financial engineering has any effect on the financial system. Financial development activities are divided into three phases in this study (1) Designing innovative financial instruments, (2) implementing innovative financial instruments, (3) Developing finance instruments.

Joshi (2009) concentrates on the credit derivatives. The report describes the growth of the global market for the credit derivatives. After explaining the credit derivatives gain and demerits the author describes that credit derivatives need to be implemented in India. The study states that the banks are the major players in the credit market and are therefore exposed to credit risk. As the credit risk grew year by year, some financial product which offers protection to financial institutions is required for 34. The article ended with the anticipation of the credit derivatives being released in the immediate future.

Lewrick (2008) has developed a model that can be used to audit the capacity of management to innovate and track the relationship between innovation and sales growth. It was called as the ICP model, i.e. the model of innovation, capabilities and potential, and was found to predict the outcome of the company's adopted innovation strategy. The model was developed as the result of an enterprise analysis in the high-tech cluster around Munich. Moos, Beimborn, Wagner, &

Weitzel (2010) derives ideas for assessing creative organization. They believe that creativity is an essential indicator of success in the organization.

They classified the models based on three different viewpoints, i.e. (1) Innovation acceptance vs. development, (2) Innovation type: product vs process, and (3) Input oriented and output oriented, after reviewing numerous articles that provide measurement model innovation. The study ended with the introduction of models for both input-oriented and output-oriented calculation.

Necrep (2013) looked at the innovativeness of Slovenia's growing financial market for banks and insurance companies. The research centered on three key factors affecting the process of developing financial services. The researcher was also evaluating the difference between how banks and insurance firms reacted to the increased competition. The data were obtained from banks and insurance firms 'marketing and growth department managers. Revenue income was taken as a measure of business performance using the financial metric and domestic market share, sales growth and profitability of the new services. It defined the stages of the new business creation cycle as:

i. Idea generation and screening
ii. Business analysis and marketing planning
iii. Service development and testing
iv. Service launch

The study was concluded with the argument that it would be difficult for any bank or insurance firm to achieve good business results without enhancing the current processes and creating creative processes.

Philipass (2011) studies the impact of financial innovation spreading to frictions of market participants and their values through a statistical, theoretical, and empirical context. Based on their patterns of correlation tension they obtained a novel measure of the impact of financial innovation on market participants. The main aim was to emphasize several aspects and dimensions of this area. The goal was to present I the theoretical framework on the role of financial innovation in the financial system (the root causes and effects on the functioning of financial markets, etc.) and (ii) the parameterization of the impact of financial innovation on market participants through a mathematical and econometric framework based on the minimum nee participants. They

concluded that the parametric method followed to demonstrate the effect of financial innovation has a statistically important impact on returns and financial and economic index volatility.

The relationship between innovation and regulation was alluded to by Rangarajan (2012). He notes that the banking sector has made great strides in the last two decades and, in his opinion, it would be unfair to label all or even most of the financial developments implemented as socially unproductive in the last few decades. The financial sector must be able to cater to a rising economy's diversifying needs. There needs to be support for financial developments in this context. In the Indian context the development of a vibrant corporate debt market needs to be promoted. Effective debt market can support not only bigger businesses but small and medium-sized enterprises as well. He also claims that we need organizations that act as market leaders and provide the two-way path. It will provide the markets with liquidity and draw buyers. It is important to explore creative ways to fund infrastructure. There can be too little regulation that encourages financial uncertainty, but too much of it can hamper desperately needed financial developments. Innovation regulation monitoring is required but it must not be rendered too restrictive by regulatory perspectives on innovation. In short, the policy makers must strike a proper 36 agreement between the need to maintain growth in financial innovation and the need to control stability.

Silber (1983) found out that financial institution benefit maximization is the key cause of financial innovation. Profits maximization, such as policies and organizational management, is limited. Although these constraints not only guarantee the management's stability, they also that the financial institution's performance, financial institutions are striving to discard it. Theory of constraint-related innovation addressed microeconomic financial innovation and is thus symbolic and originate. Nevertheless, it emphasized overly "innovation in adversity."

The key features of financial progress are analyzed closely by Verghese (1990) and critically what has been accomplished and at which expense. When complex factors contribute to starting and speeding up the cycle of financial innovation, the regulatory climate, financial uncertainty, evolving lending capacity and bank profit margins, the ICT revolution and so on are recognizable.

The effect of liberalization on business growth in the life insurances sector was examined by Verma (2015). To this end, the company's growth rate is measured over two decades. Factors such as the growth of the market, the distribution networks and rising manpower also influence the

growth of insurance firms, in addition to liberalization. However, innovation and imagination make a significant contribution. The study also addressed the role of product developments such as ULIP and banking insurance. The author concluded his thesis by addressing possible future developments in the sector after assessing the adverse impact of liberalization.

Wang & Ahmed (2004) reveals the overall potential of a company to achieve creative results. They claim that the success of a company is driven by creativity. There has, however, been little attention paid to creating an organizational innovation measurement framework and five dimensions have been defined, which are part of organizational innovation. For validating the calculation frameworks, compatible factor analysis has been used. The study was concluded with the recommendation that more studies provide more building things and test 37 discriminating validity and predictive validity, apart from the converging validity tested in this study.

1.4 Studies on Fintech

One of the most widespread terminology used for financial analysis in modern times is financial technology. Financial Technology (FinTech) is the use of digital technology, In the world of banking, creative technology. It is primarily the use of imaginative, inventive and Disruptive technologies for financial service provision. Fintech as a notion peaked up in the late 2010s (Haddad, 2018). Fintech has fulfilled this need for more Protection for investors by offering financial services which are creative and safe. The need for the growth of Fintech may be attributed to another explanation for the establishment of Financial services that offer versatility and quicker speed at a more affordable price (2016, by Anikina et al.). The primary explanation for FinTech 's emergence has been2008's global financial crisis (Haddad, 2018). The global financial crisis has been the result of Phase in which people lost faith in the financial system and were searching for them in terms of their savings, something that gives them more certainty. Undoubtedly, over the past 5 years, FinTech had an amazing glodrush vibe. New investments have been made in new promising and evolving finance innovations with Venture Capital (VC), Private Equity (PE) and also by Merger & Acquisition (M&A) year after year. In 2015, with a gross annual global investment of over $47 trillion (KPMG 2017) in Fintech firms, it was the height of the FinTech hysteria, a rise of over $18 trillion to 2014.

Fintech is part of the process of evolving financial innovation, which has been shown to be risky but useful technically (e.g. Thakor 2012),with help for investors (Chen, et. al 2019). The Financial Stability Board (FSB) describes "technologically activated financial innovation that could lead to new business models, applications, processes, or products with a related material effect on financial markets and institutions, and the provision of financial services." This concept has also been adopted by the Basel Banking Supervision Committee (BCBS).

The size of fintech is difficult to a s certain because of varying definitions of fintech. For example, the Buchaketal.(2018a) paper views fintech as also including technology-assisted products provide d by banks(e.g.,onlinelending). However, one useful growth measure to use is venture capital (VC) investment in fintech companies. Data quoted in an international organization of securities commission (IOSCO) report indicate cumulative investments of cover $100 billion in more than 8800 fintech companies as of November 2016. On an annual basis, global fintech investment increased at a steady pace 2014 and 2017 from $19.9 billion to $39.4 billion. In the first half of 2018, the global fintech sector raised $41.7 billion, which surpassed the amount for all of 2017.

The global cumulative investment in FinTech is expected to surpass $1.5. In the next 3-5 years, billions (PWC, 2019). Across the country, banks and financial institutions. The world is facing the hardest time because there is a scarcity of creativity in banking and industry of finance (Tornjanski et al., 2015; Alt, 2018; Thalassinos, 2008; Thalassinos, 2008; Et al., 2010; 2014; Jędrzejowska-Schiffauer et al., 2019) and FinTech have been implemented as a technology. Blessing in disguise for these organisations, since it gives more possibilities sufficient ingenuity and technology-based resources (Dapp, 2015). There is no consensus yet, some of the most common meanings of FinTech are still related to the term FinTech. Summarized in the following way:

FinTech as a term evolved in 1972 by Abraham Leo Bettinger by saying “FinTech can be defined as a contraction which combines bank experience and expertise with information technology” (Bettinger, 1972). Schueffel (2017) said “FinTech is the new term in finance industry and objective of which is to improve the financial services through the use of technology”. Milian et al. (2019) mentioned that “FinTech is a thrill or hype in the media or an important innovation which can be attributed to the field of finance”. According to IOSCO (2017) “it is the innovative business models that that can transform the finance industry”. Oxford Dictionary defines “FinTech is the traditional financial services provided through the use of information technology”. In the words of Dorfeitner

et al. (2017) “FinTech is basically the composition of companies or group of companies providing the modern, innovative and financial services through technologies” while Sanicola (2019) said “FinTech is about both, promoting the technology to enhance the use of financial and also about the promotion and growth of digital consulting”.

In reality, Fintech has expanded at double the speed in the European region, at twice the rate of inflation. Since 2008 in Silicon Valley. The number of FinTech deals since 2011 The area of London has risen three times and is more than 50 percent of the total. Operation in Europe (Skan, 2014). For emerging financial technology, there is a reach and it can be done across a wide variety of financial markets and services. Esteem from the customers. It is very important for the growth of financial services, Companies and banks will have an opportunity as FinTech companies evolve and expand. Customers have the option to use conventional financial services as well as modern and new services. Innovative services offered by the companies of FinTech (Gomber, 2018; 2017; 2017 Saksonova and Merlino). Traditional banks have been granted by the FinTech companies, a lifeline to go digital at a low cost and to provide financial services. In a country like Czech Republic the low-cost banking with Fintech will help the banks to compete with the larger and more established banks (Hes and Jilkova, 2016).

Fintech has become a challenge for the financial institutions which can be turned into opportunities by making FinTech companies’ partners in providing innovative services than treating them as competitors (Cristea and Thalassinos, 2016; Thalassinos and Thalassinos, 2006). The main risk associated with the development of FinTech is that banks are exposed at every level (Anil, 2019; Romanova and Kudinska, 2017; Rabbani, 2016). FinTech is still new and the firms are not able to make sure how much investments are worth investing as far as Fintech projects are concerned (Lee, 2018). To overcome this challenge, banks and Fintech firms needs to sit together and integrate and evaluate their efforts. The Fintech and banks are needed to evaluate their value proposition in terms of integrating innovation and FinTech (Coates, 2015; Drasch et al., 2018).

Fintech is now offering massive advantages to customers and investors. Service providers are compelled to compete with the ever-growing FinTech firms, adopt a strategy that focuses on the client. However, the evolution of Fintech still brings with it, there are a lot of risks facing investors and regulators and they have to find ways to secure the interests of both investors and clients. For the customer, the evolution of FinTech is a win-win scenario, because new and innovative

developments profit from it. It makes it more competitive and competitive for capital markets and the new financial markets. Similarly, available (2017, Wijayanti; 2018, Loo). As the development of FinTech has It has evolved across different ages, but after the 2008 global financial crisis, the need for more Strict monitoring was felt.

Now, in providing the services, the emphasis has changed from goods or services provided to the use of technology. Now, it's a fantastic message, Challenge regulators and developers to achieve a proper balance between the regulators and the developers. The benefits of new technologies and the risks they carry (Arner, 2015; 2016; Ladin, 2016; Year 2017). Fintech 's gradual and quick development may be equally disruptive if it is Not properly supervised (Vijayanti, 2017). As FinTech is in its early stages of growth, Only the growth and effect of FinTech on different stakeholders can be accomplished. Understood with the use of legislative dimensions (Sangwan, 2019).

FinTech businesses need to be more aware about the major transition in the industry as it will affect FinTech businesses and they need to find ways to cope with these changes (Lee and Shin, 2018). Since FinTech is at the early stage of innovation, a more versatile and principle-based approach should be followed instead of bringing it under strict regulation.

The regulatory authority 's approach should be kind and simple to promote more (Tsai and Peng, 2017) Creativity. Regulatory Technology (RegTech) is the future of financial regulation as the need to control companies in FinTech increases the need to control them. There will also be increased demand for RegTech. The advancement of RegTech would make regulators believe that current FinTech regulations are being developed and reconceptualized (CGAP, 2018; Armour, 2016). The approach to big data is to be used for Regulating emerging FinTech entities and RegTech 's emerging generation Organizations are expected to report electronically and to streamline and include regulatory software (Treleaven, 2015; Shahnawaz, 2019). Externalities can be seen as a result of financial market failure and should be considered A conceptualized lack of transparency. This reconceptualization would make it possible for the government and governing bodies to establish a law that considers the cost as (Schwarcz 2013; Rabbani 2020a) Internal expense.

In order to build a balance, the regulatory regime must be principle-based regulation. Between stability and access to the financial services that FinTech offers, Agencies (Tsai, 2016). It is very

difficult to enforce a single law that brings everyone together. Due to the decentralized existence of the financial system of those under one umbrella the services rendered by the organizations of FinTech (Peter, 2015). Innovation disruptive It has the power to bring about positive changes in people's lives and can be Achieved if we have a more relaxed, liberal and principal-based strategy for regulating the organization of Fintech (Anagnostopoulos, 2018).

Innovation 's success in the FinTech field lies in the openness and clarification of the Control and the introduction of new start-ups, banks and innovation in finance Companies, the need for structured control of the companies in Fintech Raised (Alam et al., 2019b; 2016, MacDonagh). A modern and creative technology They are to be promoted as they help the general user and RegTech applies to overcome their regulatory obstacles, all these organizations. Fintech is rising rapidly and poses a challenge to financial regulators who are It is already faced with the task of controlling financial institutions after financial institutions, problem. 'Regulatory Sandboxes' aims to facilitate and test technologies Safe-environment technologies (Bromberg, 2017; Godwin 2017).

In another Fintech-related analysis in the countries of the European Union (EU) (Bajakic, 2019; Fetai, 2015; Thalassinos and Thalassinos, 2018) indicates that the EU is supplying the Forum for FinTech companies to foster financial innovation The provision of services thus maintaining the interests of customers and investors. The Purpose of The EU is committed to encouraging all of these businesses to offer tech-enabled innovations, such as Artificial Intelligence (AI), Big Data (Shahnawaz, 2019), Blockchain and Cryptocurrency. This one promoting creativity is more than just encouraging innovation. The oversight of such organizations (Bijakic, 2019).

Blockchain technology has gained a lot of popularity and received a lot of attention around the world Interest from a number of interested parties. Blockchain and the knowledge of artificial intelligence a fresh trend for developments in Fintech. A number of methods are used for Artificial Intelligence, Such as an artificial neural network, rule-based (Khan, 2011; Shahnawaz, 2011), Strategy (Shahnawaz, 2013a), statistical approach (Shahnawaz, 2013b), case-based approach (Shahnawaz, 2013a), Rationale (Shahnawaz, 2015) and many more have been used in a wide variety of ways. Apps such as study of sentiment (Shahnawaz, 2017), machine translation (Khan, 2018), image recognition, cars that are self-deriving, chatbot (Khan, 2020)etc. Thanks to its design and purpose, blockchain technology has many apparent advantages. The technological structure underlying it. Blockchain is a set of connected blocks on A peer to peer network that uses

cryptographic hash code to connect blocks There's no single point of failure because of that. Even if a few nodes fail in the peer-to - peer network, other nodes will continue to operate, making running and maintaining blockchain more secure. The blockchain's second critical aspect is that it is digital technology that allows it to be used in a variety of applications. Transparency is another main function of blockchain, and blockchain transactions are traceable and available to all blockchain users. Another core characteristic of the blockchain is immutability. It is almost difficult to make improvements to blockchain transactions or blockchain transactions. However, for blockchain modifications, several very rare cases have been identified. Many theorists have projected that the use of blockchain technology would disrupt financial markets in the immediate future.

An expanding list of blocks is Blockchain. A block contains transaction data, a block of transaction data, Timestamp and a previous block cryptographic hash code (Nakamoto, 2008). The blockchain's most interesting feature is its resistance to alteration of data. Transactions and trackable.

The Blockchain Management System (BMS) is considered by a research review as an accounting system Method (Evans, 2015). As a reliable alternative for different types of transactions, blockchain based networks such as Bitcoin can be used. Peer to Peer Network in Bitcoin The transactions are checked by the nodes. The transactions are registered and connected using cryptography on a distributed public network. The implementation of the blockchain in the Everyday, the financial sector sees new paths in different fields. In the field of crowdfunding, one of these applications is a report by Muneeza (2018) discussing the use of blockchain in crowdfunding. Research suggests that the use of blockchain technology will reduce the problems faced by crowdfunding Platforms for crowdfunding, focused on six platforms for crowdfunding (Muneeza, 2018).

Fundraisers may use intelligent contracts or issue their own shares with a guarantee. In the event that funding goals are not met, return pledge donations. This form of guarantee will help project initiators and crowdfunding shareholders protect their rights at a minimal cost (Zhu and Zhou, 2016). This form of guarantee will help project initiators and crowdfunding shareholders secure their rights at a minimal cost (Zhu and Zhou, 2016). Multiple intermediates, a central fund management party, high transaction costs, centralized database management, double payments,

etc. are some of the problems in conventional banking. However, these problems can be solved with the use of the blockchain-based crowdfunding framework. In addition to these, a blockchain-based crowdfunding system will implement new features, such as a blockchain-based voting system that can involve shareholders and corporate governance crowds, smart contracts can be used to detect fraud from fundraising (Niforos et al., 2017; Zhu and Zho, 2016), identity management system to avoid identity theft (Niforos et al., 2017) and use of digital currency can eliminate central intermediary (Biancone, 2019; Collins and Baeck, 2015).

1.5 Research Questions

Digitization of payment system is a novel area of functioning in the financial system. It is also a new area for conducting any kind of research. The review of literature above gives an understanding about the importance of digitization in the country. Identification of the enablers of such payment system is essential to appreciate the factors which are promoting digital payment system. This knowledge can help to highlight further different stages in the evolution of digital payments. Further FinTech companies being new entrants into the financial system studying the business models of these companies can create understanding as to whether these are supportive or supplementary to the existing financial system.

- What factors fueled the growth of FinTech in India?
- How FinTech is revolutionizing Indian payments industry?
- How Paytm became the largest FinTech provider in the country?

CHAPTER TWO

FINTECH IN INDIA

India's financial services industry is moving toward digitization, powered by a change in customer preferences that favor more personalized services. Owing to the growing penetration of smartphones and the internet, customer preferences are shifting. This has resulted in a rapid growth in India's financial technology (FinTech) industry. In India, financial services are changing from the conventional 'one size fits all' approach to a more customized service strategy. In addition, different initiatives for technology-enabled inclusion have been led by the Government of India and regulators. In this trend, FinTech's play a significant role. As they provide personalized services and superior customer experience via digital channels, the adoption of FinTech's' products among customers has increased significantly.

Fintech is a large, imperfectly described industry in India, comprised of a wide range of players and solutions. Financial technology service providers are as varied as the services they offer, sitting at multiple points on the line that starts with technology and ends with finance.

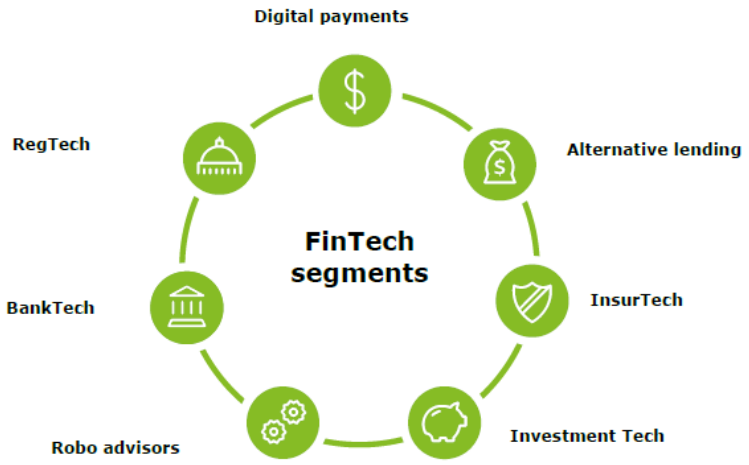
Though typically excluded from the fintech debate at the technology end, India's large technology companies have historically been major technology providers for the financial sector. Companies such as Infosys , Wipro and TCS (and foreign rivals such as IBM) are legacy players in this area and continue to hold significant market shares in supplying the banking sector with and supporting back-end systems. Tech-driven services such as payment systems , software for risk management, clearing technology and architecture for investment banking are broad and complex, and India's major tech players remain very active in providing these services.

India 's banks and NBFCs are major players in technology at the other end of the scale and have recently ramped up investment to build new tech-based systems and banking solutions. Recognizing technology's ability to drive efficiencies, minimize costs, save time , increase outreach and enhance user experience, India's financial sector has reacted to the opportunity not only with investment, but also with new business models that concentrate on developing and harnessing innovation. Private sector banks (like HDFC and YES Bank) have led the way in this

room, with some of the bank's vertical structures based on digital innovation also developing within the bank.

Fintech has emerged as a significant force within the start-up and entrepreneurial ecosystem of India at the intersection of tech and finance. Fintech has come to be associated with a wide range of relatively young companies that use technology to exploit specific financial sector pain points or opportunities. Among this, there are two large streams: fintech companies that create verticals direct to customers (B2C) and those that operate horizontally through the industry, supplying banks and other financial institutions (B2B) with services. A number of parallel industries have arisen under these two large categorizations that have collectively come to represent the supply side of India's fintech industry.

Figure 2 Segmentation of India's Fintech Sector



Source: Deloitte Analysis

- Digital Payments

  Digital payment FinTech's has earned US$ 4.6 billion in investments across 219 deals over the past five years. During the same time, about 532 such FinTech's were created. However, increased competition, low consumer loyalty, increasing customer incentive costs, and some regulatory constraints (such as increased KYC requirements for digital wallets and data localization) were also seen during this time. In the past few years, this has led to a slowdown in both the number of entrants and financing.

- Alternative Lending

  FinTech 's alternative lending aims to fix the country 's wide demand-supply credit gap. In order to boost customer service and achieve operational efficiencies, they resolve the gap by using both traditional and alternative credit scoring models and digital workflows. While the number of new alternative FinTech loans has been declining over the past few years , the amount of investment has been growing.

- InsurTech

  A change in the dynamics of the Indian insurance industry has occurred with the emergence of InsurTech. After FY17, funding earned by InsurTech start-ups in India grew significantly. This is because the traditional insurance value chain has been disrupted by these FinTech's in two ways: by providing on-demand bite-sized insurance, mobile-powered micro insurance networks, remote claims processing capabilities, and chat bots (for better customer service); and by experimenting (such as using drones to test agricultural insurance claims).

- InvestmentTech

  In the future, InvestmentTech FinTech's are projected to expand at a rapid pace as investors move from fixed deposits to mutual funds and (to a lesser extent) direct equities. The growth of this industry is made possible by a variety of factors: an increase in personal wealth (in select consumer segments), digital channel adoption, and easy access to retail investors for information.

  As these platforms have not been able to monetize their product offerings, the flow of funds to robo advisors has remained subdued. In the early stages, these offerings are still. However, due to growing product offerings and nuances, and a higher degree of standardization and clarity (which can also help put in place stronger regulations), robo advisors are expected to grow over the years.

- RegTech

  In the past few years, support for these has remained poor as solutions are relatively niche. However, with a rising focus on enforcement and governance, it is expected that demand for such solutions will increase in the future.

2.1 Definition of FinTech

"'FinTech' can be broadly defined as technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets, financial institutions and the provision of financial services."

2.2 Evolution and growth of FinTech Companies in India

Fintech in India has been mainly a payment tale to date. The vast majority of revenues and investments in the Fintech space are accounted for by B2C platforms that offer mobile wallets and simple digital payment services. The volume of mobile wallet transactions increased from INR 27 billion in 2013-14 to INR 81 billion in 2014-15.4 Companies such as PayTM, MobiKwik, Citrus and PayU are exploiting the rapid growth in the usage of smartphones, internet access and online shopping to incorporate payment processing into web applications. Such businesses have received a huge boost from the demonetization drive of the government, which would push individuals at an accelerated pace towards digital payments. To date, the payment sector accounts for around two-thirds of the investment in Indian fintech firms, led by Alibaba's $500 million investment in PayTM.

Some level of sophistication has also been achieved by Fintech-based personal finance and wealth management. As aggregators of loans or insurance options, a number of players have found success in gathering customer data and matching it from a third party to a particular product. Fintech provides customers with tools for saving, spending, controlling their resources and comparing costs and returns for a number of financial product offerings. PolicyBazaar, for example, offers a digital comparison tool between insurance quotes, and FundsIndia enables clients to explore, compare and purchase mutual funds from different companies. Such fintech's, which primarily target wealthier clients, perform the role of intermediaries effectively, leveraging

knowledge and using matching algorithms to provide a low-cost intermediation service. While payments and personal finance sites were the first Fintech sub-sectors to grow, alternative lending may well be the next most dynamic space. A number of companies are leveraging technology and emerging data to develop loan models that target unbanked or underbanked customers (small and medium-sized businesses, millennials, emerging middle classes) and offer loans faster and at lower costs than conventional institutions. These companies usually hold the loans on their own balance sheets, unlike the loan aggregators, and as such are governed by RBI as NBFCs. The focus of credit appears to be on working capital or retail transactions. Players like Capital Float, SME Corner and InCred Finance lead this market.

In addition to these verticals, there are a range of B2B technologies that seek to solve technological challenges faced by banks and other financial institutions' structures, which can generally be categorized as banking technology. Though India is beginning to see the growth of Singapore's DBS-led digital-first banking models, there is more activity in niches in the banking sector, including loan management systems (e.g. Cloud Lending Solutions) and solutions and analytics for risk management (e.g. Fintellix). Another growth area, which often sits horizontally across other segments, is data analytics. For instance, Scripbox employs a scientific investment method, backed by behavioral finance experience, to gather and analyze market data in order to advise individuals on investing in mutual funds. While currently small, data analytics provides tremendous potential for fintech supply. Big data in India is projected to see eight-fold growth from the current level of $2 billion to reach $16 billion by 2025.

The potential for disruption is still great in India. The banking sector has not penetrated rural areas and low-income communities efficiently, and they can be sluggish and inefficient even among the richer banked population services. In a nation that is increasingly digitalizing, cash remains king. But while there is a general consensus that technological developments are moving Indian financial services into a time of unprecedented non-linear transition, it is less clear what this shift will look like or what the industry will look like in a decade.

Fintech, with its revolutionary products and the potential for flexible, low-cost solutions, is enticing to see it as an agent for transformative change in the industry. There is undoubtedly room

for the leapfrogging of traditional markets in fields such as distributed ledger technology, P2P lending and artificial intelligence. However, to date, the Fintech story in India is less one of destructive disruption and more of facilitation. In the banking sector, the vast majority of financial sector assets remain. India 's banks are so large, so closely-linked to government and so established in their market position, it is not clear that there is great potential for new competition to take significant market share

A more feasible scenario in India for fintech, and one that we are already seeing, is that fintech is helping to fill the holes in the financial sector. Broadly speaking, for anyone to play a part, the market is big enough. To date, the B2C payment operations that have dominated India's fintech growth narrative are rarely directly competitive with banks. Although a number of banks are introducing their own mobile wallets, a widely held view is that mobile wallet providers are simply on-boarding the next generation of customers for more developed financial institutions by having low income consumers accustomed to simple digital payments. In the same industry, they do not compete, but play complementary roles. Recent steps by the RBI to bring institutions such as PayTM and FINO PayTech (as well as MNOs) as Payment Banks into the regulated financial sector are a step towards building this complementarity as fintech companies seem set to play an existing role in the digital payments space and provide a forum for collaborations with other players through which a wider range of financial players can be found.

Therefore, Fintech is expected to change the supply of financial services in India significantly, but its primary role will be to fill market gaps, drive efficiencies and collaborate across creative B2B models with existing players. As financial services are unbundled, we can see the rise of several more fintech firms that fill current holes and open up new ones. There are a variety of ways for banks and fintech companies to cooperate and solve each other's issues, as seen in Figure 5. Banks in India are gradually opening up their Application Program Interfaces (APIs) to fintech firms, enabling them to test new disruptive products on consumer data from the bank. The task for both parties is to find the best strategic partners and collaboratively collaborate to address pain points for consumers.

Fintech has a strong and significant chance to boost the delivery of financial services to the Indian population. There is demand for safer , cheaper, diverse and more open financial services at every level of customer. Businesses , especially micro and small businesses who are generally excluded from conventional bank lending networks, are also looking to connect fintech to lenders who are prepared to lend to higher-risk borrowers with weak access to collateral or documentation. Banks and financial institutions are asking Fintech to devise alternative ways to acquire new clients, and the government is asking Fintech to eliminate leaks by creating digital payments and transactions.

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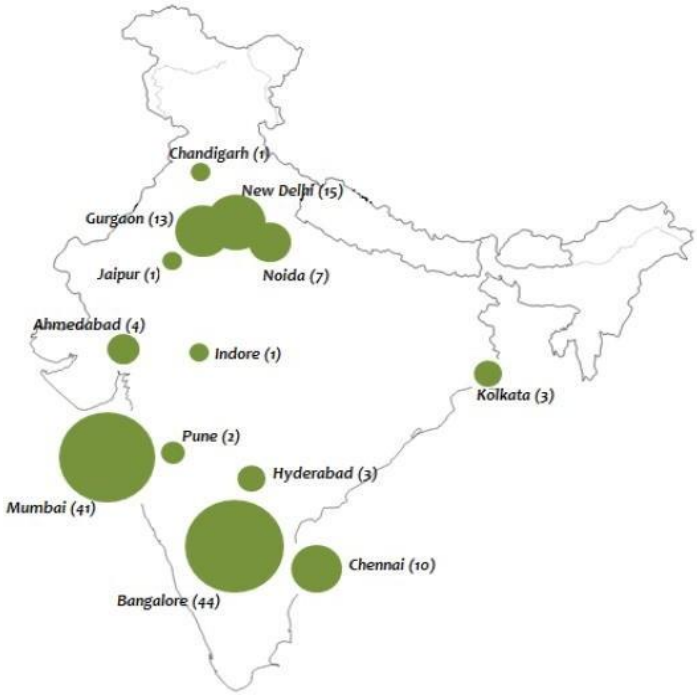
Figure 3 The geography of Indian Fintech



Source: Trak.in.(july19,2019). Indian startup funding and investment chart.

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India accounts for about 21 percent of the world's unbanked adult population. To date, formal banking institutions in India have failed to provide financial products and services to rural and remote areas that enable them to function on a sustainable basis. This is because the average balance in the accounts held by customers in these regions is not adequate to make long-term banking service delivery feasible. Factors such as inadequate documentation, lack of collateral and financial background, negligible incomes of poor households, high time and monetary costs of maintaining bank accounts, lack of knowledge of bank accounts remain impeded by financial inclusion.

Though one of the biggest challenges facing the otherwise fast-growing Indian economy is such exclusion from the formal financial sector, it presents a huge opportunity for the country's burgeoning fintech industry. Indian fintech’s are creating creative and efficient models to provide access to financial products and services to the poor quickly overcoming the many constraints

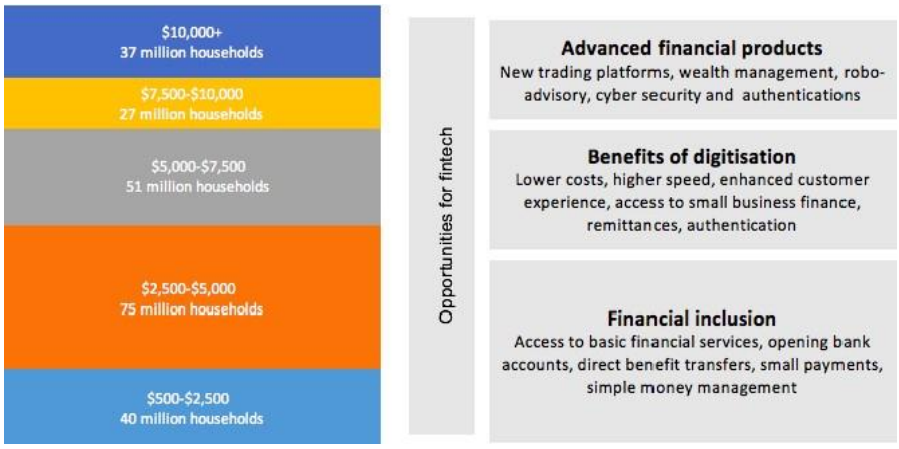
faced by conventional financial institutions. Fintech is low cost (limited overheads), requires limited paperwork, documentation and procedural specifications, and can generate rapid scalability and efficient last mile connectivity

Micro, small and medium-sized enterprises (MSMEs) often often have restricted access to financial resources because of their small loan requirements, lack of adequate collateral and lack of adequate documentation. Such restricted access to funds is the second most frequently cited obstacle for companies (after the availability of electricity) in developing countries. Almost 90% of small businesses in India do not have access to funds.

Recognizing the potential of fintech to broaden the financial system , the Government of India is also undertaking several initiatives such as JAM trinity comprising Jan-Dhan Yojana (PMJDY) of Prime Minister, Aadhaar and Mobile Connectivity and Digital India to make India ready for fintech in terms of identification, internet connectivity and digitalization, especially in poorer and rural areas, 147 million rural bank accounts and 92 million urban bank accounts were opened in India until August 2016, with 120 million of them seeded by Aadhaar. In addition, the rate of teledensity in rural areas in India also increased from approximately 41% in March 2013 to 50% in December 2015, suggesting that fintech companies will leverage improved infrastructure to increase penetration.

In the long run, the Indian consumer sector offers fintech in India an immense potential user base and demand-based market opportunity. In addition, this market is extremely diverse due to the segmentation of the customer class based on income, geography, industry, demographics and financial needs. In essence, this adds to the potential to satisfy this demand for different fintech models. This is because all of these individual segments of the population, ranging from the wealthy and affluent to the middle class and disadvantaged classes, are of substantial size and have varying Fintech needs, each providing an opportunity worth pursuing. For example, while the rich and upper middle class are looking at fintech for cutting-edge goods, the middle class is looking to reap the benefits of rising digitization, and fintech demands for financial inclusion from disadvantaged groups of society.

Figures 4 Opportunities for Indian Fintech by Income Segment



Source:Fintech In India(2016)

2.3 The Driving Force Behind FinTech

New Generation of Consumers

The shift in customer desire and behavior has developed over the past decade, especially due to the technological integration that has become a necessity for many individuals and companies, and a new "goldrush" is seen in this pattern by most organizations and start-ups. As new emerging technologies are gradually found in the everyday lives of general customers, they are also seeking to adopt new technologies at a faster speed, collecting, collecting and obtaining knowledge from alternative sources and the "Retail Banking 2020 Evolution or Revolution?" "The report shows that customers have become more diverse and their allegiance has moved from their conventional banks and financial service institutions to a more demanding degree of" personalization, comfort and immediacy.

The economic contribution of the Baby Boomers and Generation X is diminishing, and the young generation of Millennials is rising, accounting for more than 1/3 of the world population. Since the Millennials will be the driving force of the future digital, capital and economic markets, the latest disruptive FinTech industry is seeking to lead and meet these new demographic demands with innovations and trends in the broader marketplace. A recent Wharton FinTech survey shows that the big (73 percent) of Millennials do not believe that their expectations are completely met

by conventional financial service institutions and over 57 percent reported that they actively use alternative channels to transact their business.

Digitalization

Some industries have managed to retain their conventional business infrastructure, such as commodity trading, where there is still physical printing of contracts, licenses and other documents. The "digitalization revolution" has, however, forced different sectors and industries to shift their business to the digital platform. For many businesses and customers, the rapid adoption of mobile telecommunication devices (smartphones, tables, smartwatches, etc.) has provided a new opportunity. A recent eMarketer research report reveals that in 2017 there are over 2.4 billion smartphone users and at the same time over 3.5 billion people around the world are using the Internet on a regular basis, and eMarketer also estimates that half of the world 's population will access the Internet through a smartphone by 2019.

While internet connectivity and smart device use are more prevalent in developed nations, emerging and developing countries such as Brazil, China , India , Indonesia or Russia continue to advance in the digitalization of their economy, the Pew Research Center survey outlines. In addition , the study shows that between the ages of 15-45 years, more than 64 percent of their population is in emerging and developed economies. For many customers and organizations, new payment systems, online transaction servers or online wallets are no longer a small niche or only for those customers, but they have become a critical and alternative solution. In addition, great promise has been shown in the growth, development and deployment of the Internet of Things (IoT) or Artificial Intelligence (AI). A study by Ernst & Young (2016) suggests that there will be over 30 billion IoT devices globally linked by 2020, which demonstrates that digitalization will be more frequent in the future.

The trend of digitalization continues to expand and a whole market has already been generated by many FinTech start-ups and businesses and it will continue to grow as most business transactions are carried out online. As of August 2017, Alphabet (Google), Amazon, Apple , Facebook and Microsoft are the 5 most valuable companies in the technology segment. While these businesses

provide various products and services, the movement is undoubtedly moving more to digital services, such as cloud storage , data processing & analysis and online transactions.

The Pace of Technological Change

The speed of technological advances has increased in many industries, leading to the rise in competition and the fall of barriers to entry. Information technology is evolving more rapidly than physical processing technologies. The cost of storing, manipulating and transmitting information is decreasing rapidly and the limits of what is possible in the processing of information are expanding at the same time. As technology adoption advances at a much higher rate, through technological innovation, some innovative and groundbreaking previous technology may be replaced by much newer and mature technology these days.

Even some business sectors, particularly those sectors that understand the value of technology , e.g., have been disrupted by newer ones. AirBnB will transform the hospitality industry, Tesla will turn the entire automotive industry upside down, and Uber will revolutionize the transport market. It took only a few years for this company to build brand awareness and gain market share and to challenge the incumbents. An example of pace-increasing technology is that it took over 60 years for 80 percent of US households to use telephones, on the other hand, it took just 15 years for mobile phones to achieve the same number.

In order to capture and at the same time sustain the resources and opportunities they have gained and gained, businesses with competitive edge in advanced and revolutionary creative technology have to move as well as advance faster. By looking at the US S&P 500 Index, where the majority of companies remained on average in 1935 and approx. Of the 90 years in the index, the tenure in 1965 was approx. 30 years, the shruk number to around 20 years by the 1990s, this number felt to approx. in 2010s. 14 years, and some projections say that this number may only be about 5 years by 2030. Losers and losers will come and go at higher rates in a constantly evolving global technology and digital economy.

2.4 Demonetization and Digitization of the Indian Economy

Mixed reactions were evoked by the government's decision to ban Rs. 500 and Rs. 1,000 notes on November 8, 2016, to curb black money and terrorism funding by counterfeit notes. Demonetization has influenced the daily lives of millions, especially those in the so-called informal sector, domestic workers, small traders, and farmers, but it remains to be seen what its impact would be in the long term.

In the short term, the rapid acceptance of e-wallets and credit and debit cards as a means of payment has led to demonetization. These digital payments have replaced cash transactions to a large degree, at least in urban areas.

Many economists and socio-political analysts also conclude that the road of the country to digitization has been smoothed and that time has been compressed to achieve a cashless society.

2.5 India and a cashless Economy

With the start-ups of e-commerce, such as FlipKart, Jabong, SnapDeal etc., the road to digitization in India began. The process of weaning customers to online platforms in the country helped these e-tailers begin. Most of these e-tailers conduct the bulk of their business through cash, but what they have done and continue to do is bring individuals to the convenience of online platforms and less cash transactions.

Though there is no evidence of e-tailers benefiting from the withdrawal of about 86 percent of the currency in circulation by value in India, business has developed among large fintech companies, commonly referred to as e-wallet companies. According to media reports, including the Economic Times, in the first few days after demonetization, e-wallet business transactions increased by more than 700 percent.

Digital transactions are slowly but steadily becoming mainstream. Not only in India, but also in other nations, although the rate of acceptance varies. In countries such as the US and the Netherlands, digital payment methods account for a significant proportion of transactions, while

in others, such as Italy, cash maintains its paramount role. In India, many people have no bank accounts in rural areas and in the informal sector. According to numerous estimates, about 40 percent lack entry, despite the government's efforts to boost financial inclusion. For those with bank accounts may not have convenient access to a physical branch or may hesitate because of a lack of familiarity and anxiety about use before using a bank account.

However, in our country or overseas, the internet and the shared economy cannot be wished away. The digitization of the economy is a natural progression as internet penetration and accessibility increase.

According to a report by Google and The Boston Consultancy Company, Digital Payments 2020, India's total payments made by digital payment instruments are estimated to be approximately US$ 500 billion by 2020, 10 times the current amount. The study also predicts that, by 2023, non-cash transactions, which currently make up approximately 22% of all customer purchases, will exceed cash transactions.

The number of internet users will also grow at a rapid pace as the number of 3 G and 4 G internet connections grows and the price of mobile devices decreases. A report by Deloitte and the Related Chambers of Commerce & Industry of India (ASSOCHAM) predicts that by 2020, India will have 600 million internet users. Although the availability of spectrum in Indian metro cities is a small proportion of what is available in other developed markets in urban areas, internet penetration is likely to increase in the future.

In India , the government is committed to transforming the economy and government digitally. A new category of fintech service providers, payment wallet companies and, more recently, payment banks has emerged as a result of this push.

2.6 Digitalization and Indian Insurance Industry

India's insurance sector is on the verge of a digitally powered transformation. As the use of smart, digital products and services increases, consumer demand for products and services that are quick, effective, seamless, and intuitive is growing. All stakeholders (insurance firms, distribution

networks, consumers, technology providers, etc.) will need to cooperate and network in order to facilitate and deliver certain services and products. In other words, the next growth spurt in the insurance industry will be powered by a multi-stakeholder ecosystem and the role of digital payments in promoting the growth of such ecosystems is critical.

Digitization and ecosystem growth will, at the same time , make all stakeholders more vulnerable to data loss and theft. The increase in the use of virtual networks and intranets and the "aggregation" of cyber risk due to the concentration of virtual supply chains would make cyber risk and protection serious threats that need to be addressed at the enterprise level.

There is also the possibility of loss of business interruption due to interconnected supply chains of digital data. They would also be exposed to the dependence of mobile wallet companies and payment banks on technology , online connectivity, and the need for large volumes of remittance transactions to offset the low margin per transaction. These businesses are becoming increasingly worried about such cyber frauds, from our observations.

Complex supply chains, integrated supply chain operational risk and cross-border alliances are likely to push strict insurance coverage criteria for participating businesses. In 2016, a slew of cyber-attacks and hacking incidents in India revealed the vulnerability of various organizations. These enterprise-wide risks are important , given that, according to a study by ASSOCHAM, the 154-crore Indian e-wallet market is likely to expand to Rs. 30,000 crores by the end of 2022.

2.7 Initiatives of the Government of India to Improve Fintech

The financial technology (fintech) space in India has developed exponentially over a number of years. Development has been propelled by the Government of India (GOI) with the implementation of creative start-up landscapes, friendly government regulations and policies, and a broad consumer base. For the first time, conventional banks and NBFCs are facing tough competition from fintech companies.

The National Association of Software and Services Companies (NASSCOM) has reported that 400 Fintech companies are currently operating in India and the number is growing every quarter.

It was driven by international investment in start-ups in the fintech world, along with a preference for the software market, which by 2020 could itself have doubled the current growth rate by $2.4 billion.

Some of the leading fintech space services and innovations (apart from those for cryptocurrency and software services) in India are:

- Remittance services: both outbound and inbound remittance transactions are performed by start-ups, including FX, Instarem, Remitly and others, which pose a challenge to giants such as MoneyGram and Western Union.
- Personal finance and loans: numerous websites, including Loanbaba, have come up to help people access fast loans within 24 to 72 hours.
- Payment services: online and mobile applications for receiving and exchanging payments from companies and individuals saw an increase following the demonetization phase in 2016. Some of the fintech companies that have seen a peak since then are Paytm, Mobikwik and Oxigen Wallet.
- Peer-to - peer (P2P) lending: a P2P lending platform enables borrowers and lenders to connect with each other for lending and borrowing cash, governed by the Reserve Bank of India (RBI) laws. A number of businesses have jumped to this opportunity.
- Equity financing: crowdfunding networks are now proliferating and contributing to community financing initiatives; e.g. Start51 and wishberry.

Government schemes for the Fintech

The GOI created a regulatory environment in the country and encouraged new companies to take the lead and make a mark in the finance industry. More than 125 Fintech start-ups were effective in 2018. This is evident in the fact that we have seen a rise in investment and financing by both foreign and national banks and the grounds for India's fintech start-ups for financing payment wallets, finance software and other financial services.

- The GOI has introduced initiatives for technology innovators such as the National Payments Council of India (NPCI), the Digital India Program and Jan Dan Yojana.

- There are tax incentives for companies and customers, as well as e-payments, as electronic transaction surcharges remain relaxed.
- The authentication criteria for the same also reflect the Government's aggressive effort to improve the Fintech space in India.

Response to challenges posed by fintech and banking expansion

Fintech firms are sure to bring the winds of change in the stagnant and protocol-bound formal finance sector, with low technology utilization, especially in the lending process. The move makes it mandatory for conventional lending institutions to make a mark in the Fintech field by introducing online applications for access to banking and financial services and accelerating the processing time.

- For example, Manappuram Finance has created its own online "gold loan" app, which can be downloaded and operated by consumers in just a few clicks. They can also use the app to make instant refunds.
- Many banks have launched new mobile phone apps to meet the speed of Fintech organizations. We've seen a lot of wireless transaction applications. For example, HDFC Bank and Axis Bank have launched mobile online transaction apps. Barclays is expected to run its fifth Fintech Innovation Center in India.
- The Federal Bank plans to collaborate with Startup Village to introduce creative banking products.
- Goldman Sachs Key Strategic Investments Group is preparing to invest in the Fintech market in Bengaluru.

RBI pioneering fintech growth

RBI has boosted Bharat Bill Payments System and Consolidated Payments Interface along with P2P lending, digital payments, etc. The use of digital algorithms has transformed the industry and made it easier for customers to use these devices. RBI has licensed 11 Fintech entities to create payment banks providing deposit, savings and remittance services. The GOI and emerging

entrepreneurs have taken over the fintech space by storm, and the future of finance technology is showing a bright outlook.

2.8 Most Prominent FinTech Startups in India

India's fintech market has grown by leaps and bounds, and the industry's data points to a clear potential for growth in the future. According to DataLabs' study, the country's adoption rate for fintech products stands at 59 percent, the second highest rate worldwide, and significantly higher than the global average of 33 percent.

Fintech startups in the Indian market have changed trade and payments in several respects.

Here are the top fintech startups in the country:

- **Paytm**
- **Paytm Money**
- **PhonePe**
- **MobiKwik**
- **PayU**
- **ETMoney**
- **PolicyBazaar**
- **LendingKart**
- **Mswipe**
- **Ezetap**
- **LoanTap**
- **Billdesk**
- **FINO PayTech**
- **Capital Float**

- **Paytm**

  Paytm is a digital wallet firm, founded by Vijay Shekhar Sharma in 2010, and the only company in India that has created two decacorns (companies worth more than $10 billion). Paytm was initially started as a DTH and recharge network, with payments being made through a wallet service. Since then, it has forayed into various segments, such as payment gateway, payment bank, investment, and more.

  With the demonetization in November 2016, Paytm's turning point came as its user base expanded from 125 Mn users before demonetization to 185 Mn three months later. It has continued to rise since then, reaching the 300 Mn mark in 2018. The business has also launched a Paytm Money investment and trading site and has also entered e-commerce with Paytm Mall.

  Launch Year: 2010
  Category: Digital Payments, Investments
  Total Funding till Date: $2.5 Bn
  Key Investors: SoftBank, Alibaba, Berkshire Hathaway, SAIF Partners
  Founder: Vijay Shekhar Sharma
  Headquarters: Delhi-NCR

- **Paytm Money**

  In 2018, former Freecharge exec Pravin Jadhav and Vijay Shekhar Sharma of Paytm collaborated to create Paytm Capital, which currently offers mutual funds among its items, promising higher returns of 1 percent. The business has also recently earned PFRDA approval, which means it will soon allow NPS investments on its platform as well.

  The firm, which is headquartered in Bengaluru, has partnered with 40 AMCs (asset management companies) covering 100% of the mutual fund industry's AUM market. According to Jadhav, around INR 5 K to INR 6 K per month is recorded as the average SIP number. However, the average SIP value is lower than INR 1000 for Paytm cash. In an earlier interaction, Jadhav told Inc42 that 85 percent of the transactions are under INR 500

to emphasize how Paytm Money targets absolute first-time investors and those who simply want to save a little out of their profits.

Launch Year: 2018
Category: Digital Investments
Key Investors: SoftBank, Alibaba, Berkshire Hathaway, SAIF Partners
Founders: Vijay Shekhar Sharma, Pravin Jadhav
Headquarters: Bengaluru

- **Phonepe**

  Established in 2015, PhonePe is a financial technology company headquartered in Bengaluru. PhonePe provides a payments app focused on UPI as well as billing, recharges, e-commerce and other online services support. PhonePe was India's leading app for UPI payments, as per the UPI data published for August 2019.

  PhonePe provides only one app that enables users to submit or receive cash, make recharges for mobile or DTH, pay utility bills from credit cards to insurance premiums, shop or fly via online and offline vendors. The user only needs to connect their bank account to the PhonePe app and make payments via the network of the unified payments interface (UPI).

  Launch Year: 2015
  Category: Fintech
  Total Funding till Date: Inr 291,700,00
  Key Investors: Flipkart
  Founders: Rahul Chari, Sameer Nigam, Burzin Engineer
  Headquarters: Bengaluru

- **Mobikwik**

  The business has forayed into different parts of the fintech ecosystem, including digital wallets, wealth management , insurance and more. MobiKwik is an issuer-independent digital financial services platform.

  The main differentiators for MobiKwik were low consumer acquisition costs, an inbuilt scoring model, and fast disbursement of loans. In a matter of 90 seconds, MobiKwik was one of the first to disburse a loan sum.

  Year of Launch: 2009
  Categories: Fintech
  Complete till Date Funding: $162 Mn
  Main Investors: Sequoia Capital India, GMO Payment Gateway, Net 1 UEPS Technologies
  Founders: Preet Singh Bipin, Upasana Taku
  Headquarters: Delhi NCR

- **PayU**

  PayU is a digital payment gateway and service provider focused on simplifying payments for small and medium-sized retailers by offering online transaction fulfillment technology. PayU has a multi-functional mobile app which enables payments to be accepted and processed by online companies. Merchants may use the app to monitor their business output and ask buyers and suppliers for payments. In over 17 nations, PayU suppliers its services.

  Launch Year: 2002
  Category: Digital Payments
  Total Funding till Date: $70 Mn (India)
  Founders: Nitin Gupta, Martin Schrimpf, Arjan Bakker, Jose Velez, Shailaz Nag, Grzegorz Brochocki
  Headquarters: Netherlands

- **ETMoney**

  ETMONEY is India's largest financial services app that simplifies the financial journey of Indians of the modern century. Consumers use ETMONEY to invest in Free Zero-Commission Direct Mutual Funds, cover their families with exclusive insurance options, and use ETMONEY Credit Card for low-cost instant loans. It has expanded to 7 million users from more than 1300 + Indian cities at 340 percent annually, combined with multiple creative solutions, and is driving more than $500 million in annual non-payment transaction volume on its platform.

  Launch Year: 2015
  Category: Fintech
  Key Investors: Times Internet
  Founders: Mukesh P Kalra
  Headquarters: Gurgaon

- **PolicyBazar**

  PolicyBazaar is an insurance aggregator that was started in order to provide consumers with straightforward and reliable insurance details. A forum where buyers could not only recognize the tools that would suit them better for insurance, but also a forum where products could be compared, and the most suitable alternative could be selected. The company's two pillars are reliability and confidentiality, and all communications are registered for auditing purposes. PolicyBazaar claims a 100 percent YOY rise, catering to more than 100 million customers since its inception.

  Launch Year: 2008
  Category: Fintech Aggregator
  Total Funding till Date: $346.6 Mn
  Key Investors: Wellington Management, PremjiInvest, Tiger Global Management, Inventus Capital Partners
  Founders: Yashish Dahiya, Alok Bansal Headquarters:
  Delhi-NCR

- **LendingKart**

  LendingKart, which acts as an NBFC, focuses primarily on the lending and capital space of MSMEs. To help lenders determine the creditworthiness of a borrower, the company uses big data analytics and completes the loan disbursement process faster than traditional banks. The aim of LendingKart is to facilitate credit access for SMEs (small and medium-sized enterprises) in India that have encountered a liquidity crunch in recent months.

  Launch Year: 2014
  Category: Lending Tech
  Total Funding till Date: $216 Mn
  Key Investors: Fullerton Financial Holdings, SBI, Bertelsmann India, Alteria Capital
  Founders: Harshvardhan Lunia, Mukul Sachan
  Headquarters: Ahmedabad

- **Mswipe**

  For retailers, Mswipe creates point-of - sale (PoS) terminals. Smartphones , tablets, computers, and ties to bank accounts operate for the company. Mswipe recently received $31 Mn in funding and is now looking to triple its base from 500 K customers. The greatest benefit of Mswipe was that the terminals were cheaper than the competition, and the ability to operate on minimal internet connections, including 2G. In remote areas, this benefits merchants and retailers.

  Launch Year: 2011
  Category: Merchant Payments, Pos
  Total Funding till Date: $105 Mn
  Key Investors: B Capital Group, DSG Consumer Partners, Epiq Capital, Matrix Partners India
  Founders: Manish Patel
  Headquarters: Bengaluru

- **Ezetap**

  Ezetap is a startup for digital payments and a developer of mPoS. The company produces the Ezetap system, a lightweight card reader that can be plugged into any retailer's smart devices or feature phones. The technology allows everyone, from retailers and cabdrivers to grocers and pizza suppliers, to accept cards. The company launched another EzeSmart device in 2018, an open platform that enables GPRS, Aadhaar pay and eKYC services to comply with the KYC compliance set by the RBI.

  Launch Year: 2011
  Category: Merchant Payments, PoS
  Total Funding till Date: $51 Mn
  Founders: Abhijit Bose, Bala Parthasarathy, Bhaktha Keshavachar, Sanjay Swamy, Shripati Acharya
  Headquarters: Bengaluru

- **LoanTap**

  LoanTap is an online network for millennials and underserved audiences that offers personalized loan items. LoanTap provides salaried professionals and businessmen instant, flexible loans on consumer-friendly terms. LoanTap allows clients to pick, compare and customize loans from a variety of deals such as personal loans, EMI loan payment options, individual overdraft facility, credit card takeover loans, rental security deposit, advance salary and home-owner loans.

  Launch Year: 2016
  Category: Lending Tech
  Total Funding till Date: $27 Mn
  Key Investors: Avana Capital, 3one4 Capital, India Quotient, Shunwei Capital
  Founders: Satyam Kumar, Vikas Kumar
  Headquarters: Pune

- **BillDesk**

  The concept of easing bill payments was conceived by Billdesk. It leverages for payment management on the economic medium. The whole process was made smooth by Billdesk, right from collecting bills, to remembering when to pay them, to helping sort them. Adding to that is the value of one-click payment of the bill from anywhere on the Billdesk website.

  More recently, Billdesk, along with Visa, a global tech player for payments rolled out SI-Hub, as a pioneer in the payments market, will be able to deliver recurring payments standing to their cardholders to help customers make recurring payments using cards with a one-time enrollment as banks and merchants.

  Launch Year: 2000
  Category: Digital Payments, Billing
  Total Funding till Date: $257.5 Mn
  Key Investors: Clearstone Venture Partners, State Bank of India, Visa Founders: Ajay Kaushal
  Headquarters: Mumbai

- **FINO PayTech**

  For banks , governments, and insurance firms, Fino PayTech designs technology solutions. Fino PayTech facilitates end-to - end consumer procurement and service as an alternative banking platform by offering solutions for customer registration, hardware and operations.

  Launch Year: 2006
  Category: Payments Bank, SaaS
  Total Funding till Date: $58 Mn
  Key Investors: Bharat Petroleum Corp, Blackstone, ICICI
  Founders: Manish Khera
  Headquarters: Delhi-NCR

- **Capital Float**

  The goal of Capital Float is to fill the existing credit gap with flexible credit products in the market for SMEs. Capital Float provides flexible, short-term loans that can be used for new orders or increase cash cycles to buy inventory. Borrowers will apply in minutes online, pick the preferred terms of repayment and obtain funds in their bank accounts within 3 days.

  Launch Year: 2013
  Category: SME Lending
  Total Funding till Date: $118 Mn
  Key Investors: Amazon India, Ribbit Capital, SAIF Partners, Sequoia Capital Founders: Gaurav Hinduja, Sashank Rishyasringa
  Headquarters: Bengaluru

CHAPTER THREE

FINTECH ECOSYSTEM: A COLLABORATIVE NETWORK

3.1 FinTech Ecosystem

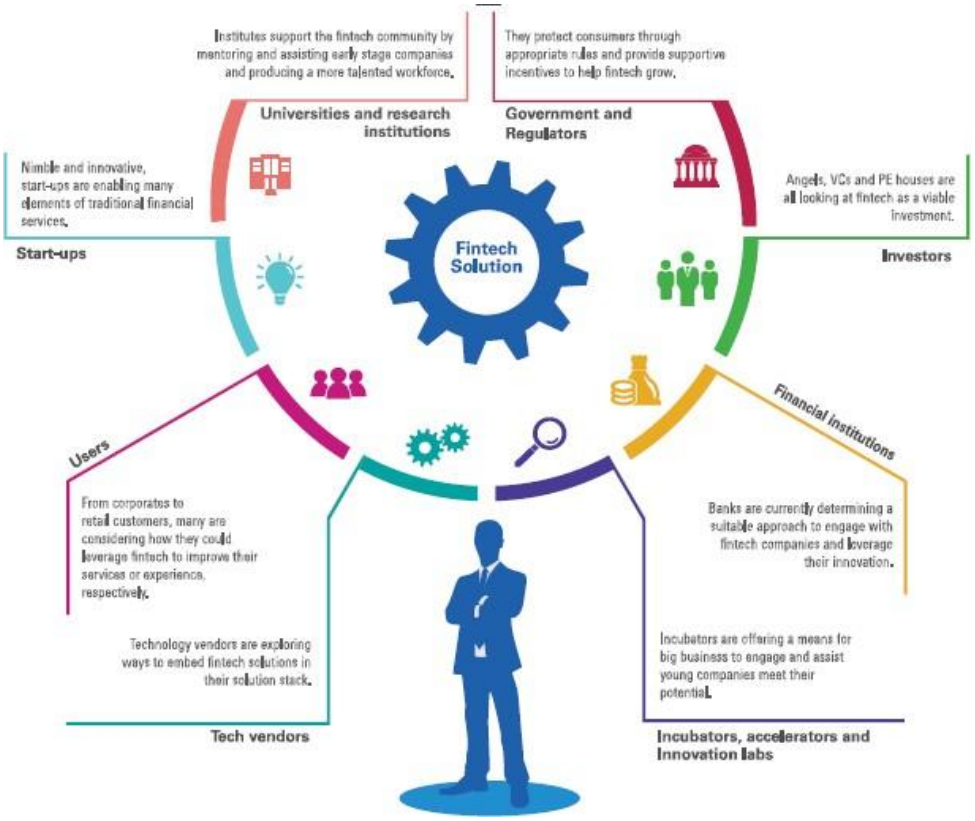
Innovation and technology have given rise to a radical Change in conventional financial services. The universe has seen the rise of over 12,000 start-ups and large Global investment of USD 19 billion in 2015 in the Fintech Space. Such innovators are using technical resources to bring in for insurance, seamless and creative financial services for the unbanked population. Global Fintech and Fintech Applications industry is projected to boom at USD 45 billion opportunity to rise at a compounded annual basis by 2020 7.1 per cent growth rate, as per NASSCOM. Fintech can be described as a company based on technology. Compete against, allow and/or collaborate with those Financial Bodies. Start-up companies in Fintech participate in external collaborations with institutions of finance, universities and research institutions, experts in science, Government departments, consultants for the sector, and associations.

Through these collaborations, they establish a highly integrated ecosystem which brings the ecosystem with its Awareness, experience, software and equipment of all the Together entities. The development and market performance of any Fintech hub is triggered by from an inclusive ecosystem. A popular Fintech brand the ecosystem binds all the market participants, Participate and exchange thoughts through diverse societies and Networks, as well as defining and translating possibilities into business. Financially guided in the present age of technology Services, no competitor in the market can afford to work in, silos.

In India, most FinTech firms, including the exponentially rising m-wallets, have complemented, rather than fully disintermediated, existing financial services providers. Traditionally, despite continuous investments in technology and systems by Indian Banks and Financial Services Institutions, the Indian financial services sector is characterized by brick and mortar-branch banking, labor intensive banking services, manual and paper-based processes with minimal direct

processing. In the areas of customer onboarding, KYC and branch banking systems, there is also a very high degree of customer friction. This framework inefficiency creates an inherent potential for data-driven analytics to lead FinTech business models to lower consumer acquisition and service costs, ultimately contributing to greater market penetration of financial services and insurance products.

Figure 4 Pillars of FinTech Ecosystem



Source: FinTech in India, KPMG.

India is evolving into a competitive ecosystem that provides a forum for fintech start-ups to potentially develop into billion-dollar unicorns. Fintech start-ups in India follow various aspirations, from tapping new segments to exploring international markets. According to NASSCOM, the Indian fintech software market is expected to cross USD 2.4 billion from the current USD 1.2 billion by 2020. The historically cash-driven Indian economy, primarily induced by an increase in e-commerce and smartphone penetration, has reacted well to the fintech

opportunity. In 2016, the transaction volume for the Indian fintech sector is estimated at approximately USD 33 billion and is expected to hit USD 73 billion by 2020, rising at a CAGR of 22 per cent for five years.

In 2015, investor attention was focused on hi-tech cities, with Bengaluru witnessing eleven USD 57 million03 VC-backed investment transactions, followed by Mumbai and Gurgaon with nine and six transactions, respectively. Bengaluru, India's start-up capital, has gained from the same, and is ranked fifteen among the largest start-up cities in the world. When viewed against its global peers, India's growth wave may still not be of size, but it is stacked well, primarily due to a deep talent pool of easy-to-hire and cheap tech employees. Fintech services have redefined the way in which companies and customers conduct regular transactions, from wallets to lending to insurance. India is positioned as an attractive market worldwide by the rising acceptance of these trends.

"Fintech in India has the potential to catch up with its global counterparts as the various ecosystem players come together to orchestrate a much-needed change in the industry. We have the talent and the funding to support this change. The key for success will be the ready adoption by the big banks."

- Neha Punater, Partner,Fintech, KPMG in India

The following sections elaborate key constituents of the Indian fintech ecosystem, with due credence to key growth drivers, emerging strengths and challenges.

Government

Of course, the government is the prima facie driver for the success or failure of a highly regulated financial industry in the fintech market. Together with regulators such as SEBI and RBI, the Government of India is actively promoting the Indian economy's ambition to become a cashless digital economy and to emerge through both funding and promotional initiatives as a powerful fintech infrastructure.

In order to allow the penetration of digitally powered financial platforms into institutional and public societies, the following multi-pronged strategy has been adopted:

Funding Support

• The Start-Up India initiative launched by the Government of India in January 2016 includes USD 1.5 billion fund for start-ups.

Financial Inclusion and Enablement

• Jan Dhan Yojana: added over 200 million05unbanked individuals into the banking sector

• Aadhar has been extended for pension, provident fund and the Jan DhanYojana.

Tax and Surcharge relief

• Tax rebates for merchants accepting more than50 percent06of their transactions digitally.

• 80 percent rebates on the patent costs for start-ups.

• Income tax exemption for start-ups for first three years.

• Exemption on capital gains tax for investments in unlisted companies for longer than 24 months (from 36 months needed earlier).

• Surcharge on online and card payments for availing of government services proposed to be withdrawn by the Ministry of Finance.

Infrastructure Support

• The Digital India and Smart Cities initiatives have been launched to promote digital infrastructure development in the country as well as attract foreign investments.

• The government recently launched a dedicated portal to provide ease in registration to start-ups.

Ip Facilitation Support

• Startups will get support from the government in expenses of facilitators for their patents filing, trademark and other design work.

Regulators

RBI has been instrumental in fostering the growth of the fintech sector in India and taking a cautious approach to addressing consumer security and law enforcement issues. The main objective of the regulator was to create a Fintech climate for unhindered innovation, to extend the

reach of banking services to the unbanked population, to regulate effective electronic payments and to provide customers with alternative choices.

Fintech support in India has been seen mainly through transactions, loans, security / biometrics and wealth management. These were RBI's key focus areas and we have seen substantial approaches published to promote Fintech involvement. Examples:

- Introduction of "Unified Payment Interface" with NPCI, which has the potential to revolutionize digital payments and move India closer to the "Less-Cash" society objective, approval of 11 entities for the establishment of Payments Bank and approval of 10 entities for the establishment of Small Finance Banks that can operate significantly in favor of financial inclusion.
- Release of a consultation paper on the regulation of the P2P lending industry in India and emphasis on understanding the potential of blockchain by fintech firms and financial institutions.
- One of the areas with a wide reach is the management in India of P2P remittances. The lower the remittance size in India, the higher the percentage of transaction costs, which makes it particularly costly for beneficiaries involved in transactions. As has been driven in the mature markets, this huge challenge is a great opportunity for any fintech firm dedicated to solving it well.

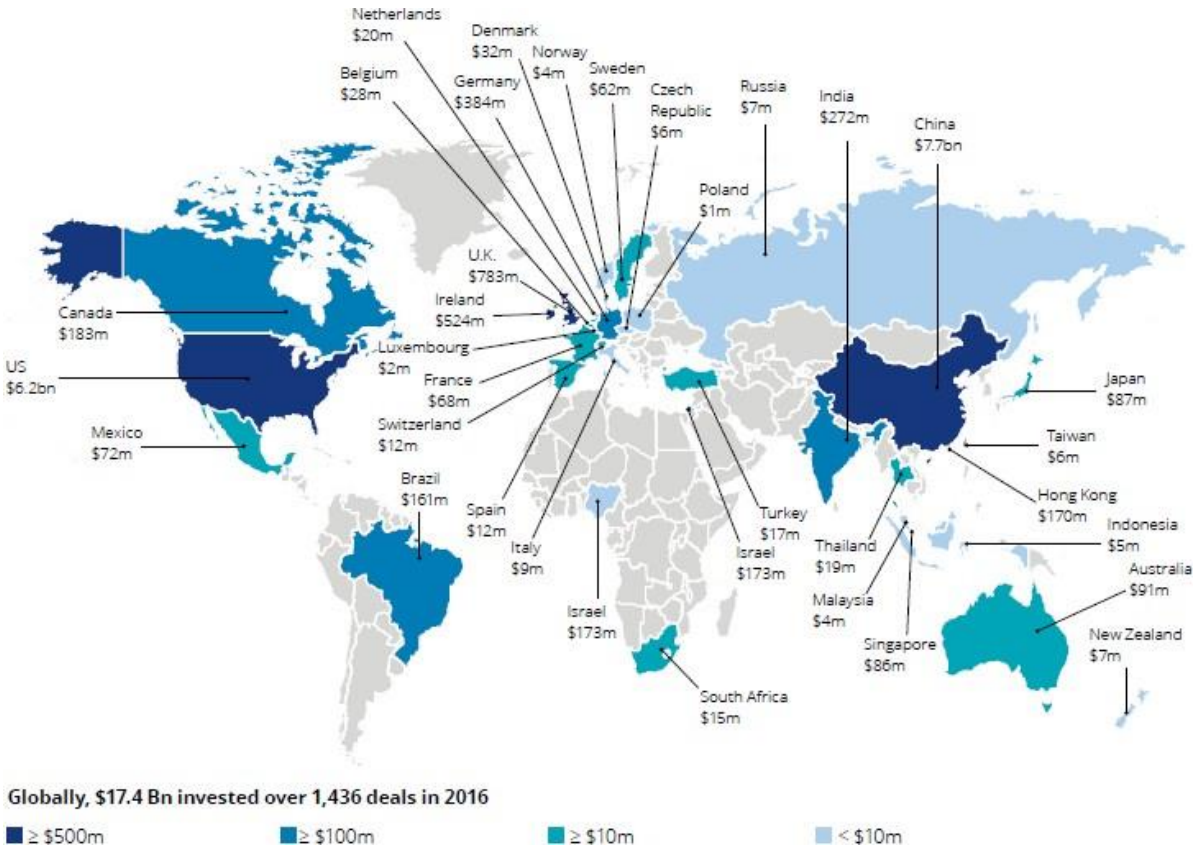
Investors

Fintech investment in India has multiplied from USD 247 million in 2014 to more than USD 1.5 billion in 2015. India has a much smaller number of angel investors compared to 3, 00,000 in the United States (about 1,800 angel investors in 2016). Nevertheless, India is experiencing growing levels of interest in start-up financing, which is evident by the rise in the number of angel deals from 370 in 2014 to 691 in 2015. The investment focus has tended toward higher margin, consumer-focused, product start-ups than low-margin service start-ups, with the latest development in the commoditization of financial services offerings and VCs dictating terms to many start-ups. Bengaluru has the largest number of start-ups and accelerators in the country, while big-ticket players are based in Delhi.

Investors are coming to the conclusion that fintech technology is starting to manifest itself in a number of sub-segments, such as trading, lending, wealth management , credit monitoring, among others, rather than just payment technology and investor interest.

Though Venture Capital companies have historically been early stage investors in fintech enterprises, India is now witnessing the global trend of banks and other financial institutions acquiring or investing in fintech start-ups. In addition, they themselves are building platforms for such start-ups to succeed or are starting to invest in such platforms.

Figure 5 Global FinTech Investments



Source: PitchBook 2016

Start-Ups

For a competitive fintech framework, the evolution of start-ups is crucial. The flourishing influence of fintech start-ups has been catalyzed by rising customer demand for digital financial products, a

rapid increase in connected devices, and the funding of venture capitalists. Although start-ups, with their high-end technical skills, are redesigning financial services systems, incumbent players are also following suit and investing heavily in developing their own new products. The trend is gradually changing from start-ups that are predominantly seen as disrupters to enablers of change as well. Therefore, greater cooperation with start-ups is seen and predicted between various players in the ecosystem.

In order to preserve this momentum, however, fintech start-ups need to demonstrate to our regulatory bodies that they can support society by presenting sufficient evidence to the public, organizations and regulators that they can be sustainably regulated and monitored.

Technology Venders

Support from tech vendors is required for the growth of the country's fintech framework. Start-ups need the assistance of expert tech providers in terms of infrastructure and expertise, with complex innovations being used to disrupt conventional functions. In the following focus areas, a few technology vendors are interested in creating financial technology proposals.

- **Innovation Focus**
  The innovation-heavy firms are setting their financial technologies and solutions development for fintech. Example:

  • IBM is working with the Hyper ledger Programme in association with linux Foundation to develop blockchain-based solutions.

- **Funding and Incubation Support**
  In the last year, several Indian service firms have demonstrated an increasing emphasis on investment and incubation. This is synchronized strategically with the 'Start-up India' initiative, and with the global inflow of investment. Example:
  In 2014, Wipro set aside USD 100 million VC fund to invest in start-ups to join the tech vendor-investor league such as Tech Mahindra and Persistent Systems.

A leading IT corporation has pledged USD 250 million to help and incubate Indian start-ups in the 'Innovate in India Fund.' As part of their umbrella, Microsoft Ventures helps many early stage fintech start-ups to easily scale up through their personalized ScaleUP and HiPO programs.

- **Collaboration**

  Major IT firms with a community development focus, are not just setting up funds, but also engaging with other accelerators to multiply their reach and impact. Example:

  • Cognizant has launched engagement programs with start-ups, with special focus on fintech firms.

  • TCS has partnered with fintech accelerator Startup bootcamp for an engagement platform, Pitchdays.

- **Capability Development and inclusion**

  Some incumbent financial solution provider is addressing the smaller BFSI client needs with bespoke solutions. Example:

  • A leading Indian technology vendor launched Payments Bank and Small Finance Bank solutions to assist new banking organisations with mobile wallet, micro ATMs and agency banking solutions.

Financial Institutions

With the emergence of the fintech market, the BFSI group (including banks, NBFCs and other institutions) is experiencing a huge impact. The incumbents, however, are now seeing fintech as an enabler rather than a disrupter. In order to incubate and build partnerships on a number of channels, such as wallets, investment intermediation, online customer acquisition, etc., major banks leverage the start-up ecosystem. Not only are they building platforms for the success of such start-ups, but they are also starting to invest in such platforms.

In order to counter the multi-faceted effect of this increasing disruption, a four-pronged strategy is being adopted by the BFSI incumbents in India:

- **Investment Driven**

  The BFSI sector is gearing up to expand its presence in the evolving Fintech space for both acquisitions and financing-based routes. Citi Bank, Barclays and Goldman Sachs, for instance, all launched Fintech-focused accelerator programs.

- **Partnership Driven**

  Fintech product companies' collaborations (in point-of - sale hardware, credit deals and social lending) with banks with a coordinated go-to-market approach address the urgent demand of customers in the digital age. Example:

  • SBI has teamed up with Ezetap to provide mobile POS devices across India
  • Bank of India offers a wallet from Paynimopowered by TechProcess.

- **Market Driven**

  Many incumbents are growing their value chain with competing deals and exploiting their own distribution and customer base to address a steady challenge by venture-backed fintech firms.

- **Collaboration Driven**

  Establishing, operating or investing in centers of excellence and fintech hubs is an exemplary strategy for taking an inside view of the work of emerging fintech companies and cultivating talent for a potential competitive advantage. Example:

  • Yes Bank is collaborating with T-Hub and three academic institutes to set up a centre of excellence and app store for the fintech start-ups.

  As a potential solver of the conventional problems of Indian financial institutions, Fintech in India holds an especially critical promise -low penetration, scarce credit history and cash-driven transaction mindset. If it is possible to leverage the triple-front involvement of financial institutions as investors , partners and consumers, the Indian BFSI sector is poised for a big development riding on the growth wave.

Users

Indian clients (both customers and companies) have shown an unexpectedly rapid rate of acceptance of fintech offerings. Cash, branch banking and relationship-driven service standards are increasingly being replaced by greater ticket sizes of cashless transactions, full-suite mobile banking and personalized advice and service regardless of location, language and grade classifications. The transformation comes from multiple fronts, such as:

- **Mobile and Internet Coverage**
  India has seen significant growth in both the number of smartphone users and internet users over past few years. Example:

  • India is ranked third in terms of the number of smartphone users and this deep penetration into the Indian population base offers fintech firms an opportunity to address the legacy issues of low banking penetration (53 per cent) and dormancy (43 per cent) in the Indian Banking sector.

- **Digital payment processing in public services**
  The Indian population has been directed to unprecedented levels of inclusion in the current governmental regime. With time, larger services like remittances, pensions disbursal and direct to user subsidy is expected to see openness to the data-heavy, transparent processing of fintech. Example:

  • Railway booking (IRCTC) tie-up with PaytmWallet may bring 1+ crore fintech user base annually.

- **Maturity e-commerce to handle larger ticket-sizes**
  In India, e-commerce has been developed and is now trusted to deliver large-ticket items in Tier I, II cities without the Cash-on - Delivery protective clause. This growth of the Indian mind-set would reinforce the adoption of fintech firms' payment processing. Example:

• Paytm crossed a user base of 100 million in 2015. Competitor, MobiKwik’s user base grew by 300 per cent within 2014-15.

Universities and research institutions

Academic bodies need to create entrepreneurial mindshare in India 's young technological talent for a competitive, creative ecosystem. Although there are individual entrepreneurship cells across Indian universities, they are mostly student-managed and need greater government backing to make an impact. India's leading institutions have consistently led initiatives led by administration and management, setting up meetings, competitions and courses. Example:

• IIT Roorkeehas launched Global Entrepreneur Conclave to build entrepreneurial skills along with academic competence of technology in students.
• IIT Delhi is organizing Open house 2016 to promote innovative research and product development projects.
• BITS Pilani launched SPARK initiative to enable angel funding.
Although some Indian academia and research institutions are setting up funds and incubators, given India's subsidized higher education model, matching the size of their global counterparts would require more, and maybe external, capital.

Incubators, accelerators and innovative labs

In 2014-15, Indian Fintech has recently seen a strong upsurge in funding and mentorship. The sector is powered by young, first-generation entrepreneurs who now compete in an extremely challenging, cost-conscious Indian market with the largest financial institutions. The role of incubators, accelerators and funded innovation laboratories is therefore crucial in India for not only funding, mentorship and peer ties, but also exposure to the financial industry and soft skills. Springboard, Innov8, K-start, and Zone Startups India are some of the notable initiatives on this front. The prime stakeholders are listed as follows:

- **Financial Institutions**

  Financial institutions are the strategically closest allies to fintech, finding key talent in the field and co-developing platforms, products and solutions, as well as financing and exposure to the industry. EXAMPLE:

  • Societe Generale Global Solution Centre (SG GSC) in collaboration with NASSCOM 10,000 Startups has announced its Accelerator Program CATALYST, a 10-week Programme to focus on advanced technologies relevant to the BFSI sector.

  • Kotak fintech mobility hackathon has partnered with NASSCOM 10,000 Startups to identify founders developing apps around banking innovation.

  • PayPal's StarTankat Chennai provides mentorship and fintech infrastructure support.

- **Non-Financial institutions**

  With a comparatively lesser focus on core-sector fitment of fintech, these institutions are focused on incubation more than acceleration or lab setup. Example:

  • Tata Group launched an incubator in 2012 to support product and services start-ups, especially, early-stage ventures, E27 in Bengaluru.

- **Industry Associations**

  Associations, driven by sector-level development and readiness goals are playing a critical part in bringing in technology and industry experts, and addressing the requirements from a long-term vision.

  NASSCOM is playing a particularly vital role in the expansion of start-ups in India with its 10,000-start-up program. Some of the notable initiatives in fintech are given below:

  • NASSCOM is facilitating a three-month acceleration Programme for Indian start-ups in Zurich organized by UBS.

  • NASSCOM 10,000 Startups is a Programme partner for Axis Bank's soon-to-be-launched fintech accelerator Programme, Barclay's RISE acceleration Programme and Accenture's Open Innovation Programme and Accelerator Programme in Hong Kong.

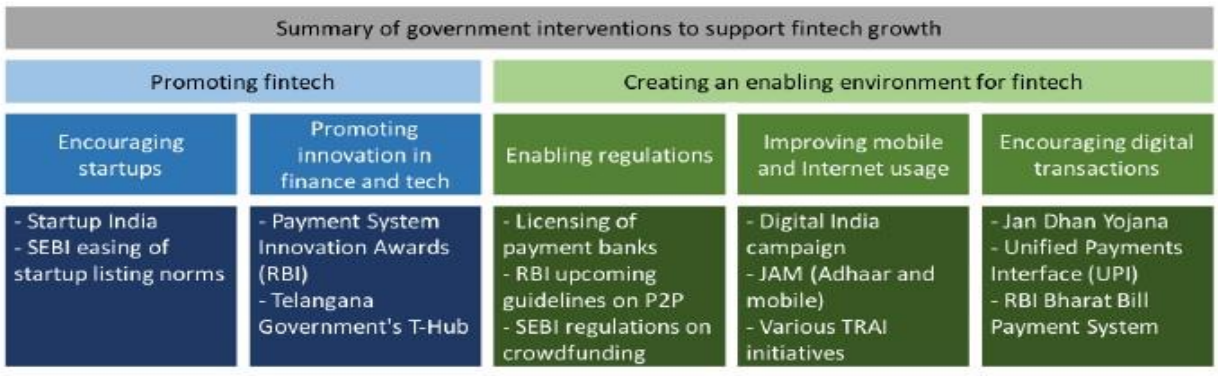
• NASSCOM 10,000 Startups co-organized a virtual Appathon with ICICI Bank in February 2016 and is assisting KotakMahindra Bank to reach out to Women in Tech through curated programs.

3.2 The Policy and Regulatory Environment

Given the competitive nature of the fintech sector and its overlap across various industries, effective policy and regulation of the sector are important both for its growth and its stability. Balanced regulations are required to allow fintech companies to compete and provide a level playing field with existing service providers; to protect the interests of investors and customers; and to influence the future direction of fintech, especially in the sense of financial inclusion.

In India, the fintech industry is subject to many regulators and regulating bodies, including the Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI) capital market regulator, the Telecom Regulatory Authority of India (TRAI), the Insurance Regulatory and Development Authority (IRDA) insurance regulator. On the central government side, the Ministry of Finance plays the lead role. Although there are currently no specific policies governing the fintech sector in India , the country is making progress in this regard, with the government and many of these regulatory bodies (in particular the RBI) making significant progress in promoting fintech. Some of the different regulatory interventions undertaken by regulators to support and enable fintech in India are shown below.

Figure 6 Government intervention to support FinTech

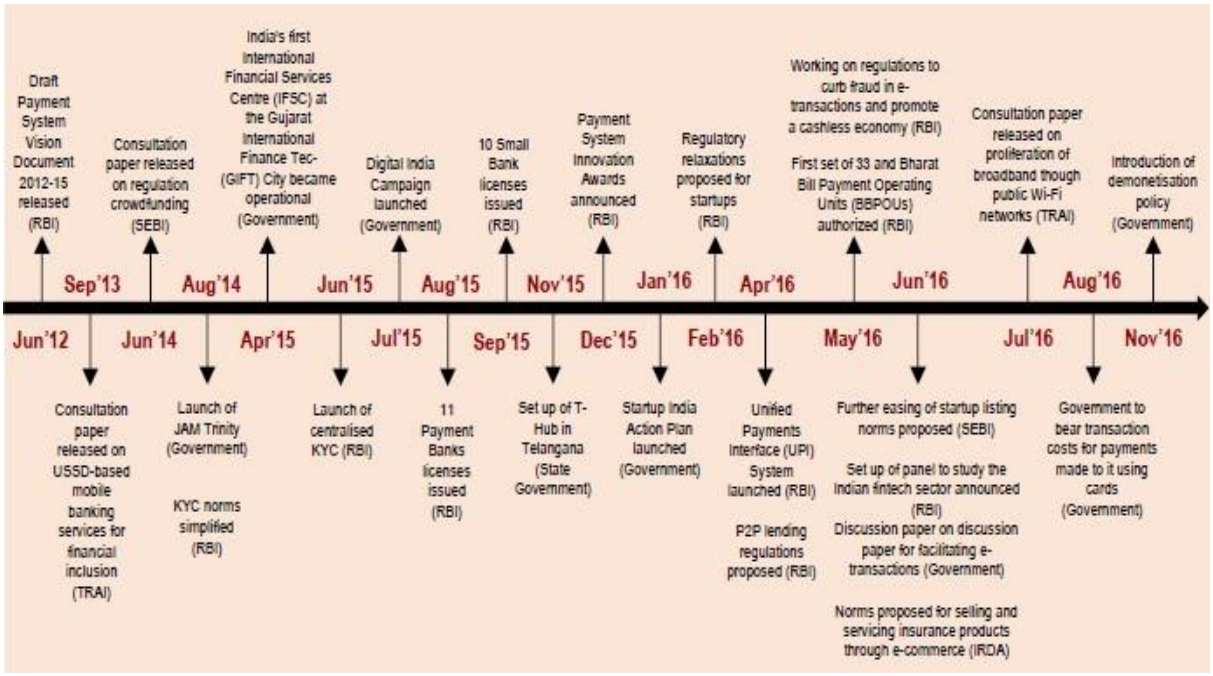


Source: FinTech in India 2017

Though it will take a long time to understand the full impact of demonetization, there is little doubt that the policy has provided Indian fintech companies with a unique opportunity to significantly increase the use of digital financial services by Indian consumers and businesses. Demonetization, which deprives the currency of its monetary value, creates an unparalleled opportunity for people to look at digital payment providers and mobile wallets. The biggest winners in the short term should be the main suppliers of these services, such as PayTM and Mobikwik, with the biggest rewards going to fintech's who are able to handle a rapid increase in demand effectively. In principle, increased demand for digital financial services could cause a wave of new innovation and supply of new and more diverse services. With the introduction of the UPI-based BHIM payment service in early 2017, rivalry is likely to intensify as private fintech companies face a rising threat from a government-backed competitor.

The crucial question over the longer term is whether the one-time demonetization shock will lead to persistent behavioral change among Indian consumers, or whether the dominance of cash as a means of payment and store value will be reversed once the money supply returns to equilibrium.

Figure 7 Evolution of Regulations governing fintech in India



Source: KPMG Report 2017

RBI initiatives: The RBI has largely taken a wait and see fintech strategy. The industry is quietly progressive and recognizes the ability of technology to change the banking environment dramatically, but it is also patient to consider how this change can manifest itself. They would "jump the river by feeling the stones" as previous Governor Raghuram Rajan said on the subject. The RBI is committed to fostering the creation of an enabling fintech ecosystem and takes time to scope the sector to identify key issues facing both supply and demand sides. Indeed, it has recently established an inter-regulatory working group with the following tasks:

- To undertake a scoping exercise to gain a general understanding of the major FinTech innovations / developments, counterparties / entities, technology platforms involved and how markets, and the financial sector in particular, are adopting new delivery channels, products and technologies.
- To assess opportunities and risks arising for the financial system from digitization and use of financial technology, and how these can be utilized for optimizing financial product innovation and delivery to the benefit of users / customers and other stakeholders.
- To assess the implications and challenges for the various financial sector functions such as intermediation, clearing, payments being taken up by non-financial entities.
- To examine cross country practices in the matter, to study models of successful regulatory responses to disruption across the globe.
- To chalk out appropriate regulatory response with a view to re-aligning / re-orienting regulatory guidelines and statutory provisions for enhancing fintech/digital banking associated opportunities while simultaneously managing the evolving challenges and risk dimensions.
- Any other matter relevant to the above issues.

In the fast-growing P2P lending industry, the RBI has introduced regulations for consultation. The RBI, recognizing the role of innovations in the fintech space, encourages and facilitates the generation of ideas through competitions and has also implemented innovative initiatives such as differentiated banking in its own right. The greater objectives of the RBI of curbing e-fraud and making India a cashless economy through various initiatives are further generating opportunities and fostering the growth of India's fintech industry.

Summary of Initiatives by RBI to develop FinTech Ecosystem.

- **Unified Payments Interface (UPI)**

  Status: Launched

  Key Highlights: UPI aims at simplifying, reducing transaction costs, ensuring consumer security and speeding up digital money transfers · The interface (i.e. an application) has been developed by the Indian National Payments Corporation (NPCI). How does it work? An individual must register for the UPI service with his / her bank, after which a unique virtual ID for the person who is also mapped with his / her mobile phone is established. The system can then be used anywhere (e.g. merchant payments, payment insurance, P2P transfers, money transfers between individuals) to transfer money and make payments (up to INR 1 lakh) by simply approving the payment on the application. UPI ensures security as there is no need to share personal / bank account information and follows the authentication of 1-click 2-factor by RBI. Banks are integrating UPI with their mobile apps, including SBI, ICICI and HDFC, and many more are expected to join.

- **Pay Banks and Small Finance Banks**

  Status: Issued

  Key Highlights: RBI has issued licenses for 11 payment banks and 10 Small Finance Banks, acknowledging the need for niche banking and with the overall objective of creating a pervasive payment network and universal access to savings Payment banks provide the unbanked populace with a wide variety of high-volume and low-value banking facilities, enabling deposits, current and investments, payments and remittance transfers (domestic and international), including cash out at point-of - sale terminals, internet banking services, and as an intermediary for the delivery of financial services such as insurance. Most banking regulations applicable to regular scheduled commercial banks will be subject to them, giving them access to the whole banking system and minimizing risk.

- **Regulations to promote a cashless economy and curb fraud**

  Status: In progress

  Key Highlights: The regulatory framework will concentrate on protecting consumer interests and addressing consumer grievance and liability issues in the case of e-channel

fraud. Previously in 2012 the RBI had released a 'Payment System Vision Document 2012-15' with a vision to "proactively encourage electronic payment systems for ushering in a less-cash society in India". The document proposed several "ways and means of ensuring that the country's payment and settlement systems are safe, effective, interoperable, authorized, accessible, inclusive and compliant with international standards." A white paper on the reduction of incentives for the use of cheques beyond a certain limit was also put up for comment in 2013.

- **Bharat Bill Payment System (BBPS)**

  Status: Launched

  Key Highlights: The BBPS's goal is to improve the convenience of paying bills for consumers. Repetitive utility payments (e.g. gas) are covered by the current scope of BBPS; it will be extended to other payments such as school fees. [How does it work? -The BBPS will act as a tiered structure in which the Bharat Bill Payment Central Unit (BBPCU) will be responsible for setting system working standards and Bharat Bill Payment Operating Units (BBPOUs) will be approved to facilitate online or ground agent payments. To become BBPOUs, it is mandatory for all banks and non-bank organizations that provide utility payment services. The first collection of BBPOUs, including wallet companies (e.g. PayTM), aggregators (BillDesk) and banks, were approved in May 2016. To provide the service, BBPOUs may use their platforms. For example, ATMs or bank branches can be used by banks. Non-bank businesses may use Kirana stores or set up outlets for companies.

- **Proposed P2P lending regulations**

  Status: Consultation paper published

  Key Highlights: · RBI published a consultation paper to understand and evaluate the different business models operating in India and abroad. Studied regulatory models from prohibition (e.g. Japan) to unregulated (e.g. China) via intermediate models (e.g. UK, Australia), the two-level US model and the model of bank licensing (e.g. G) The argument for more or less P2P regulation was spelled out and feedback from a wide range of stakeholders was sought.

- **RBI competition for fintech innovation**

  Status: Ongoing

  Main Highlights: Through the contest RBI aims to find innovative solutions to deter fraud, reduce transaction costs and develop the e-payment infrastructure – all to support the fintech industry in India. Organized by the Institute for Development and Research in Banking Technology (IDRBT), the technology arm of the RBI. Participants (individuals, groups and start-ups) will be recognized with citations and a small cash prize. Also provide links to market and potential investors.

- **Proposed regulatory relaxation for start-ups**

  Status: In progress

  Key Highlights: Proposed relaxation focuses on easing financing regulations and related start-up operations. Key areas of emphasis include easing cross-border transactions and access to External Commercial Borrowing (ECB) rupee loans, issuance of creative instruments for foreign direct investment (FDI). In addition, the RBI has made it possible to record investments and subsequent transactions electronically and set up a dedicated start-up mailbox.

- **Launch of the central KYC system and simplification of KYC standard**

  Status: Launched

  Main Highlights: A generic Know Your Customer (KYC) form has been implemented to allow use of all types of products and services provided by all providers of financial services under the jurisdiction of RBI, SEBI and IRDAI. The client only needs to fill out this form once, after which a 14-digit identifier is assigned to him / her to be used when using more goods and services from the same or other providers. Data from this common form is supposed to be submitted by the financial service providers to a central agency called the Central Securitization Asset Reconstruction and Protection Interest Registry of India (CERSAI). The RBI has significantly simplified KYC standards, including single proof of identity and proof of address document, no separate proof of address required for the current address.

Initiatives by National and State Governments: Several initiatives aimed at developing a digitally empowered and well-connected Indian economy were launched by the Government of India. Such initiatives - the Digital India campaign, JAM Trinity and the proposed regulations to facilitate e-transactions - promote growth and provide the fintech industry with promising opportunities. The Start Up India Action plan is encouraging entrepreneurship – a key support function for the fintech industry.

- **JAM (Jan Dhan Yojana, Aadhaar, Mobile) Scheme**

  Status: Launched (Ministry of Finance)

  Key Highlights: JAM is a key step towards financial inclusion and adopts digitalization as an effective delivery channel for financial inclusion. Pradhan Mantri Jan-Dhan Yojana aims at financial inclusion through opening of bank accounts for the unbanked – at least one for every household offering deposit and interest/withdrawal facilities with no minimum balance requirement, access to credit, insurance (inbuilt accidental insurance cover of INR 1,00,000 through the RuPay debit card and life insurance cover of INR 30,000), overdraft facilities (INR 5,000), easy money transfer across India, pension facilities and direct transfer of government benefits. Till now approximately 22 crore bank accounts have opened as part of the scheme. Aadhaar helps in identification of all citizens including the poor through biometrics and basic documentation. Mobile phones connectivity provides easier access to services.

- **Digital India Campaign**

  Status: Launched (Department of Electronics & Information Technology)

  Key Highlights: Aims to transform India into a digitally empowered society and knowledge economy, based on its 3 vision areas: Digital Infrastructure as a Core Utility to Every Citizen > Governance and Services on Demand > Digital Empowerment of Citizens. Key pillars include: - Broadband highways: Ensuring connectivity for all - the National Optical Fibre Network (NOFN) will cover 2,50,000 village panchayats, National Information Infrastructure (NII) will provide high speed connectivity to all government departments till the panchayat level. - Universal access to mobile connectivity: Focusing on 55,619 villages which do not have mobile connectivity currently - Public internet access program:

Providing internet access through Common Service Centres (CSOs) – one in every Gram Panchayat and 1,50,000 post offices which will be converted to multi-service centres. - Others include e-governance – reforming the government through technology, eKranti – electronic delivery for services, information for all, electronics manufacturing, IT for jobs and early harvest programs**.**

- **Start-up India Action Plan**

  Status: Launched (Ministry of Commerce and Industry)

  Main Highlights: Aimed at providing start-ups with a friendly business climate to enter and expand in the market. Involves measures to simplify regulatory obligations (e.g. mobile application and simple registration portal), providing funding support and incentives (e.g. corpus of Rs . 10,000 crores over 4 years, tax exemptions), creating funding support and incentives (e.g. corpus of Rs . 10,000 crores over 4 years, tax exemptions).

- **Promoting and Facilitating e-transactions**

  Status: Discussion paper launched (Ministry of Finance)

  Key Highlights: Initiatives proposed are aimed at simplifying e-transactions for individuals, building a transactions history to enable improved credit access and financial inclusion, reducing risks and costs of cash transactions and managing cash in the economy, reducing tax avoidance and the impact of counterfeit money. Broad areas of focus include promoting e-transactions in government collections, promoting wider adoption of e-transactions (e.g. reducing merchant discount rates (MDRs), providing tax benefits to merchants accepting card payments), creating an enabling infrastructure (e.g. increasing number of point of sales terminals), encouraging mobile banking/payment channels and establishing awareness and grievance redressal systems. Recently, the government has issued a circular that it will bear the transaction costs (MDR) associated with using a card or net banking for making payments to it. Currently, this cost is borne by the customers for making digital payments to the government.

- **Gujarat International Finance Tec-City (GIFT)**

  Status: Launched (Government of Gujarat)

Key Highlights: · Leveraging the potential of Gujarat in the technology-linked financial services space · Target business segments for which GIFT will provide infrastructure support to include financial services, select product markets (private banking, product creation and microfinance), resources, and infrastructure support to include financial services.

- **Technology Hub (T-Hub) in Telangana**

  Status: Launched (Government of Telangana)

  Main Highlights: Launched by the Government of Telangana, the Indian Institute of Technology (IIT) Hyderabad, the Indian School of Business, NALSAR and key leaders of the private sector as a public private partnership. It is a technology incubation center located on the campus of IIT-Hyderabad and aims to bring entrepreneurs, venture capitalists and mentors together on a single platform; to create / attract the best start-ups and entrepreneurial organizations in / to Hyderabad; and to connect, inform and encourage all stakeholders related to entrepreneurship. The government is also now planning to set up T-Works, which will be a place for hardware start-ups to build and experiment with technology solutions (like a manufacturing lab).

Initiatives by other regulators (SEBI, TRAI and IRDA): Sectoral regulators have also undertaken a range of initiatives, in line with the direction of the Government and the Central Bank (RBI), that are expected to fuel fintech development in India. SEBI has proposed norms for crowdfunding with main emphasis on balancing regulation for safeguarding investor / customer interests and promoting crowdfunding as a viable means for increasing money. Further, its efforts to allow and facilitate startups and small and medium enterprises (SMEs) to easily raise money through the capital markets is a move to support the fintech ecosystem in the form of encouraging entrepreneurship. TRAI aims to recognize and promote the use of the cheapest and most convenient modes of communication (using mobile technology) and internet connectivity, thus fostering fintech development and scope in India.

- **SEBI regulations on crowdfunding**

  Status: Discussion paper released

Key Highlights: The regulations proposed by SEBI aim to encourage crowdfunding in India by providing startups and small and medium enterprises (SMEs) access to capital markets as a channel for early-stage funding through more efficient and effective internet based platforms and an easy to comply with regulatory framework, while at the same time ensuring investor protection. The proposed initiatives focus on allowing only accredited investors to invest in crowdfunding platforms, imposing limits and conditions for investment in crowdfunding platforms, conditions on type of entities allowed to raise funds through crowdfunding, setting up disclosure requirements for companies intending to raise money through crowdfunding, obligation on crowdfunding platforms in terms of risk management and setting up additional requirements for equity based, debt based and fund based crowdfunding.

- **Ease of start-up listing standards**

  Status: Proposal published for public comments

  Main Highlights: SEBI has previously developed Institutional Trading Platforms (ITPs) at the Bombay Stock Exchange and National Stock Exchange to encourage easier start-up listing through initiatives such as relaxing the mandatory lock-in period for promoters and other pre-listing investors, reducing disclosure requirements The ITP however limited investment to institutional investors and high net worth individuals to safeguard interests of retail investors. However, the ITP has not been successful. SEBI has therefore proposed that these standards be further eased, based on market feedback. The new norms focus on relaxation in shareholding patterns, introducing more investor categories, reducing the minimum trading lot, etc. Further, the ITP is planned to be renamed as 'High-tech startup and other new business platform'.

- **Review of regulatory framework for USSD**

  Status: Discussion paper published

  Key Highlights: In September 2013, TRAI published a consultation paper on USSD-based mobile banking services for financial inclusion. In August 2014, the infrastructure for USSD for provision of basic financial services (e.g. checking balances) had been placed in place by the government. The initiative, however, has not been a success. Thus, a

consultation paper has been published by TRAI to review and seek input on the existing USSD regulatory system. · Consultation issues and proposals focus on capping costs, shifting the cost burden from user to service provider, tariff determination, creating a uniform platform across all payment platforms (e.g. merchant payment, payment of utility bills), etc.

- **IRDA norms for selling and servicing insurance products through e-commerce**
  Status: proposed standards
  Main Highlights: The goal of the standards is to increase insurance penetration in India and to support customers by providing real-time connectivity, enhancing transparency and leveraging the benefits and reach of digitization. The e-commerce operations of insurance firms (or also brokers and agents who earn commissions) will be carried out through their Insurance Self-Network Portal, which can be a website or a smartphone application. In the case of brokers and dealers, the prerogative of the insurance firms would be regulatory enforcement. · With no need for a physical medium, the process will now be entirely online. In addition, insurance firms can conduct cross-channel differential pricing and can offer discounts on their policies sold online.

Regulation, technology and Regtech

To date, in lockstep, financial technology and regulation have moved. RBI-led regulators have closely monitored the market and responded to developments when they see them emerging. The RBI recognizes the need to accelerate its business understanding and consider not just where the innovation frontier is but also where it is likely to go, due to the rapid speed of change and unbundling in the financial sector. On the alternative lending side, this is particularly important. An over-extended credit market has previously burned India, and fintech should learn from the 2008 Andhra Pradesh microfinance crisis.

Aadhaar 's foundations, e-signature, e-KYC and other initiatives form a solid foundation for a strong market, but care is taken to protect customers from aggressive lenders and the potential for over-indebtedness, particularly as demand for consumer credit spikes. A move in the right direction is setting requirements for openness and efficient e-arbitration systems (learning from

the experience of e-commerce providers). RBI would also have to work closely with the supply side (including the Indian alternative lenders' nascent association). Regulatory technology ('regtech') is a nascent sector in India from the supply side perspective but is likely to expand rapidly in coming years. Regtech describes a range of companies looking to leverage technology to address regulatory challenges such as compliance, transaction reporting, data management and anti-money laundering (AML).

CHAPTER FOUR

PAYTM: REVOLUTIONIZING THE CASHLESS ECONOMY IN INDIA

Paytm is India's largest flexible installments, e-wallet, and business stage. Paytm has modified its course of action to become a commercial hub and a virtual bank model, even though it started as an energizing process in 2010. It is also one of the initiators of the cashback course of action.
Paytm has become an Indian mammoth that handles adjustable installments, banking administrations, business center, Paytm gold, energy and charge installments, Paytm wallet and many other provisions.

Paytm is available in 11 Indian dialects and provides online use cases such as flexible energizes, installments of service fee, ride, motion pictures, and appointments for occasions. The Paytm QR code can be used to access in-store payments at markets, leafy food shops, cafés, stops, tolls, drug stores and educational establishments. On 18 November 2016, California-based PayPal reported a body of proof against Paytm in the Indian trademark office for using a logo identical to its own.

Paytm was valued at $10 billion in January 2018. More than 7 million traders across India use their QR code to identify payments directly into their bank accounts, according to the organization. The company uses ads and pays for revenue production for a special substance.

4.1 Origin of Paytm

Paytm established in august 2010 with underlying speculation of USD2 million by its originator Vijay Shekhar Sharma in Noida, an area nearby India’s capital New Delhi. It started as a portable prepaid and DTH energy tier, and in 2013 later included data card, flexible postpaid and fixed line charge installments. The organization propelled the Paytm pocketbook by January 2014, and it was included as an instalment option by the Indian Railways and Uber.

It propelled online arrangements and transportation ticketing into a web-based business. It revealed more use cases in 2015, such as instruction costs, metro energizes installments of electricity, gas , and water fee. Likewise, Paytm began pushing the Indian Railways installment passage. Paytm propelled motion pictures, occasions, and entertainment meccas in 2016, much like flight ticket appointments and Paytm QR. Its propelled rail bookings and gift vouchers later that year. The registered client base of Paytm has risen from 11.8 million in August 2014 to 104 million in August 2015. In its annualized GMV run rate, its movement company crossed $500 million, booking two million tickets for each month.

Paytm became India's first installment application in 2017, traversing 100 million downloads of apps. It propelled Paytm Gold that year, an object that allows clients to buy as little as 1 unadulterated gold on the web. It also propelled the Paytm Payments Bank and 'Inbox' and, among other products, told the stage with in-talk installments. By 2018, it started allowing dealers to quickly identify Paytm UPI and card installments in their financial balances at a 0 percent fee. It also propelled the 'Paytm for Company' application , allowing traders to instantly follow their installments and daily settlements. By March 2018, this had pushed Paytm's shipper base to over 7 million.

Two new properties, Paytm Gold Savings Plan and Gold Gifting were propelled by the organization to rearrange long-haul savings. In addition to AGTech, it propelled into diversion and speculation, and stripped to dispatch the stage of a transportable game Gamepind and placed in Paytm cash with a venture of INR 9 Lak. large integers to carry venture and wealth for Indians as board pieces. Paytm joined forces with Citibank in May 2019 to dispatch credit cards.

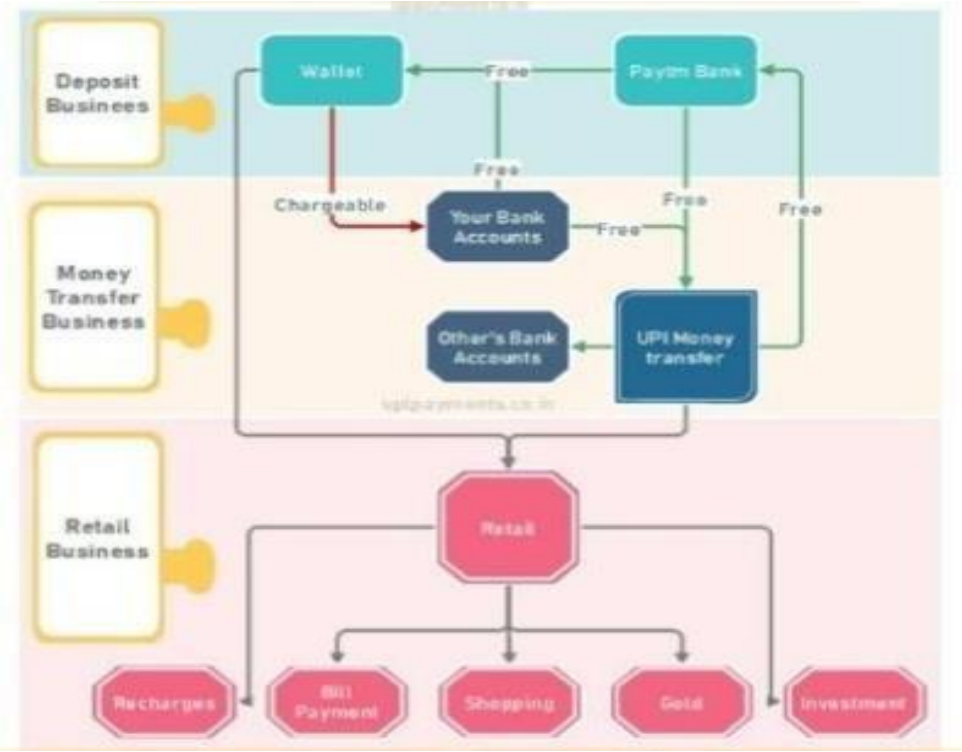
4.2 Paytm Business Strategy

In this segment of Paytm business review, marvelous Paytm company strategy has been addressed. The largest installment, exchange, and e-wallet business in India is Paytm or 'Payment by Mobile'. It began in 2010 and is a brand founded by Vijay Shekhar Sharma of the parent organization One97 Communications.com. As an online portable energy platform, it was propelled and continued to shift its action plan to a virtual and commercial center bank model. Today , the organization stands

as one of the largest online portable administration in India, including banking administrations, commercial centers, flexible installments, fee installments, and electricity. To date, it has supported more than 100 million customers with administration.

The improvement of Paytm has built a strong reputation and has proved to be praiseworthy for some in the online payment industry. In its joint effort with the Chinese web-based company Goliath, Alibaba, one of its increasingly critical achievements is immense subsidizing steps. In addition to be a leader of the cashback plan of action, the organization has been commended for its execution as a young company capable of creating tremendous relationships in a short period of time.

Figure 8 Paytm Business Model



Source: Startup Talky

- Clients of Paytm Business

  The core focus of Paytm is serving its Indian customer base , especially cell phone customers. The computerized environment was seen by multiple Indian clients as an opportunity to build a financial balance. Accessing simple online installments missed the

mark, and with only poor experience , customers wound up. To deal with such situations, Paytm presented itself as a superior option.

- Paytm Offers

  A portion of the increasingly conspicuous suggestions from Paytm was to revive the company, which was the underlying administration recommendation of the organization. At that point, from any semblance of Paytm Wallet, e-business vertical to Digital Gold, it proceeded to distinguish and advance to establish more current administrations. In the form of the Chinese mammoth Alibaba's favors, these changes were valued. Alibaba poured big cash totals into Paytm, increasing Paytm 's capacity for speculation. In order to reach more customers, Paytm used cricket and TV promotion.

- Relationship with Clients

  Paytm has a 24 * 7 emphasis on customer service to communicate with its customers. At the same time , the vast majority of administrations of Paytm are self-served in nature and are accessible easily via their base.

- Paytm’s Channel for Business

  To draw in customers, Paytm uses various platforms. Paytm has established relationships with multiple customers and seller destinations that support its endeavor, aside from its very own platform that drives clicks. Demonetization in India helped the company to thrive altogether and meet new customers too. Disconnected ads are also a part of their customer procurement process.

- Distinct Advantages

  The RBI (Reserve Bank of India) permit fills in as Paytm's fundamental asset. It should be explicit to Paytm. Different assets like the plan/programming society makes it simpler for lower-pay Indians to use Paytm.

- Key Roles

  Paytm, being an innovation level, threatens security and misrepresentation, which is the reason why it needs to take viable steps to ensure the cash of its buyer by improving its security. It is also introducing new changes within its foundation to bring in new customers and access their computerized wallets.

- Partners of Paytm

  Paytm accomplices with the banks that give it installment excursions into the financial framework just as escrow administrations. It works together with a heap of associations that accumulate bills and installments from its customers for its administrations.

- Structure of Costing

  Paytm serves numerous clients which is the motivation behind why it is so cost driven. The vast majority of its costs are identified with its foundation and client obtaining. It's a typical cost shared by numerous organizations over the reality where client securing cost is significant. The cash utilized in this procedure is higher than the income it makes in its underlying buys. Most of its financial limit is to put resources into sloping up of its security and stay away from the danger of misrepresentation, particularly when it needs to deal with more than 65 million clients in its foundation. It incorporates a framework that empowers clients to avoid any tax evasion hazard.

- Income Stream

  The Paytm Revenue Models come in two structures. Paytm makes commissions from the client exchanges through their utilization of its foundation. Escrow Accounts are the accounts from where it creates its income. Inferable from the nonappearance of its hidden capital, it offers clients no intrigue. Starting in 2018, Paytm has aggregated 3,314.8 crore INR in income.

- Paytm Wallet

  Paytm wallet is one of Paytm's best benefits that structures a connection between the bank and the retailers. This semi-shut wallet empowers you to take care of your tabs, pay for

your tickets, or pay anyone concerned. Paytm wallet separated from its profit, as approved by the RBI, has the advantage of accepting enthusiasm for a purchaser store, much the same as some other Payment Gateways. When you store a specific measure of cash in your Paytm wallet, it will at that point set aside that cash in another bank from which it will win enthusiasm eventually. It is the Paytm wallet's fundamental capacity. For instance, suppose you make an installment of Rs. 1000 to a merchant and the vendor makes 10 exchanges to increase Rs. 10,000 . If the installment of that sum is made through the Paytm wallet, the Paytm wallet will take a portion of about 1% from the aggregate sum. So, the merchant will get around Rs. 9715 .

- Mobile Recharge Business

  Since its origin in 2010, Paytm's underlying intention was to give online portable energizing administrations. Its capacity to create income was constantly shortsighted. Paytm's administration guidelines are as praiseworthy and proficient as those of other telecom specialist co-ops running from Vodafone to Telecom. The administrations are without shortcomings and give solace to their clients. As of now, Paytm increases a commission of 2-3% per energize. It is because Paytm, attributable to its support to its client to keep reviving through its foundation, has more grounded power in dealing than different merchants. That is the reason the commission it obtains is so high. This commission from it revive administration fills in as its income. These administrations have supported the organization essentially in extending its base and thus, developing exponentially. When the client is fulfilled by the administration or item, he makes an arrival to a similar undertaking in this manner. This way, Paytm does client maintenance and produces more traffic. Paytm has used this methodology to further its potential benefit and keeps on reaping positive results.

- Paytm Digital Gold

  Inferable from its organization with MMTC-PAMP, the outstanding gold purifier, Paytm has propelled "Computerized Gold." This model enables clients to sell, purchase, or store gold in an advanced stage. Presently, clients need to pay at a rate just to get their gold conveyed to their families. Paytm is very much aware of how much gold is put as resources

in India and is completely arranged to develop from this chance. The organization has made eminent arrangements to urge its clients to get their own Gold Bank Accounts individually. This record separated from empowering clients to purchase their gold will likewise furnish clients with simple access to other Paytm administrations.

- Paytm Mall

  Paytm propelled its Paytm Mall application in February 2017, allowing buyers to purchase from 1.4 lakh registered sellers. Paytm Mall is a B2C model reinforced by TMall, the model of China's largest B2C retail phase. Items need to go through Paytm-guaranteed stockrooms and channels for 1.4 lakh merchants enlisted to ensure buyer confidence. Paytm Mall has set up 17 cross-sectional satisfaction centers across India and has teamed up with 40 + messengers. In March 2018, Paytm Mall raised $200 million from Alibaba Cluster and SAIF Partners. It announced losses of approximately Rs 1,800 crore in May 2018 with an income of Rs 774 crore for money associated with the year 2018. Moreover, from 5.6 percent in 2017, the piece of the pie in Paytm Mall fell to 3 percent in 2018.

- Business Growth of Paytm

  Advanced installments organization Paytm has professed to arrive at gross exchange esteem (GTV) of over $50 Bn, while checking 5.5 Bn exchanges in FY19. The Delhi NCR-based organization credited this development to the rising appropriation of Paytm over numerous utilization cases, for example, retail installments, expenses, utility installments, travel booking, excitement, games among others. It has as of late propelled membership-based prizes program (Paytm First) to aid development alongside expanding the client maintenance. Discussing the feasible arrangements, senior VP of Paytm, Deepak Abbot stated, "We are centered around creating tech-driven arrangements, incorporated client lifecycle the board, upgrading the client experience and growing to Tier 4-5 urban communities.

  We are certain to accomplish 12 Billion exchanges before the part of the bargain year." Before a month ago, the Ministry of Electronics and Information Technology (MeitY) had solicited Paytm to help its objective from encouraging 40 Bn advanced exchanges in FY20.

The organization shared designs to incorporate man-made brainpower in its model and achieve 2x development this year. Paytm professed to possess half piece of the installment entryway industry in India, with 400 Mn month to month exchanges on the stage. Established by Vijay Shekhar Sharma in 2010, Paytm furnishes various new companies and huge organizations with arrangements running from a shareable PaytmQR code to profound coordination. It empowers clients to process computerized installments through any favored installment mode including credit and check cards, net banking, Paytm wallet, and UPI (bound together installment interface). Paytm had likewise propelled its very own installments bank in 2017. Paytm Payments Bank is versatile first keep money with zero charges on every online exchange, (for example, IMPS, NEFT, RTGS) and no base equalization prerequisite. For investment accounts, the bank right now offers a loan cost of 4% per annum.

- Expected Future Growth of Paytm

  Computerized payments company Paytm said it plans to significantly increase its exchange volume by part of the agreement to 12 billion, from 5.5 billion in 2018-19. In 2017-18, Paytm confirmed 2.5 billion exchanges. Paytm said it achieved $50 billion in gross exchange appreciation (GTV) from 2018-19, as opposed to $25 billion a year before. The calculation of all-out trades carried out on the stage is GTV. "This expansion is a consequence of the fast development in the reception of Paytm's computerized installments arrangements crosswise over on the web and disconnected for different use cases including retail installments, charges, utility installments, travel booking, amusement, games and that's only the tip of the iceberg," the organization said in an announcement. Its membership-based program Paytm First that was propelled in March has pulled into equal parts a million supporters, the organization added.

  Beginning on 5 June, Paytm has 350 million enrolled customers, an organizational authority said. Like the ongoing Unified Payments Interface (UPI) payment system and web banking, Paytm offers a range of payment alternatives that integrate payments through portable wallets. "The organization has been centered around structure instruments for dealers to streamline their everyday business needs. This has brought about enormous

dealers' obtaining who are very much furnished with innovation to acknowledge all installment modes (cards, wallet, and UPI)," the announcement said. Paytm now intends to concentrate on embracing computerized reasoning and improving the UI. "We are centered around creating tech-driven arrangements, incorporated client life cycle the board, upgrading client experience, and growing to level 4-5 urban areas. We are sure to accomplish 12 billion exchanges before the part of the arrangement year," said Deepak Abbot, senior VP at Paytm.

In the running competition, Paytm has concentrated on making its brand value more concrete. It recently seemed to be ahead of its competitors, Mobikwik, Freecharge and others. It was found, as per the records, approximately 177 million people currently use Paytm in their everyday lives and make a total of 7 million transactions a day . It has crossed a total of 75 million unique users per month since demonetization. Around 40 per cent of all users belong to small cities, 67 million belong to 56 major cities and the rest to small towns.

After demonetization Paytm made it easier to pay with its digital payment option. There was around 1000% growth in the money added to its wallet, 300% rise in app download and a gain of 20 million new users was recorded within 2 months.

4.3 Interview with Paytm Founder Vijay Shekhar Sharma

Noida-based payments major Paytm had an astonishing rise after India's infamous demonetization in 2016 and claimed market leadership. But four years down the line, the market is different. Unified Payments Interface (UPI) is eating into the transaction pie of digital wallets, and it's clear that payments will continue to exist as a zero-fee business in the country. Having embraced both digital wallets and UPI, Paytm is now setting its sights on filing India's first technology payments IPO and eyeing financial services as its next major frontier for growth. Looking at the market now with a new perspective, Paytm's plan is simple: monetizing the existing customer base while achieving profitability. And, despite the competition from the world's largest technology behemoth, Google, and India's biggest telecommunication disruptor, Jio, Paytm continues to be optimistic about achieving profitability in the next 18-24 months. In an exclusive interview , Paytm chief Vijay Shekhar Sharma talks about future plans, how Paytm changed Indian payments sector and how Paytm plans to transform itself into a profitable financial services behemoth.

1. How did you started Paytm ?

In the beginning the idea was to start a prepaid mobile and DTH recharge platform. So, I took a loan worth of USD 2 million from a bank to fund my startup. By 2010 the smartphone became the distribution channel. Payment became our thing, and destiny was in our hands. In 2014 we launched our licensed wallet product. By 2015, Ant Financial had invested in us, then Alibaba and then SoftBank.

2. What made you into this venture ?

I couldn't get to Stanford or Silicon Valley. Somewhere there was the urge that I should do something worthwhile, but I would have to do it in the Silicon Alley called Delhi. I wanted to build a great company; I wanted to attract the best talent. The internet age was calling. Paytm began offering people searches and went from there into business services, payments, commerce, gaming, content, financial services, and banking.

3. What are the major difficulties that came to you when the company was born ?

Funding was the main difficulties we have faced in the early days. A whole generation of internet entrepreneurs in India have small-town roots and hunger to build something significant and

successful. My father was a schoolteacher. I had four siblings; there was no money to go around. I had to find ways to make money through weekend consulting jobs to set up computer networks for small businesses.

4. What are the major challenges that you have faced in the early days ?

When I first started Paytm most of the people were still relying on mobile shops for recharging. For a country like India were most of the people were not actually internet literate at that time. When I first contacted my relative on discuss about the idea, he asked me since India is cash economy how you will persuade people to, we use your platform. High cost for accessing internet, Internet literacy and Cash economy were the main challenges that we were facing in the early days.

5. Paytm is growing so fast, what contributed to this growth ?

Many entrepreneurs are called "overnight success." I say, "Yeah, my overnight was 19 years long." We started in the dial-up internet era, where we ran up huge phone bills. We now carry the internet in our pockets. How far we have come! The last 10 years have been the most significant for India. It is an unprecedented kind of change the world hasn't seen, not even in the U.S. or China. Nowhere else have such a large number of users come online in such a short period of time. With the introduction of reliance jio (a telecom operator) all other telecom operators were compelled to reduce the tariff on internet. The demonetization policy of the govt and a shift towards digital economy also helped for this growth.

6. How Paytm digitalized Indian Payments ?

Today Indian smartphone users pay for their meals, grocery, bills or any other service with Quick-Response (QR) codes. However, it all started when Paytm became the first Indian company to integrate payments into this QR and took it to every neighborhood store. We hired 10,000 agents during demonetization to expand our offline merchant network and strengthen our onboarding team. The tagline "Paytm Karo" soon became synonymous with digital payments in India. Our success in the digital payments space from various day-to-day payment use-cases to Paytm QR — has attracted American giants like Google and Facebook's WhatsApp to jump on the digital payment's bandwagon. The Economic Times recently reported that Google Pay and Phonepe are increasingly looking at offline payments and trying to capture a market share which is primarily dominated by

us. Offline payments have also become an area of debate as the government has proposed zero charges on all forms of digital payments to encourage adoption.

7. What are the main components of Paytm's success ?

The secret behind this success is the trust we built with our customers which none other gave as much value to before. Even before we began the roll-out of our internet wallet services, we first built a strong 24x7 customer care service to address the worries of customers to enable them to trust the wallet enough to put their money into the hands of the unknown. "30% of the company's campaign budget is invested in building trust with the customer. For us it was the single most important factor,"

8. How demonetization helped the growth Paytm ?

Before demonetization, we used to see about 50 million transactions a month. A year after demonetization, we are seeing about 200 million transactions a month… which is a growth of four times on an average number basis. In between, there was a point where we had crossed 260-270 million monthly transactions. But what demonetization did is not about this. The mindset of the people has changed. There is a shift… we are moving away from being cash-first. Today, if you don't have cash, and you need to pay somebody, they will simply say why don't you Paytm me? I believe, we have become part of the mainstream and that I think is pretty incredible.

9. What are the upcoming expansion plans ?

Paytm is [dominating] and will dominate India's mobile payments ecosystem. Paytm Payments Bank has overtaken India's No. 1 mobile bank, state-owned lender State Bank of India. Just like Ant Financial dominates payments in China, Paytm wants to dominate in India. We are getting into insurance and lending. We've created world-class tech that can be replicated both in emerging and developed markets. We built payments from the bottom up in Japan with Made in India technology. PayPay [a joint venture among Paytm, SoftBank, and Yahoo Japan] today has 10 million customers. We will go to the Americas and Europe.

10. Which was your first international market ?

Japan was our first international market. We have collaborated with PayPay Japans mobile payment bank to provide service to the Japanese customers. Our primary market will always be India. The incremental growth of India's economy is so huge that it is important for us to be a dominating player in India. We have entered international markets not because we want to find new revenue buckets, but because we are here to build a global company. So that means that once our product-market fit is sorted, we take it to international geographies.

11. How will India's digital payment transformation be different from China's?

China has two players. We will not have that kind of dominance. India will have four or five players, with a leader, which will have significant market share. Everybody can coexist. Payment is way too huge a problem for one or two players to control. India is far more competitive. We have neither the best talent nor the best infrastructure, nor the required levels of capital. We have to be far more resourceful. To raise money, we have to take a flight out of India and explain our market to investors. Neither the Chinese nor the Americans have had to describe their market to their investors.

12. Competition is building up in digital payments—Walmart, Google, and others whose launch is imminent ?

Rivals are spending huge amounts of money, but none of them have dented our market share. India's digital payments market share is expanding. In the next five years, India will be a much more digitized country. That's a good thing. As for rivals spending money, the big giants with the deep pockets never win the war. Microsoft didn't win the search war. Search didn't win the social war. Social didn't win the messaging war.

I can bet that none of the above is going to win the digital payments war. It's a huge opportunity. There will be many players. This country could produce the payment player which will go on to dominate the world. It will be an Indian player, not a Chinese one. The payments leader of India will build a low-cost, highly scalable model in an extremely competitive environment. The winner here can go and win anywhere.

13. When UPI was introduced, it seemed that digital wallets were going to die.

In the early days, I had assumed that people would give up on the wallet after you could link a bank account and begin using UPI. But users are still uncomfortable with linking bank accounts. There is low penetration of digital money and low consumer trust. The pecking order in the country is: cash, followed by card, then wallet, and UPI.

We do more than 600 million merchant payments a month. All UPI payments together are not even as big as our wallet transaction numbers. The whole UPI universe has 110 million registered users, but less than 10% of them account for more than 80% of transactions. On UPI, all apps put together have a $150 million monthly payments volume. We have a total of $390 to $400 million volume via Paytm through UPI, other wallets, cards, and cash. After spending billions of dollars, Google Pay and Walmart's Phonepe haven't been able to touch us.

14. How Paytm managed to meet the note ban rush ?

Since the announcement, our company's gross spend has been around Rs 240 crore in November alone - on advertisements, scaling up, adding more users…. "This is a classic moment when start-ups are acting as start-ups.'' The investment and earning spree are likely to continue to tackle demonetization's aftereffects, after demonetization One97Communications, the company that owns and runs Paytm , spend around Rs 750 crore on scaling up and expansion. ''India may have a digital divide, but its payments system would not have a digital divide,"

15. Paytm was always ahead of competition. As a wallet major, you said banks are the competition but now, with a profitable bank, who are your competitors ?

We went from Payment to Commerce, and then to Financial Services. At present, we are in incubation mode for our Lending, Insurance, and Wealth businesses. So that is what we are building. Our 2020 mission is Financial Services, and Paytm looks to build a large moat on that. That will give us the leap of monetization to will help us break even. This data of wealth and bank accounts will even help us extend credit, maybe in the form of a credit card.

16. What are the plans on Financial Services ?

We divide our Financial Services business into three parts - Wealth, Lending, and Insurance. All of these require licenses. We are in the last phase of procuring our insurance brokerage license.

17. What will be some of the key milestones for Paytm to achieve before a proposed IPO ?

The first and foremost absolutely will be profitability and whether we can predict these profits over the next quarters. Until we are at the stage of predicting these quarterly profits, which is very far ahead, we will not go for an IPO.

18. Where does Paytm stand on the profitability metric, especially when there are plans to go for an IPO?

Paytm's growth is divided into three segments. The first three years were all about finding the right product-market fit; the next three were about revenue and monetization. The last phase will be about profitability and free cash flows. We are in the second phase of that journey. In 2015, we started deploying QR codes and by 2018-19 completed our product-market fit. Now, 2019-20 onwards, we are monetizing. In the last 12 months, thanks to monetization, and not reckless cost-cutting, we have been able to see our EBITDA losses reduce by 50 percent year on year. Our losses in January 2020 have halved as compared to 2019. So, the product-market fit has been sorted out, and the next two years will be about monetization and expansion.

19. Is India changing?

With low mobile data tariffs, the internet is reaching the corners of India. That's spawning a huge number of startups in payments, cloud, and even startups that help people file taxes. There is a large local market. Risk capital is available to win the market. We are now grade-A entrepreneurs, not Third World businesses. It is possible to build a business to serve this country and then take it to the rest of the world. These are phenomenal days. Ten years ago, there was no local market, no risk capital, no internet infrastructure, no customers. When we started, it was the very beginning of the internet era of the country. I feel tickled that I am now bracketed with today's young entrepreneurs of India, like Ritesh Agarwal of OYO [Oravel Stays Pvt.] and Bhavish Aggarwal of Ola [Electric Mobility Pvt. and ANI Technologies Pvt.]. Nobody remembers that I started with old-generation internet businesses.

20. Why is cash still king in India?

We've had the first phase of India's digital payments journey with many world players as our rivals. We were the clear leader in the digital wallet phase. The second phase began with the United Payments Interface, which is the tech backbone linking banks and digital payments players so they can create services quickly and cheaply. Our rivals are using that backbone for person-to-person money transfers rather than merchant payments. Our business model is in merchant payments, in the everyday experience of users paying businesses. That's our journey now.

Less than 10% of payments made by users to businesses is through digital means. We believe merchants should provide their customers the whole range of options, and that's what we offer through the Paytm wallet, which accepts cash, debit cards, credit cards, UPI-linked bank accounts, and other wallets. A digital wallet is far more inclusive. Even if a user doesn't have a bank account, he can do digital payments.

4.4 Interview with Mumbai FinTech Hub Chief Suniti Nanda

About two years ago, Maharashtra became the country's first state to introduce a fintech policy to foster innovation in the nascent but growing sector. The state government set up a dedicated platform, Mumbai Fintech Hub, to execute on the mandate which involves working with stakeholders across the country and overseas to create access to markets, capital, talent and technology Mumbai Fintech Hub is spearheaded by Suniti Nanda, who took charge of the initiative as Fintech Officer, government of Maharashtra, in July last year. Nanda spent about 18 years in the corporate sector in diverse roles across companies such as Infosys and Barclays before changing lanes to a career in the public sector. At Barclays, she was closely involved with the investment bank's fintech innovation and accelerator Programme Rise. In an interview with Nanda, an alumnus of the National Institute of Technology, Rourkela, and Indian Institute of Management, Calcutta, she explains how the fintech policy has played out so far, the FInD Programme and the Mumbai Fintech Hub's open mandate principle.

1. Now FinTech sector in India is growing so fast, what are the main factors that is boosting the growth?

Campaigns like Talent India, Startup India, Digital India and Make in India seek to provide FinTech players with a level playing field and a decisive move towards enhanced productivity. Digitization Increased internet penetration, customer's familiarization with digital payments fueled by B2C ecommerce players facilitate FinTech sector growth. We Changed employment patterns shifted younger generation from farming to entrepreneurial activities that create job prospects for others.

2. How many FinTech startups are there in Mumbai ?

We have close to 200 start-ups in our registry, with about 400 fintech start-ups in Maharashtra. It is reported that there are about 1,200 fintech companies in India, providing jobs for over 16,000 people, according to a study from Yes Bank.

3. What are the specialties of these startups ?

In terms of funds generated by analytics and digital wealth management, payments dominate the market, with process automation also gaining importance. Alternative lending in the Indian Fintech

area is the second most funded and one of the fastest growing segments. Several FinTech operate in the B2B and B2B2C space, collaborating with other financial institutions to enhance different services and customer touchpoints. They are broadly concerned with payments, loans, wealth, and vertical investments. Usually, the FinTech industry uses the latest open source technology on the market, including big data , artificial intelligence, machine learning , deep learning, processing of natural languages, cloud computing, and blockchain.

4. How much money is invested in Fintech Startups in Mumbai ?

According to a report by Traxcn, fintech start-ups in Maharashtra raised US$ 695.6 million in 2017. The transaction size of the Indian fintech sector was estimated to be approximately US$ 33 billion in 2016 and is projected to cross US$ 73 billion by 2020, according to another study by KPMG.

5. Why should FinTech settle in Mumbai ?

Mumbai is India's financial capital. It houses vital stock exchanges, key regulatory bodies and is the location of the headquarters of many national and international financial institutions, including SBI, ICICI Bank, Yes Bank and HDFC Bank. Mumbai also accounts for 25% India's industrial output, 5% of its GDP and 70% of the capital transactions in the Indian economy. Mumbai has the highest venture capital (VC) investment with over US$2516.42 million in last 5 years. It is a talent hub for the best technical, digital and business professional institutions. It also has some of the best training and education institutions in the country, including IIT Mumbai, SP Jain, JBIMS, COEP. There has been a surge in industry-academia partnerships and increased private sector participation in creating innovation hubs such as the Lower Parel Innovation District (LPID). To rapidly grow the ecosystem, the state has launched a first of its kind fintech policy focused on providing subsidized space across major cities in Maharashtra and opportunities to run government and commercial pilots with BFSI leaders as mentors and investors. An environment has been set up by the state to increase collaboration between ecosystem partners through an application programming interface (API) sandbox and use case repository. Additionally, to ease the financial burden on start-ups, fiscal incentives including reimbursements and grants are being provided. We are currently running the first cohort in the accelerator program and reimbursements/grants schemes have been activated to cover infrastructure, GST, rental etc.

6. It's going to be nearly two years since the state government launched the FinTech policy. What's the report card on the progress on the ground ?

I would say that we are pretty optimistic about the progress that we have made so far. The policy actually set the foundation and made the intent of the government very clear. We are here to foster the upliftment of the fintech sector. That was the single most important goal. We started out by asking one basic question -- can we make Mumbai a global fintech hub? Now, there is no prescription for that, but we started to lay the foundation by identifying the problems that stood in the way of achieving that goal. In order to move the sector from Point A To Point B, we needed to know what was not happening right and start from there, maybe roll out a pilot along a specific theme, measure the results, undertake a course correction, if required, and move on from there. We got off the ground with a fintech registry, an API sandbox and an accelerator Programme, which incidentally is a multi-partner accelerator Programme. There are now nearly 300 registrations on the fintech registry. These are the startups that we are watching closely. They become the first point of contact into the whole ecosystem. We consider everybody in the ecosystem a partner. The government is not in competition with anyone. We have signed MoUs with several banks, fintech entities and three countries. There are many more in the pipeline. If you look at the accelerator cohort that we ran last year, it was a mix of startups from Maharashtra and other states. We believe in following an open mandate.

7. Why an open mandate ?

As the financial hub of the country, Mumbai has natural leverage in terms of the fintech industry. Thanks to that leverage, we have been able to expand organically so far. It is also valid, however, that we are not yet a global FinTech center. So, we need to see if anything else is needed to promote inorganic growth and accomplish that objective. We came up with five variables or elements that needed a boost when we began evaluating what was missing: access to capital, the environment, open innovation, talent and market access. Now we might choose to concentrate on Mumbai and Maharashtra's 400-odd fintech startups and try to answer each of those five factors. But then we will skip the developments that the 1,600 other fintech startups around the country are pursuing. We might look at facilitating market access for that solution here in Mumbai if there is a startup solution sitting somewhere in Hyderabad or in Hubli. The principle is that I succeed when you

succeed. If we both succeed, then the country flourishes. Mumbai can become the gateway for fintech innovation taking place out of India.

8. Among the five elements, how is the open innovation factor playing out ?

Open innovation and a kind of ecosystem go hand in hand. The API sandbox is something we are placing more emphasis on in open innovation. We are in the process of opening up our APIs to several financial institutions and fintech startups. We are also working to bring data sets into the API sandbox from various government departments.

9. How do you see the future of FinTech startups in Mumbai in the next few years ?

We expect payments to remain an investment opportunity for VCs, with digital payments in India estimated to reach US$ 500 billion by 2022. In India, digital payments play an important role as they serve as a gateway to other fields, such as lending and wealth consulting. These digital payment footprints, with a rising emphasis on financial inclusion, would help create a credit history for the vast unbanked population. Jan Dhan Yojana, API based national payment system and iris based, Aadhar (unique identification for each citizen) India is equipped with the underlying infrastructure on which fintech companies can expand with the rise of digital data due to smartphone penetration government initiatives. We assume that there will be a rise in the adoption by banking institutions of alternative data points for credit evaluation and more exposure to risk management algorithms for predicting non-performing assets (NPAs). We believe Mumbai has the potential to create almost 20,000 jobs over the coming years in the fintech sector. To balance this need, there will be focused courses introduced by leading education institutes.

10. What's coming next for the Mumbai FinTech Hub ?

In the next three years , we expect to incubate at least 300 start-ups, as well as reduce the start-up failure rate by 50 percent. We also aim to be among the top five Fintech hubs worldwide. Furthermore, we hope to operationalize Smart Fintech centers in Mumbai as well as build focused labs / incubation centers for financial inclusion, multi-partner accelerator programs with focused themes, a forum for fintech education, and market access and concept assessment platforms. Other priorities include the creation of global corridors with other nations to promote the global

expansion of fintech, a rolling launchpad program for start-ups from other countries, and an active Sandbox API with data APIs from the Maharashtra Government.

11. The RBI and market regulator SEBI have also launched sandbox programmes. How is this sandbox different ?

The sandbox systems of RBI and SEBI are more process based, not driven by technology and data. For example, if KYC video is not permitted in the current scenario, as a regulator, I need to see that you come to the sandbox and test the solution in a closed environment if this is a solution that you have developed. The test data will be distinct in any solution. RBI will ask which entities you are going to test with, and under RBI guidelines, those entities will present their data and it will be tested. Any kind of legislative adjustments that might be made would play into the outcome. A legislative sandbox operates like that. The sandbox we've got is an open Fintech sandbox API. In this ecosystem between fintech and financial institutions, the idea for us was cross-collaboration. As part of the Fintech sandbox, without knocking on their doors, I can get access to APIs from 10 different financial institutions. That shortens the time for testing. This is a test bed, not manufacturing. The data is test data. With the outcome, a company can reach out to a bank, for instance, with the solution. It does not compete with the regulatory sandbox. It is a library of APIs. We have just started getting some traction on the sandbox and we have already onboarded Federal Bank. We have to be cognizant about the fact that it is data. There is also interest from other financial institutions.

12. Last month, you launched FInD, a platform to facilitate better access to capital for startups. What do you hope to achieve through this platform ?

One of the things we started thinking about early on as a government entity was how we could build a democratized forum to allow greater access to capital. There are a variety of startups which have raised funds. But there are plenty more who find it hard to knock on investors' doors. On the other hand, a lot of people have the money they want to spend, but they don't know where to spend. Through this platform, we think we can solve the problem. The platform would have the investor group, financial institutions and companies on the purchasing side, who are either looking to invest or create partnerships with fintech start-ups. Fintech startups, whether in the form of funding

clients or strategic partners, profit either way. Conversions and access to capital for these startups would be the metric of achievement for us.

13. What kind of traction have you got on the platform so far ?

We have kept a target of having at least 300 startups on the platform for the first year with over 50 investors and over 10 strategic corporate partners. As of today, we have 45-plus investors who have signed up. It is a combination of angel, venture capital and private equity investors.

14. What kind of processes do you follow to facilitate matchmaking on the platform ?

We are not following the strategy of a jury or committee to shortlist businesses. Using a solution developed by mCrest that does the simple matchmaking for startups and investors, the platform collects data. On top of that, we have a PwC agreement for extra diligence. If two or three investors are paired with a startup, the organization will be asked if it is willing to collaborate with either. By human involvement, this will be done. As part of the application process, we have a charge to ensure we get businesses that are serious about fundraising, which depends on how much the start-up is trying to raise. The fee will range between Rs 10,000 and Rs 25,000 if a start-up is looking to collect between Rs 50 lakh and Rs 1 crore.

15. Tell us about your plans to launch sector-specific accelerators and leveraging specific frontier technologies to promote innovation in the FinTech sector ?

This year, we would be focusing on the insurance segment. In the last accelerator cohort, we had a few insurance plays, but it was more a mix of banking and insurance. In terms of frontier technology, we firmly assume that blockchain and AI are two fields in which financial services can be widely used. Then, directly from the government viewpoint, we also have an accelerator in the works. When it comes to government, the use cases are a bit distinct and we want to be able to discuss those use cases. If there is data sitting in a specific government department and there is a problem statement out there, we might expose the information through the sandbox of the API and explore whether the accelerator can find solutions to those problems.

CONCLUSION

The Banking sector in India has become stronger in terms of capital and the number of customers. It has become globally competitive and diverse aiming, at higher productivity and efficiency. The advent of higher quality goods and services has led to exposure to global competition and deregulation in the Indian financial sector. The face of Indian banking and finance has been transformed by reforms. In terms of technology, deregulation, goods & services, information systems, etc the banking industry has strengthened multiples. The pre-and post-liberalization period has seen numerous changes in the climate that directly impact the aforementioned phenomena. It is evident that India's post-liberalization period has spread new growth colors, but it has also raised some challenges at the same time. In order to meet the ever-changing needs of customers and to gain a better market share, banks must follow a holistic approach. The key is the production of innovative goods with low cost technology.

This calls for in-depth study of the industry and competitor patterns for consumer needs. In designing new tactics, goods and services, this research plays a very important role. The more the banks understand their clients, the better their needs can be met. The very creativity that drives the growth of business and first-order cyber threats are often generated by value. Innovative Creature Chip-based cards and SMS-based technologies, for example, OTP has helped the banks to introduce safety controls to reduce conventional cyber hazards. As, however, Technology has advanced, attack vectors have also evolved, Become sophisticated more. Questions are now being answered raised on technologies traditionally thought of as being the healthy. We are just as healthy as our weakest link. Looking at the in isolation, cyber threats seriously restrict our capacity to understand the complete cyber risk effect. There is there is a need for an improved system for cyber risk assessment methodology for continuously detecting and testing guard against cyber threats that are emerging. Whilst being More critical than ever, protection is more important, there is a need to also be alert and resilient continuously in the face of evolving cyber menaces.

As the payer and the payee do not have to pay any extra costs and are anonymous, cash continues to be an appealing means of payment. Cost and weak infrastructure are the reason that digital

payment has not been popular with small merchants in India. Merchants must at least pay for a POS computer. The World Payments Survey, prepared by Capgemini and BNP Paribas, however, forecasts that global non-cash volumes in 2015 will grow by 10.1 percent to 426.3 billion. Emerging Asia (31.9 per cent), Central Europe, the Middle East and Africa (15.7 per cent) and mature Asia-Pacific (11.6 per cent) are expected to have the highest growth.

There is a need for more value-added services, better internet access, regulatory support, and consumer education in order for digitization to expand and to include all parts of the population in all areas of the country. As the prevalence of internet and social media forums continues to increase, however and individuals, particularly Gen Y, become more and more attuned to digital interaction, digital payment methods are likely to become an integral part of people and organizations' daily lives.

In line with India's digital aspirations, the financial sector revamp is likely to take the Indian economy on a positive growth trajectory through on-boarding and incorporation of new credit customers. In a nutshell, in payment methods, fintech has removed obstacles that were generated earlier, resulting in greater economic development and new wealth formation. Innovations such as these are being pursued by digital-centric consumers, as anyone will experience a tangible shift in governance, monetary transactions, and the way smooth functions take place without corruption and resource loss. As technological advances enrich the environment and offer reasons for people to trust the digital path forward, constructive disruptions are appreciated.

In addition, demonetization meant that the payments industry was disrupted, making cash payments the conventional and traditional mode of transaction, instead of the primary role it enjoyed in the financial system of the country. In addition, internet penetration has played an equalizing role in taking to the same platform the smallest neighborhood store, as well as the affluent merchant of a high-end shop in the mall. By scanning QR codes, payments are transacted through digital gateways such as mobile e-wallets and direct bank transfers. The transition we are experiencing is so unprecedented that only those grocery stores that deliver digital payments are increasingly visited by clients. As merchants that allow only cash transactions appear to miss out on opportunities to entice consumers to buy from them, they are actively deciding where to take

their business. Technological progress is taking place at a rapid rate, though smartphones and e-wallets have become ubiquitous, leading to the gradual yet steady phasing out of people's lives of paper currency.

FinTech’s have played an important role in achieving such milestones, providing a strong impetus through a consumer-oriented lens to digital avenues, through which apps have been designed to keep in mind the problems faced by millions of people. For many states, financial inclusion has been a lengthy endeavor in the past few decades. Only now, through state-of-the-art fintech developments through digital instruments such as UPI and QR Codes, is it being realized.

FinTech’s have pioneered their efforts to meet market demand for financial services that have simplified people's daily transactions. Their competitiveness and enthusiasm allowed them to enter a race to develop the most innovative yet user-friendly technologies. This reflects their positive mindset, high versatility level, and openness to have a vision to digitally transform India while learning from emerging players around the world. Start-ups have been able to learn and reinvent themselves through continuous interaction and feedback channels with consumers, thereby introducing technical advancements.

In addition, many businesses have started incentivizing digital transactions, recognizing the increasing competition. He/she gets a cash-back or other price advantage every time a user makes a purchase digitally, and it is typically a token sum that allows them at every POS to make further purchases. In addition, the meteoric growth experienced in the last few years by the e-commerce industry has also contributed to the proliferation of digital processes, as consumers are definitely moving away from payments for 'cash on delivery' to prepaid options. The Government of India and RBI realized the sector's growth potential after these enormous transformations, working steadfastly with Indian banks and NPCI to improve digital payment networks. They are speeding up the development of a robust ecosystem by regularizing digital mechanisms, allowing fintech’s to fearlessly pursue their business expansion plans, while providing last-mile connectivity.

The growth in different payment methods marks a significant shift for the entire payment’s infrastructure of India. The government has created an enabling environment for the development

of these varied payments as can be seen in the previous chapters. The government's focus of financial inclusion is evident from all the innovations undertaken across the payments and banking field. It can be seen from their regulations provided to the Payments Banks and Small Finance Banks, to the near universal adoption of Aadhaar as a digital identity. From their focus to combat black money to launching the "Digital India" initiative. From the introduction of RuPay, as India's first domestic card network and payment gateway to the launch of UPI, the open space cards-free payment gateway. It can be seen from their creating favorable conditions for Foreign Investments to the concerted efforts of reducing the unbanked population.

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