

Digital disruption and evolving customer preferences are shaping banking models of the future





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Preface

In a year-end assessment of 2019, the chairman of the State Bank of India (SBI), Rajnish Kumar expressed confidence in the Indian financial industry to get back on track with a high growth rate. He said that the Indian economy is in a transition phase, as the industry has recently undertaken various reforms, such as GST (Goods and Services Tax), IBC (Insolvency and Bankruptcy Code) in the last few years, and the growth can come back after this disruptive phase.¹

Economic forces, as well as broad adoption of enabling technologies, have ignited customer expectations that are pushing strategic change for financial institutions. Technology – including the widespread use of smartphones among India's most impoverished populations – has made anytime, anywhere communication the norm. Moreover, agile and opportunistic FinTech firms are leveraging their digital expertise to develop, deliver, and scale a variety of critical services, including payments via mobile devices.

Inclusion of under-banked, remote populations is an untapped opportunity for India's incumbent retail banks. The bottom of the pyramid remains underserved and represents a range of new business prospects. But first, banks must employ innovative thinking and take advantage of disruptive technologies and regulatory changes to create new banking business models. Strategic partnerships with like-minded FinTech companies can offer banks access to fresh perspectives and expertise in areas such as data analytics that can help power contextual banking and optichannel customer experience.

Anywhere banking is set to become the new normal throughout India. The question is which players – or combination of partners – will most effectively embrace digitization to increase internal efficiencies, provide value-added customer service, minimize risk, and become a growth engine within the new open banking ecosystem?



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¹ Business Today, "Growth can come back because economy in transition phase: SBI Chairman," October 24, 2019, <https://www.businesstoday.in/current/economy-politics/growth-can-come-back-because-economy-in-transition-phase-sbi-chairman/story/386549.html>.

Introduction

Globally, the way consumers bank has changed considerably over the last few years. Today's customers expect more than transactions or typical financial services (FS) that have been around for ages. They demand a banking experience compatible with their digital lifestyle. Digital disruption in financial services is the result of changing consumer preferences, which is valid for all customer segments, but especially true for millennials, and now, established banks must meet the customers' evolving needs and rising expectations.

The growing influence of BigTechs, such as Google, Amazon, Facebook, and Apple, and other high-tech players such as Netflix and Uber, has raised the bar for customer service and seamless user experience. Customers have come to count on wherever/whenever omnichannel services and now expect similar 24/7 experience from their banking platforms.

Because superior customer engagement is now a part of doing business, financial institutions are adopting customer- and design-centric technological innovations.

FinTech and BigTech players were the first to identify this demand shift and offer customers a truly digital banking experience. After the 2008 financial crisis, new technology-driven players came onto the world scene and focused on customers' pain points – trust, privacy, and data security concerns.

Consumers in India adopt financial products from BigTechs and FinTechs slightly more than those in other geographies. As mobile and internet services become available throughout even the most remote locations in India, these firms are folding previously-unbanked individuals into the mainstream banking ecosystem and extending their last-mile banking advantages.

The open banking ecosystem enables BigTechs and FinTech firms to seamlessly share next-generation products and services, which is raising customer experience and expectations even further. Established banks must take notice and respond or risk losing customers who seek a better experience and no longer fear the move to alternative providers.

Established firms will have to invest in emerging technologies or partner with FinTech and BigTech players that offer an inventive approach and an agile ecosystem. Collaboration with FinTechs may be particularly important in establishing relationships with millennials. With enormous data available through a variety of channels, banks can study customer insights to create contextualized customer experiences that suggest appropriate products at the right time and place.

New-generation customer mindset: experiences valued over products

Across the globe, banking has become a commodity with the same products and services – and little room for price competition. The way to stand out is by providing unsurpassed customer experience. Financial services frontrunners are studying customer needs to offer solutions that are tailor-made for individuals and are available 24/7 from any device. These future-focused banks understand that they must know consumers to attract, convert, and retain customers.

Digital adoption, changing demographics, and growing customer expectations are catalysts for FS strategy change

India has the most varied market in the world, mostly due to vast cultural differences, lifestyles, and consumer preferences. When it comes to customer satisfaction, banks in India have a tough job on their hands. So, banks need to understand Indian demographics and factors driving customer expectations before formulating acquisition and retention strategies.

India's changing demographics set to impact customer expectations dramatically

India has the world's largest millennial population in absolute terms, and it accounts for a significant share of the workforce with growing disposable income. Significant spending power and greater access to products are fostering millennial demand for the latest technology-powered banking services. In 2018, India entered the 37-year demographic dividend period in

which its working-age population (between 15 and 64 years of age) grew faster than the dependent population. The United Nations Population Fund (UNFPA) defines demographic dividend as the growth potential that results from shifts in a population's age structure.² Therefore, within the near term, banks in India can focus their strategy and tailor offerings to garner high customer satisfaction scores within the working population age group.

Increased internet penetration in India drives consumption of digital services

India's internet population will inch closer to 700 million by 2022, after crossing the 500 million mark in 2019.³ Banks need to leave no stone unturned in ensuring they are well-equipped on the digital front, both in terms of innovation and core competencies. Additionally, rural populations will be among India's newest internet users. Therefore, banks have the opportunity to quickly foresee and analyze patterns of customer needs based on geography. Overall, internet penetration in India remains at 36%, allowing ample headroom for growth.⁴

Growth in channels and business touchpoints is changing the face of banking

With more smartphones and a surge in broadband use, India has become a battleground for streaming services. The country will be home to 829 million smartphone users by 2022, up from a projected half a billion in 2019, according to a report from Cisco.⁵ India registered an all-time high mobile-banking transaction rate in October 2019, with a volume of 1,252 million per month valued well over INR5 trillion.⁶ The momentum carried forward the 2017-18 growth in

² The Economic Times, "India enters 37-year period of demographic dividend," July 22, 2019, <https://economictimes.indiatimes.com/news/economy/indicators/india-enters-37-year-period-of-demographic-dividend/articleshow/70324782.cms?from=mdr>.

³ Livemint, "India's internet base crosses 500 million mark, driven by Rural India," March 11, 2019, <https://www.livemint.com/industry/telecom/internet-users-exceed-500-million-rural-india-driving-growth-report-1552300847307.html>.

⁴ The Economic Times, "India has second highest number of Internet users after China," Sept 26, 2019, <https://economictimes.indiatimes.com/tech/internet/india-has-second-highest-number-of-internet-users-after-china-report/articleshow/71311705.cms?from=mdr>.

⁵ The Economic Times, "Netflix's next big market is already crowded with cheaper rivals," July 20, 2019, <https://economictimes.indiatimes.com/industry/media/entertainment/media/netflixs-next-big-market-is-already-crowded-with-cheaper-rivals/articleshow/70287704.cms?from=mdr>.

⁶ CEIC, "India Mobile Banking Transactions: Volume | 2011–2019 | Monthly | Unit mn | Reserve Bank of India," accessed at <https://www.ceicdata.com/en/india/mobile-banking-transactions/mobile-banking-transactions-volume>, December 2019.

mobile banking services of 92% and 13% in volume and value terms, respectively.⁷ Banks may want to leverage this trend by considering every smartphone to be a bank branch and offering a comprehensive mobile banking experience.

Huge untapped rural customer base may become a hotbed of banking activity

The gap between urban and rural internet users is shrinking, with remote use predicted to exceed half a billion people for the first time in 2019, as compared with 331 million urban users.⁸ Increased internet and mobile penetration in untapped remote areas can help banks expand their customer base exponentially.

Indian bank customers seek access, convenience, and personalization

Traditionally, attributes such as trust, reputation, brand, and size were the benchmarks through which customers chose a financial institution. Now, however, technology has irreversibly shaped consumer expectations and prioritized customer experience.

Convenience is the key

An essential consideration for bank customers is convenience – especially for millennials with hectic lifestyles and a digital-native mindset. Born into the internet and mobile era, they grew up completing

personal activities online (shopping and ordering food). They expect a similar experience from banks. Globally, nearly 57% of customers said that ease and convenient service were top factors that influenced their decision to choose a bank, according to Capgemini's World Retail Banking Report 2018.

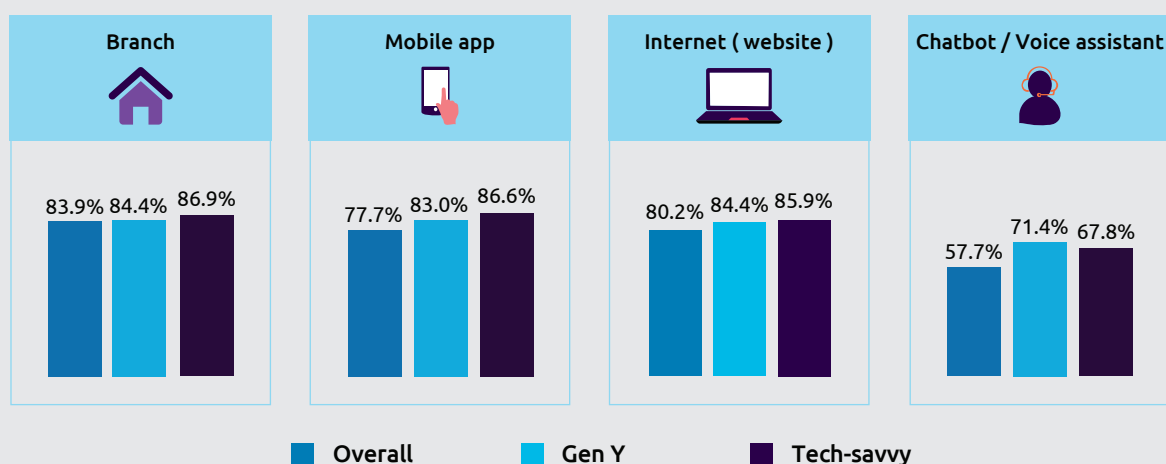
Although banking is an essential part of customers' lives, their lives do not center around banks. Customers want services that integrate into their lifestyles and provide a seamless, more convenient, faster, and enjoyable banking experience. Banks can drive customer convenience to the next level with seamless banking services that have minimum possible friction in the customer journey.

The hyperconnected world drives demand for anywhere banking

Today's customers are more connected than ever. Cisco estimates that globally connected devices will grow by 15.5%. Empowered by technology, customers demand 24/7 service at any time and on their device of choice.

In the past few years, the number of banking channels/ touchpoints for customers has risen. Along with traditional channels such as branch, telephone, ATMs, mobile app, and the internet, new channels have emerged, such as social media, voice assistants, and chatbots. So, it's high time for banks to make banking available at all customer touchpoints and provide a consistent experience across them.

Figure 2.1: Channel importance for customers (%), India, 2019



Source: Capgemini Financial Services Analysis, 2019

⁷ BW BusinessWorld, "5 Effective Ways To Improve Your Mobile Banking User Experience," December 12, 2019, <http://www.businessworld.in/article/5-Effective-Ways-to-Improve-Your-Mobile-Banking-User-Experience/02-12-2018-164654/>.

⁸ The Economic Times, "Internet users in India to reach 627 million in 2019," March 6, 2019, <https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-to-reach-627-million-in-2019-report/articleshow/68288868.cms?from=mdr>.

Many Indian customers are still dependent on branch banking, and some prefer to conduct face-to-face transactions. Customer segments such as millennials and the tech-savvy prefer digital-only banking experience. Some customers prefer the best of both worlds; for critical interactions, they are not willing to forego traditional face-to-face branch banking, but they also see the benefits of online or mobile banking for other activities.

Although an omnichannel strategy is essential, banks must now determine each user's ideal channel for specific activities and build an optichannel plan around it.

Digitally-savvy customers want services personalized and contextualized to their needs

Today's customers expect banks to both anticipate and address their needs with precision and expertise at every touchpoint. Enlightened and empowered by other service experiences, customers now assume that their bank will understand their individual needs and will proactively customize product offers based on their history. Thus, personalization is gaining focus. The World Retail Banking Report 2018 found out that nearly half (49.1%) of the customer base that claimed a positive experience with their bank said they received personalized services proactively. The positive-experience rate fell to 39.5% when it came to customers who said their banks did not actively offer them customized services.

Identifying customers' future needs and providing appropriate personalization is tantamount to banks' success and staying ahead of the customer expectations' curve.

Banks fall short of customers' new-age needs and expectations

To meet bank customers' digital-age needs and demands, Indian financial institutions are investing in emerging technologies. However, despite these investments, customer dissatisfaction continues. Barely half of the customers said that their experience across different bank channels was positive.

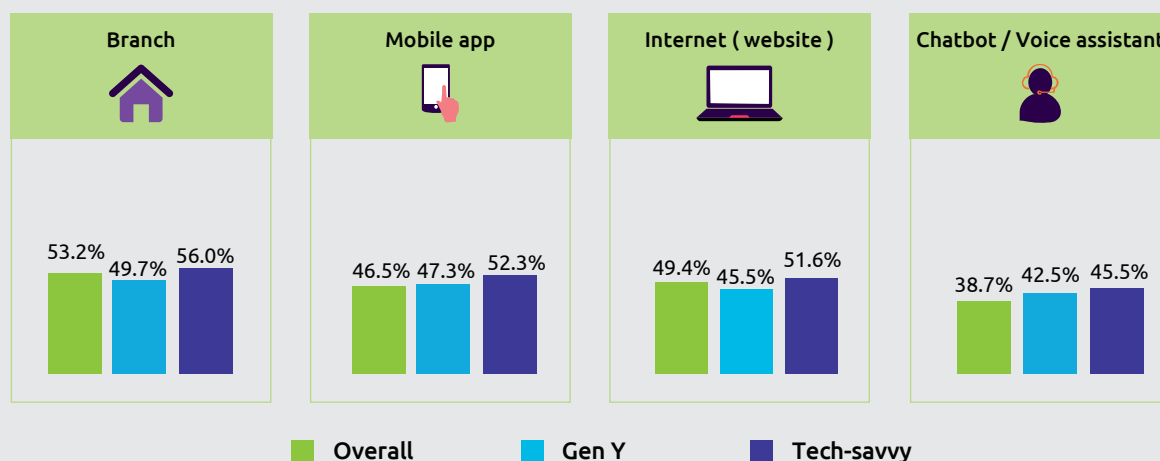
An important observation to note is that customer experience across channels (Figure 2.2) is pointedly lower than channel importance (Figure 2.1). While banks are delivering a positive experience in mature channels such as the branch and website, they need to ensure a better experience at popular digital channels, such as mobile apps and chatbots/voice assistants.

Customers' expectations and needs remain unaddressed

Banks have the right set of products, and banking functionalities, such as deposits, cards, loans/ mortgages, play an essential role in customers' lives. But customer expectations have increased a lot in the last few years, especially for Gen Y (millennial) and tech-savvy segments. These segments are also more likely to feel that traditional bank offerings are not adequately meeting their expectations.

In our survey, we found that more than one in four Gen Y and tech-savvy customer said their primary bank's offerings did not ideally match their needs or preferences. They expect banking interactions to be simple and seamlessly integrated into their life. Faster processing, shorter wait times, and anytime/anywhere ability positively impact customer experience.

Figure 2.2: Positive experience for customers across different banking channels (%), India, 2019



Source: Capgemini Financial Services Analysis, 2019; World Retail Banking Report 2019 – Voice of Customer Survey.

As FinTechs, challenger banks, and BigTechs transform the banking experience, it will be essential for incumbents to identify and fill the expectation-experience gap across channels to safeguard market share.

Customers are also looking for a trusted bank amid turmoil in the financial service industry

Failure of cooperative banks and non-banks sends fear across the industry

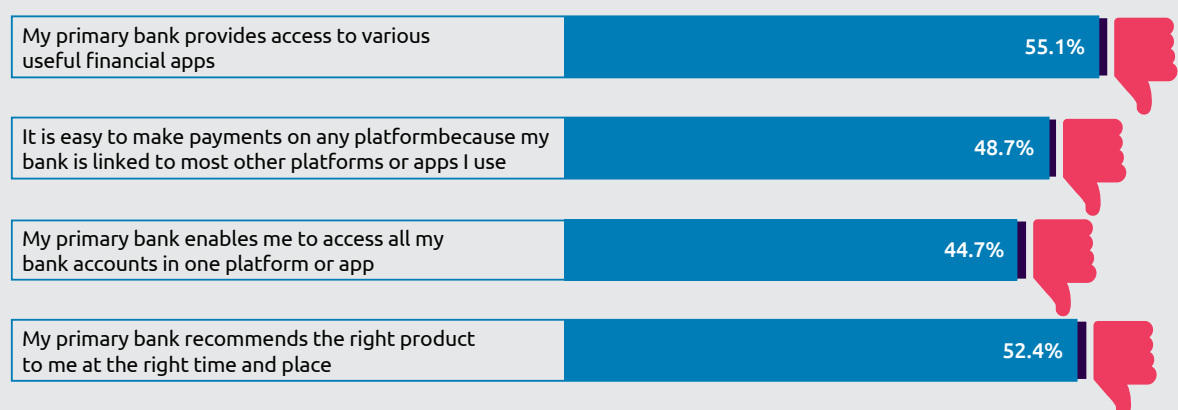
Recent events in the Indian financial services industry have put the focus on the trust factor and regulations in the banking industry back in the mind of the consumer. With 137 branches, 51,000 members, and Rs., 11,617 crores (USD 1.63 billion) in deposit, Punjab & Maharashtra Co-operative Bank is one of the largest cooperative banks. PMC Bank has failed with alarming regularity, and that has sent the fear of ripple effects throughout the entire banking industry in India. As per its Managing Director Joy Thomas, the bank was put under regulatory restriction under Section 35A of the Banking Regulation Act for six months due to irregularities disclosed to the RBI.⁹ Customers have struggled the most. With the fear of losing their

deposits, the Reserve Bank of India (RBI) had restricted to just Rs. 1,000 (USD 14) and then increased to Rs. 10,000 (USD 140), and then to Rs. 25,0000 (USD 351), but customers with higher savings have little prospect of recovering their money.¹⁰

From the regulatory standpoint, BigTechs have also come under scanner as post the row over their use of customer data. Lawmakers in the US have proposed to restrict BigTechs from entering into the financial services industry. They claim that BigTechs enter into the financial sector through loopholes that do not require these companies to apply for a standard charter, which a bank needs to apply and thus putting BigTechs under little regulatory oversight and giving them an unfair advantage over a traditional bank.¹¹

One of the largest NBFCs in India, Infrastructure Leasing & Financial Services Limited (IL&FS) collapsed in 2018. The IL&FS incident incurred an estimated USD12.8 billion in investor losses and raised concerns on NBFCs' financial soundness and need for regulations in NBFC industry.¹² Regulatory authorities had to intervene to take control of the company to prevent contagion to the rest of the financial markets. These events have become the reason why there has been a lack of trust factor among customers, and hence they are looking to partner with a banking service provider where their investment is safe.

Figure 2.3: Customer sentiments concerning their primary bank (%), India, 2019



Source: Capgemini Financial Services Analysis, 2019; World Retail Banking Report 2019 – Voice of Customer Survey.

⁹ Money Control, "Explained: The Unfortunate Story Of Cooperative Banks in India," September 29, 2019, <https://www.moneycontrol.com/news/trends/current-affairs-trends/explained-the-unfortunate-story-of-cooperative-banks-in-india-4485201.html>.

¹⁰ Financial Times, "Failure of Indian co-operative bank stokes fear of ripple effects," October 8, 2019, <https://www.ft.com/content/6f94cd4e-e6ae-11e9-9743-db5a370481bc>.

¹¹ Fortune, "One Issue Bringing Democrats and Republicans Together? Banning Big Tech From Banking," November 19, 2019, Nicole Goodkind, <https://fortune.com/2019/11/19/big-tech-financial-regulations-banking/>.

¹² Federal Reserve Bank of San Francisco, "India's Non-banks Emerge from the Shadows," May 31, 2019, <https://www.frbsf.org/banking/asia-program/pacific-exchange-blog/indias-non-bank-financial-companies-emerge-from-the-shadows/>.

Bridging the gap between customer expectations and experience

The intrusion of non-financial service providers such as FinTechs and BigTechs is one of the most significant challenges to have emerged for banks over the last few years. Bank competition has become complicated, as new-age technology firms and established banks target the same market. With a tech advantage and a leaner model, these agile newcomers offer more financial inclusion and last-mile reach.

FinTech firms and BigTechs make India banking inroads by offering convenience to customers

Non-traditional firms are focusing on customer pain points to transform daily challenges into rewarding positive experiences. They have expanded offerings seamlessly into the overall customer journey beyond banking interactions. Customers are attracted to the all-in-one experience offered by these new entrants. The top three reasons customers say they turn to financial products from non-traditional players are ease of use (83%), faster service (80%), and lower costs (70%).¹³

FinTechs:

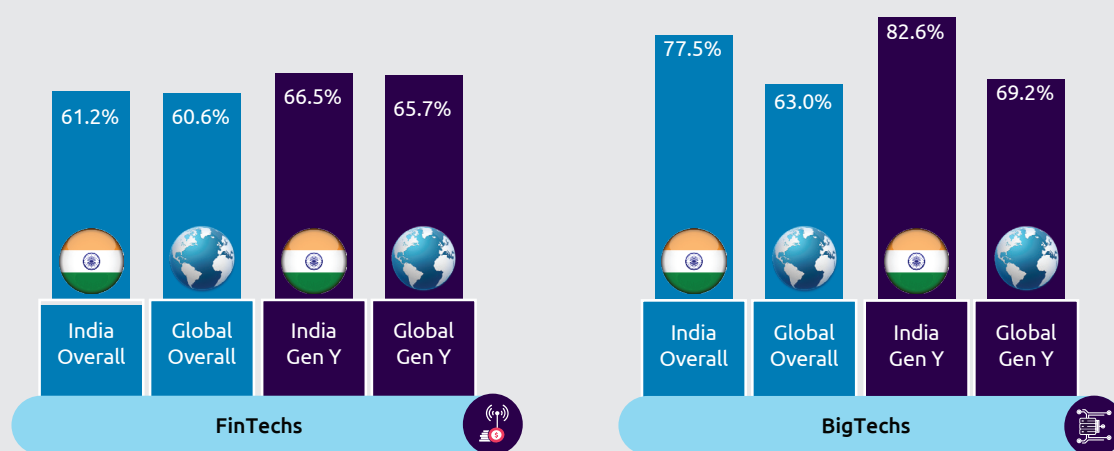
In the aftermath of the 2008–09 global financial crisis, there was a lack of trust in the banking industry. It took banks a few years to get their basics right. This period was marked by emerging technologies such as data analytics that enabled FinTech firms to fill gaps previously ignored by established banks. In India, brands that made an impact across various financial services – loans, insurance, wealth management, and payments – included Paytm, MobiKwik, Policy Bazaar, PhonePe, PayU, Kissht, Shubh Loans, Lending Kart, and Faircent.

BigTechs:

Technology giants such as Google, Amazon, Facebook, Alibaba, are heavily tech-focused and have a vast customer base. Though BigTechs are yet to come under the ambit of regulations, they have already started offering several financial services, and with time, penetration is likely to increase.

In India, the adoption of financial products from BigTechs and FinTechs is slightly more than that of other geographies. More than three-fourths of customers are already using at least one financial product from a BigTech firm (Figure 3.1).

Figure 3.1: Customers currently using at least one financial product from non-traditional firms (%), by demographic segment, India vs global, 2019



Source: Capgemini Financial Services Analysis, 2019; World Retail Banking Report 2019 – Voice of Customer Survey.

¹³ Capgemini, World Retail Banking Report 2019 – Voice of Customer Survey, India, <https://worldretailbankingreport.com>.

This new competition is targeting various areas of banking and is making a dent in revenues. Retail banks are most vulnerable to losing last-mile customer mindshare to non-traditional players in payments, cards, and core banking accounts, according to Capgemini Financial Services' analysis. More than 70% of customers say they already use these products from FinTechs/BigTechs or are likely to do so in the next three years (Figure 3.2). BigTechs and FinTechs are providing innovative solutions across the banking value chain.

Regulations in India have also bolstered FinTech sector growth. The Reserve Bank of India (RBI) has permitted startups, incumbents, and other financial institutions to set up a regulatory sandbox for live testing of innovative products in areas such as retail payments, digital KYC, and wealth management. The Securities and Exchange Board of India (SEBI) has embraced new technology. In late 2019, it announced a USD70 million investment (over five years) to encourage technological innovation in securities markets and to update its technology regularly.¹⁴ It has also proposed a sandbox framework to share market data with FinTechs to brainstorm and create innovative solutions for capital markets in India.¹⁵

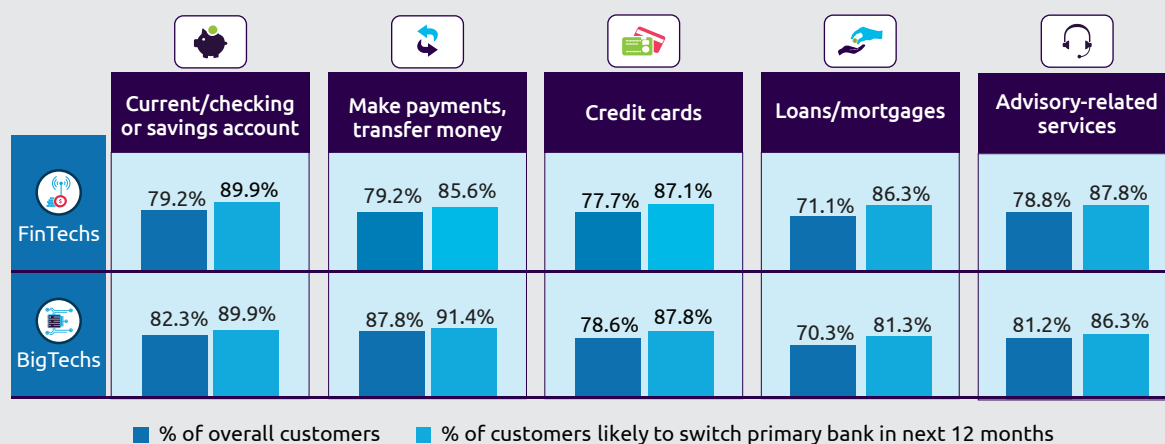
FinTechs pave the way for a financially smart India and enable anywhere banking

FinTechs are tapping into the unmet demands of individuals and SMEs in terms of financial credit, guidance, real-time, and anytime/anywhere banking. Among all FinTechs, those with maximum share are in the area of payments, lending, and personal finance management.

Payments

In the current FinTech wave that is sweeping the Indian banking ecosystem, retail payments have witnessed a revolutionary change. The emergence of payment platforms and the introduction of payments banks have made it possible for previously excluded customers to access mainstream banking. These platforms leverage the internet or smartphones to make the payment process simple and accessible from anywhere. Money can be transferred directly and hassle-free to an individual's bank account, which reduces transaction fees and the chance of fraud. Significant FinTech players in the payment platform space include Indian unicorns, Paytm, PhonePe, and PayU.

Figure 2.2: Current and future customer adoption of banking products from non-traditional firms (%) by product, India, 2019



Source: Capgemini Financial Services Analysis, 2019; World Retail Banking Report 2019 – Voice of Customer Survey.

¹⁴ Analyticsindiamag.com, "What is SEBI Doing to Expand Financial Market Analytics in India," Vishal Chawla, November 20, 2019, <https://analyticsindiamag.com/sebi-to-expand-financial-markets-analytics-in-india>.

¹⁵ Livemint, "Sebi proposes sandbox approach for innovation in capital markets," Jayshree P. Upadhyay, May 20, 2019, <https://www.livemint.com/market/stock-market-news/sebi-proposes-sandbox-approach-for-innovation-in-capital-markets-1558359829952.html>.

- **Paytm** is the market leader in India in payment platforms. Paytm has an annual run rate of five billion transactions a year, with USD50 billion in annual gross transaction value.¹⁶ With more than 200 million active users, Paytm is expanding its financial offerings into credit and payment banking as well.
- **PhonePe** is another Indian payment success story. Its customer base surpassed three million in April 2019 from one million in January 2019.¹⁷

Lending

Credit and loan FinTech firms that started as loan originators and credit marketplace players are now trying to become lenders. These FinTechs are either in the process of securing a non-banking finance company (NBFC) license from the Reserve Bank of India (RBI) or have already obtained one for themselves. Bengaluru-based startup, **Moneytap**, has created a total loan book of INR10 billion (USD 140.4 million) and has achieved a disbursal run rate of INR25 (USD 351.2 million) billion a year.¹⁸

Peer-to-peer lending FinTechs operate with lower overhead than established financial institutions and can provide more cost-effective services. Then, there are FinTechs firms that offer small personal loans and instant credit.

- **Faircent**, India's first RBI-registered peer-to-peer lending platform, has more than 900,000 registered borrowers and 120,000 registered lenders on its platform. The company has facilitated loans worth INR2 billion (USD 28 million) to date through the platform.¹⁹
- PayU's **LazyPay** offers instant credit on online purchases. It works as a buy now, pay later option, and provides a one-click checkout.²⁰

- Chinese electronics company Xiaomi launched lending platform Mi Credit through partnership with instant loan platform **Kreditbee**. Mi and Redmi smartphone users can access to apply for quick loans.²¹

Commercial banking

Small-medium enterprises (SMEs) in India form a strong client base that needs continuous working capital and cash management support from banks. SMEs do not have easy access to major commercial banks due to the lack of physical presence of the major banks in smaller cities. Therefore, FinTech firms are seizing the opportunity to create platforms designed to improve customer experience for SMEs.

- One such firm is **Open**, a Bengaluru-based neo-bank that offers business banking services for SMEs and startups, with more than 100,000 SMEs, processing over USD5-billion in transaction processing volume annually, and adding 20,000 new SMEs every month. Open partnered with Visa in mid-2019 to enhance business banking for SMEs further.²²
- FinTech firm **Razorpay** announced the launch of neo-banking platform RazorpayX, which promises to deliver an overall financial ecosystem. The firm is working with 1,000-odd businesses to add features such as commercial payroll, expense management, and other commercial credit products. The RazorpayX platform offers a view of an SME's financial health – from accepting payments and managing cash flow to reconciling transactions and flexible payouts – which helps business owners take action accordingly.²³

¹⁶ Yourstory, "Here are the 5 e-payment platforms accelerating India's digital economy growth," September 25, 2019, <https://yourstory.com/2019/09/digital-wallets-india-amazon-google-paytm-phonepe-economy>.

¹⁷ Business Today, "Paytm Payments Bank posts profit of Rs 19 crore in FY'19," May 23, 2019, <https://www.businesstoday.in/sectors/banks/paytm-payments-bank-profit-of-rs-19-cr-in-fy19/story/349320.html>.

¹⁸ Economic Times, "Fintech start-ups look for total makeover with lending license," September 6, 2019, <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/fintech-startups-look-for-total-makeover-with-lending-licence/articleshow/71002441.cms?from=mdr>.

¹⁹ Yourstory, "Funding alert] P2P lending platform Faircent raises undisclosed sum led by Das Capital, Gunosy Capital," August 13, 2019, <https://yourstory.com/2019/08/startup-funding-p2p-lending-faircent-das-capital>.

²⁰ Business World, "LazyPay Extends It's 'Pay Later' Offering For Subscription Services," September 5, 2019, <http://www.businessworld.in/article/LazyPay-Extends-It-s-Pay-Later-Offering-For-Subscription-Services-/05-09-2019-175741/>.

²¹ Livemint, "Xiaomi launches personal loan service Mi Credit in India for Android phones," December 3, 2019, <https://yourstory.com/2019/09/digital-wallets-india-amazon-google-paytm-phonepe-economy>.

²² Outlook India, "Open partners with Visa to enhance business banking for SMEs," July 30, 2019, <https://www.outlookindia.com/newscroll/open-partners-with-visa-to-enhance-business-banking-for-smes/1585851>.

²³ Yourstory, "[Funding alert] Online payments provider Razorpay raises \$75M in Series C round led by Ribbit Capital and Sequoia India," Tarush Bhalla, June 18, 2019, <https://yourstory.com/2019/06/startup-funding-razorpay-sequoia-tiger-global-ribbit-capital-y-combinator>.

Wealth management

Millennials, an overall rise in income growth, and an upwardly trending middle-class population are pushing wealth management in India to a continuous and significant shift toward digital investing. There is an increasing need for immediate services, better product recommendations, seamless customer experience, and innovations in customers' portfolio maintenance. Various FinTechs in India are addressing this need and attracting investors.

- **ETMoney** allows users to contribute to mutual fund systematic investment plans (SIPs) via a paperless e-mandate process that enables instant payments skipping user IDs and passwords.²⁴
- **Paytm** launched its wealth management platform, Paytm Money in September 2018. It has added around three million users since then.²⁵
- International payer **PayU** entered the Indian WealthTech segment in October 2019 with a USD11 million investment in Bangalore-based FinTech *Fisdom*.²⁶

Capital markets and asset management

In India, capital markets are somewhat nascent compared with Western markets. However, mutual funds are undergoing rapid growth in Assets Under Management (AUM). Total industry AUM stood at nearly USD340.5 billion from April 2018 through February 2019. The exponential growth has created immense opportunities for FinTech players to enter the market. Newcomers are leveraging solutions that combine statistics and AI-empowered algorithms to scan through entire trade histories in secondary markets. Moreover, they are referencing bonds within other groups to allocate value and liquidity metrics.

Online discount brokerage firm **Zerodha** is gaining market recognition by simplifying financial trading

through cutting-edge technology. With more than 1.5 million clients, Zerodha is among the most prominent brokerages in India.²⁷

FinTechs across the globe are making a market impact.

- **Overbond**, a Canadian FinTech, launched COBI (corporate and government bond intelligence) in 2019 to help maintain regulatory compliance while automating bond pricing and liquidity risk management.²⁸ FinTechs that leverage cloud technology and offer innovative solutions to capital market firms are also gaining prominence.
- FinTech firm **AlphaSense** uses AI-powered search technology to provide investment insights to clients. The firm uses Amazon Cloud as a cost-effective, real-time data center for clients such as Credit Suisse and the Cowen Group.^{29, 30}

While disruption in the payments segment affects transactional processing revenues, increased competition in other areas will hit banks' interest income, and fee-based revenues.

RBI provides relief and allows video KYC

In a bid to ease remote customer authentication, RBI has decided to permit video-based KYC (know your customer). For banks, non-banking financial companies, BigTech, FinTech, and other financial players regulated by RBI, this will prove to be a cost and time-saving step. Video-based KYC will leverage the digital channels for the customer identification process. The provision allows the financial services players' to remotely vet a customer's identity through PAN (permanent account number) or Aadhaar card and a series of questions. Financial Institutions will have to ensure that the customer is physically present within the country by capturing their geo-coordinates.³¹

²⁴ The Economic Times, "ETMoney offers paperless process to set up mutual fund SIPs," June 11, 2019, <https://economictimes.indiatimes.com/wealth/personal-finance-news/etmoney-offers-paperless-process-to-set-up-mutual-fund-sips/articleshow/69740901.cms?from=mdr>.

²⁵ Money Control, "There is no question of inducing customers to a perpetual freebie culture: Paytm Money," October 25, 2019, <https://www.moneycontrol.com/news/business/personal-finance/there-is-no-question-of-inducing-customers-to-a-perpetual-freebie-culture-paytm-money-4573161.html>.

²⁶ Inc42, "PayU Enters Indian Wealthtech Segment With \$11 Mn Investment In Fisdom," October 30, 2019, Kritti Bhalla, <https://inc42.com/buzz/payu-enters-indian-wealthtech-segment-with-11-mn-investment-in-fisdom>.

²⁷ Zerodha, www.zerodha.com, accessed December 2018.

²⁸ PR Newswire, "Overbond solves for SEC N-PORT regulatory requirement with new bond pricing and liquidity risk management automation," January 15, 2019, <https://www.prnewswire.com/in/newsreleases/overbond-solves-for-sec-n-port-regulatory-requirement-with-new-bondpricing-and-liquidity-risk-management-automation-832775794.html>.

²⁹ AWS, <https://aws.amazon.com/solutions/case-studies/alphasense>, accessed September 2018.

³⁰ AlphaSense, <https://www.alpha-sense.com>, accessed September 2018.

³¹ Economic Times, "Relief for finance firms as RBI allows video KYC," January 10, 2020, <https://economictimes.indiatimes.com/industry/banking/finance/relief-for-finance-firms-as-rbi-allows-video-kyc/articleshow/73181171.cms>.

Rise of BigTechs challenge growth of banks in the future

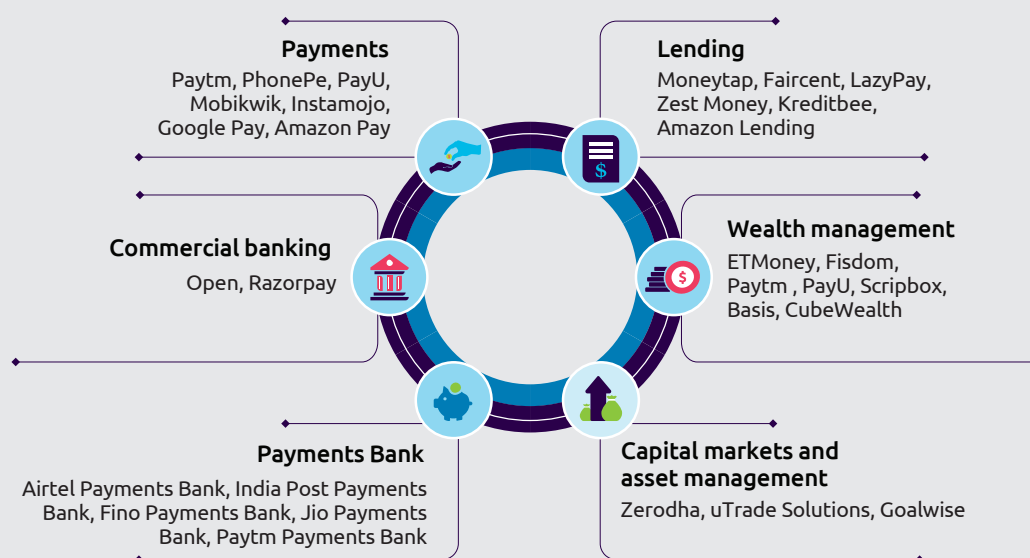
In a country of 1.3 billion people, with booming smartphone use and wireless data rates among the lowest in the world, BigTech firms sense an opportunity to get a foothold into the Indian banking sector via the competitive digital payments space.

- US technology giant **Google** – with its *Google Pay* app – has been the leader in Unified Payment Interface (UPI) payments in India. It amassed 67 million monthly active Indian users and processed transactions worth \$110 billion in 2018.³² It offers faster transaction speed, more convenience, and superior customer experience. Google Pay's Spots platform allows merchants to create a listing of their products and provide customers a customized branded experience. Merchants can list items for sale through this digital storefront, and customers

can order and pay using Google Pay.³³ In the United States, Google is also exploring partnerships with banks and credit unions to offer smart checking accounts. They are creating checking accounts in collaboration with Citigroup and Stanford Federal Credit Union.³⁴

- **Amazon** entered India through the e-commerce route via the website Amazon.in. It launched payments platform Amazon Pay in 2016 and has focused on making payments more secure and convenient for users. Recently, Amazon.in users have been able to make transactions via UPI.³⁵ Amazon also has a seller lending program in India that enables small and medium businesses on Amazon.in to get fast and easy access to working capital. Amazon partnered with Ketto, a crowdfunding platform that allows sellers on its platform to raise funds for innovation, product development, and business expansion.³⁶

Figure 3.3: Non-traditional players impacting Indian banking landscape



Source: Capgemini Financial Services Analysis, 2019.

³² Techcrunch, "Google chases businesses to maintain its payments lead in India," September 19, 2019, <https://techcrunch.com/2019/09/18/google-pay-job-business-india>.

³³ Livemint, "Google announces Spots platform to increase Google Pay's offline presence," September 19, 2019, <https://www.livemint.com/technology/tech-news/google-announces-spots-platform-to-increase-google-pay-s-offline-presence-1568879618289.html>.

³⁴ Business Insider, "Google's next big thing is offering to be your personal bank," Ben Gilbert, November 13, 2019, <https://www.businessinsider.sg/google-banking-citigroup-cache-checking-accounts-atm-2019-11>.

³⁵ Amazon, <https://www.amazon.in/b?ie=UTF8&node=16497146031>, Accessed on December 2019.

³⁶ Blog About Amazon, "Ketto partners with Amazon India to launch crowdfunding initiative for sellers," April 05, 2019, <https://blog.aboutamazon.in/supporting-small-business/ketto-partners-with-amazon-india-to-launch-crowdfunding-initiative-for-sellers>.

- In the United States, **Facebook** introduced payment system Facebook Pay to work across its app ecosystem - Facebook and Messenger.³⁷ In India, the social media giant is aiming to launch via messenger app *WhatsApp*, which has nearly 400 million customers.³⁸
- Many other global technology players are making moves into the Indian banking market. **Alibaba** has invested significantly in India's most popular payment platform, Paytm. **Walmart** owns the peer-to-peer (P2P) payment platform, PhonePe. Shenzhen-based **Tencent Holdings** invested in Bangalore startup NiYO, a digital banking company that helps India's blue-collar workers manage their finances.³⁹

Incumbents have already started losing valuable customer transaction information to non-traditional players. If newcomers assume consumer-facing roles that snatch banks' customer relationships and reduce their status to that of a utility provider (sometimes known as a *dumb pipe*), the impact could be severe.

Currently, banking regulations are the biggest hurdle for BigTechs when it comes to their ability to offer end-to-end products. If BigTechs find a way around laws and regulations, they may begin to fill gaps by providing a wide range of financial products and services that can threaten established banks.

³⁷ Business Standard, "Facebook Pay launched; to be available on WhatsApp and Instagram later," November 13, 2019, https://www.business-standard.com/article/companies/facebook-pay-launched-to-be-available-on-whatsapp-and-instagram-later-119111300164_1.html.

³⁸ Finextra, "Facebook readies WhatsApp Pay for Indian launch," July 26, 2019, <https://www.finextra.com/newsarticle/34170/facebook-readies-whatsapp-pay-for-indian-launch>.

³⁹ South China Morning Post, "Tencent steps up expansion in India with investment in fintech start-up NiYO," Iris Deng, July 13, 2019, <https://www.scmp.com/tech/article/3018339/tencent-steps-expansion-india-investment-fintech-start-niyo>.

Investment in emerging technologies and partnerships with ecosystem players can help banks face new-age competitors

A new, open ecosystem is taking shape comprised of customers, traditional banks, FinTech firms, regulators, developers, BigTechs, and others to follow potentially. Banks today compete with peers as well as with non-traditional firms that leverage next-gen tech capabilities to deliver innovative products and services. If banks fail to understand and respond to these disruptive newcomers, they risk losing customers who seek better engagement and an immersive experience. Traditional banks need to strategize and build a new-age business model to ensure a pivotal role within the new ecosystem.

Emerging technologies are shaping banking experiences

Progressive banks across the world are investing in emerging technologies. The use of mobile technology, biometric recognition, blockchain, and artificial intelligence (AI) has empowered them to simplify banking processes, enhance customer engagement, and enable anywhere banking.

India-based banks can leverage case studies to learn and adopt best practices that can lead to more satisfying experiences for customers.

Figure 4.1: New-age banking strategies



Source: Capgemini Financial Services Analysis, 2019.

AI-powered virtual assistants are making banking convenient and easier

Artificial intelligence has become viable for enterprises across various industries, and progressive banks have turned to the technology for smart automation solutions. Conversational AI is gaining traction as banks implement solutions that enable compelling, meaningful, and contextual customer conversations at a fraction of the cost of employing human service staff.

- Since launching AI-driven virtual financial assistant Erica in late 2018, Bank of America says it has surpassed more than six million active users with more than 35 million completed client requests.⁴⁰
- In early 2017, HSBC (Hong Kong) introduced virtual chat assistant Amy for corporate clients. Within a year, Amy was able to answer 97,000 questions with a 90% success rate and hold 38,000 customer conversations.⁴¹

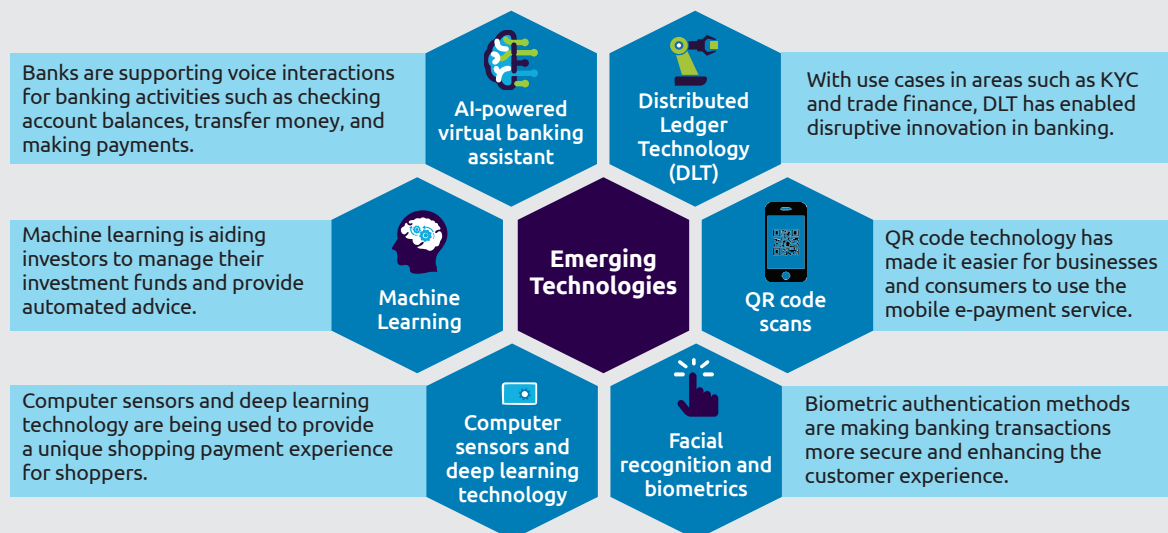
Distributed ledger technology simplifies KYC and trade finance processes

A distributed ledger is a database that is shared, replicated, and synchronized among approved members of a decentralized network. It records transactions, such as the exchange of assets or data, among network participants. Every distributed ledger record is timestamped and has a unique cryptographic signature, making the ledger an auditable, immutable, and transparent history of all network transactions.

Now, DLT is streamlining the KYC process. Unlike typically repetitive and complex KYC processes, the DLT model allows customers to create and manage their identities and permit multiple participants to access their user profile.

HSBC joined with Singapore-based OCBC and Tokyo-based MUFG to partner with Singapore's Infocomm Media Development Authority (IMDA). Together, the team developed a KYC proof of concept that enables structured information to be recorded, accessed and shared across a distributed network using advanced cryptography.⁴²

Figure 4.2: Emerging technologies in the Banking Space



Source: Capgemini Financial Services Analysis, 2019.

⁴⁰ Bank of America, "Bank of America's Erica® Surpasses 6 Million Users," March 21, 2019, <https://newsroom.bankofamerica.com/press-releases/consumer-banking/bank-americas-ericar-surpasses-6-million-users>.

⁴¹ South China Morning Post, "HSBC's Amy and other soon-to-be released AI chatbots are about to change the way we bank," Alice Shen, January 14, 2018, <https://www.scmp.com/business/companies/article/2128179/hsbcs-amy-and-other-soon-to-be-released-ai-chatbots-are-about-change>.

⁴² The Business Times, "Singapore regulator, OCBC, HSBC, MUFG create 'Know Your Customer' blockchain prototype," Rachel Mui, October 3, 2017, <https://www.businesstimes.com.sg/banking-finance/singapore-regulator-ocbc-hsbc-mufg-create-know-your-customer-blockchain-prototype>.

- The Hong Kong Monetary Authority (HKMA) is researching the use of a decentralized database and functionality to improve paper-based and labor- and time-intensive trade financing processes.⁴³
- Capgemini's new KYC platform provides an immutable, secure, traced, and streamlined way for parties to carry out KYC transactions. The platform leverages R3's DLT protocol Corda to enable trusted onboarding capabilities for banks and corporates. For corporates, this translates into faster onboarding and eliminates the need to provide the same information multiple times.⁴⁴

Banks are also exploring DLT to simplify cross-border trade finance processes. Standard Chartered in Singapore completed a cross-border letter-of-credit blockchain transaction, enabling the bank to substantially reduce transaction completion time from five or more days to less than 12 hours.⁴⁵

Simplifying payments using QR-code scans and UPI

Quick Response (QR) code technology offers a practical and simplified way of conducting a payment transaction. It enables customers to pay by scanning the code present at the point of sale. This solution has made it easier for customers and businesses to use mobile payment services.

- Singapore banks DBS and OCBC are exploring in-store payment methods that use QR codes. DBS' **PayLah!** and OCBC's **Pay Anyone** are payment platforms through which customers make in-store payments via their mobile devices by scanning a QR code at the point of sale.^{46, 47}

- With a push to become a cash-less economy, Indian banks are investing to explore QR-code transactions that provide a hassle-free payment experience. To help the cause **BharatQR**, an integrated payment systems was launched in February 2017. It is developed by National Payments Corporation of India (NPCI) to increase coordination among banks and other payment operators.
- Among the frontrunners in Indian banks is ICICI Bank. Through ICICI's Pockets app, bank customers can access Scan to Pay, which enables a smartphone to scan a QR code at a merchant outlet.⁴⁸ Banks such as Bank of Baroda, Union Bank of India, and State Bank of India have also invested in QR code technology. SBI's **YONO** (You Only Need One) app, launched in November 2017, India's first comprehensive digital service platform, uses QR code extensively.⁴⁹
- UPI payment is another revelation that has put India as a leader in the adoption of technology to ease payment transactions. Former governor of Reserve Bank of India, Raghuram Rajan, launched Unified Payments Interface (UPI) in April 2016. By August of the same year, 21 banks were using it, with 93,000 transactions recorded in that month. Post demonetization implementation in the country in December 2016, government launched **BHIM** (Bharat Interface for Money), to motivate customers further to use digital as their preferred mode of transaction.⁵⁰ It recorded 10 million downloads in the first ten days, which made the collaborative efforts of NPCI, Banks, and various merchants hugely successful.⁵¹

⁴³ World Economic Forum, "10 ways central banks are experimenting with blockchain," Ashley Lannquist, April 3, 2019, <https://www.weforum.org/agenda/2019/04/blockchain-distributed-ledger-technology-central-banks-10-ways-research-articleshow/73181171.cms>.

⁴⁴ Capgemini, "A next-generation data exchange platform for KYC and supplier onboarding," Manuel Sevilla, October 16, 2019, <https://www.capgemini.com/2019/10/a-next-generation-data-exchange-platform-for-kyc-and-supplier-onboarding>.

⁴⁵ Standard Chartered, "We've completed our first cross-border Letter of Credit blockchain transaction in the oil industry with PTT Group," August 7, 2019, <https://www.sc.com/en/media/press-release/weve-completed-our-first-cross-border-letter-of-credit-blockchain-transaction-in-the-oil-industry-with-ptt-group>.

⁴⁶ DBS, www.dbs.com.sg/personal/deposits/pay-with-ease/dbs-paylah, accessed on December 10, 2019.

⁴⁷ OCBC, www.ocbc.com/personal-banking/online-banking/payanyone.html, accessed on December 10, 2019.

⁴⁸ ICICI, <https://www.icicibank.com/Personal-Banking/bank-wallet/pockets/scan-n-pay.html>, accessed on December 10, 2019.

⁴⁹ Financial Express, "In a first in India, SBI to launch lifestyle and banking digital platform YONO; here's what's in it for you," November 23, 2017, <https://www.financialexpress.com/money/in-a-first-in-india-sbi-to-launch-lifestyle-and-banking-digital-platform-yono-heres-whats-in-it-for-you/944754/>.

⁵⁰ Forbes India, "UPI 2.0, BHIM and the new shape of payments," September 4, 2018, <http://www.forbesindia.com/article/fintech-supermarket/upi-2.0-bhim-and-the-new-shape-of-payments/51195/1>.

⁵¹ Financial Express, "BHIM gets more powerful, now playing catch-up with UPI rivals," October 23, 2019, <https://www.financialexpress.com/opinion/bhim-gets-more-powerful-now-playing-catch-up-with-upi-rivals/1743327/>.

Facial recognition and biometrics

Banks have been exploring biometric authentication methods such as fingerprint and retina scanning for the past few years. Given the uniqueness of biometrics, it provides added security and reduces risks better than conventional security systems. Another advantage it offers is the ease and convenience demanded by customers. Customers can log in/transact/authenticate without entering login credentials.

Alipay, the online payment platform under the Alibaba BigTech umbrella, is upgrading its Smile-to-Pay system launched initially in 2017. To make its facial-recognition process more accessible to merchants and customers, Alipay is crafting a new version, Dragonfly, which is essentially a plug-and-play device. Alipay says Dragonfly is one-tenth the size of a traditional self-service POS machine and can fit in a backpack.⁵²

Artificial intelligence and biometric facial recognition have not reached maturity because the technology is in continuous flux. Therefore widespread acceptance of the technology as a payment method is far from realization.

However, BigTechs and FinTechs have assessed changing customer preferences and acceptance of new trends and are investing in facial recognition. Similarly, established banks must identify such opportunities and invest in them or collaborate with a FinTech skilled in AI or other enabling technologies.

Computer sensors and deep learning technology

Amazon Go is an app that makes it easier and more convenient for customers to shop. Amazon is opening brick-and-mortar convenience stores in which customers select their groceries and leave the store without standing in line to pay. Amazon uses its Just-Walk-Out technology bolstered by computer sensors,

sensor fusion, and deep learning. It detects when a shopper takes an item and automatically bills them through Amazon Pay while they are leaving the store.⁵³ The technology is still nascent but provides a unique shopping experience that banks can tap as a potential investment opportunity.

Automated investment advice using machine learning and robo advisors

- Automated investment advice is another area in which machine learning (ML) is making an impact. Robo advisors use ML algorithms to manage investment funds along with brokerage and investing services. Charles Schwab's automated investment platform leverages robo-advisors to assist clients in portfolio construction.⁵⁴
- Machine learning helps to automate repetitive, slightly complex processes such as answering customer queries across multiple markets (including the use of chatbots for high-volume transactions), which otherwise are a challenge. In 2018, Deutsche Bank launched Debbie, its first securities services chatbot – a mechanized solution to quickly and securely deliver clients' trade status.⁵⁵

Providing an optichannel experience is the need of the hour

With firms investing in emerging technologies, there are enough mature solutions to make banks future-proof and to create a highly responsive ecosystem. Now, banks need to find effective ways to deliver these solutions or products for maximum customer impact. In this digital age, due to an increase in channels to interact with a customer, an omnichannel strategy is a must. With evolving customer expectations and impending new-age competition, banks should now look to move beyond omnichannel to provide a genuinely optichannel experience for the customer.

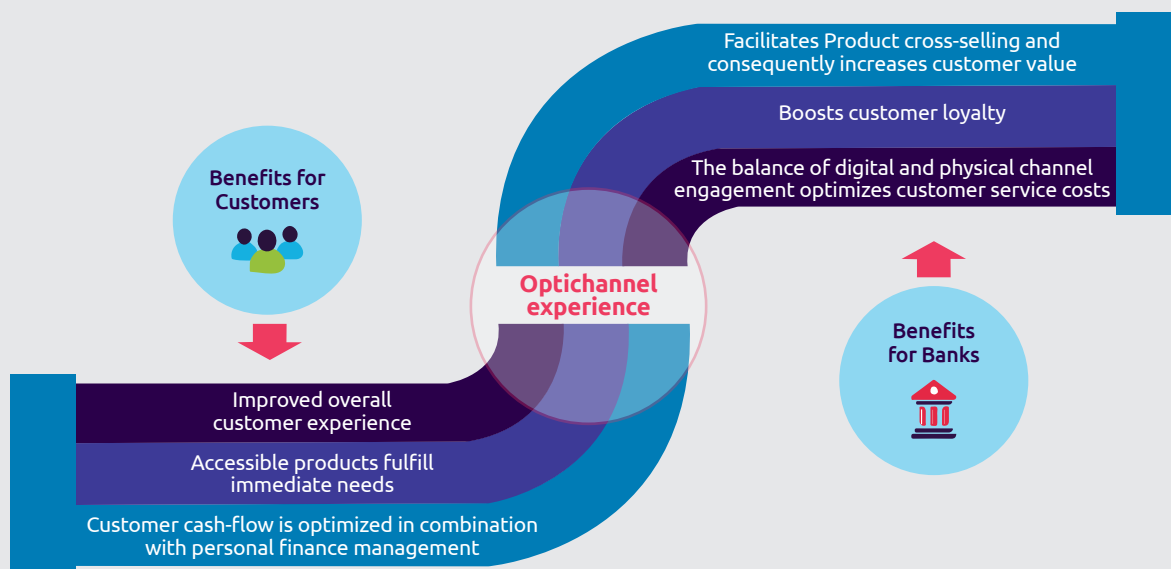
⁵² China Daily, "Alipay upgrades facial-recognition system," He Wei, December 14, 2018, <http://www.chinadaily.com.cn/a/201812/14/WS5c12f272a310eff303290f11.html>.

⁵³ Pocket Lint, "What is Amazon Go, where is it, and how does it work," Maggie Tillman, February 18, 2019, <https://www.pocket-lint.com/phones/news/amazon/139650-what-is-amazon-go-where-is-it-and-how-does-it-work>.

⁵⁴ Charles Schwab, "Schwab Intelligent Portfolios," September 2019, <https://intelligent.schwab.com>.

⁵⁵ Deutsche Bank, "Could a chatbot help resolve the speed and accuracy need in trade queries?" August 2018, <https://cib.db.com/insights-and-initiatives/flow/could-a-chatbot-help-resolve-the-speed-and-accuracy-need-in-trade-queries.htm>.

Figure 4.3: Optichannel experience – benefits for customers and banks



Source: Capgemini Financial Services Analysis, 2019.

Optichannel experience is an omnichannel experience, optimized around individual customer preferences across all touchpoints. An optichannel platform can adapt, scale, and deliver personalized digital experiences to consumers across channels.

In the future, mall shoppers may receive a message via their smartphone banking app that alerts them to a store discount if they purchase with their bank card. Also, they may receive news about a pre-approved quick loan because their end-of-month card balance is a little low. In this digital age, it's not enough to be at all places all the time. Banks must approach the customer at the right place, at the right time, with the right product, via the right channel.

Today, banks are venturing into omnichannel solutions to provide a seamless experience.

- Banks such as HDFC with its Eva bot and ICICI with AI chatbot iPal have so far handled millions of customer interactions on banking portals and mobile apps that include information and financial

services with nearly 90% accuracy. Omnichannel iPal redefines the banking experience across internet banking, iMobile, and ICICI's Pockets app. Within eight months of its February 2017 launch, the chatbot had interacted with more than three million customers and had answered about six million queries, with 90% accuracy. The bank is integrating iPal with existing voice assistants such as *Cortana*, *Siri*, and *Assistant*.⁵⁶

- SBI is leading from the front with mobile apps *Anytime Anywhere* and *YONO* at a time when payment systems are drawing young customers. With a reputation for convenience, *YONO* offers customers competitive deals and cash-back opportunities.⁵⁷ It allows customers to meet their digital lifestyle needs across 14 categories, which includes booking & renting cabs, entertainment, dining experience, travel & stay, medical needs and so on.⁵⁸

Using customer data, banks can potentially identify the optimum channel that a customer prefers for specific banking activities. These insights, combined

⁵⁶ ICICI, "For regular transactions, banking should become invisible," <https://www.icicibank.com/Personal-Banking/ipalchatbot.page> accessed December 10, 2019.

⁵⁷ The Economic Times, "Away from the public gaze, State Bank of India is preparing to unleash a revolution," May 16, 2018, <https://economictimes.indiatimes.com/industry/banking/finance/banking/how-indian-financial-services-players-are-coming-to-terms-with-technological-changes/articleshow/64184172.cms?from=mdr>.

⁵⁸ Financial Express, "In a first in India, SBI to launch lifestyle and banking digital platform YONO; here's what's in it for you," November 23, 2017, <https://www.financialexpress.com/money/in-a-first-in-india-sbi-to-launch-lifestyle-and-banking-digital-platform-yono-heres-whats-in-it-for-you/944754/>.

with real-time data, AI, and location-based capability, can provide a genuinely optichannel experience.

Effective data utilization will fuel contextual banking

The digital boom in banking has triggered the advent of enormous volumes of customer data residing with incumbent banks. Data is gathered automatically across time and dimensions as multiple touchpoints make up the customer journey. Diverse interaction channels range from SMS, email, mobile, tablets, and kiosks. With advanced technologies such as big data, machine learning, analytics, and AI technologies, banks can weave together a complete customer profile based on data points, including an individual's location, demographics, past purchases, and social feeds.

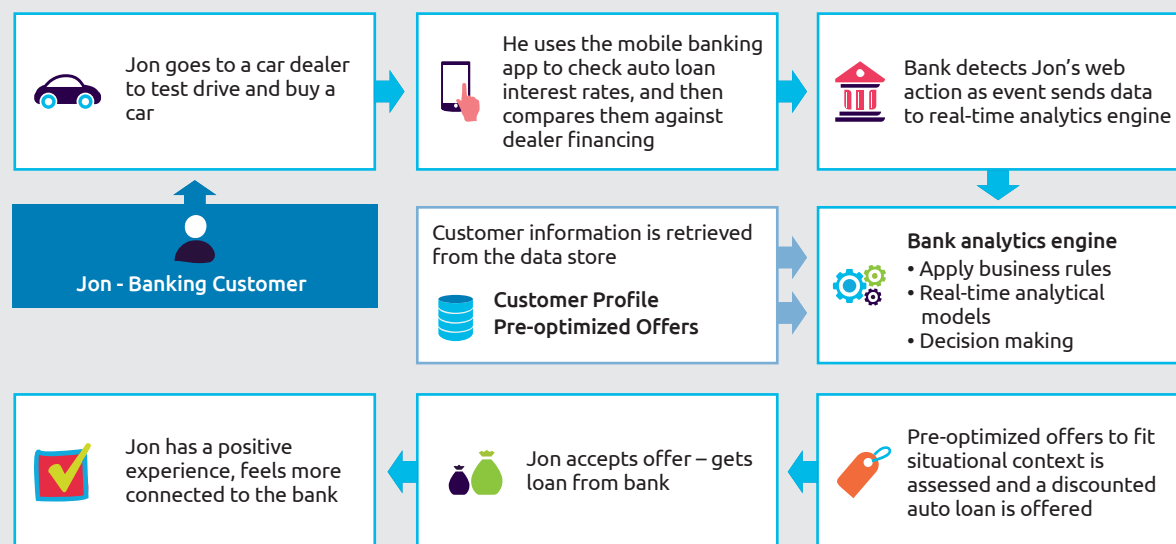
Based on sophisticated customer profiles and and gradually transitioning from segmentation to customization to personalization, banks can wow customers with extremely tailor-made offerings – the holy grail in customer experience.

Banks have tremendous scope to mine and monetize this data to generate new revenue streams. A comprehensive, 360-degree view can enable banks to smartly interact with customers through effective interventions at key life events. For instance, a home loan around marriage, shopping/vacation recommendations to coincide with a salary hike or bonus, or investment ideas to cover children's expenses or retirement plans.

Imagine a future in which virtual assistants can determine whether or not an individual is in a financial position to purchase a home. Virtual assistants may soon analyze a person's financial situation, current mortgage rates, and variables such as college costs to determine mortgage worthiness. AI has the potential to refashion the classic banking business.

- Kotak Mahindra Bank's bilingual voice bot **Keya 2.0** offers AI-based conversational banking that features personalized, contextual, human-like, and user-friendly phone banking for customers who seek speed, convenience, and security.⁵⁹

Figure 4.4: Contextual Banking Experience



Source: Capgemini Financial Services Analysis, 2019.

⁵⁹ Kotak Bank, press release, "Kotak Mahindra Bank Launches Keya 2.0 | Indian Banking's First Voice-bot gets Upgraded with AI-powered Conversational Banking," July 01, 2019, <https://www.kotak.com/content/dam/Kotak/about-us/media-press-releases/2019/media-release-kotak-mahindra-bank-keya.pdf>.

⁶⁰ Axis Bank, "Axis Aha! – Making Banking worth talking about," May 27, 2018, <https://www.axisbank.com/progress-with-us/money-matters/axis-aha-making-banking-worth-talking-about>.

⁶¹ YES Bank, <https://www.yesbank.in/digital-banking/yes-robot>, accessed on December 10, 2019.

- Axis Bank's AI-powered **Aha!** is a conversational banking assistant that can help transfer funds, order a checkbook, pay credit card and utility bills, handle recharges, enhance limits, or implement credit blocks.⁶⁰
- YES Bank's AI product **ROBOT** answers consumer's banking queries anytime, anywhere, without the hassle of waiting for on-call or exploring online.⁶¹

As data becomes a more critical asset, efficient management will be a priority

Globally, the number of IoT devices has grown to more than one billion. By 2022, predictions say that 50% of enterprise data will be created and processed outside the data center of the cloud, and by 2025 the number of IoT devices is likely to have reached 100 billion.⁶² New 5G capabilities with edge computing are likely to be gain popularity. Banks will need to improve the speed of service and to reduce latency to mitigate the challenges of increased data at the edge. Edge computing, where computing power shifts away from centralized networks, and processing data happens closer to the source, is set to propel banking services and operations into the future.

- In early 2019, Commonwealth Bank of Australia announced its intention to invest in trial and exploration of 5G edge computing. The program is the first in Australia to bring technology providers and the financial services sector together to fully explore 5G edge computing use cases and network capabilities by testing end-to-end banking solutions over 5G. The goal is to enhance existing banking applications as well as to deliver new use-cases such as AI, all supported by a range of software-defined networking solutions.⁶³

Effective collaboration will be the key for banks to remain relevant

Banks can venture into emerging technologies and improving customer experience on their own or look to collaborate with nimble FinTechs. For most FinTechs, their major advantages include a consumer-centric approach, agility, and an innovation mindset.

On the other hand, most traditional financial firms have a strong customer base, robust network, and strong brand recognition. They also have adequate capital, regulatory compliance expertise, and have established trust. While traditional financial firms have fallen behind in the development of advanced solutions, FinTechs have been innovative and offering customers hassle-free ways to resolve pain points.

The complementary strengths of banks and FinTechs make collaboration a win-win opportunity for both. In Capgemini's World Retail Banking Report 2019, approximately 73% of the bank executives surveyed said they were collaborating with three or more FinTech firms.⁶⁴

The emergence of standards for APIs and data sharing have instilled confidence in players to leverage collaboration more extensively. Open banking regulations across the world are also altering the landscape of financial services, and it has resulted in new ecosystem entrants.

- In the UK, the Competition and Markets Authority (CMA) established OBIE to create software standards and industry guidelines for open banking.⁶⁵

⁶² Raconteur, "What edge computing will do for banks," Matthew Staff, June 2, 2019, <https://www.raconteur.net/finance/edge-computing-banking>.

⁶³ Ericsson, "Telstra, CBA and Ericsson to trial 5G for the banking sector," February 16, 2019, <https://www.ericsson.com/en/press-releases/2/2019/2/telstra-cba-and-ericsson-to-trial-5g-for-the-banking-sector>.

⁶⁴ Capgemini and Efrma World Retail Banking Report 2019, <https://worldretailbankingreport.com/>.

⁶⁵ PingIdentity, "PSD2, Open Banking and OAuth2.0 for API Security," Barry O'Donohoe, April 5, 2017, https://www.pingidentity.com/en/company/blog/2017/04/04/psd2_open_banking_and_oauth_20_for_api_security.html.

- PSD2 (Second Payment Services Directive) is a European regulation for electronic payment services. And across Europe, banks are adopting the General Data Protection Regulation (GDPR), established to govern third-party access to customer information and data privacy).⁶⁶
- While Singapore has provided guidelines, it has not imposed regulations on its leading banks. Driven by market adoption, numerous Singapore banks (including DBS) have opened their APIs to third parties.

Similarly, in many geographies, visionary banks are embracing change and have already put ecosystem-based programs in place.

- Wells Fargo recently partnered with the data platform Plaid to offer customers the choice of managing their finances in one place using APIs.⁶⁷

- Commercially launched in 2017, BBVA's API Market portal offers 10 portals in Spain and two in Mexico and the United States. The portals enable FinTechs to develop innovative plug-and-play solutions within the banking platform.⁶⁸

In India, banks have started to forge strategic partnerships with FinTech companies for their fresh perspective and expertise in specific areas. Axis Bank's **Thought Factory**, an Innovation Lab in Bengaluru, provides Axis Bank with a better understanding of today's technologies and a better focus on tech solutions.⁶⁹

ICICI Bank is also investing in FinTech startups, picking up equity stakes to boost products.⁷⁰ HDFC Bank launched SmartUp to nurture startups in this space.⁷¹

Banks have taken the first step to embrace FinTechs. Now they must continue down the path toward openness with higher strategic intent.

⁶⁶ Mondaq, "European Union: PSD2: Legal Issues in Open Banking (And GDPR!)," Giangiacomo Olivi, March 6, 2019, <http://www.mondaq.com/uk/x/786086/Financial+Services/PSD2+Legal+Issues+In+Open+Banking+And+GDPR>.

⁶⁷ Pymnts, "Wells Fargo Teams with Plaid On API-Supported Data Exchange," September 19, 2019, <https://www.pymnts.com/news/digital-banking/2019/wells-fargo-teams-with-plaid-on-api-supported-data-exchange>.

⁶⁸ BBVA, "BBVA, recognized for its open banking," Pablo Ortiz, May 25, 2018, <https://www.bbva.com/en/bbva-recognized-open-banking-initiative>

⁶⁹ The Hindu Business Line, "Axis Bank launches 'Thought Factory,' an innovation lab to Drive FinTech innovation," January 20, 2018, <https://www.thehindubusinessline.com/business-wire/axis-bank-launches-thought-factory-an-innovation-lab-to-drive-fintech-innovation/article8788407.ece>.

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Conclusion

Banking processes have dramatically changed over the last few years and will keep on evolving. To play an essential role in the future banking ecosystem, banks should focus on technology adoption and forgo legacy thinking when it comes to designing products and services. Established firms must embrace collaboration with challengers and new stakeholders, as these relationships will pave the road to future relevancy.

FinTechs and BigTechs will continue to raise the user experience bar and dictate the design of products and services for the future. The result? Incumbent banks will have little choice but to improve their legacy platforms through the power of next-gen technologies such as machine learning, neuro-linguistic programming (NLP), optical character recognition (OCR), AI, and blockchain. Banks should start investing in these technologies now to achieve a pivotal role in the changing banking ecosystem.

Collaboration with FinTechs and BigTechs is another avenue that banks should explore to remain relevant to their customers. FinTechs have core capabilities to implement cutting-edge technologies that banks can leverage to create services sought by modern-day consumers.

Technology can serve as a tool to help banks create a digitally immersive experience, and data will be banks' primary asset in designing such experiences. The efficient management of the enormous volumes of customer data gathered from various customer touchpoints over time will be the most critical aspect of successful bank transformation. With the use of technology such as AI and machine learning, incumbents can create a contextualized, optichannel experience for customers.

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