



Emerging technologies disrupting the financial sector

Background paper

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Message from PwC



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Over the last five years, the Indian FinTech market has scaled new heights, both in terms of funding received and the increasing consumer adoption of FinTech solutions. In 2018, India ranked second globally on FinTech adoption, with its percentage of FinTech users at 57.9%. Although India's adoption rate lags behind China's 83.5%, it has surpassed that of developed countries, which stands at 34.2%.¹ Several favourable factors have aligned to effect this. First, consumer experiences have been transformed by non-Financial Services (FS) tech firms, leading to rising digital expectations from FS providers. Second, the Indian Government and regulators have engendered an enabling environment for FinTechs by launching several initiatives aimed at augmenting the country's digital infrastructure and boosting the application programming interface (API) economy. Third, advanced technologies such as artificial intelligence (AI) and cloud computing have empowered organisations to ride the data explosion wave, fuelled by rising mobile and Internet penetration, to derive business insights. The interplay of these factors, coupled with the low penetration of FS in India, has enabled innovators to reconfigure FS value chains by offering best-in-breed point solutions, primarily aimed at enriching customers' experience and driving operational efficiency.

In the Indian FinTech space, digital payments and alternative lending segments have led from the front in turbocharging the industry's growth, followed by the emerging areas of InsurTech and WealthTech. The digital payments space, in particular, is witnessing remarkable innovations such as the emergence of alternative payment channels, setting up of payments hubs and tokenisation for securing payments. Along similar lines, alternative lenders are leveraging advanced technologies and employing innovative business models to reshape the lending value chain from customer acquisition and credit scoring to loan servicing and recovery. For the Indian insurance industry, the ultra-low levels of insurance penetration (2.76% in life insurance and 0.93% in non-life insurance)², coupled with the technology-led innovations that are underway across the product, pricing and distribution spectrums, make it ripe for digital disruption. Similar trends are shaping up in

the wealth management space, as digital advisory models aim to democratise investment management for the mass segment.

Despite the tremendous progress made by Indian FinTechs, their true democratic potential is yet to be fully exploited, as current solutions primarily cater to the affluent, urban segments and not the masses. However, we believe this is set to change, as the next wave of FinTech growth is likely to be led by the bundling of FinTech solutions with the rising consumption needs of this segment on the back of their increasing income levels. For FS players, targeting a core consumer need (not necessarily financial) and expanding along a continuum of adjacent offerings to provide FS solutions at the point of consumption would position them to monetise this large user base, and drive financial inclusion.

Another overarching theme manifesting itself in the FS space is the increasing number of partnerships between various players across industries. The diverse Indian digital payments landscape today, including telecom companies, banks, wallet companies and retailers (e-commerce), drives home this point. Similarly, FS lenders are increasingly partnering with alternative data providers such as FinTechs, data utilities, and tech players to cater to the evolving needs of today's marketplace. Clearly, the industry has come to realise that the true power of FinTech lies in collaboration. However, within this overall trend, another significant theme playing out is the increasing role of non-FS players who leverage their captive customer base and superior technology stack to own the customer experience, upending the product distribution space. This has huge implications for incumbents, as profit streams begin to shift from product manufacturing to other value chain activities that directly control the customer experience. Going forward, incumbents would need to make strategic bets on where to play in the FS value chain, as platformisation becomes the new normal in the FS industry.

The next five years hold immense potential for both FinTechs and incumbents to revolutionise the FS landscape and uplift India's economy by driving the consumption story. However, success in this digital economy would be dictated by an organisation's capacity to innovate, along with its ability to manage partnerships and orchestrate ecosystems across both FS and non-FS players to provide financial solutions at the point of consumption. Ultimately, this would boil down to how effectively organisations can build digital leadership and business agility to drive the organisational change and the cultural mindset shift required for embracing innovation and new ways of working.

Through this report, we have articulated some key trends in the Indian FinTech landscape by setting them against the technological advancements disrupting the FS space, and have provided recommendations for furthering India's FinTech growth.

¹ Academy of Internet Finance, Zhejiang University; Sinai Lab; Cambridge Centre for Alternative Finance and Zhejiang Association of Internet Finance. (2018). *The Future of Finance is Emerging: New Hubs, New Landscapes: Global Fintech Hub Report*. Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2018-ccaf-global-fintech-hub-report-eng.pdf (last accessed on May 10, 2019)

² The Insurance Regulatory and Development Authority of India (IRDAI). (2019). *Annual Report 2017-18*. Retrieved from https://www.irdai.gov.in/ADMINCMS/cms/fmGeneral_NoYearList.aspx?DF=AR&mid=11.1 (last accessed on May 05, 2019)

Message from ASSOCHAM



Balkrishan Goenka

President
ASSOCHAM

Emerging technologies have reshaped the financial services industry through innovative means to cater to evolving customer expectations of personalisation and convenience.

FinTech has evolved as one of the most innovative and cost-effective disruptive technologies. Early adaptation of FinTech solutions has enabled several start-ups, financial service providers and other diverse sectors to achieve an accelerated pace of growth.

Over the last several years, the Indian FinTech market has been on a growth trajectory, as is evident from an increase in both the number of FinTech companies founded and the investments they have attracted. From January 2013 to October 2018, a total of 1994 FinTech companies have been founded, turning into a hotbed of entrepreneurial activity. With a strong tech ecosystem as its backbone and a huge market base coupled with the growth of formal Financial Services (FS), the Indian FinTech market offers immense potential.

The Indian Government and market regulators have played a favourable role in accelerating the growth and adoption of FinTech

solutions in the country. These include building the digital infrastructure by creation of Unified Payments Interface (UPI)-based ecosystem to boost payment transactions, making high-speed internet available at low costs, increasing smartphone penetration and many more.

To address the key issues, opportunities and challenges in India's FinTech market, ASSOCHAM has organised the summit with the theme, "Emerging Technologies Disrupting the Financial Sector". The summit provides an opportunity for open discussions on the future of financial services which continues to be influenced by new innovative technologies and digitisation.

I wish ASSOCHAM and PwC Team all the success.

Balkrishan Goenka

Message from ASSOCHAM



Saurabh Sanyal

Deputy Secretary General
ASSOCHAM

2018 emerged as a phenomenal year for the FinTech sector as global funding scaled new heights on the back of supportive regulatory policies, technological advancements and rising consumer adoption of FinTech solutions.

As per an industry report, global VC-backed funding in FinTech companies touched USD 39.57 billion across 1707 deals, both a new annual high. This was partly driven by 52 mega-rounds (USD 100 million+) totalling USD 24.88 billion, indicating investors' increasing appetite for larger deals and preference for investing in late-stage companies, as the funding market matures.

The Indian FinTech market has also been on a growth trajectory, evidenced by an increase in both the number of FinTech companies founded and the investment they have attracted. From Jan 2013

to Oct 2018, a total of 1994 FinTech companies have been founded, turning India into a hotbed of entrepreneurial activity. With a strong tech ecosystem as its backbone and a huge market base with low penetration of formal financial services (FS), the Indian FinTech market offers immense potential.

To address the key issues, opportunities and challenges in India's FinTech market, ASSOCHAM with PwC as the Knowledge Partner has organised this FINTECH SUMMIT with the theme of "Emerging Technologies disrupting the Financial Sector".

I wish the Summit all the success.

Saurabh Sanyal

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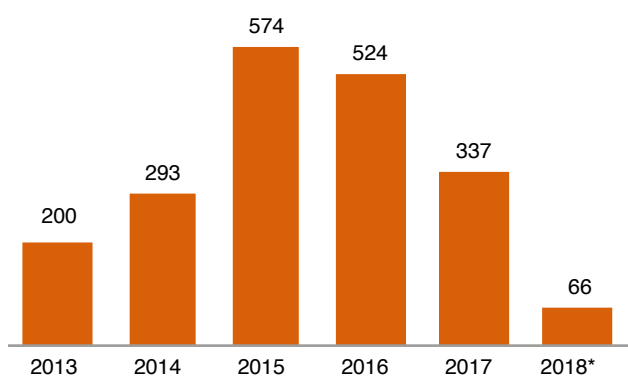
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Overview of the Indian FinTech market

The Indian FinTech market has been on an upward growth trajectory over the last five years. This is evidenced by an increase in both the number of FinTech companies founded and the investment they have attracted. From January 2013 to October 2018, approximately 2,000 FinTech companies have been founded, turning India into a hotbed of entrepreneurial activity (Figure 1).³ This has also translated into increased consumer adoption of FinTech solutions. In 2018, India ranked second globally in the FinTech adoption rate. The average percentage of FinTech users in the country is 57.9%, behind China's 83.5%, and much higher than developed countries' 34.2%.⁴ With a strong technological ecosystem as its backbone and a huge market base with a low penetration of financial services (FS), the Indian FinTech market holds immense potential.

Figure 1: Entrepreneurial activity on the rise in India

Y-o-Y number of FinTech companies founded (2013 - 2018*)

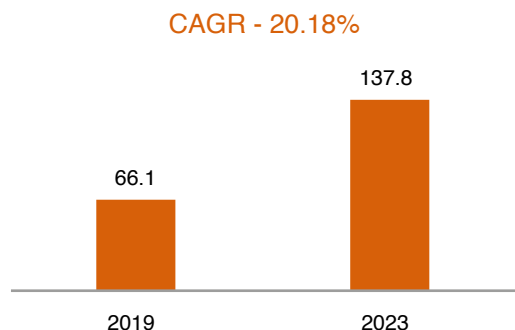


Source: Tracxn, 2018

Note: 2018 data is till October 2018

The overall transaction value in the Indian FinTech market is estimated to jump from approximately USD 66.1 billion in 2019 to USD 137.8 billion in 2023, growing at a CAGR of 20.18% (Figure 2).⁵ The global FinTech market is also poised to achieve high growth levels in the coming years. The overall transaction value in the global FinTech market is predicted to grow from around USD 5.49 trillion in 2019 to USD 9.82 trillion in 2023, a CAGR of 15.64% (Figure 3).⁶

Figure 2: India FinTech transaction value projections, 2019 to 2023 (USD billion)



Source: Statista, 2019

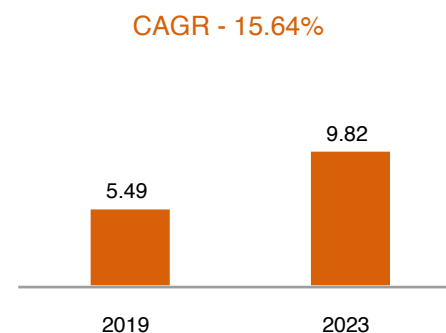
3 Tracxn. (2018). Feed Report - FinTech India Oct 2018. (last accessed on May 10, 2019)

4 Academy of Internet Finance, Zhejiang University; Sinai Lab; Cambridge Centre for Alternative Finance and Zhejiang Association of Internet Finance. (2018). The Future of Finance is Emerging: New Hubs, New Landscapes: Global Fintech Hub Report. Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2018-ccaf-global-fintech-hub-report-eng.pdf (last accessed on May 10, 2019)

5 Statista. (2019). Fintech India outlook. Retrieved from <https://www.statista.com/outlook/295/119/fintech/india> (last accessed on May 10, 2019)

6 Statista. (2019). Fintech worldwide outlook. Retrieved from <https://www.statista.com/outlook/295/100/fintech/worldwide> (last accessed on May 10, 2019)

Figure 3: Global FinTech transaction value projections, 2019 - 2023 (USD trillion)



Source: Statista, 2019

This report comprises three sections. Section 1 provides an overview of the Indian FinTech landscape by exploring the underlying factors driving its growth, key FinTech segments, and challenges faced by the FinTech ecosystem. Section 2 focusses on the key 'emerging technological' trends that are transforming the FS sector, and section 3 presents our recommendations for furthering India's FinTech growth story.



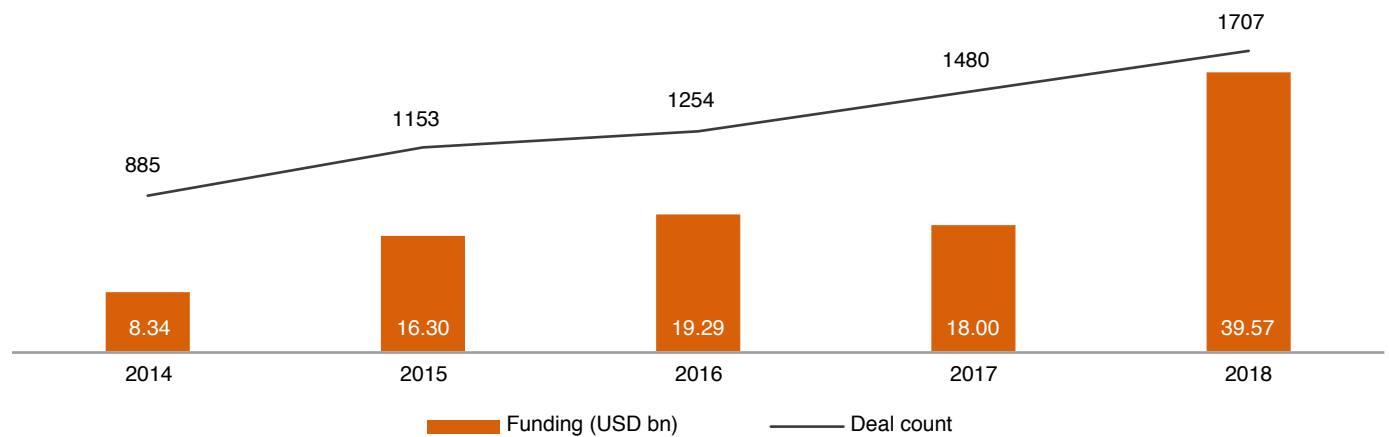
Sustained funding powering the global and Indian FinTech story

2018 emerged as a phenomenal year for the FinTech sector, as global funding broke new ground on the back of supportive regulatory policies, technological advancements and an increase in consumers' adoption of FinTech solutions. As per a CB Insights

report, global venture capital (VC)-backed funding in FinTech companies rose to approximately USD 39.57 billion across 1,707 deals, both of which represent a new annual high (Figure 4). This was partially driven by 52 mega-rounds (USD 100 million+) totalling USD 24.88 billion, indicating investors' increasing appetite for larger deals and the preference for investing in late-stage companies as the funding market matures.⁷

Figure 4: Global FinTech funding hits a record high in 2018

Global VC-backed FinTech funding and deal count, 2014 - 2018 (USD billion)



Source: CB Insights, 2019



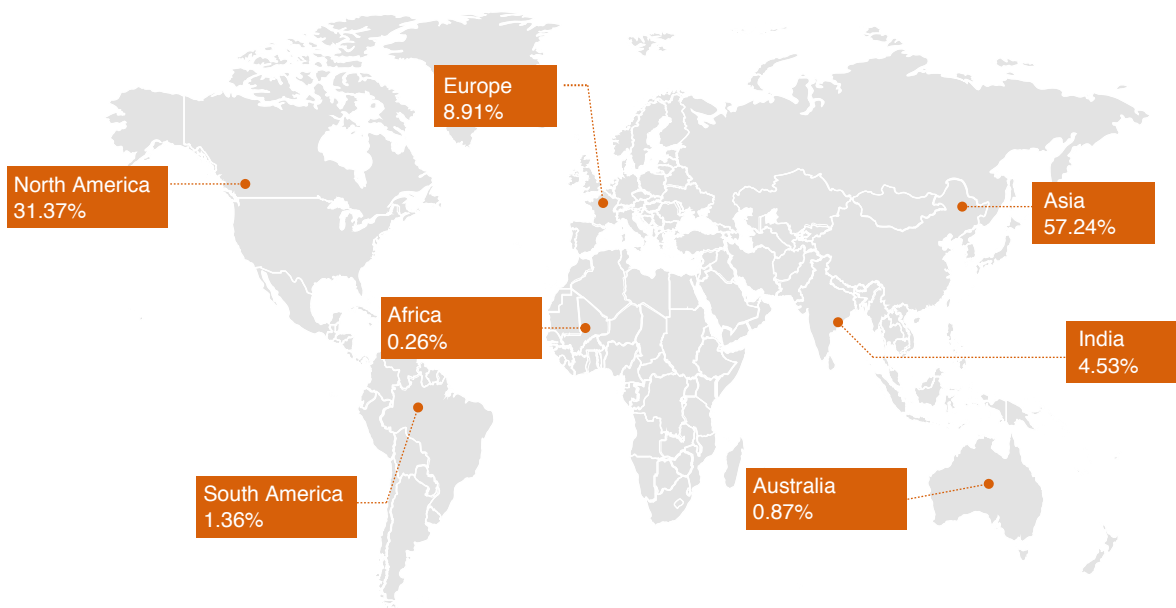
⁷ CB Insights. (2019). 2019 Fintech Trends To Watch. Retrieved from <https://www.cbinsights.com/research/report/fintech-trends-2019/> (last accessed on May 4, 2019)

This exceptional growth in global funding was primarily driven by the North American and Asian markets, as deal activity increased across all continents, barring Europe (Figure 7). The US retained top position, with 659 deals totalling approximately USD 11.89 billion, an annual high both in terms of the number and size of deals. However, Asia, driven by China and India, remains well-positioned to unseat North America as the primary market for global funding. This is corroborated by its ascendancy in recent years (Figures 5 and 6), despite the US imposing regulatory barriers on investment in China in 2018. Asia attracted

the largest chunk of VC-backed FinTech funding - USD 22.64 billion across 516 deals – during the year. This figure includes the most significant funding deal of approximately USD 14 billion in a Chinese FinTech. Aggressive growth strategies adopted by Chinese technological giants and their expansion into new markets like Southeast Asia and India played a key role in driving global funding to Asia. Another significant development in 2018 was the global nature of FinTech’s growth, with 39% of deals being closed outside the core markets of the US, UK and China, signalling the increasing potential of emerging markets such as India.

Figure 5: Asia emerges as the largest FinTech target market for funding in 2018

Global VC-backed FinTech funding by target market % share, 2018

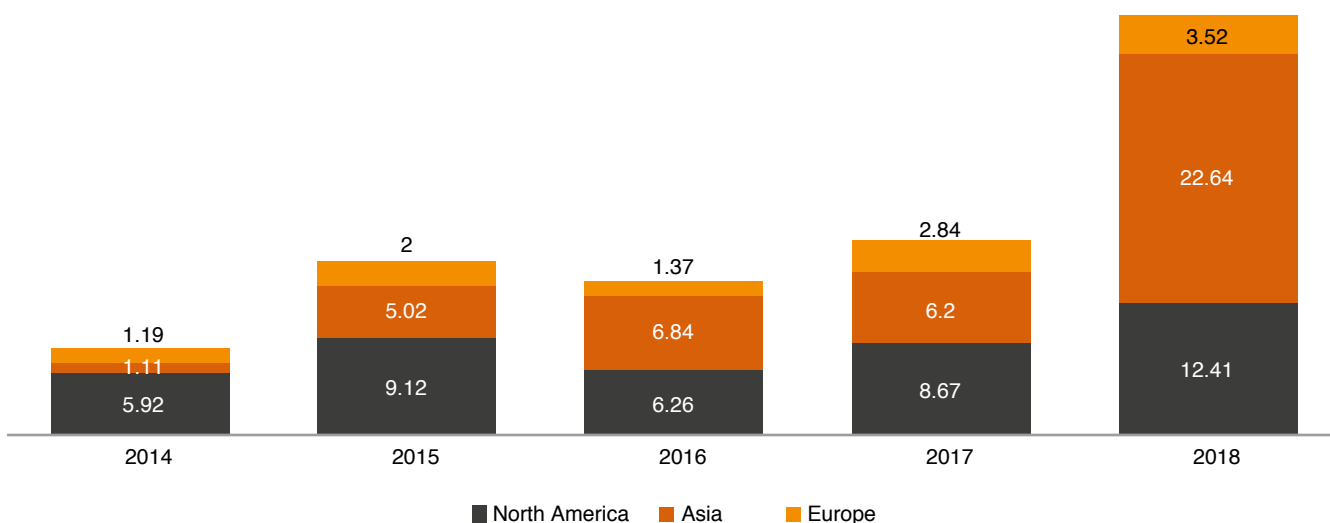


Global VC backed FinTech investments in 2018
USD 39.57 billion across 1707 deals

Source: CB Insights, 2019

Figure 6: Asia’s rising share in global FinTech funding

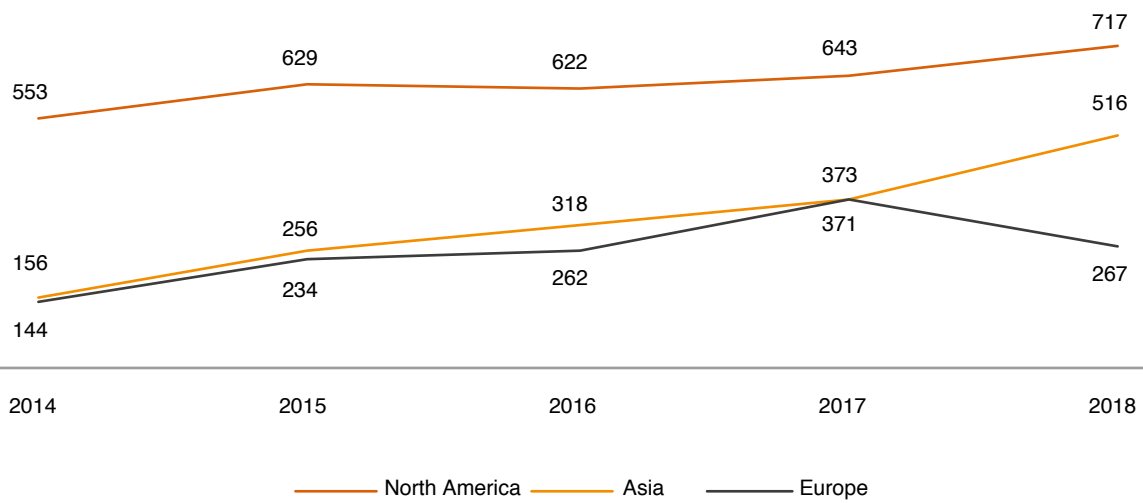
Global VC-backed FinTech funding by continent, 2014 - 2018 (USD billion)



Source: CB Insights, 2019

Figure 7: Deal activity increases in 2018 across continents, barring Europe

Global VC-backed FinTech deal count by continent, 2014–2018



Source: CB Insights, 2019

Note: Other continents not included in the graph

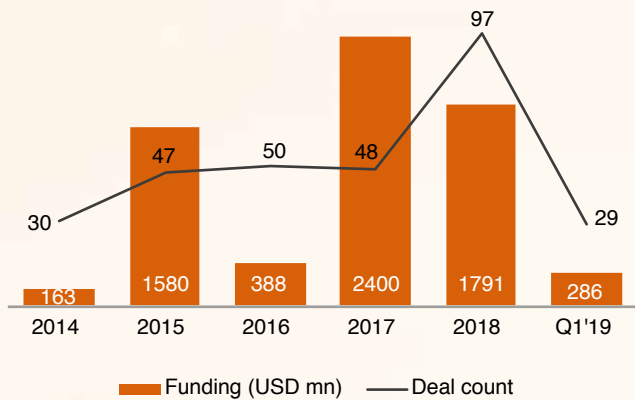


Robust funding landscape in India

In line with the global trends, sustained VC-backed investments in the Indian FinTech space over the last few years have played a pivotal role in propelling India's FinTech sector. In 2018, India received approximately USD 1.79 billion⁸ in VC-backed funding across 97 deals. Though this was an annual high in terms of deal count, it reflected a decline from the record funding of USD 2.4 billion across 48 deals in 2017 (Figure 8).⁹

Figure 8: India FinTech deal count doubles in 2018 to 97 from 48 in 2017

India VC-backed FinTech funding and deal count, 2014 – Q1 '19 (USD million)



Source: CB Insights, 2019; Tracxn, 2018

In addition, India overtook China as Asia's top FinTech funding target market with investments of around USD 286 million across 29 deals, as compared to China's USD 192.1 million across 29 deals in Q1 2019 (Figure 9). The massive slump witnessed by China in this quarter could partly be attributed to its Government's concerted efforts to rein in the risks associated with the mushrooming of its peer-to-peer (P2P) lenders.¹⁰

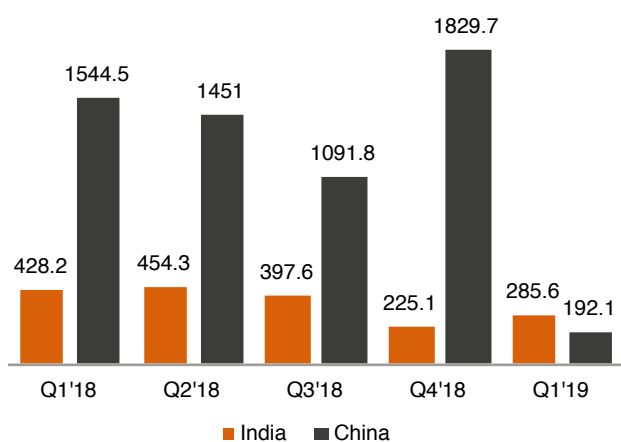
⁸ CB Insights. (2019). *Global Fintech Report Q1 2019*. Retrieved from <https://www.cbinsights.com/research/report/fintech-trends-q1-2019/> (last accessed on May 04, 2019)

⁹ Tracxn. (2018). *Feed Report –FinTech India Oct 2018*. (last accessed on May 04, 2019)

¹⁰ CB Insights. (2019). *Global Fintech Report Q1 2019*. Retrieved from <https://www.cbinsights.com/research/report/fintech-trends-q1-2019/> (last accessed on May 05, 2019)

Figure 9: India overtakes China in FinTech funding in Q1 2019 and ties up with China in FinTech deal count in Q1, 2019

VC-backed FinTech deal count in India and China (USD million), Q1 2019



Source: CB Insights, 2019

Though the Indian FinTech market has witnessed high levels of investment activity in recent years, a quick comparison with core FinTech markets like the US and China reveals that India still has substantial headroom for further growth. Some of the factors supporting the Indian FinTech market are examined in the next section.

Key drivers of India's FinTech revolution

In India, along with sustained funding, both supply-side factors such as Government and regulatory support, and technological advancements and demand-side factors such as large unmet needs and rising customer digital expectations have been converging to drive the FinTech market. These factors are discussed below.

Unmet financial needs

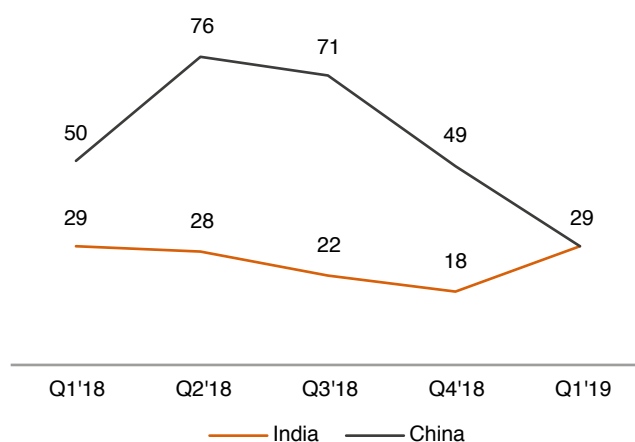
A large portion of the Indian population has been excluded from the formal financial system, owing to multiple reasons such as lack of awareness about the benefits of FS products and the inability of traditional FS players to serve this segment in a cost-effective manner. However, since the launch of schemes like Jan Dhan Yojana and Direct Benefit Transfer, there has been a marked rise in awareness levels of FS products. The traditionally unbanked and underbanked population, that was earlier averse to accessing formal FS products, is now embracing them. However, the incumbents have been unable to meet their requirements. This has paved the way for FinTechs to serve this segment across the country with their low-cost and digitised products.

11 Statista. (2019). India: Average age of the population from 1950 to 2050 (median age in years). Retrieved from <https://www.statista.com/statistics/254469/median-age-of-the-population-in-india/> (last accessed on April 29, 2019)

12 Nielsen. (2018). Average Indian smartphone user spends 4x time on online activities as compared to offline activities. Retrieved from <https://www.nielsen.com/in/en/press-room/2018/average-indian-smartphone-user-spends-4x-time-on-online-activities-as-compared-to-offline-activities.html> (last accessed on April 29, 2019)

13 Goods and Services Tax Network (GSTN). (2019). GST system statistics. Retrieved from <https://www.gstn.org/> (last accessed on April 08, 2019)

VC-backed FinTech deal count in India and China (USD million), Q1 2019



Source: CB Insights, 2019

Changing consumer demographics, evolving needs and rising digital expectations

FinTech solutions are being created to cater to the evolving needs of the young Indian consumer with a median age of 28.2 years.¹¹ These consumers are tech-savvy, spend considerable time (approximately 130 minutes per day for premium segment users)¹² on their smartphones and are open to accessing financial products on digital platforms. In addition, FS players have to match consumers' rising appetites for digitisation, with the bar for customer experience set high by the non-FS technology players.

All these factors have led to FS players offering digital services, forcing incumbents to rethink their business models and collaborate with start-ups, or offer services through their own digital platforms.

Government policies, regulations and infrastructure

The Indian Government and regulators have played a prominent role in accelerating the growth of FinTech solutions across the country by launching several initiatives to this end. Some of these key initiatives can be categorised below:

Driving financial inclusion

Goods and Services Tax (GST) regime:

- The introduction of the GST regime has been a key step in formalising the unorganised sector of the Indian economy, with many FinTechs leveraging the digital footprint generated from the Goods and Services Tax Network (GSTN). The network has 1.21 crore registered taxpayers¹³ to credit score and lend to micro, small and medium enterprises (MSMEs)

Jan Dhan Yojana:

- A flagship initiative of the Government, this scheme aims to drive financial inclusion across the country. This has resulted in a significant uptick in the number of people with bank accounts in India (approximately 320 million accounts were opened under the scheme),¹⁴ laying the foundation for the delivery of banking services to the unbanked. The scheme has also brought in a behavioural change among unbanked consumers. This, in turn, has led to an increase in the demand for FS products, thereby creating viable opportunities for FinTechs.

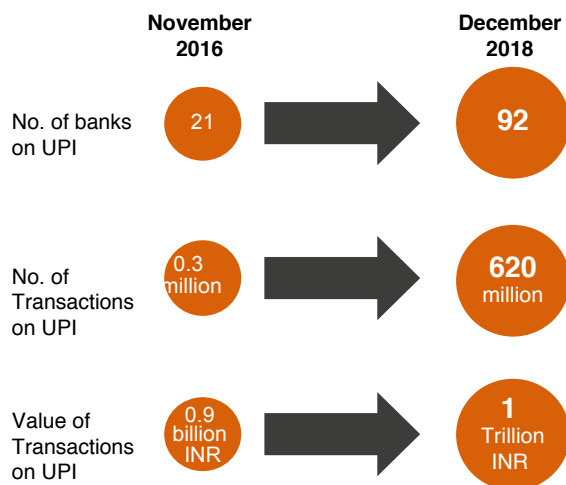
Building the digital infrastructure

Unified Payments Interface (UPI):

- The launch of UPI by the National Payments Corporation of India (NPCI) has resulted in the roll-out of interoperable payment services amongst FinTechs and incumbent institutions, leading to the widespread adoption of digital payments across merchants and customers. The platform was used by 92 banks and witnessed 620 million transactions worth INR 1 trillion in December 2018 (Figure 10), making it one of the largest payment platforms across the world.¹⁵ In addition, the launch of UPI 2.0 with an overdraft facility in 2019 has the potential to enable credit access to many thin-file customers.

Figure 10: UPI transactions cross INR 1 trillion in value in Dec 2018

Growth of the UPI platform



Source: PwC analysis

Digital India programme

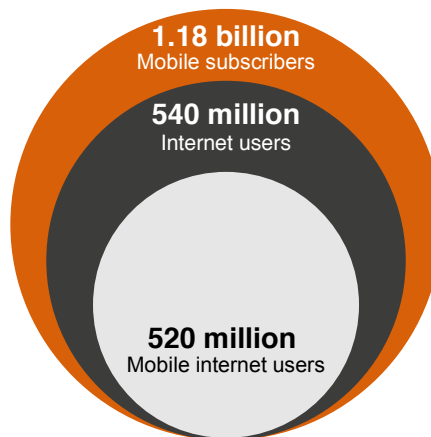
- The Government's push to improve digital literacy across the country through a bouquet of initiatives spanning infrastructure, literacy and ease of accessing digital services has had a significant impact in improving the overall digital maturity of the Indian populace. These initiatives have led to increased awareness about FinTech solutions, thus boosting their usage.

Availability of the internet

- Over the last decade, there has been a significant rise in access to and speed of the internet (approximately 520 million mobile internet users¹⁶) across the country (Figure 11). This is a prerequisite from an infrastructural standpoint to access FinTech services. In addition, the cost of internet usage has dropped significantly in the past five years, resulting in an increase in the number of internet users. This, in turn, contributes to FinTech adoption.

Figure 11: Number of mobile internet users crosses the 500 million mark

Number of mobile and internet users in India



Source: PwC analysis

Promoting innovation and competition in the industry

Startup India

- The flagship scheme of the Government to promote the efforts of startups in the country by providing regulatory and financial support which has led to a growth in the number of FinTech startups in the country.

Licence for payment banks

- The RBI has issued licenses to 11 FinTech companies to offer e-banking services like remittances, deposits and savings, paving the way for new-age branchless banking services offered by FinTechs.

Recognition of peer-to-peer (P2P) lenders as non-banking financial companies (NBFCs)

- The RBI provided legitimacy to the P2P lending segment by categorising them as NBFCs, boosting the sector's growth.

¹⁴ Moneycontrol. (2018). Close to 32 crore bank accounts opened under Jan Dhan Yojana post 2014. Retrieved from <https://www.moneycontrol.com/news/business/economy/about-32-crore-bank-accounts-opened-under-jan-dhan-yojana-2696161.html> (last accessed on May 08, 2019)

¹⁵ Kumar, S. (2019, Feb 19). Making it cashless and how: UPI in 2018 and beyond. Inc42. Retrieved from <https://inc42.com/resources/making-it-cashless-and-how-upi-in-2018-and-beyond/>, (last accessed on May 8, 2019)

¹⁶ (2019, March 20). India's telecom subscribers base crosses 120 crore: Trai data. Livemint. Retrieved from <https://www.livemint.com/industry/telecom/india-s-telecom-subscribers-base-crosses-120-crore-trai-data-1553093994494.html> (last accessed on May 8, 2019)

Regulatory sandbox by the RBI for FinTechs

- The RBI has planned to set up a regulatory sandbox for FinTech start-ups, and the norms for the same are expected to be announced by June 2019. The central bank aims to achieve a middle ground between innovation and regulation to help the FinTech industry achieve its potential. The sandbox is expected to provide temporarily relaxed regulatory norms for the conceptualisation of new solutions or products on a small scale before a potential scale up. This is a first-of-its-kind initiative by the regulator in India and is expected to provide a boost to organisations and start-ups that wish to enter the industry.

In recent years, some state governments have also joined the central Government in driving the FinTech agenda, with the Maharashtra and Andhra Pradesh Governments setting up a Mumbai FinTech Hub and FinTech Valley in Vizag, respectively, for strengthening the FinTech ecosystem in their states.

Rising collaboration between incumbents and FinTechs

In the context of the compete-vs-collaborate debate, the increasing trust in the FS ecosystem has brought incumbents and FinTech players together to explore more opportunities for collaboration. These partnerships have led to innovative customer propositions and new revenue streams - industry incumbents adopt technology and innovation in a more seamless and rapid cycle, while

FinTech players symbiotically increase their presence through the distribution infrastructure of incumbents.

In general, the methods of collaboration can be summarised as below:

- **Supplementary offerings:** Using new or existing subsidiaries or sub-brands to offer new services
- **Partnerships:** Developing joint solutions with FinTechs
- **Acquisitions:** Enhancing their services by acquiring FinTechs
- **Incubators:** Launching incubators to promote startups relevant to their market
- **Invest:** Setting up venture funds to invest in FinTechs

However, the road to collaboration is not free from obstacles. Differences in the work culture, business models and security continue to pose key challenges. While incumbents struggle with the pace of innovation and the rigidity of their legacy systems, startups face legal, bureaucratic and cultural issues while working with institutions. Despite these challenges, collaboration has become a highly promising avenue for growth and is expected to remain so in the future, leading to increased adoption of FinTech solutions among consumers.



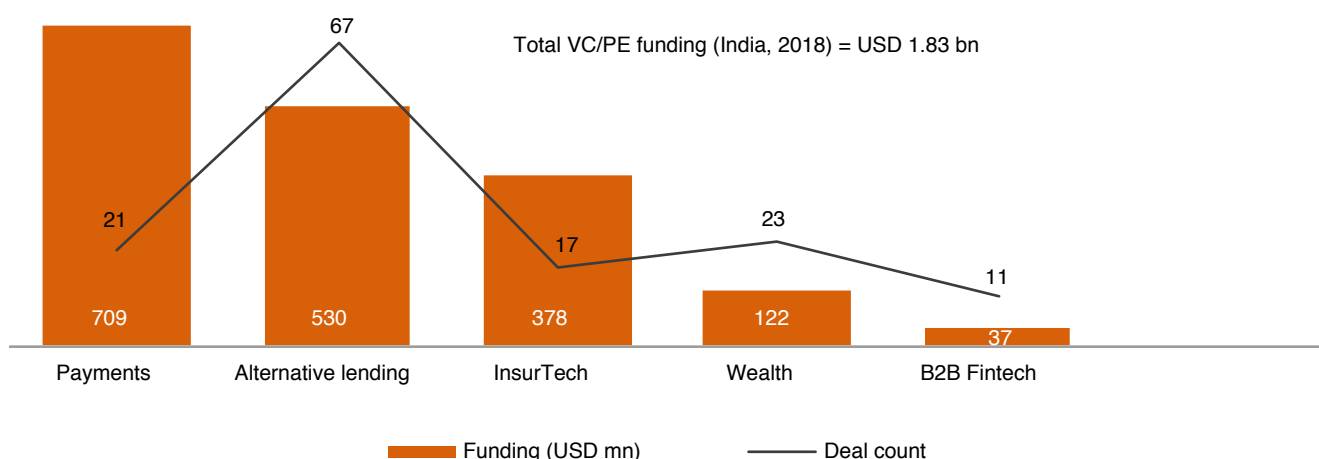
Segment overview

The Indian FinTech market has seen the emergence of a few dominant segments that are disrupting the FS value chain by offering technology-led innovations to improve customer experience and engagement, and to drive operational efficiency. Within this space, digital payments and alternative lending have emerged as the most mature segments, driven by sustained funding, Government support and huge untapped market opportunities.

In 2018, the Indian FinTech market received total VC/private equity (PE) investments of approximately USD 1.83 billion across 165 deals. Payments accounted for the largest share with USD 709 million across 21 deals, followed by alternative lending with USD 530 million across 67 deals, mirroring global trends (Figure 12).¹⁷ InsurTech and WealthTech emerged as the next best funded FinTech segments in 2018.

Figure 12: Payments and alternative lending segments attracted the maximum funding in India in 2018

India VC/PE funding by FinTech segments in 2018 (USD million)



Source: MEDICI Research, 2019

In the following sections, the dominant FinTech segments in India are examined by exploring their business models, setting some key metrics underscoring their growth against global benchmarks, and highlighting key emerging trends and the way forward.



¹⁷ Medici. (2019). 2018 FinTech Funding Analysis - India. Retrieved from <https://gomedici.com/2018-fintech-funding-analysis-india/> (last accessed on May 3, 2019)

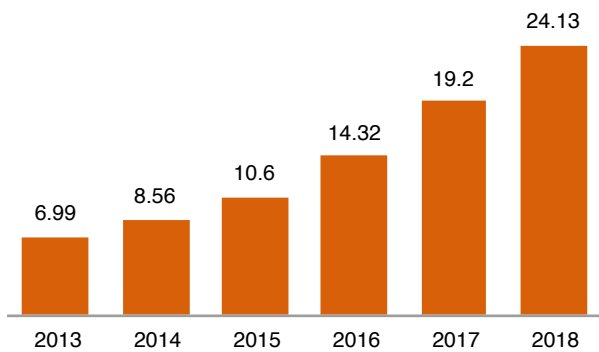
Digital payments

Payments have been at the forefront of India's digital revolution, with digital payment transaction volumes (worth USD 3.5 trillion) touching approximately 24.13 billion in 2018 (Figure 13).¹⁸ The demonetisation drive launched in November 2016 and lucrative returns on mobile wallets and UPI transactions (which led to their widespread adoption) have been key to driving exponential growth in digital transactions.

In addition, the rise of digital commerce, innovation in payments technology using AI, blockchain, the Internet of Things (IoT) and real-time payments; and the introduction of mobile point of sale (POS) devices have led to a reduction in the cost of acceptance infrastructure and also contributed to growth.

Figure 13: Indian digital payments witnessed exponential growth in the last 5 years

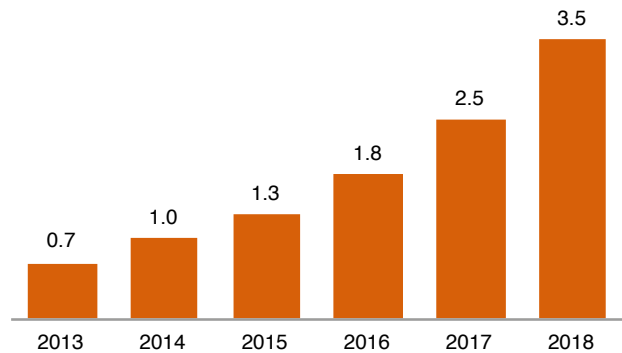
Volume of digital payment transactions (mn)



Source: RBI

Note: Inclusive of retail electronic clearing, cards, PPI, mobile banking

Value of digital payment transactions (USD tn)



Source: RBI

Note: Inclusive of Retail Electronic Clearing, Cards, PPI, Mobile Banking

From a funding perspective, the Indian payments space has experienced tremendous traction with investors. In 2018, payments was the best funded FinTech segment in India, attracting investments worth approximately USD 709 million across 21 deals (Figure 12).



¹⁸ The Reserve Bank of India (RBI). (2018). Annual Report: Payment and Settlement Systems and Information Technology. Retrieved from <https://m.rbi.org.in/Scripts/AnnualReportPublications.aspx?id=1236> (last accessed on May 05, 2019)

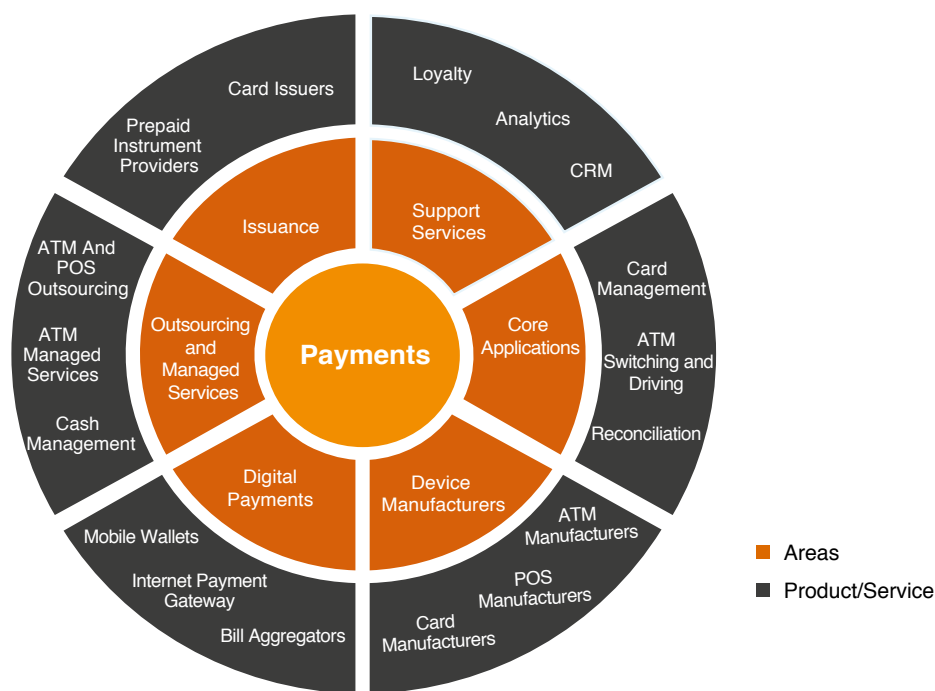
Payments value chain and business models

While there are multiple electronic payment modes in India now, the major forms of digital payments are cards, retail electronic clearing (NEFT, IMPS and more), UPI, mobile banking and prepaid payment instruments (PPIs). Of these, PPIs and UPI have gained major traction in the last few years, with cards remaining a stable fixture in the landscape. UPI, mobile wallets and prepaid cards

have also opened up the payments landscape to additional use cases like e-toll and transit payments, micro-lending, cross-border remittances, and smart city payments. These leverage the base technology of mobile payment instruments to provide access to digital payments anytime, anywhere.

Across the entire payments value chain, participants can be broadly classified into six verticals with subdivisions (Figure 14).

Figure 14: Payments ecosystem



Source: PwC analysis

These categories highlight all the stages in end-to-end payments processing. Cards or mobile wallets are given to customers by issuing entities, which could be banks or NBFCs. Customers can then use these instruments at various points-of-sale (PoS) terminals to make payments digitally. Device manufacturers provide the acceptance infrastructure for these payments, like scanners, readers, PoS machines and ATMs. On completion of the transaction, back-end systems or core applications like switches, card management and reconciliation systems come into play. Support services also play a vital role as they address customer grievances, provide loyalty solutions and more. All these verticals work in synchronisation to provide a seamless payment experience.

Digital payments' competitive landscape

Regulatory efforts and the early successes of non-banking players led digital wallets have created opportunities for non-traditional players (telecom players, retailers, government led) to enter the payments segment either singularly or through partnership. This has helped transform the competitive digital payments landscape in India to include telecom players, banks, wallet companies, and retailers (e-commerce).

Digital payments funding: The key stakeholders

One of the major contributing factors to the exponential growth of digital payments in India is the huge inflow of funds from a diverse set of domestic and international stakeholders.

Large multinational conglomerates: Funding for a host of mobile wallet players in India has come from multinationals. Some of the largest wallet players have received funding from American and Japanese corporations, looking to diversify their portfolio and establish a foothold in the Indian payments space.

VC firms: Multiple VC firms, early stage and otherwise, have invested in the Indian wallet and payment gateway space. While some of this funding has been from international sources, Indian VC firms have also started investing substantial funds in Indian players to help them expand

E-commerce players: International e-commerce players from countries like China have also been investing in the wallet space, promoting the growth of in-app retail on wallet platforms.

FS providers: FS providers have been large investors in this space in India, with Japanese payments firms at the forefront, investing substantially in wallets and payment gateways in the country. Some Indian firms have also invested in India's payment gateway space.

Funding for digital payments in smart cities: Banks play a major role in financing digital payment initiatives in smart cities. While most smart city payments' digitisation is done through public-private partnerships (PPP) between banks and local municipal bodies, newer financing modes like municipal bonds are gaining popularity. Indian banks have also been known to enter into PPPs with smart city special purpose vehicles (SPVs) to implement common card payment systems. In this model, banks bear the implementation cost and in turn earn a small percentage of non-transit transaction revenue.

Many banks have also been at the forefront as arrangers for municipal bonds in the country, and are exploring the feasibility of bond issues for many cities/states such as Gujarat, Goa, Pune and Hyderabad.

Key emerging trends

While there are several factors at play that will shape the future growth trajectory of the Indian digital payment space, we look at six key trends that are critical to driving this growth.

Need for interoperability

Recently, the RBI's Master direction on PPIs in India highlighted the need for exploring PPI interoperability. In a country where there are almost 50 PPI players, this will facilitate exponential growth in digital payments as well increase their acceptance. Currently, even if customers want to use digital wallets to make payments, they are unable to do so if the merchant is a subscriber of a different mobile wallet. Interoperability is expected to remove such hindrances and enable users to make payments at any and all digitally enabled merchant outlets without the need to possess the same wallet

platform. What makes interoperability possible today is the UPI, which allows users possessing accounts in different banks to transact with each other in real time. With wallet interoperability, this platform can be leverage to facilitate easier mobile wallet transactions, thus paving the way for a more connected peer-to-merchant (P2M) network.

Development of next-generation customer solutions by banks and payment service providers (PSPs) through open banking

Open banking is a trend that has recently caught on with FS providers worldwide. It entails providing regulated access to internal bank customer data and processes to other parties (mostly FinTech firms) through digital channels like APIs. Globally, banks are launching applications that allow users to access their accounts with the country's biggest banks in one place, view their spending history and gain insights into their finances through in-app messaging. This has been done by connecting to the open APIs of these banks. In India, banks are introducing API-based business-to-business (B2B) services where corporate ERPs can gain access to the bank's transaction processing services through API calls.

Increasing use of alternative payment channels

While there have been improvements in the ongoing issuing and acquiring of channels (e.g. virtual cards, instant issuance, all-in-one POS, combo cards), newer alternate channels have emerged in recent years that can be leveraged by financial institutions worldwide (e.g. NFC, QR codes, RFID IoT payments, wearables). Indian banks are partnering with mobile payment firms to enable 'tap-and-go' credit card payments at merchant PoS terminals using smartphones.



Process innovation across the value chain

Technology-led process optimisation is enabling cost efficiencies across the payments value chain, with innovations in both front-end customer facing and back-end operational processes. One of the major trends in this context has been the setting up of payments hubs – a centralised system that actively supports payment transactions across channels and businesses, creating a fully unified banking platform. Similarly, Asian banks are also undertaking initiatives to unify their global payments and clearing systems, integrating various systems and processes. Indian banks are also setting up enterprise payment hubs to manage payments, support financial messaging, automate payables and receivables, and optimise liquidity.

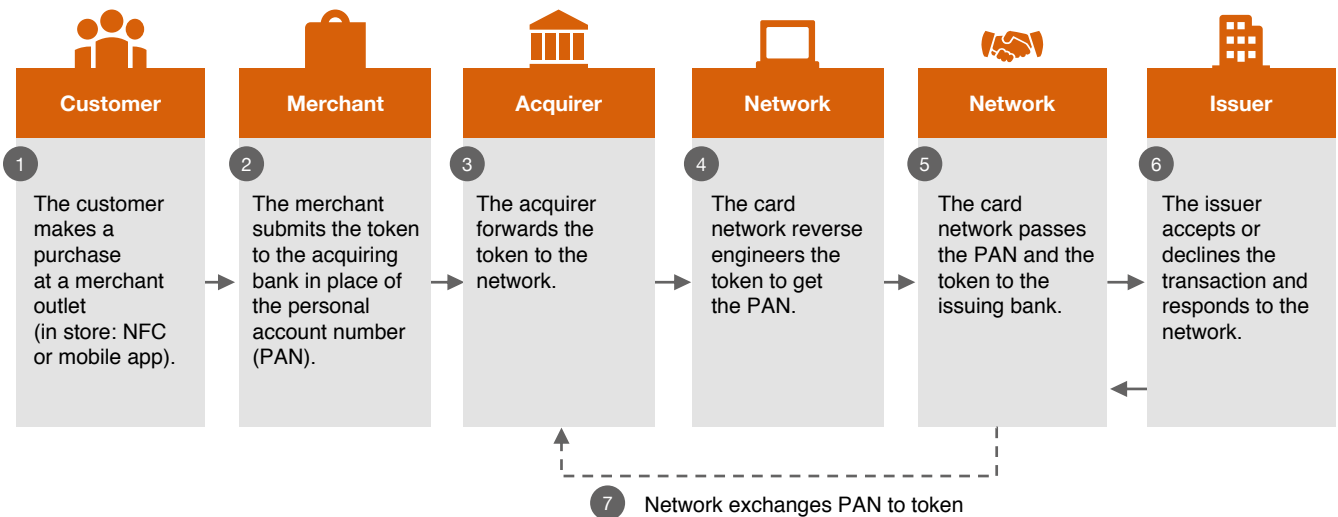
Tokenisation: The future of secured payments

In an age where digital transactions are booming, the security of customers’ payment data has become extremely crucial. In light of this, card tokenisation is slowly gaining popularity in India. Tokenisation is the process of replacing sensitive information like card/account details with a random value that is provided by the bank in the form of a token. During the transaction, it is the value on the token that is exchanged and not the user data. This ensures that merchants cannot store customer data, thus reducing the chances of fraud. With the RBI releasing a circular permitting its use in select use cases, tokenisation is set to play a crucial role in securing payments in the country. The transaction flow using tokenisation across various stakeholders is highlighted below (Figure 15):



Figure 15: Tokenisation enhances security without hampering the customer experience

Transaction flow using tokenisation across various stakeholders in the payments value chain



Source: PwC analysis



National Common Mobility Card (NCMC): 'One nation, one card'

The Indian Government recently launched the NCMC, also labelled as 'one nation, one card'. This interoperable, contactless transport card enables consumers to make multiple payments, including transit to toll and retail shopping, and also allows for money withdrawal. Apart from being cost effective, these cards can vastly decrease friction in transit payments.

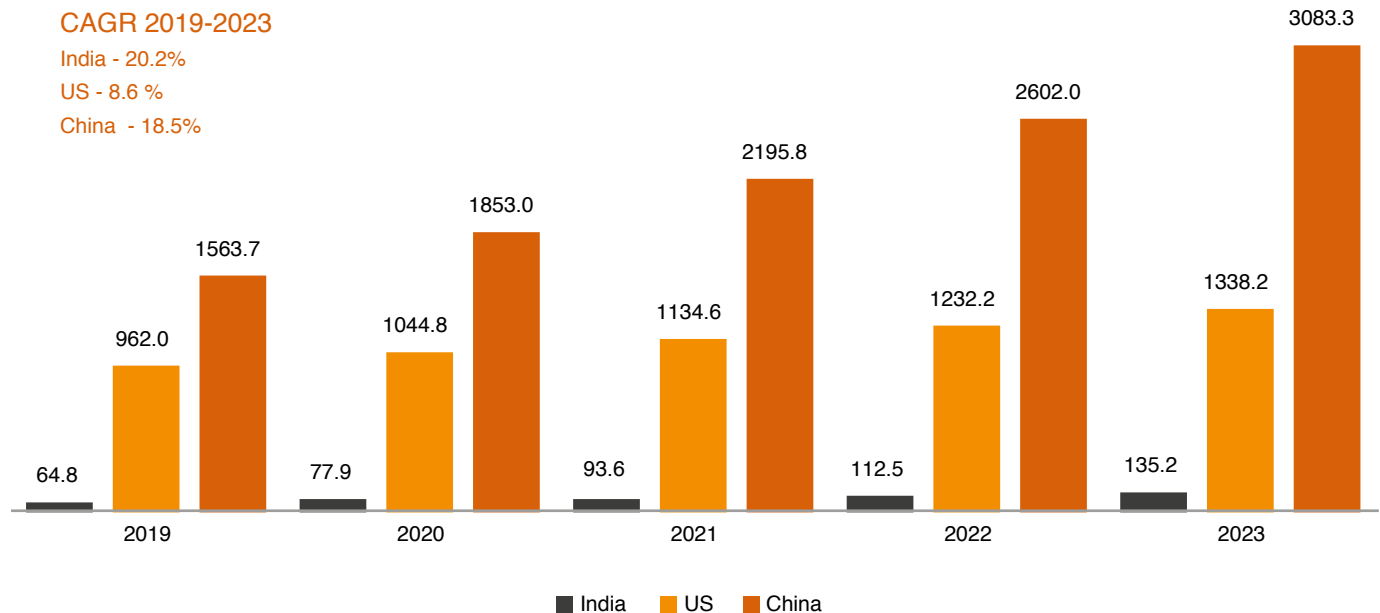
With the Government's emphasis on smart city projects, the transit sector is set to witness rapid growth. These cards would then play a key role in driving the adoption of digital payments in this sector.

Digital payments transaction value (India vs global)

In India, digital payments' transaction value is estimated to grow at a CAGR of 20.2% from approximately USD 64.8 billion in 2019 to USD 135.2 billion in 2023. Its share of worldwide transaction value of digital payments is set to increase from 1.56 % to 2.02% during the same period (Figure 16 and Figure 17).¹⁹ In the case of the market leader, China, the transaction value of digital payments is estimated to grow at a CAGR of 18.5% from approximately USD 1.56 trillion in 2019 to USD 3.08 trillion in 2023. Additionally, its share of the worldwide transaction value of digital payments is set to increase from 37.72% to 46.11% during the same period (Figure 16 and Figure 17).²⁰

Figure 16: India is expected to clock the fastest growth in digital payments' transaction value from 2019–2023

Transaction flow using tokenisation across various stakeholders in the payments value chain



Source: Statista, 2019

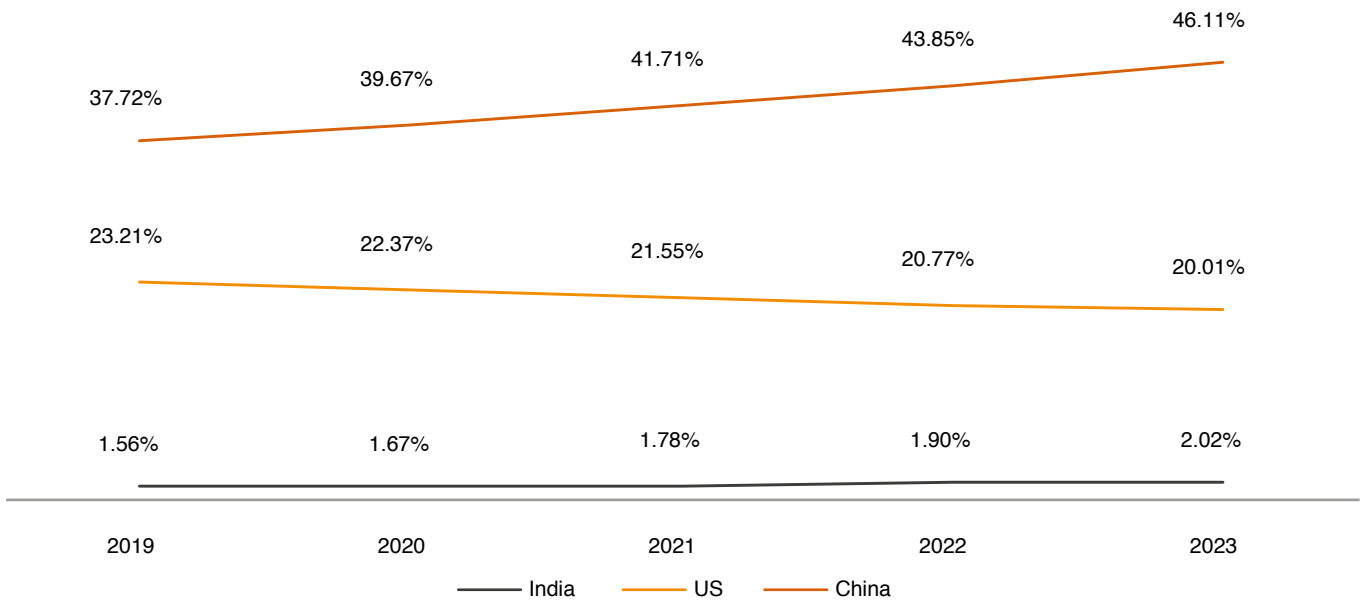
Note: The above chart only includes digital payments via online processed payment transactions, POS payments via smartphones, and digital consumer commerce (e-banking, B2B payments, etc., are excluded)

19 Statista. (2019). Digital payments India outlook. Retrieved from <https://www.statista.com/outlook/296/119/digital-payments/india> (last accessed on May 10, 2019)

20 Statista. (2019). Digital payments worldwide outlook. Retrieved from <https://www.statista.com/outlook/296/100/digital-payments/worldwide> (last accessed on May 10, 2019)

Figure 17: India's share in worldwide digital payments set to increase from 1.56% in 2019 to 2.02% in 2023

% share of worldwide digital payments transaction value by country (2019-2023)



Source: Statista, 2019

Note: Above chart only includes digital payments via online processed payment transactions, POS payments via smartphones, and digital consumer commerce (E-banking, B2B payments etc. are excluded)



Why have mobile payments witnessed high adoption in China?

Ubiquitous presence of mobile phones and mobile internet

Mobile subscription has more than tripled in the last 10 years in China, touching approximately 112 per 100 people in 2018.²¹ This, coupled with the Chinese consumers' propensity to surf the internet using a mobile device (around 98% of Chinese internet users do so on mobiles)²² is conducive to higher adoption of e-wallets.

Leveraging high customer engagement to pursue platform play

Chinese super apps have achieved high levels of customer engagement (akin to what global tech giants and other e-commerce players put together have achieved in other countries) by adopting successful business models worldwide. This high level of customer engagement of local players made them become trusted players to extend other FS such as lending investment management etc. on the same mobile app by employing platform play.

Proliferation of e-commerce and the online-to-offline (O2O) model

Chinese customers have a high propensity to shop online. The O2O model, where the customer browses online and makes the payment through a mobile quick response (QR) code at an offline store, has led to the proliferation of mobile payments.

Global standards for FinTech solutions (digital payments)

India's Immediate Payment Service (IMPS) sets the global standard for payments innovation

A leading FS technology firm has developed a Faster Payments Innovation Index (FPPI) that grades global payment systems on various parameters including low transaction times, facilitation of interbank transfers, universal access, and round-the-clock availability, adherence to technical standards, push-and-pull payments capability and real-time transactions. Post evaluation, these parameters have led to a FPPI score from 1-5, which signifies speed and innovation in a particular country's payment system, with 5 being the best score. India's IMPS, which processed more than 1 billion transactions in 2017-18,²³ emerged as the only solution to receive a score of 5 in 2018, overtaking countries like the USA (score-4), China (score-4), Kenya (score-4), the United Kingdom (score-4) and Japan (score-3).

Contactless payments through IoT and wearable products. A few US banks have tied up with payment technology firms to enable contactless payments through IoT and wearable products at near-field communication-(NFC) enabled terminals, driving the adoption of digital payments.

²¹ Statista. (2019). China: number of mobile phone subscriptions in 2018. Retrieved from <https://www.statista.com/statistics/235419/mobile-penetration-in-china-since-2007/> (last accessed on May 10, 2019)

²² HostingFacts. (2018, Dec 17). Internet Stats & Facts for 2019. Retrieved from <https://hostingfacts.com/internet-facts-stats/> (last accessed on May 10, 2019)

²³ The Reserve Bank of India (RBI). (2018). Annual Report of the RBI: Payment and Settlement Systems and Information Technology. Retrieved from <https://m.rbi.org.in/Scripts/AnnualReportPublications.aspx?Id=1236> (last accessed on May 10, 2019)

The way forward

The Indian digital payments industry would need to address a few challenges before unlocking its full potential. Some of these include low industry margins, primarily due to a cashback-driven culture and increased competition pulling margins down, and process inefficiencies like KYC bottlenecks. Also, addressing transactional security challenges will be absolutely critical to winning customers' trust, with cyber security attacks getting more sophisticated.

Going forward, to improve margins, payments products could be intelligently bundled with other FS products to lift the value chain. In this context, the synergy between the payments and lending space needs to be exploited, as FS players can leverage the rich payment transactional data for credit underwriting to disburse loans through the payments channel. This is already underway in the industry, but has not yet gathered full steam.

Another key need is sustained investment in the back-end payments infrastructure. Countries like China, which has witnessed tremendous success in driving payments, did so on the back of a robust payments back-end infrastructure. The Indian Government's initiative of setting up of Common Service Centers (CSCs) in India is a positive step in this direction. In addition, FS players would need to upgrade their internal systems to handle the expected massive growth in digital payment volumes.

Finally, the payments business models in India are dominated by the business-to-consumer (B2C) and consumer-to-business (C2B) segments today. As the next wave of growth is likely to be led by the emerging models of payments in the B2B, government-to-citizen (G2C) and citizen-to-government (C2G) space, FS players would need to tweak their business strategies to realise this opportunity.

Alternative lending

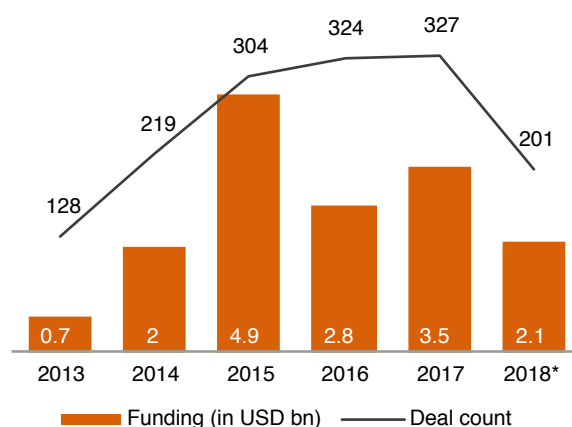
Technology-driven alternative lenders are upending the traditional lending value chain by engaging in both product and process innovation to improve customer experience and drive operational efficiency. These new-age lenders employ advanced technologies like artificial intelligence (AI) and machine learning (ML) to optimise their customer acquisition process for reducing costs, incorporate alternative data for credit underwriting and adopt sophisticated risk management solutions for vastly improving downstream lending activities, including collections management and loan resolution (Figure 19).

Alternative lenders have been growing rapidly, with a steady infusion of investment, both globally and in India, serving as testimony to the huge market potential this sector holds. In 2018, alternative lending witnessed the highest deal activity in the Indian FinTech market, with 617 deals totalling approximately USD 530 million (Figure 12). Additionally, cumulative investments into the Indian alternative lending space have already crossed USD 1 billion as of September 2018.²⁴

Across the globe, there are more than 3,400 alternative lenders, with multiple business models catering to the huge underserved segment, and 11 alternative lenders as unicorns.

Also, the overall global funding in this space has already crossed approximately USD 21.7 billion till September 2018, boosting the sector's growth (Figure 18).

Figure 18: Global VC-backed alternative lending funding, 2013 to 2018* (USD billion)

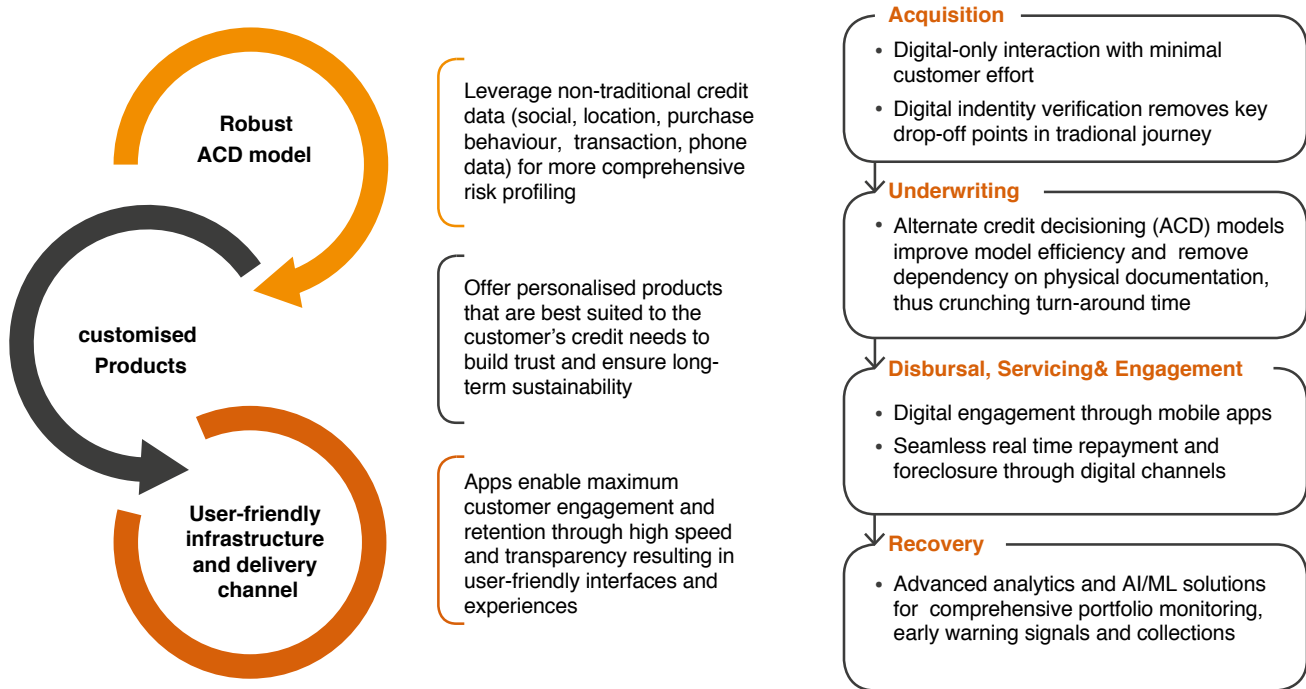


Source: Tracxn, 2018

Note: 2018 data is till September 2018.



Figure 19: Alternative lending is redefining the lending model across the value chain



Source: PwC analysis

Alternative lending business models

Alternative lenders focus on technology and uses both traditional and alternative data innovatively to finance customers underserved by traditional lenders. Some of the key alternative lending business models are discussed below.

P2P lending

P2P lenders build a digital marketplace that connects borrowers, both individuals and organisations, with lenders. This allows borrowers to access low-cost loans quickly and at an affordable rate. The interest rates can be mutually agreed upon by the borrowers and lenders, and both pay fees to the platform. While the borrowers pay an origination fee, either at a flat rate or a certain percentage of the loan amount raised based on her/his risk category, lenders pay an administration fee or any additional fee if they choose to avail any additional service (e.g. legal advice), based on the terms of the platform.

Invoice financing

Invoice financing is a short-term working capital facility extended by lenders based on MSMEs' unpaid customers' invoices. It is often used to meet the short-term liquidity requirements of a company, enabling MSMEs to accelerate their accounts receivables.

Crowdfunding

Crowdfunding involves raising external finance from a large group of lenders through a platform wherein investees showcase their business ideas, funding requirement, business cases and potential. Investors can view investees' communication, interact with them and find the best option to meet their needs. Each participant (investor) provides a small portion of the requested funding and the pooled funding is used by the requestor (investee) for the declared cause(s). Finance can be obtained in the form of equity where the company offers securities to the investor. Globally, as well as in India, crowdfunding is still at a nascent stage.

Crowdfunding platforms have empowered entrepreneurs by providing ease and transparency in the sourcing of funds. These platforms also enable quick validation of entrepreneurial ideas, and provide entrepreneurs with low-cost capital that can be accessed rapidly as compared to other conventional channels.

Paylater loans

Paylater lenders disburse instant loans with the 'buy now and pay later' facility for financing customers' purchases. These loans are normally small ticket size loans and customers would be given an option to pay via the lender's wallet/apps. Customers get an interest-free repayment period, post which they would be charged a late fee. The limits on customer spending are defined by lenders and can be extended based on spending and repayment history. Such loans cannot be used to repay borrowers' credit card bills. Multiple banks and payments start-ups are now operating such models.

Mobile lending

Mobile lenders provide small mobile loans by assessing the creditworthiness of borrowers using data such as mobile calling patterns, mobile transactions, mobile e-money usage, and mobile e-money-linked savings history, as well as credit history data. After obtaining consent from the borrowers, lenders offer loans to customers based on the customer credit score generated by the analytics engine.

Digital mortgage

These lenders fully digitise the traditional and cumbersome process for availing of mortgage loans from the application stage and credit underwriting to the delivery of mortgage loans via online channels to customers, thereby decreasing the turnaround time and improving customers' experience.

Direct lending models

Direct lending includes entities that lend their own capital. In India, these are either registered as NBFCs or have tie-ups with these entities. In India, multiple direct lending models are emerging, with lending based on borrowers' working capital, and unsecured and short-tenure loans. Some of these models are:

- **POS lending:** These players finance e-commerce shoppers' purchases through tie-ups with FS lenders. Apart from utilising conventional data like bank account statements for underwriting, these players also utilise AI models to assess consumer behaviour based on their transaction history, product purchase behaviour and other data points, to create a sharper customer risk profile.
- **Supply chain financing:** With the continued growth of e-commerce and online marketplaces, lenders have targeted not just retail consumers but also merchants selling their products and services on these platforms. Direct lending NBFCs tie up with wholesale players and marketplaces to target large networks of merchants who source their products there. These platforms contain huge volumes of data on the sales cycles of these merchants, which are then consumed by advanced analytical models for credit underwriting.

Key emerging trends

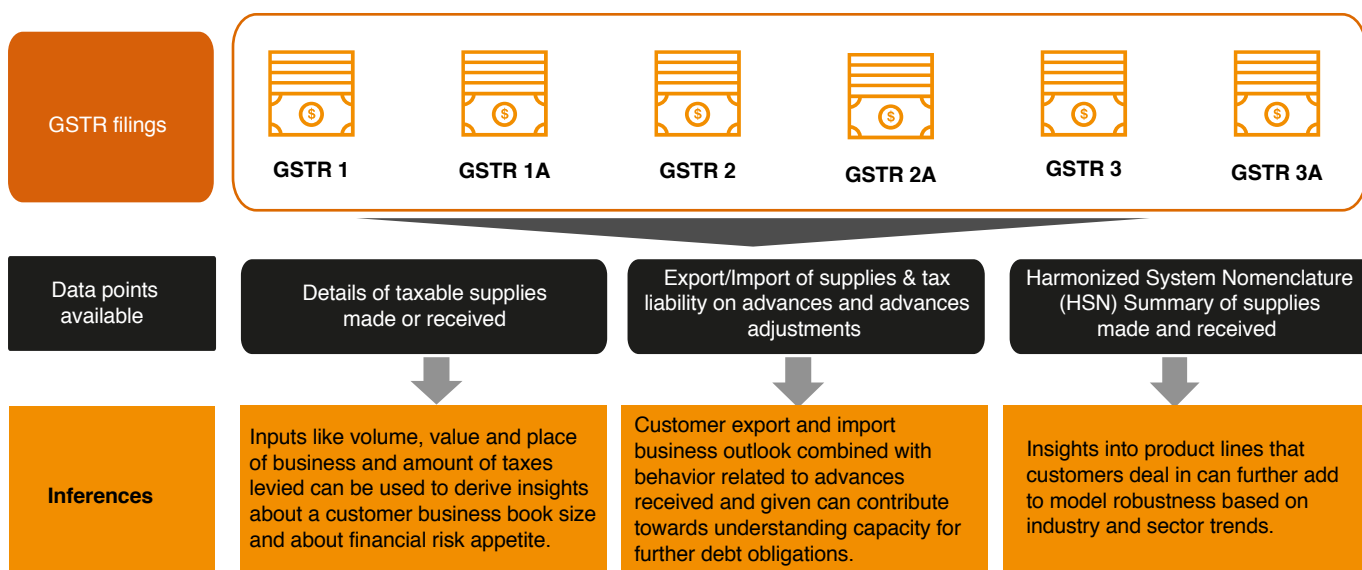
Driving financial inclusion using alternative credit scoring

MSME financing to rise with increasing business formalisation

MSMEs are crucial to the growth of different global economies. In 2018, MSMEs in India contributed 37% of the country's GDP and 43% of exports, and employed 40% of the workforce.²⁵ In spite of exclusive legislations and policies, MSMEs failed to reach their full potential owing to lack of access to formal credit. For lenders, the fragmented and opaque nature of available MSME information poses a serious challenge for underwriting. Other factors, including a lack of collateral and formal credit ratings, coupled with high transaction costs, act as a further disincentive to lend to MSMEs.

However, this situation is set to change with huge improvements in digital infrastructure and the roll-out of structural reforms such as the GST rollout. As a result, MSME businesses will be formalised through the increased availability of digital MSME information that can be utilised for credit assessment (Figure 20). A new crop of Fitch lenders have already entered this space, and they use both traditional data and alternative MSME data to offer credit solutions to MSMEs. Some of the MSME alternative data is used by these lenders include e-commerce data (e.g. MSME borrowers' interactions with their market), psychometric credit information, digital footprints (e.g. digital supply-chain data), mobile phone usage data, social network data and location data.²⁶

Figure 20: MSME lending using GST data



Source: PwC analysis

25 Small Industries Development Bank of India (SIDBI) and TransUnion CIBIL. (2018). MSME Pulse Report, March 2018. Retrieved from: <https://sidbi.in/files/article/articlefiles/Report-msme-pulse.pdf> (last accessed on May 05, 2019)

26 Owens, J. and Wilhelm, L. (2017). Alternative Data Transforming SME Finance. International Finance Corporation (IFC) and Global Partnership for Financial Inclusion (GPI). Retrieved from <https://www.gpi.org/sites/default/files/documents/GPI%20Report%20Alternative%20Data%20Transforming%20SME%20Finance.pdf> (last accessed on May 05, 2019)

Driving the consumer financing need in the hinterland

A number of alternative lenders have emerged in the consumer financing space as compared to MSME financing, but currently, they primarily cater to the urban India. However, with the Government giving a thrust to financial inclusion, FinTechs, banks and NBFCs have started making inroads into the rural consumer space. Going forward, this segment is expected to gain traction, driven by a regulatory push, increasing rural mobile penetration and emergence of new digital business models that enable the servicing of this customer segment profitably.

Partnerships to become the new normal

FS lenders are forging partnerships increasingly with multiple entities, such as alternative data providers, FinTechs, tech firms and credit bureaus. This helps augment the digital capabilities required for delivering a frictionless and intuitive customer experience, and serving a wider target segment. Data partnerships, in particular, are on the rise as organisations look to unlock key customer insights for multiple use cases ranging from developing innovative customer acquisition strategies to building early warning signals (EWS) systems for tackling delinquency.

Increased participation of non-FS players

Increasingly, non-FS players, including large tech firms and e-commerce players, are disrupting the lending market by targeting their captive customer base for lending solutions. In China, home-grown tech giants have successfully executed this platform play by capturing the payments space and pivoting successfully to lending and investment management services.

These tech players primarily operate in the product distribution space, thereby gaining crucial control of the customer's experience. This has several implications for traditional product manufacturers, as profit pools are bound shift to distribution players who create a competitive advantage by differentiating themselves in terms of user experience, forcing incumbents to make strategic choices on where to play in the FS value chain. However, technology players would have to navigate through the stringent regulations governing the FS space, as security and compliance emerge as major challenges for these non-FS players.

A conservative regulatory approach

Although market regulators in India have been supportive of alternative lenders, they are expected to continue with the current conservative approach for regulating new entrants, as the high non-performing asset (NPA) levels in the market remain a concern.

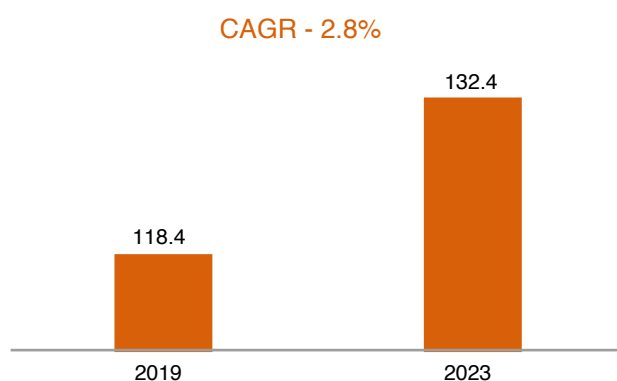
Alternative lending transaction value (India vs global)

In India, the transaction value of alternative lending (crowd lending, business and marketplace lending, and consumer lending) is estimated to grow at a CAGR of 2.8% from approximately USD 118.4 billion in 2019 to USD 132.4 billion in 2023 (Figure 21).

²⁷ As of 2019, India's alternative lending transaction value is estimated to be only 0.005% of the global alternative lending transaction value, as compared to the market leader China's staggering 91% (Figure 22).²⁸

Figure 21: Total alternative lending transaction value estimated to reach USD 132.4 million by 2023

Total alternative lending transaction value in India (2019-2023) (USD million)

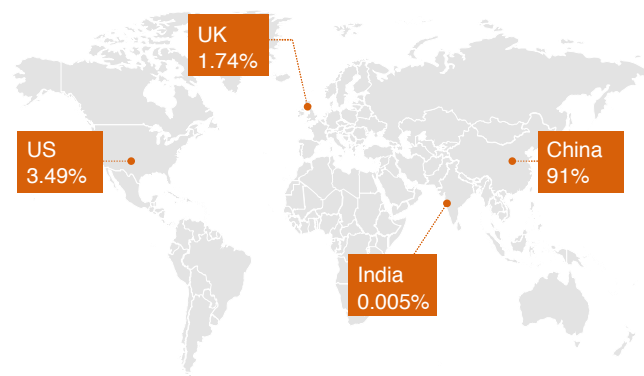


Source: Statista, 2019

Note: Only includes crowdlending (business) and marketplace lending (consumer) data

Figure 22: India's alternative lending transaction value is only 0.005% of the worldwide value in 2019

Country alternative lending transaction value as a % of worldwide alternative lending transaction value in 2019



Source: Statista, 2019

Note: Only includes crowdlending (business) and marketplace lending (consumer) data

²⁷ Statista. (2019). Retrieved from <https://www.statista.com/outlook/399/119/alternative-lending/india> (last accessed on May 10, 2018)

²⁸ Statista. (2019). Retrieved from <https://www.statista.com/outlook/399/100/alternative-lending/worldwide> (last accessed on May 10, 2018)

The way forward

Alternative lending is expected to continue its upward growth trajectory on the back of the government's efforts to drive financial inclusion. However, the industry needs to address a few issues to progress smoothly. One of these is data privacy, with alternative lenders increasingly accessing a diverse set of non-traditional data for credit assessment. The industry should ensure that consumer consent is obtained upfront, and data governance standards are in place to safeguard customer data. Another key issue is that of lenders increasingly relying on AI/ML models for underwriting. While doing this, they should be wary of model biases and avoid pricing a customer segment in such a way that it is out of the market for good.

In terms of future growth, MSME lending is set to get a boost with the entry of alternative lenders focusing on this particular space, and the rise of digital MSME information owing to increasing business formalisation. Going forward, alternative lenders are expected to gain more prominence, as they forge partnerships and orchestrate ecosystems across both FS and non-FS players to serve a wider customer base in a cost-effective manner.

InsurTech

The Indian InsurTech space witnessed rapid growth in 2018 after receiving a total funding of approximately USD 378 million across 17 deals to emerge as the third best funded FinTech segment (Figure 13). As of February 2019, there were 142 InsurTech start-ups operating in India.²⁹ Amongst these, the top 10 InsurTech start-ups by their amount of funding have received an aggregate of USD 660 million in the past decade.³⁰

Key business models

InsurTech refers to the practice of using technology-based innovations to drive disruptions across the insurance value chain and achieve cost efficiencies and product democratisation. This space is currently dominated by nascent startups which operate across various facets of the insurance life cycle—that is, lead management, underwriting, sales and distribution, claims and renewal.

Digital insurance advisors

Digital advisors are web/application-based service providers who aggregate and sell product offerings of both traditional and new-age digital insurers on their platforms via a commission-based revenue model. The key value propositions offered to the customers are convenience to access and compare products from multiple insurers on the same platform, and an end-to-end, seamless digital experience across the insurance lifecycle.

PoS insurance providers

PoS insurers address customers' need for insurance when they shop for other products and services. These players partner with digital service providers who cater to customers' needs like buying a car, electronic appliance, furniture, house, vacation, etc., and offer personalised insurance products to these customers. By partnering with online service providers and e-commerce aggregators, the PoS insurers gain access to a significant market base. This is further leveraged by insurance companies to cross sell traditional insurance products like life, health, auto, etc.

29 Tracxn. (2019). *Insurance Tech Startups in India*. Retrieved from <https://tracxn.com/explore/Insurance-Tech-Startups-in-India/> (last accessed on May 04, 2019)

30 IBID.

31 Jaffer, S. (2018, July 27). *InsurTech – The Revolution in Insurance*. The Institute of Actuaries in India (IAI). Retrieved from <http://www.actuariesindia.org/SeminarDocs/5thCIGI/ppt/Insuretech%20-%20The%20Revolution%20in%20Insurance%20-%20Safer%20Jaffer.pdf> (last accessed on May 05, 2019)

32 The Insurance Regulatory and Development Authority of India (IRDAI). (2019). *Annual Report 2017-18*. Retrieved from https://www.irdai.gov.in/ADMINCMS/cms/fmGeneral_NoYearList.aspx?DF=AR&mid=11.1 (last accessed on May 05, 2019)
Retrieved from <https://www.livemint.com/Money/YopMGGZH7w65WTTxgPLoSK/56-Indians-still-dont-have-a-health-cover.html> (last accessed on May 05, 2019)

Key emerging trends

Even though the Indian InsurTech market is at an early stage, the following three trends are emerging:

Product customisation

The rise of real-time analytics and increased availability of data using IoT devices have altered the nature of insurance products, giving rise to sachet insurance policies. This has also transformed methods used for underwriting for these new-age policies by using alternative data.

Price segmentation

Insurers are creating customised profiles on a customer-to-customer basis. This helps them understand their unique risk profiles and offer personalised pricing in policies.

Business model innovation

Companies have adopted new models like P2P insurance, and offer platforms to pool insurance premiums wherein peers can purchase group insurance policies. This enables them to team up and contribute to each other's losses if required.

Global standards for InsurTech solutions

A leading InsurTech in the US offers insurance policies for home owners and renters for houses and apartments by coupling behavioural economics and technology. The company has achieved operational efficiencies and generated profits by doing away with the need of insurance agents and using AI/ML-based chatbots to distribute policies.

The claims process has been completely automated using a mobile app which has an AI-based chatbot for cross-checking claims filed using a video recording and approving the same, thereby doing away with the need for agents and reducing the TAT for claims. The company keeps 25% of the premium amount as a profit and uses the remaining 75% for claims settlement and purchasing reinsurance.

The way forward

Telematics and HealthTech driven insurance use cases are examples of innovations taking place across the globe in the vehicle and health insurance space, and are slowly catching up in the Indian market too. The use of connected data has the potential to change the insurance industry by triggering changes in customers' behaviour to achieve better risk-based pricing. However, regulatory barriers to collecting such data and consumer behaviour have been a major hindrance to the mainstream adoption of these technologies. Another emerging area in the Indian space is the role of InsurTech in agriculture for use cases such as crop simulation modelling for predicting the weather and crop yields, and using drone and satellite monitoring for reducing the cost of inspections and fraud monitoring.³¹

Going ahead, these developments are set to gather pace as the insurance industry embraces digital business models. Moreover, with the immensely low level of insurance penetration in India (2.76% in life insurance and 0.93% in non-life insurance),³² and the need for the scaling up of insurance owing to factors like increased awareness and decreased costs due to low-cost technology-based distribution models, InsurTech remains poised to disrupt the FS space in the coming years.

WealthTech

WealthTech players employ advanced analytics to offer digital solutions to transform traditional wealth management and investment management services. Traditionally, the technical expertise of financial advisors has been the key differentiating factor for wealth managers. However, with improved usage of big data and emergence of sophisticated AI and ML models in evaluating investment opportunities, optimising portfolios, and mitigating associated risks, both quantitative as well as fundamental asset managers are increasingly relying on technology for investment decision-making.

The increasing influence of technology in this space is apparent by both the steady funding into this space and the growing number of WealthTech startups. In 2018, WealthTech was the fourth-best funded FinTech segment in India, with investments of approximately USD 122 million across 23 deals (Figure 12).

Even globally, there has been an upward trend in the amount of capital raised by WealthTech startups in recent years. In the first quarter of 2019 alone, global WealthTech startups raised approximately USD 845.1 million, an increase of almost 80% over the Q4 2018 figure.³³

Democratising investment advisory

Traditionally, specialised investment advisory services were the preserve of only high net worth individuals. However, the emergence of tech-enabled wealth managers has made it possible to deliver highly-specialised investment advisory services targeting the mass segments.

Hybrid models with a human touch

As the demand for robo-advisory and technology-driven wealth and portfolio management tools grows, financial institutions are investing significant money and effort to integrate these offerings with their existing workforce. The hybrid model is meant to provide a level of comfort not seen before that uses only digital services while still catering to rising consumer interest in WealthTech.

Sentiment analysis

AI - powered robo-advisors can analyse web data, including social media data, to analyse the real-time sentiments of people, thus providing insights into optimal asset allocation strategies. For instance, with a combination of big data analytics and AI, live data from various social media outlets is being collected. It is analysed to help traders anticipate movement in a company's stock price.

Payment players moving into the systematic investment plan (SIP) space

Digital wallet companies in India are now moving into the wealth management space with small-value SIPs (systematic investment plan), starting as low as INR 100. The USP of these offerings is the easy integration with customers' payment wallets and the near-zero fees or commission.

Life-stage/event/ goal-based investment advisory

Some of the WealthTechs today are gamifying the process of investment product selection by providing the customer with a pre-defined life-stage or event-based investment option which

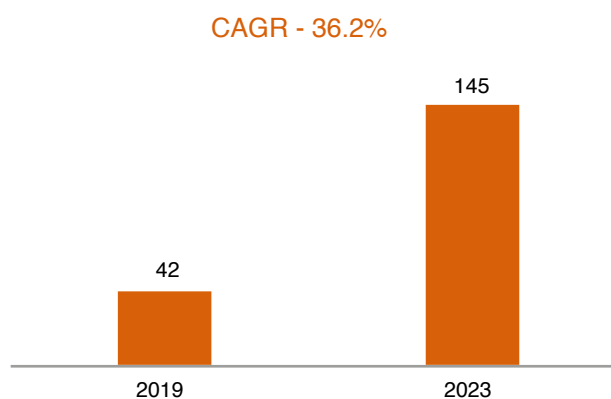
can be used to achieve the desired financial goals. This helps in simplifying the complexities traditionally associated with choosing the components of a portfolio of financial products, and helps customers focus only on the objective of their investments.

WealthTech transaction value (India vs global)

Total assets under management (AUM) in the Indian robo – advisors segment is estimated to grow at a CAGR of 36.2% from USD 42 million in 2019 to USD 145 million in 2023 (Figure 23).³⁴ But, these numbers are dwarfed by the market leader, the US, which accounts for 76% of the worldwide total assets under management in the robo-advisors segment in 2019 (Figure 24).³⁵

Figure 23: Total AUM in Indian robo-advisory forecasted to hit USD 145 million by 2023

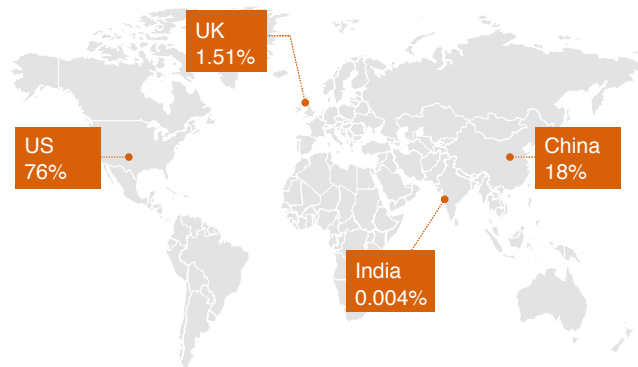
Total AUM in the Indian robo-advisory space, 2019-2023 (USD million)



Source: Statista, 2019

Figure 24: Indian robo-advisory transaction value accounts for 0.004% of the worldwide value in 2019

% share of worldwide robo-advisory AUM by country in 2019



Source: Statista, 2019

33 CB Insights. (2019). Global Fintech Report Q1 2019. Retrieved from <https://www.cbinsights.com/research/report/fintech-trends-q1-2019/> (last accessed on May 05, 2019)

34 Statista. (2019). Robo-Advisors India outlook. Retrieved from <https://www.statista.com/outlook/337/119/robo-advisors/india> (last accessed on May 10, 2019)

35 Statista. (2019). Robo-Advisors worldwide outlook Retrieved from <https://www.statista.com/outlook/337/100/robo-advisors/worldwide> (last accessed on May 10, 2019)

The way forward

As the number of high-net-worth individuals (HNWIs) in India grows, so does their need for advisory in wealth management. Between 2011 and 2017, the number of HNWIs has been steadily growing at a CAGR of 18.67%. This growth is expected to continue over the next few years, with the total HNWI wealth likely to reach around USD 3 trillion by 2025, creating a huge opportunity for the WealthTech players.³⁶

Moreover, the requirement for wealth management today is not limited to HNWIs, but also includes the mass segments. This is supported by the target set by the Association of Mutual Funds in India (AMFI) to grow the industry's assets under management (AUM) by approximately five times to INR 95 lakh crore (USD 1.47 trillion) and the number of investor accounts by more than thrice to 130 million by 2025.³⁷ This would call for WealthTech players to step up to sustain this surge in retail investors looking to invest money in equity and mutual funds.

The consumer-need cornerstone: Building offerings around a core consumer need to drive business growth

Apart from the four FinTech segments discussed in the previous section, India is witnessing the rise of a new breed of agile innovators. These defy categorisation as they increasingly blur the lines between various FinTech segments.

These players choose to target a specific customer segment to identify a core user need (which may not be financial) as the cornerstone for offering tailored products. After quickly establishing an initial market traction, they pivot to other profitable product streams that share logical adjacencies with their current offerings. (Figure 2). By choosing to operate at the intersection of core consumer needs and FS, and expanding along a continuum of adjacent offerings to provide FS solutions at the point of consumption, they remain well positioned to monetise their user base to drive business growth.

Gauging the opportunity: Bundling FinTech with consumption needs of the mass segment

Although India's FinTech sector has made substantial inroads into the FS space, most of their solutions have primarily catered to the affluent, urban segment. However, this is set to change with the rise of the mass segment in India. A large majority of this segment are first-time internet users and greatly differ from the current FinTech consumers, both in their demographical makeup and consumption needs.

In the coming years, the increasing consumption needs of this segment on the back of their rising income levels are set to open up distinct FinTech opportunities in diverse areas ranging from food, clothing, and health to housing transport.³⁸

We look at key FinTech opportunities in the lending space that are expected to emerge with the rising consumption needs of India's mass segment.

36 India Brand Equity Foundation (IBEF). (2018). *Financial Services*. Retrieved from <https://www.ibef.org/download/Financial-Services-April-2018.pdf> (last accessed on May 05, 2019)

37 India Brand Equity Foundation (IBEF). (2019). *Financial Services in India*. Retrieved from <https://www.ibef.org/industry/financial-services-india.aspx> (last accessed on May 05, 2019)

38 IDFC Securities. (2018). *India FinTech: FInnovation – The Rise of FinTech*. Retrieved from <https://www.niyogin.in/documents/20143/144500/India+FinTech++IDFC+Securities+research+report++Sep+18.pdf/d0225428-dd70-5a4e-914f-3a1a3ff26dc0> (last accessed on May 07, 2019)

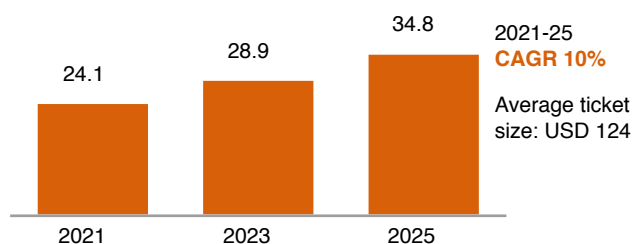
Lending

The abovementioned target segment's financing needs are mainly to meet their personal expenses (small-ticket size cash loans) and purchase consumption items (EMI loans for purchase of mobile handsets & accessories and FMCG). As per PwC, the total addressable market size for cash loans and the EMI commerce loans segment in 2023 is estimated to be USD 28.9 billion (Figure 25) and USD 29.4 billion (Figure 26) respectively.

Figure 25: Small-ticket cash loans opportunity sizing (personal expenses)

Total market opportunity in 2023 (Mass segment): USD 28.9 billion

Market opportunity cash loans - 2021-2025 (USD billion)



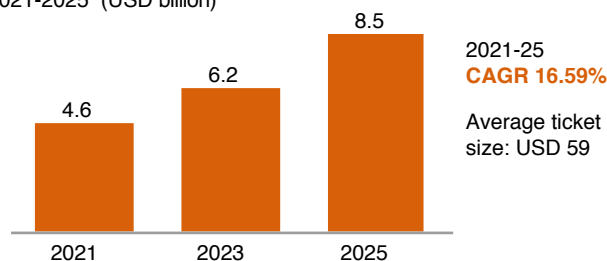
Huge unmet credit demand of this segment to cover their non-routine, personal expenses will drive the growth of small ticket cash loans opportunity

Source: Secondary research, PwC analysis

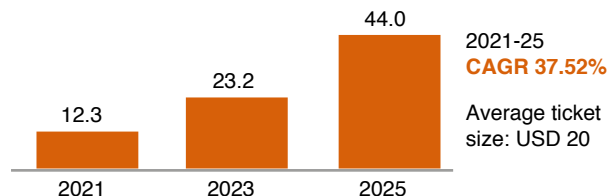
Figure 26: EMI loan book opportunity sizing (mobile phones and accessories and FMCG)

Total market opportunity in 2023 (Mass segment): USD 29.4 billion

Market opportunity EMI loans (Mobile phones & accessories) - 2021-2025 (USD billion)



Market opportunity EMI loans (FMCG) - 2021-2025 (USD billion)



Robust sales in mobile handsets and rural FMCG products, coupled with flexible financing options will unlock the huge lending driven commerce opportunity

Source: Secondary research, PwC analysis

Similar opportunities thrive in the payments and insurance space to build FinTech solutions according to the consumption needs of the mass segment.

Realising the opportunity: The consumer-need cornerstone framework

By following a three-pronged strategy of the consumer need cornerstone framework (Figure 27), FS players would be well positioned to capitalise on the FinTech opportunities provided by the burgeoning consumption needs of different income segments.

Phase 1: Cornerstone creation

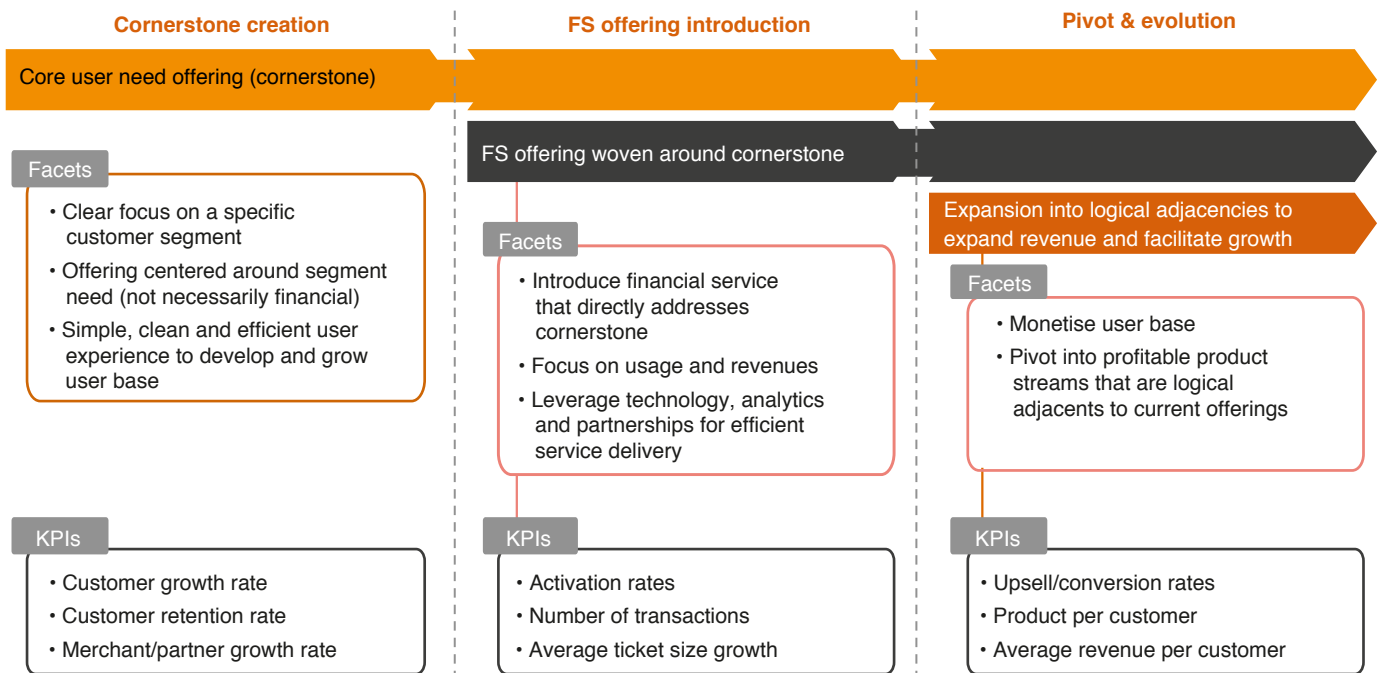
At the start, an FS player targets a customer segment to identify its specific core user's need as the cornerstone, which may not necessarily be financial. The player then proceeds to offer a product centred on this through an exceptional user experience to develop and grow the user base. This phase entails close monitoring of key KPIs such as customer growth rate, customer retention rate and merchant/partner growth rate to gauge the success of the offering's market adoption. In this phase, the key focus is on catering to the core consumer need cornerstone, such as food and clothing, and not necessarily on delivering FS solutions.

Phase 2: Introduction of FS offerings

In the second phase, the FS player proceeds to introduce the FS offering that directly addresses the consumer need cornerstone identified in phase 1. Here, the FS player would leverage technology and partnerships to efficiently deliver the FS offering, and drive customer usage and revenues. Key KPIs that need to be monitored in this phase would be activation rates, number of transactions and average ticket size, as the focus now is on building a large user base for monetisation in the next phase.



Figure 27: The consumer-need cornerstone framework



Source: PwC analysis

Phase 3:

Once the FS player establishes market traction for the initial offering and grows a sizeable user base, it swiftly expands into other profitable product streams that share logical adjacencies to its current offerings. The key goal here is to achieve profitable growth via expansion, and this requires close monitoring of KPIs such as upsell/conversion rates, product per customer, average revenue per customer and strategies to optimise these KPIs.

Challenges faced by the FinTech ecosystem

Although FinTech solutions have been gaining increasing traction in the market, there are a few challenges hampering the industry's growth. Some of these are highlighted below:

Market regulators

Balancing data privacy needs with the industry's requirement for open data

Market regulators are struggling to balance the consumer needs of data security and data privacy with the industry's need for open data for insight generation. While ensuring data privacy is critical to safeguarding consumers' trust in the FS space, a hard-line approach on data sharing has the potential to hamper the free flow of data crucial for creating innovative solutions.

Keeping pace with the emerging risks inherent in advanced technologies

Market regulators would need to keep up with the technological breakthroughs to fully appreciate their evolving risks on the wider ecosystem. For instance, cryptocurrencies could be used for money laundering, and AI-driven algorithm trading could lead to systemic risks by increasing market volatility. Also, AI-led models for credit assessment and underwriting could lead to a 'segment of one' and end up pricing certain customer segments out of the market for good.

Promoting stability in the FS sector in an interconnected world

Though FinTech players have helped create a diverse FS ecosystem, it has also led to increased interconnectivity and brought forth new systemic risks by launching disruptive business models. For instance, local regulators are grappling to supervise global technology firms who operate across multiple jurisdictions, leading to regulatory arbitrage.

FS incumbents

Reskilling people for a digital tomorrow

One of the key challenges facing the industry is how will they adopt workforce re-skilling strategies to cope with the rapid pace of technology-led revolution.

Tackling regulatory scrutiny on advanced technologies

The FS industry, with its stringent regulations round consumer security, necessitates that advanced models should be employed in sensitive areas such as lending pass the test of explainability so as to safeguard consumer interests. Such regulations have curtailed traditional players' ability to experiment with advanced analytical models in areas directly impacting customers.

FinTech players

Addressing cyber security concerns to win consumers' trust

With the rapid pace of technological advancements, cybercrime has also become more sophisticated. The onus is on FinTech players (and their partners) to ensure that sufficient digital controls are in place to secure customers' trust.

Lack of early-stage funding

Despite the Indian FinTech space attracting sustained VC investments over the last few years, many smaller startups lack access to early-stage capital, inhibiting their potential to scale up.

Managing regulatory uncertainty

Although Indian FinTechs have operated in an enabling regulatory environment, they have not been immune to regulatory uncertainties. With the recent Aadhaar e-KYC ban as a case in point, many FinTechs who had built business models around Aadhaar-enabled services for customer onboarding had to move back to physical mandates, disrupting their operations.

2

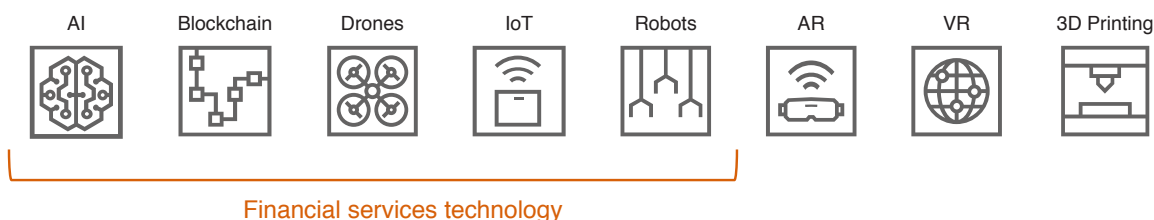
Emerging technologies reshaping the FS sector

Over the last several years, the financial services (FS) sector has been facing disruption from multiple forces including demographic and social changes to technological advancements. Technological advancements in particular has been having a disproportionate effect on it, forcing FS players to rethink their business models.

To shed light on these technological developments, PwC published the 'Tech breakthroughs megatrend' report in 2016 that covered the eight breakthrough technologies set to redefine business models across industries (Figure 28).³⁹ Today, some of these technologies have already been deeply embedded in the FS value chain, and are reshaping the FS sector.

Figure 28: Breakthrough technologies redefining industries

Breakthrough technologies



Source: PwC, Tech breakthroughs megatrend report, 2016

In this section, we explore the key six 'emerging tech' themes that are emerging in the FS space, as advanced technologies continue to transform the industry at unprecedented levels.

Redefining customer experience using modern technology

With digital leaders of non-FS industries setting benchmarks for customers' experience, FS organisations have had to step up their game by adopting 'digital first' strategies with a customer-centric perspective. For organisations, each customer interaction is an opportunity to generate insights that would help in not just delivering a seamless customer experience to win customers' trust and loyalty, but also in optimising product design and innovation to win new customers, thus creating a virtuous circle. With shrinking margins and increasing commoditisation of FS products, owning customer experience is key to organisations for creating competitive differentiation, and avoiding 'a race to the bottom' of price competition.

Finding new ways of customer acquisition

Customer acquisition in the FS space has emerged as one of the most promising areas of innovation. Organisations are investing in social media and web analytics for lead conversion by consuming unstructured social media and web data, and employing AI techniques to predict customers' intent to buy. In addition, organisations are also mining their core transaction and IoT data to analyse customer spend and payment patterns for recommending 'next best offers'. This has not only helped in lowering high customer acquisition costs in FS, but also led to increased revenue opportunities through cross-selling and upselling.

Optimising customer onboarding

The account opening and 'Know Your Customer' (KYC) processes are fraught with friction with customers owing to a cumbersome manual process that leads to a high turnaround time. With the advancements in technology, organisations have started

streamlining the customer onboarding process by digitising it fully and, in some cases, automatically prefilling customer fields by linking with external sources of data. AI-based methods, coupled with advanced video technologies, are also being explored to visually identify and validate customer identities.

Driving hyper-personalisation using chatbots

In today's age of hyper-personalisation, FS chatbots have become ubiquitous, evolving from a simple digital tool to a virtual private assistant. Apart from offering consumers the flexibility of a self-service option, AI-powered chatbots provide contextual insights to consumers through their preferred channels (including the comfort of their homes), thus boosting the sales conversion of FS products. Moreover, by constantly incorporating feedback from past customer interactions into their ML algorithms, they help in building sharper insights to deepen customer relationships. For instance, an AI-powered chatbot employed in a customer care scenario could predict the probable cause of a customer's call by analysing its past transactions, and offer pre-emptive solutions, leading to customer delight.

As digitisation gathers pace, chatbots are positioned to play a critical role. This is because consumers, especially in the FS space, are expressing increasing comfort with the use of virtual assistants for sharing information and recommendations. As per PwC's Bot.me survey in 2017, 41% of respondents said they are likely to turn to AI assistants versus humans for financial advice in the next 5 years.⁴⁰

Assisted intelligence in action

An insurance provider used ML techniques to combine policyholders' transactions data with external customer behavioural data, including customer preferences and financial literacy, to identify common transaction patterns and predict future patterns for each customer. The organisation developed customer engagement strategies using these insights, leading to a win-win situation for both parties.⁴¹

Source: PwC, 'Sizing the price: what's the real value of AI for your business and how can you capitalize? 2017 report

39 PwC. (2016). Tech breakthroughs megatrend: how to prepare for its impact. Retrieved from <https://www.pwc.com/gr/en/publications/assets/tech-breakthroughs-megatrend-Throw-to-prepare-for-its-impact.pdf> (last accessed on May 10, 2019)

40 PwC. (2017). Bot.Me: A revolutionary partnership: How AI is pushing man and machine closer together. Retrieved from <https://www.pwc.in/assets/pdfs/consulting/digital-enablement-advisory1/pwc-botme-booklet.pdf> (last accessed on April 30, 2019)

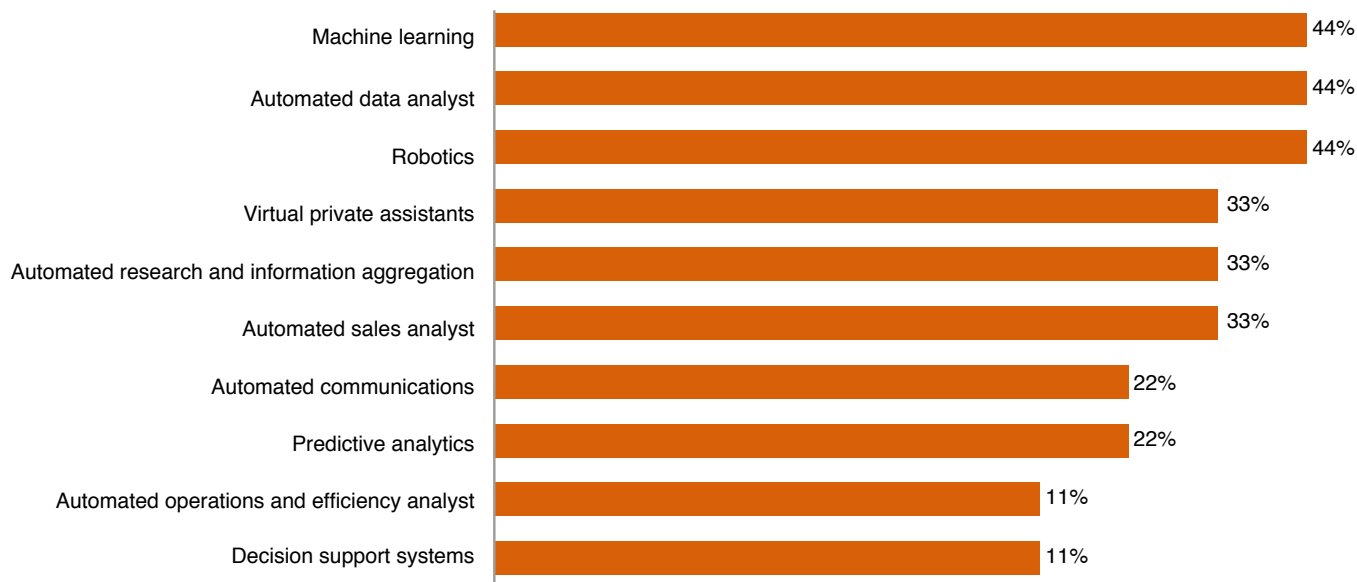
41 PwC. (2017). Sizing the price: What's the real value of AI for your business and how can you capitalize? Retrieved from <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf> (last accessed on April 30, 2019)

Managing risk with AI/ML

As per PwC's 'Artificial Intelligence in India - hype or reality' report, decision makers in the banking, financial services and insurance industry (BFSI) cited machine learning, automated data analysis and robotics as the top three AI-powered solutions with the largest

impact on their business (Figure 29).⁴² This is in accordance with the industry's focus on risk management, customer service and process automation.

Figure 29: ML, automated data analyst and robotics emerge as the top three AI-powered solutions in BFSI



Source: PwC, Artificial intelligence in India - A hype or reality: Impact of artificial intelligence across industries and user groups report, 2018.

Question: According to you, which AI-powered solutions has the largest impact on your business?

As organisations are reshaping their business models to take advantage of emerging technologies, the risk-management function is also undergoing a paradigm shift to keep pace with these developments. Advanced technologies like ML and cloud computing have made it possible for organisations to analyse vast amounts of data, both structured and unstructured, to accurately uncover and assess emerging risks and drive optimum pricing strategies. Further, heightened regulatory scrutiny in the FS space and increased costs for compliance breaches are also driving organisations to build sophisticated risk management capabilities to effectively navigate in an increasingly open and connected world.

Leveraging AI-powered engines for risk assessment and optimum pricing

Many FS organisations are moving away from archaic rule-based systems to AI-driven engines for managing internal and external risks. Traditional rule-based systems are ill equipped to handle the huge volumes and complexity of the transactional data generated by FS organisations today. Moreover, these expert-driven rules are static and do not evolve with the changing nature of emerging risks, leading to their failure in uncovering of underlying relationships between the entities under investigation. ML algorithms also ensure that existing models continue to self-learn and self-correct to ensure consistent risk pricing.

Insurance companies, in particular, are being disrupted by AI and ML tools in a big way, as analysing large datasets for risk assessment to drive pricing underpins the core strategy of insurance businesses. Most use cases implemented in this space revolve around improving the underwriting function, by using ML techniques to analyse large datasets of historical data that insurance companies have collected to identify cases with higher risk, potentially leading to decreased claims and improved profitability. Some insurance companies are also exploring how ML tools and remote sensors can help in identifying and averting insurable incidents before their occurrence, such as vehicle accidents.

Similarly, FS lenders are augmenting their credit decisioning systems by incorporating alternative data, such as that of social media and location, and coming up with sharper risk profiles of customers for targeted lending with improved pricing-risk outcomes.

⁴² PwC. (2018). Artificial intelligence in India - hype or reality: Impact of artificial intelligence across industries and user groups. Retrieved from <https://www.pwc.in/assets/pdfs/consulting/technology/data-and-analytics/artificial-intelligence-in-india-hype-or-reality/artificial-intelligence-in-india-hype-or-reality.pdf> (last accessed on April 27, 2019)



Market regulators are leveraging advanced technologies for AML/CFT and fraud detection

Market regulators have started using advanced technologies to enhance their supervisory and oversight activities. For instance, the Monetary Authority of Singapore (MAS) is exploring the usage of ML techniques to identify higher risk transactions from the ‘suspicious transactions’ filings by the regulated entities. Due to the defensive nature of these filings, investigation of suspicious transactions is fraught with numerous false positives, leading to huge delays. By using ML techniques, market regulators can identify only those transactions that merit additional scrutiny, and uncover complex patterns related to money laundering, thus both saving time and improving the accuracy of AML/CFT detection.⁴³

Similarly, Italy’s central bank, the Bank of Italy, correlates information regarding banks’ fund flows (structured data) with data gathered from newspapers (unstructured data) to tackle money laundering in the banking system. These techniques are also used by market regulators to discover cases of possible fraud and misconduct among FS players. For instance, in the US, the Securities and Exchange Commission (SEC) staff apply text analytics and ML algorithms on SEC filings of investment advisors, and relate this output with past investigation outcomes to predict potential risks. As per a SEC staff, these techniques are “five times better than random” at identifying language that warrants further action.⁴⁴

Source: The Financial Stability Board (FSB), *Artificial intelligence and machine learning in financial services report*, 2017

Like market regulators, FS players are also employing similar ML techniques for fraud detection. As fraudsters constantly change their strategies to evade detection, ML techniques can be used to spot shifting patterns, leading to improved detection rates while reducing a large number of false positives.

Building sophisticated EWS systems for NPA prevention and developing ‘smart collections’ strategies to optimise loan recoveries

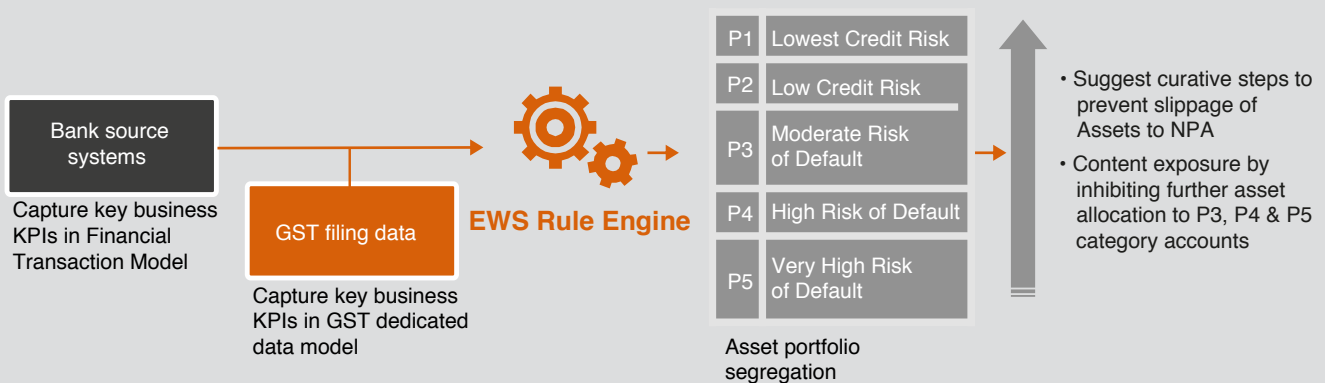
Organisations have started building AI-powered EWS systems to help predict potential delinquencies at an early stage and proactively manage credit risk exposures (Figure 30). By using advanced analytics to mine both external and internal sources

of information on borrowers with a focus on lead indicators as opposed to lag indicators, borrowers’ propensity to default could be predicted, and proactive measures could be taken to address it.

In addition, EWS systems could facilitate real-time sharing of this information via interactive dashboards, intelligence reports, etc., to key internal stakeholders for taking the required curative steps to prevent asset slippages to NPAs.

Advanced analytics is playing a key role not only in NPA prediction, but also in optimisation of other downstream value chain activities, such as borrowers’ collections and delinquency resolution. AI-based ‘smart collections’ strategies are being adopted to suggest tailored actions to recovery agents to optimise recovery of defaulted amounts.

Figure 30: AI-powered EWS for NPA prevention



Source: PwC analysis

43 The Financial Stability Board (FSB). (2017). *Artificial intelligence and machine learning in financial services: Market developments and financial stability implications*. Retrieved from <http://www.fsb.org/wp-content/uploads/P011117.pdf> (last accessed on May 02, 2019)

44 Bauguess, S. (2017). *The Role of Big Data, Machine Learning, and AI in assessing risks: a Regulatory Perspective*. (SEC Speech). Retrieved from <https://www.sec.gov/news/speech/bauguess-big-data-ai> (last accessed on May 02, 2019)

AI- based start-up optimising the loan collection process for FS lenders

An innovative startup has automated the loan collection process by using AI to modulate the communication of lenders with their borrowers. By using an AI-powered decision engine, it has automated the loan collection process, making it easy, hassle-free and cost-effective for lenders.

This system closely monitors customers' profiles and analyses their past transaction behaviour to send customised email and SMS communication on payments due to borrowers at specific time intervals to boost chances of repayment.

Personalised modulated content-based communication holds the potential to improve the performance of lenders' asset books and reduce borrowers' defaults.

Source: PwC analysis

Moving from robotic process automation (RPA) to intelligent automation (IA)

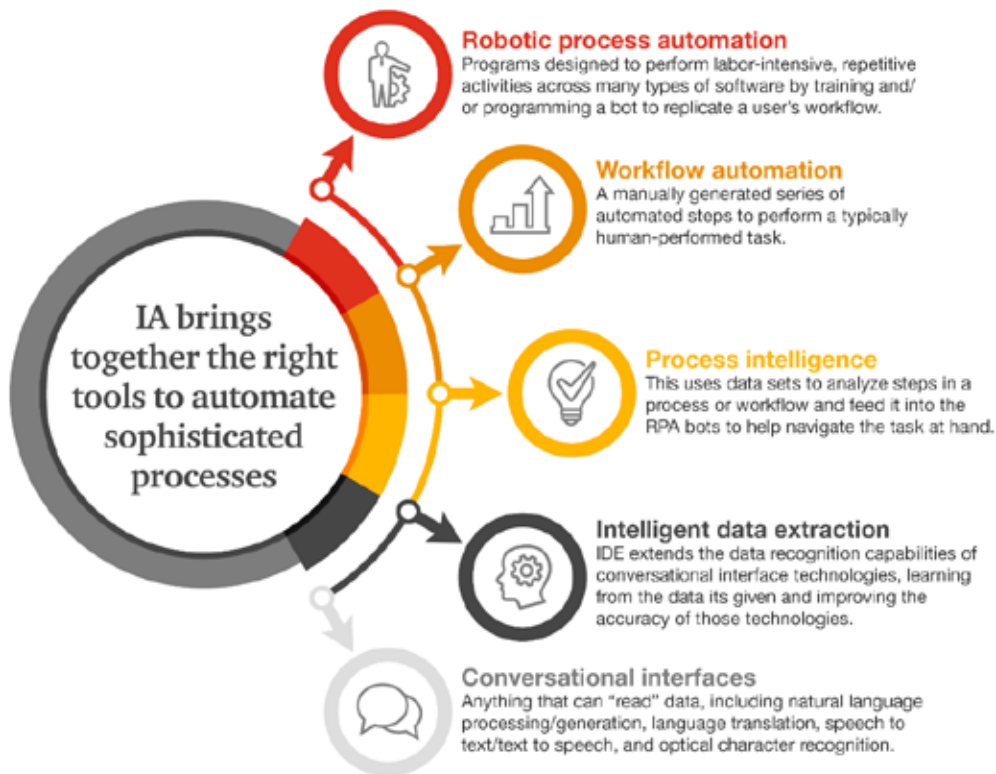
FS organisations have successfully implemented many automation initiatives, especially in functions such as finance and operations, but have been unable to realise a true end-to-end automation vision. In PwC's 'Financial services intelligent automation survey', less than 20% of the respondents said they have achieved an enterprise-wide scale in automation. RPA technologies, while has no doubt helped in delivering value, is severely restricted in its capabilities by design. Consequently, organisations have started moving beyond 'vanilla' RPA options and entering into the promising space of IPA over the past year.⁴⁵

Unlike RPA, IA is not a single tool, but a collection of automation tools that could be orchestrated together for tackling more complex problems (Figure 31).

⁴⁵ PwC. (2019). Smarter bots: financial services intelligent automation survey. Retrieved from <https://www.pwc.com/us/en/industries/financial-services/library/pdf/pwc-fsi-q-and-a-ia-survey-2019.pdf> (last accessed on)



Figure 31: IA combines a set of related intelligent automation tools



Source: PwC's 'Smarter bots: Financial services intelligent automation survey' (2019)

Some of these tools are already being used by FS organisations, but not in an integrated construct supported by the IA framework. IA allows organisations to automate a wide set of activities from simple rule-based tasks to complex ones such as data analysis and decision making. For instance, RPA bots are being used in the finance department to automatically extract data and load transactions to provide information to human agents for reconciliation of financial statements. IA augments this by automatically identifying the reconciling items with their reasons, and compiles documentation to support the same with review entries for humans.

FS players have transformed many of their customer-facing, front-end operations with analytics. However, there still exists a significant opportunity to increase the levels of automation in back offices. From digitising workflows to assisting decision making via automation, there are plenty of use cases on this front. Going forward, IA is expected to gain more traction as it makes it possible to solve complex problems more cost-effectively.

Intelligent automation in action

An online insurer has developed an AI bot to achieve end-to-end automation of the claims process. Post this, the bot completed the entire process – from claims receipts, fraud detection to pay-out and notification to customers in three seconds – as opposed to several days or even months it took in the past. This solution is positioned to hugely impact the insurance industry when rolled out at scale.⁴⁶

Source: PwC's 'Sizing the price: what's the real value of AI for your business and how can you capitalize?' report (2017)

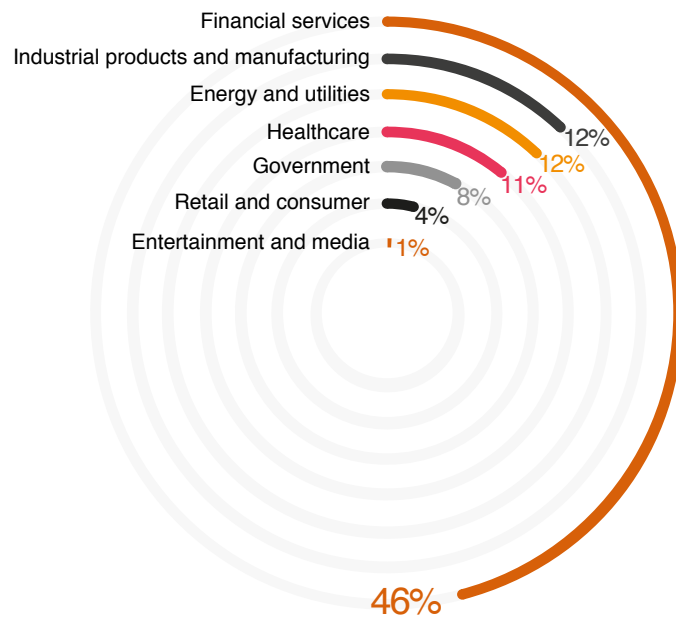
⁴⁶ PwC. (2017). *Sizing the price: What's the real value of AI for your business and how can you capitalize?* Retrieved from <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf> (last accessed on May 07, 2019)

Technologies shaking up the FS infrastructure

Blockchain moving into the mainstream

Blockchain is gaining increasing traction across multiple industries, as supported by PwC's Global Blockchain Survey 2018, with 84% of respondents saying they are actively involved with blockchain technology. In the same survey, respondents cited FS as the most advanced industry in developing blockchain systems (Figure 32).⁴⁷

Figure 32: FS industry leading in blockchain adoption



Note: Base: 600

Q: which of the following industries are the most advanced in developing the blockchain today?

Source: PwC Global Blockchain survey, 2018

Apart from offering a vast array of potential use cases, blockchain's ability to drastically reduce infrastructural costs makes it very attractive to the FS industry. As blockchain's distributed ledger technology (DLT) enables simultaneous confirmation of all parties on the network, it vastly reduces costs by eliminating an entire layer of intermediaries who extract fees from each transaction they execute. This is significant, as the FS industry is characterised by the presence of a large number of intermediaries involved in moving money, adjudicating contracts, among other activities.

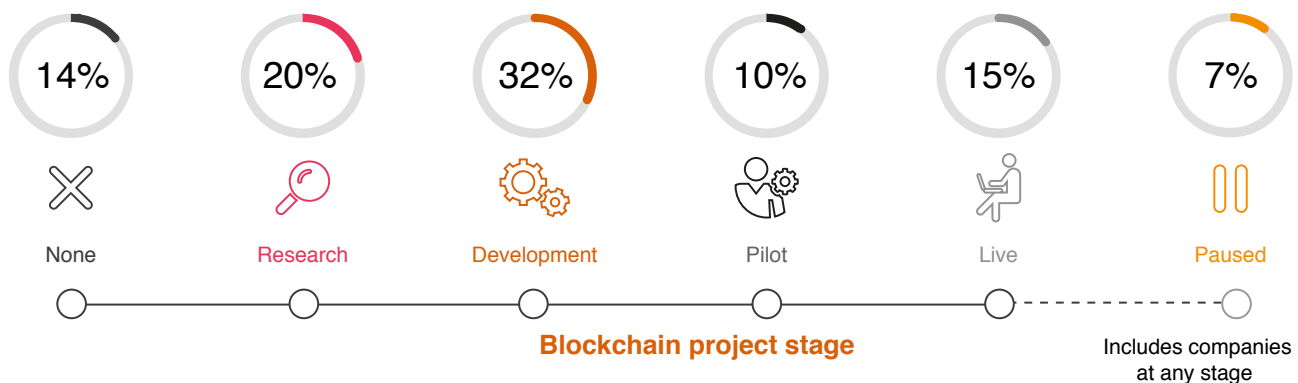
For instance, today, the cross-border payments process is highly inefficient, as transactions have to pass through a maze of intermediaries for authentication before reaching the end customer, leading to huge delays and high costs. In addition, money laundering risks are also amplified due to difficulties in tracing the true source of transactions. Blockchain payment systems have the potential to eliminate this layer of intermediaries to deliver real-time payment to end customers more securely. Similarly, blockchain systems can transform clearing and settlement systems by putting securities on a common, decentralised ledger, thereby eliminating the need for middlemen and delivering real-time clearing and settlement of securities.

Another high potential use case is the blockchain-enabled KYC utility. This would allow organisations to store customer KYC data from multiple sources in a single decentralised, secure database, and share access to third parties after obtaining due consent, leading to reduced duplication and lowered costs for the industry, robust AML/CFT checks and improved customer experience. Similar use cases abound in areas such as trade finance, loan syndication, claims management and P2P2 insurance, which are already witnessing good traction in India.⁴⁸ Apart from these, use cases involving smart contracts that automate complex contractual agreements in FS areas such as derivatives, mortgages and insurance are also expected to witness increased uptake in the future.

Notwithstanding the recent growth in blockchain initiatives, concerted efforts are still required to transition more blockchain projects to the live phase, which currently stand at only 15% (Figure 33).⁴⁹

Figure 33: How far along are companies with blockchain?

Breakup of global VC investments in top-funded blockchain start-ups



Note: Numbers are rounded (sum does not equal 100 due to rounding). Base: 600.

Q: How would you describe your organisation's current involvement with blockchain?

Source: PwC's Global Blockchain Survey 2018

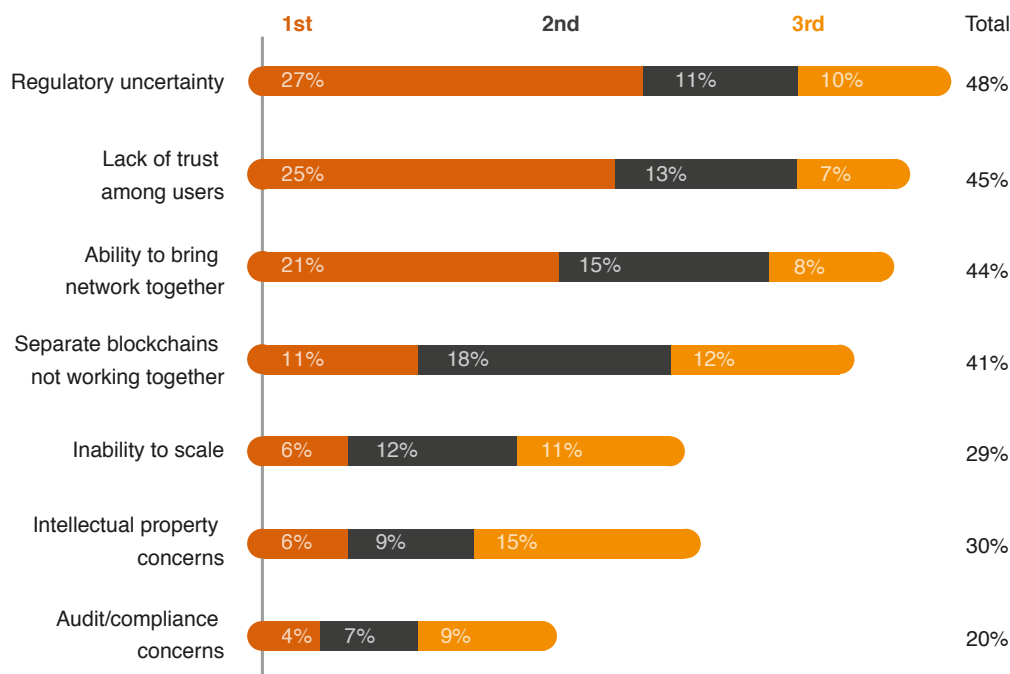
⁴⁷ PwC. (2018). Global Blockchain Survey 2018. Retrieved from https://www.pwc.se/sv/pdf-reports/blockchain/Blockchain-whitepaper-%20blockchain-means%20business_What%27s%20your%20next%20move.pdf (last accessed on May, 2019)

⁴⁸ PwC. (2018). Global Blockchain Survey 2018. Retrieved from https://www.pwc.se/sv/pdf-reports/blockchain/Blockchain-whitepaper-%20blockchain-means%20business_What%27s%20your%20next%20move.pdf (last accessed on May 08, 2019)

In PwC's Global Blockchain Survey 2018, respondents cited regulatory uncertainty as the biggest barrier to blockchain adoption, followed by lack of trust among users, interoperability and scalability issues (Figure 34).

Figure 34: The biggest barriers for blockchain adoption

Percentage of respondents ranking top three barriers to blockchain adoption



Note: Base: 600

Q: Which of the following will be the biggest barriers to blockchain adoption in your industry in the three to five years?

Source: PwC's Global Blockchain Survey 2018

In India too, despite interest from policymakers in blockchain, a cautious regulatory approach has been a major roadblock for wider adoption of blockchain systems.

Going forward, it would be imperative for policy makers and industry leaders to address the existing 'trust gaps' in the blockchain ecosystem in order to consolidate the current gains from blockchain initiatives and unleash the next wave of transformation in the FS industry.

Building and innovating on cloud

The adoption of cloud platforms has accelerated in recent years, and has helped increase the scope and pace of innovation. According to International Data Corporation (IDC) estimates, global spending on public cloud services and infrastructure is expected to grow at a CAGR of 23.8% over 2018 to reach USD 210 billion

in 2019, and is forecasted to grow at a CAGR of 22.5 % during 2017–22 to reach USD 370 billion in 2022. In addition, the banking industry is forecasted to spend more than USD 20 billion on public cloud services in 2019, which indicates the significant inroads it has made into the industry.⁴⁹

In the past, FS players had used cloud-based software-as-a-service (SaaS) primarily for non-core applications such as CRM and HR. However, this trend is changing, as they are increasingly using the cloud infrastructure model for delivering core applications too. As per PwC's 'Financial Services Technology 2020 and Beyond' report, cloud applications are expected to enter into core areas such as credit assessment and consumer payments by 2020.⁵⁰

49 International Data Corporation (IDC). (2019). Worldwide Semiannual Public Cloud Services Spending Guide. Retrieved from <https://www.idc.com/getdoc.jsp?containerId=prUS44891519> (last accessed on May 07, 2019)

50 PwC. (2016). Financial Services Technology 2020 and Beyond. Retrieved from <https://www.pwc.com/gx/en/financial-services/assets/pdf/technology2020-and-beyond.pdf> (last accessed on May 07, 2019)

One of the key challenges for FS players in their digital transformation journeys is the inability of their outdated legacy core systems to scale and process huge volumes of data and provide the computing power required to deliver critical business insights. Cloud infrastructure, by reducing the cost of data storage and increasing the scalability of applications, enables FS players to increase the pace of innovation and be highly responsive to evolving consumer needs.

We explore some benefits of cloud technologies in the FS space below:

Improving the speed of innovation and reducing the time to market

Cloud technology has spurred innovation in the market by reducing entry barriers for FinTech innovators, who primarily operate on cloud-based platforms.

Cloud computing also improves the speed to market by enabling the rapid development of applications and reducing the time and cost of setting up a new server, by eliminating the need for organisations to invest in upfront capital and time for procuring hardware.

Improving responsiveness to evolving consumer needs

Cloud infrastructure has drastically reduced the costs of data storage, improved scalability of applications and empowered FS players to harness big data by applying advanced analytics to gain customer insights. FS players are using cloud as an analytics platform to derive customer insights by accessing data from multiple partners through application programming interfaces (APIs) and microservices, helping them respond to customer needs swiftly.

Powering the sharing economy

In the 'sharing economy', cloud-based platforms have helped FS players to unlock new revenue streams, as organisations with a competency in an area choose to sell it to others who require it. For instance, some traditional banks are leveraging the cloud to sell their 'payments infrastructure as a service' to many smaller FinTech players and industrial firms, diversifying their revenue streams.

Also, cloud infrastructure's ability to facilitate interoperability is key to the sharing economy, as different systems moved to the cloud platform efficiently integrate with other systems, thereby providing a seamless experience to end customers.

Securing against cyberattacks

By adopting global best practices such as real-time system health monitoring and deploying advanced security features, cloud providers can assist FS players in securing their customer data and mitigating risks.

Despite the myriad benefits of cloud technologies for FS players, some key challenges such as data security, data protection and regulatory compliance remain. For instance, there is some apprehension in the FS industry about transferring key business and user data to public clouds, fearing a compromise on the cloud's security. In addition, there are regulatory restrictions in some countries for transferring customer data to the public cloud. A hybrid cloud adoption approach with a private cloud server for storing sensitive data and public cloud for non-sensitive data is emerging to address such issues. Going forward, as digitisation gathers pace, the potential benefits of the cloud would be far greater for organisations to ignore, making it critical for them to promptly act on their cloud strategies.



Cyber security

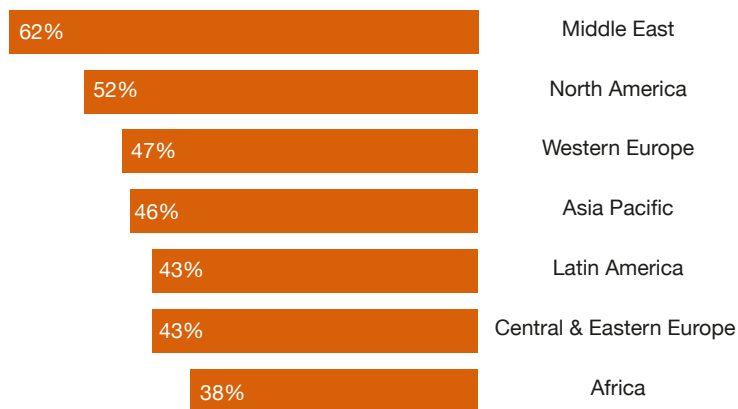
With the rapid pace of digitisation and increasing interconnectivity in the FS ecosystem, cyberattacks targeting sensitive financial information are on the rise, and have caused huge operational, reputational and financial damages to organisations. Also, the emergence of data ubiquity has brought the key issues of

‘data ownership’ and ‘data governance’ to the fore, compelling organisations to take efforts to tackle them. PwC’s 21st Global CEO survey reveals that organisations need to increase efforts on the cyber security and privacy fronts (Figure 35).⁵¹

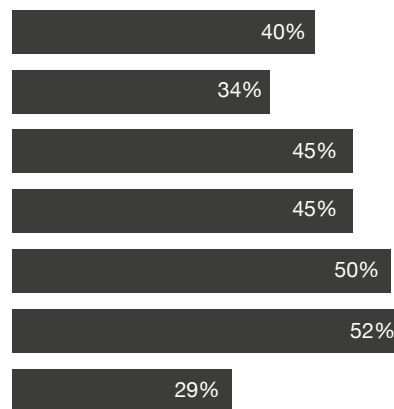
Figure 35: Adoption of advanced authentication technologies

CEOs worldwide have room to increase cybersecurity and privacy

CEOs who say they are building trust with customers by investing in cybersecurity to large extent



CEOs who say they are building trust with customers by increasing transparency in data use and storage to large extent



Source: PwC, 21st Global CEO Survey, January 2018.

Base: Middle East respondents (52); North America (148); Western Europe (274); Asia Pacific (464), Latin America (136), Central & Eastern Europe (139), Africa (80)

However, some organisations have also started implementing cyber security measures to leverage advanced technologies. As per PwC’s ‘Global state of Information Security Survey 2018’, 27% of respondents said they plan to invest in cyber security measures powered by AI and ML in the same year.⁵²

Already, ML techniques powered by cloud computing have enabled organisations to process large datasets for detecting and analysing cyber threats in real time, and to quickly identify areas vulnerable to further strikes.

Advanced authentication technologies for managing digital identities

As organisations have started sharing more data with external partners and customers, managing digital identities of both individuals and organisations becomes critical to contain data

privacy and security risks emanating from these interactions. To this end, FS organisations are moving away from conventional authentication protocols such as Personal Identification Numbers (PINs) and passwords to more robust mechanisms such as multifactor authentication. Moreover, these authentication services are being increasingly delivered through mobile devices by using biometric sensors such as fingerprint scanners, one-time passwords (OTPs) and code-generating applications.

As per PwC’s Global State of Information Security Survey 2018, many respondents indicated that their companies are adopting advanced authentication technologies (Figure 36).⁵³ In addition, 48% of the survey respondents said that advanced authentication has helped in mitigating frauds, and 41% said it has helped in enhancing the customer experience.⁵⁴

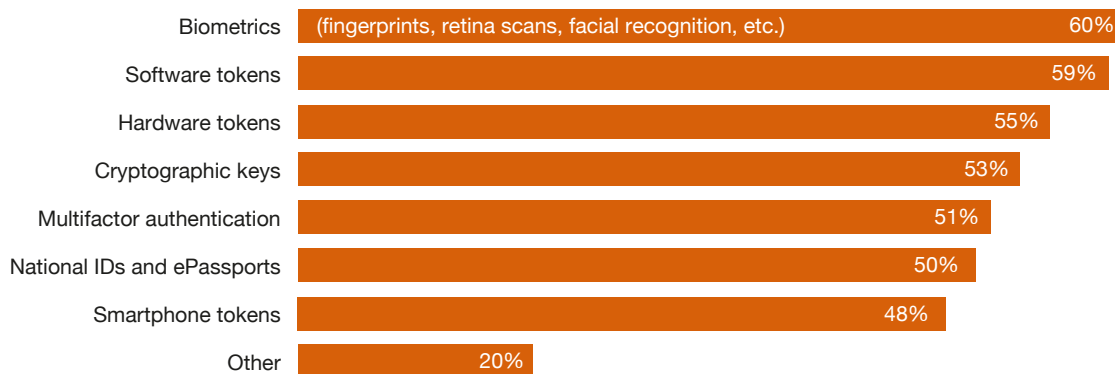
51 PwC. (2018). *Revitalizing privacy and trust in a data-driven world: Key findings from the Global State of Information Security Survey 2018*. Retrieved from <https://www.pwc.com/us/en/cybersecurity/assets/revitalizing-privacy-trust-in-data-driven-world.pdf> (last accessed on May 09, 2019)

52 PwC. (2018). *The Global State of Information Survey 2018*. Retrieved from <https://www.pwc.com/us/en/cybersecurity/assets/revitalizing-privacy-trust-in-data-driven-world.pdf> (last accessed on May 09, 2019)

53 PwC. (2018). *Digital Trust Insights: The journey to digital trust*. Retrieved from <https://www.pwc.fr/fr/assets/files/pdf/2018/11/pwc-en-journey-to-digital-trust.pdf> (last accessed on May 05, 2019)

Figure 36: Adoption of advanced authentication technologies

Companies are adopting advanced authentication technologies



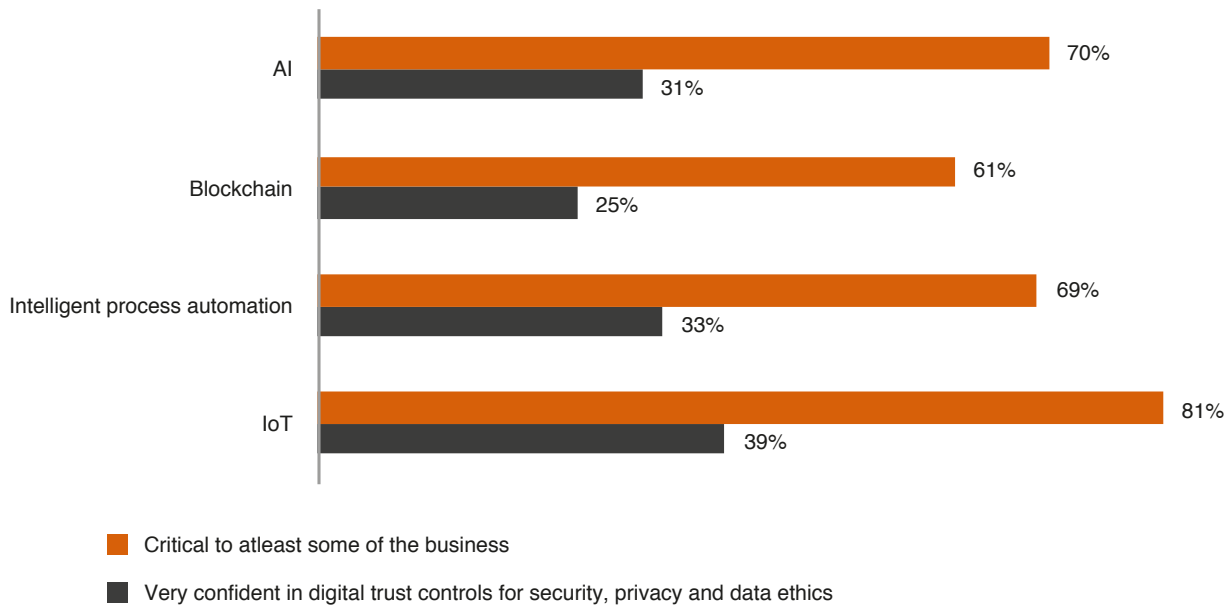
Source: PwC, CIO and CSO, The Global State of Information Security® Survey 2018.
Base: 9,500 respondents

Although organisations have begun implementing security measures, more efforts are required to unearth and manage new risks inherent in emerging technologies. Advances in fields such as AI can lead to more powerful cyberattacks in the future, if these inherent risks are not fully addressed. For instance, cyber criminals can corrupt ML algorithms' training data sets by transferring biased

data to it. As per PwC's Digital Trust Insights 2018 report, although a majority of the respondents agree that emerging technologies are critical to their businesses, only a small number are very confident that they have sufficient digital controls in place for their adoption. (Figure 37)⁵⁵



Figure 37: Criticality of emerging technologies for business and sufficiency of 'digital trust controls' in place for their adoption



q1010: How important do you expect the following technologies to be the future success of your business?

q1030: How confident are you that your business is building sufficient digital trust controls into adoption of the following technologies?

Source: PwC's 'Digital Trust Insights: The journey to digital trust', 2018

Base: 3,000 respondents

Clearly, organisations have a lot of catching up to do for accurately addressing cyber security challenges. For consumers, security and data privacy form an integral part of FS solutions, and the onus for safeguarding the same lies with organisations. Going forward, building cyber resilience will become key for organisations to win customers' trust and drive the adoption of digital solutions.

The way forward

In the next few years, the Indian FS industry is bound to witness increased partnerships between incumbents and Fitness, giving rise to new disruptive models and necessitating organisational transformation fuelled by rising customer expectations and enabled by the latest technologies. In this digital age, the capacity to innovate and the ability to manage multiple partnerships and orchestrate ecosystems for providing FS solutions at the point of consumption will be key determinants of success. To this end, the 'human' and 'cultural' aspects of the digital revolution would also begin to attract attention as organisations start building digital leadership to drive the cultural shift required for embracing innovation and adopting new ways of working.

3

Recommendations for accelerating FinTech growth

While the Indian FinTech market has achieved significant growth in recent years, there is scope to accelerate it using targeted policies and strategies aimed at improving the key components of a FinTech hub – talent, access to capital, access to market, and regulatory and Government support.

Government

Digital India initiatives

- **Establish a policy framework for formalising alternative data sources for credit scoring:** The Government should establish a policy framework for setting up specialised databanks housing alternative data or augmenting existing credit bureaus to incorporate a diverse set of data sources crucial for enabling credit scoring of the unbanked and underbanked population.
- **Formalise the economy by digitising ecosystems:** The Government should drive initiatives for digitising ecosystems such as education, healthcare and transportation, as these lead to the formalisation of the larger economy, opening up distinct FinTech opportunities. For example, the rise of e-commerce has led to the formalisation of a large number of MSME merchants, making them 'credit visible' and enabling FinTechs to offer credit solutions to them.
- **Strengthen the FinTech committee formed in 2018:** The FinTech committee should be leveraged for designing a policy framework to make India a top innovation hub. The committee should also guide implementation efforts of key FinTech initiatives of the Central and State Governments.

Invest in building a local talent pipeline with a focus on technology skills

Both, the Central and State Governments should focus on building Science, Technology, Engineering, Math (STEM) skills and a FinTech curriculum in select universities. They should also explore partnerships with industry and academia to provide e-learning courses, student internships and work placement opportunities in the FinTech space to create a talent pipeline for the industry.

Offer tax incentives to FinTechs and investors

The Indian Government should offer clear tax incentives to FinTechs operating in critical segments, and offer similar incentives to both domestic and global investors for investing in smaller, higher-risk FinTechs with growth potential.

Develop FinTech bridges to enable Indian FinTechs to grow globally

Both the Central and state Governments should invest in select global regions to create an ecosystem of FinTech talent, investors and regulators to drive collaboration and expand markets for Indian FinTechs.

Set up a comprehensive data protection framework

As India moves closer to adopting its first data protection law with the Personal Data Protection Bill, 2018, the Government needs to expedite its implementation efforts to provide clear guidelines and direction on data sharing and consent mechanisms that need to be built into organisations for safeguarding consumer interests and promoting responsible growth in the FinTech sector.





Regulators

Set up an innovation office for driving regulator-FinTech engagement

Indian regulators across the FS space should set up an innovation office with both regulatory and technical staff to promote close engagement with FinTechs, helping them better understand FinTech innovations to inform appropriate policy action. The office should establish a set of objectives and criteria such as the promotion of financial inclusion, and use them to prioritise engagement with the various FinTechs. This body should also assist FinTechs with regulatory compliance and authorisation.

Double down on the Open API and regulatory sandbox initiatives

To provide a fillip to the platform economy, Indian regulators need to consolidate the noteworthy progress made on the Government's open API policy initiatives such as the India Stack, by expanding both the number and scope of the applicable use cases for these initiatives, including both FS and non-FS players. Similarly, regulators across the FS space need to adopt a regulatory sandbox approach to drive controlled innovation among FinTechs.

Establish a mandatory MSME referral programme to facilitate MSME lending by alternative lenders

The RBI should explore establishing a mandatory MSME referral programme to FinTech lenders for rejected applicants by incumbents, and encourage them to responsibly share MSME banking data with FinTechs. This will help in providing FinTechs a crucial avenue for sourcing business and spur innovation to drive MSME lending.

Industry (incumbents and FinTechs)

Invest in building cyber security capabilities

Both incumbents and FinTechs should make concerted efforts to ensure cyber security in the Indian FS ecosystem, as it is key to securing consumer trust and confidence in these solutions.

Build FS solutions around a core consumer need cornerstone

FS players should identify core consumer needs (not necessarily financial) and build segment-specific offerings targeting lower-income households to drive FS solutions at the point of consumption and improve financial inclusion.

Educate consumers to increase their financial literacy and awareness of FinTech solutions

Despite a large unbanked population, many consumers lack awareness of FS products due to poor financial literacy. The industry should address this issue by educating consumers about the various FinTech solutions available and build consumer trust in the use of digital channels for transacting.

Consumers

Focus on building financial and digital literacy

Consumers should build their financial and digital literacy to improve their knowledge of FS products and avoid becoming victims of cybercrime.





Notes

Notes

About ASSOCHAM

THE KNOWLEDGE ARCHITECT OF CORPORATE INDIA

Evolution of Value Creator

ASSOCHAM initiated its endeavour of value creation for Indian industry in 1920. Having in its fold more than 400 chambers and trade associations, and serving more than 4,50,000 members from all over India. It has witnessed upswings as well as upheavals of Indian Economy, and contributed significantly by playing a catalytic role in shaping up the trade, commerce and industrial environment of the country.

Today, ASSOCHAM has emerged as the fountainhead of knowledge for Indian industry, which is all set to redefine the dynamics of growth and development in the technology driven cyber age of 'Knowledge Based Economy'.

ASSOCHAM is seen as a forceful, proactive, forward looking institution equipping itself to meet the aspirations of corporate India in the new world of business. ASSOCHAM is working towards creating a conducive environment of India business to compete globally.

ASSOCHAM derives its strength from its Promoter Chambers and other industry/regional chambers/associations spread all over the country.

Vision

Empower Indian enterprise by inculcating knowledge that will be the catalyst of growth in the barrierless technology driven global market and help them upscale, align and emerge as formidable player in respective business segments.

Mission

As a representative organ of Corporate India, ASSOCHAM articulates the genuine, legitimate needs and interests of its members. Its mission is to impact the policy and legislative environment so as to foster balanced economic, industrial and social development. We believe education, IT, BT, Health, Corporate Social responsibility and environment to be the critical success factors.

Members – Our Strength

ASSOCHAM represents the interests of more than 4,50,000 direct and indirect members across the country. Through its heterogeneous membership, ASSOCHAM combines the entrepreneurial spirit and business acumen of owners with management skills and expertise of professionals to set itself apart as a Chamber with a difference. Currently, ASSOCHAM has more than 100 National Councils covering the entire gamut of economic activities in India. It has been especially acknowledged as a significant voice of Indian industry in the field of corporate social responsibility, environment & safety, HR & labour affairs, corporate governance, information technology, biotechnology, telecom,

banking & finance, company law, corporate finance, economic and international affairs, mergers & acquisitions, tourism, civil aviation, infrastructure, energy & power, education, legal reforms, real estate and rural development, competency building & skill development to mention a few.

Insight into 'New Business Models'

ASSOCHAM has been a significant contributory factor in the emergence of new-age Indian Corporates, characterized by a new mindset and global ambition for dominating the international business. The Chamber has addressed itself to the key areas like India as Investment Destination,

Achieving international competitiveness, promoting international trade, corporate strategies for enhancing stakeholders value, government policies in sustaining india's development, infrastructure development for enhancing india's competitiveness, building indian MNCs, role of financial sector the catalyst for india's transformation.

ASSOCHAM derives its strengths from the following Promoter Chambers: Bombay Chamber of Commerce & Industry, Mumbai; Cochin Chambers of Commerce & Industry, Cochin; Indian Merchant's Chamber, Mumbai; The Madras Chamber of Commerce and Industry, Chennai; PHD Chamber of Commerce and Industry, New Delhi. Together, we can make a significant difference to the burden that our nation carries and bring in a bright, new tomorrow for our nation.

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About PwC India FinTech practice

India has experienced the emergence of numerous FinTech startups, accelerators and incubators over the last few years. India has many advantages that will support its development into a global FinTech hub. With a large market of underserved/unserved customers, increasing mobile penetration, favourable demographics, an active start-up ecosystem and a large technology talent pool, India's FinTech space represents a huge opportunity that is waiting to be seized. PwC India's FinTech practice is dedicated to leveraging this powerful merger between technology and the financial services.

Corporate Innovation Framework

This flagship PwC solution is a three-phase iterative programme designed to drive tangible business benefits from innovation initiatives in an organisation.

We help our clients articulate the right ideas and solutions that can be transformative, run experiments with them, explore collaborations and partnerships with appropriate startups and technology players, and embed innovative solutions into their businesses.

For startups

PwC seeks to engage with startups in the FinTech space, and is looking for interesting innovators who can bring in the next wave of disruptions. We provide collaboration opportunities to FinTech startups with innovative solutions via the Corporate Innovation Programmes. We also provide a host of services to startups based on a differentiated pricing model that caters to their needs, revolving largely around strategy, operations, deal advisory and IT consulting.

Our FinTech Services

For banks, insurance and other FS companies

PwC's FinTech practice helps incumbents stay abreast of emerging trends and leverage new startups that will either propel or undermine their business. We monitor shifting customer behaviour, evolving distribution channels, the changing regulatory environment, and emerging products and services to help banks, insurers, payments providers and other FS firms assess and act on these changing industry dynamics. Our broad offerings for banks, insurance and other FS companies are as follows:

Fit-to-disrupt

PwC's fit-to-disrupt aims to help financial services incumbents build their own FinTech-like businesses.

From strategy to execution, we seek to advise our clients on building businesses that are lean, nimble and able to cater to evolving customer needs to stay relevant in the changing financial services landscape.

About PwC India Emerging Technology practice

Technologies such as artificial intelligence, blockchain, cloud, devops, and the internet of things are rapidly reshaping our world and evolving at breakneck speed. PwC Emerging Technologies practice helps you understand and put these technologies to work, so you can be the disruptor, not the disrupted. These emerging technologies create the possibility for new ways to develop products, interact with customers, partner with others, compete and succeed. At PwC, we help organisations leverage

the most out of emerging technologies to achieve the best possible business results. We help clients determine what success looks like, innovate their business and create new value through a multi-disciplinary team with capability and scale to work with you from strategy through to execution.

Our Emerging technology Services

Some of our key offerings for organizations are as below:



Cloud engineering

Accelerating Product Engineering on cloud
Cloud Migration Advisory Services
Platform/data centers



Emerging Interfaces

Voice enabled interfaces
AR and VR
AI humanizing commerce and healthcare



Innovation Program

Corporate accelerator
Innovation Boot camps
Corporate innovation
Hackathon/Pitchfest

About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 158 countries with over 250,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com.

In India, PwC has offices in these cities: Ahmedabad, Bengaluru, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai and Pune. For more information about PwC India's service offerings, visit www.pwc.in

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