The transformation of banking

Digital payments, blockchain, artificial intelligence and robotics will revolutionise the way banks function and engage with customers

A customer creating his own PIN for a debit card

ADVAIT RAO PALEPU & ANUP ROY

Ramkeval Patel, 42, a vegetable vendor in Mumbai's suburb of Andheri, is fearful of banks. Paperwork to open an account or even depositing money in a branch overwhelms him, and automated teller machines confuse him. But his family in Uttar Pradesh's Deoria district depends on his money for sustenance.

A vast majority of Indians engaged in the informal economy has the same story to narrate. But there has been a revolution in the country's banking industry: the cumbersome paperwork of completing the know-your-customer (KYC) process is becoming a thing of the past.

Today, Patel's thumb impression can open an account in minutes or manage his daily transactions. Patel opened an account this way at Fino Payments Bank, and immediately got a Rupay debit card, which he can operate in any ATM. New entrants in the banking field — such as Fino — target customers like Patel and have built a huge business network, beating traditional banks at their own game.

TOWARDS A CASHLESS SOCIETY

	DEBIT & CREDIT CARDS AT PoS		PREPAID PAYMENT INSTRUMENTS (PPIs)	
	Volume (million)	Value (₹billion)	Volume (million)	Value (₹billion)
Oct '16	229.5	518.8	126.9	60.2
Nov '16	334.4	587.3	169.3	50.7
Dec '16	531.5	891.8	261.1	97.7
Jan '17	441.4	817.1	295.8	110.0
Feb '17	346.7	645.5	280.0	96.3
Mar '17	378.8	690.9	342.1	106.8
Apr '17	374.6	706.2	352.2	103.7
May '17	380.1	733.0	278.1	106.7
Jun '17	364.1	730.1	255.6	85.1
Jul '17	366.4	685.0	270.2	98.6
Aug '17	380.8	717.1	261.1	102.9
Sep '17	377.9	740.9	240.3	109.8
Oct '17	401.8	828.1	245.2	117.0

Source: RBI

Urban India is familiar with digital banking, but policymakers have found it difficult to get the rural population to embrace cashless transactions. Payments banks and new financial technology companies have turned to this task, and are taking banking to the rural hinterland in a completely paperless manner. Seeding of Aadhaar with bank accounts has already cut the need to carry any paper while opening bank accounts.

When banks were nationalised in 1969, the objective was financial inclusion. Yet, it was after Prime Minister Narendra Modi's intervention in 2014 that banks started opening accounts for each family. Most of these accounts are non-operational now, but that won't be the case for long, as the government will soon be making social sector payments through them.

GOING MOBILE

	UNIFIED PAYMENT INTERFACE (UPI)	
	Volume (million)	Value (₹billion)
Nov '16	0.3	1.0
Dec '16	2.0	7.1
Jan '17	4.2	16.6
Feb '17	4.2	19.0
Mar '17	6.2	23.9
Apr '17	7.0	22.4
May '17	9.2	27.7
Jun '17	10.2	30.7
Jul '17	11.4	33.8
Aug '17	16.6	41.3
Sep '17	31.0	52.9
Oct '17	77.0	70.6
Nov '17	105.1	96.8
Dec '17	145.6	131.7

Source: NPCI

To top it all, the Union Budget for 2017-18 allocated ₹19 billion over three years to bring digital banking to primary agriculture credit societies. The plan is to link 63,000 societies with core banking solutions of district cooperative banks, which will allow new-generation banking services to be made available to small and marginal farmers for the first time. Besides, the performance of agriculture societies will improve if the exercise fructifies.

The story is different in urban India, where mobile data connectivity and smartphones are part of life. True, people have still not embraced mobile banking fully, but Unified Payments Interface (UPI), pre-paid wallets and other mobile-based payments have completely changed the game. At shops or malls, people are more comfortable swiping their cards, rather than carrying cash. It's all about convenience.

While banking services through social media and chats have not yet taken wing in India, pilot projects that involve transactions using fingerprints exist in certain areas. For example, State Bank of India (SBI), the country's largest lender, has adopted a village in Maharashtra's Raigad district for Aadhaar-based payment. The government itself has launched such a payment mechanism, but the system will become more widespread once the Supreme Court takes a decision on making the Aadhaar link with bank accounts mandatory. Another mechanism that will be widely adopted is payments using near field communication (NFC) protocol. Banks have NFC-enabled debit cards, but merchant establishments are not ready yet. Experts say it's just a matter of time, though.

However, reliance on cash is not going to end anytime soon in a $2-trillion economy. About 10-12 per cent of total transactions are now conducted electronically. This share can climb to 40-50 per cent, but cash will continue to dominate, said Naveen Surya, chairman, Payment Council of India.

THE CASHLESS NUDGE

Bankers say the biggest challenge and opportunity in the near future lies in the field of payments. Globally, and in India, savvy customers are moving to a seamless system of digital payments. From booking a taxi to paying the grocer, smartphones have made cash — and to some extent, even cards — redundant. Mechanisms such as UPI, BHIM and SMS banking have made cash transfers just a matter of clicks, and safe too. That is already reflected in the numbers.

"The amount of transactions we are putting through our mobiles, about ₹150 billion, is higher than the amount of transactions we are putting through our ATMs. That in a sense shows you the shift away from cash towards mobile transactions," said Rajiv Anand, head of retail at Axis Bank. "We have already witnessed it and others will also witness this trend."

To popularise cashless transactions, the government has also stepped in, saying it will foot the merchant discount rates for transactions of up to ₹2,000. That will both broaden card acceptance and allow banks to issue more point of sale (PoS) machines.

The government is also trying to give digital an extra push.

"The government's StartUp India programme, which aims to nurture innovations, and the India Stack platform, which offers a state-of-the-art technological framework to businesses, startups and developers aimed at presence-less, paperless and cashless service delivery, provide a conducive environment for accelerated growth of fintech, which would pave [the] way for leveraging new technology in the provision of financial services," observed the Trends and Progress Report of the Reserve Bank of India (RBI), published in December.

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Data from RBI shows that between October 2016 (the month before demonetisation) and October 2017, card usage doubled. While debit cards were still predominantly used for withdrawing money from ATMs, they were increasingly being used at PoS terminals too.

Prepaid instruments (PPI), including mobile wallets, prepaid cards and paper vouchers, have seen increased usage after demonetisation. Bankers say the note ban allowed the industry to achieve a digitisation push equivalent to three years of sustained hard work.

B Madhivanan, chief technology and digital officer of ICICI Bank, reckons that 40 per cent of all loans will be digital in 18-24 months.

INNOVATION IN PLAY

The next big thing in banking will be the blockchain mechanism, said Naveen Surya. It is touted as one of the most secure technologies, and perhaps the only reliable technology for cross-border transactions, with the likelihood of becoming the mainstay of regular banking in the future. All banks will get into a blockchain network and everyone's transactions will be maintained in the books of everyone else, eliminating the chances of fraud or manipulation.

"Blockchain will be a very big deal. Besides, developments around near field communication (NFC), UPI and PPI are always being experimented with," said Surya. Also on the cards, he added, will be interoperability in prepaid instruments, which essentially means that a customer is no longer limited by who he banks with. Instead, he can use the same credentials for use on other infrastructure as well.

"It is going to be a game-changer in the field and will blur the lines between banks and non-bank payments system providers," said Surya.

Banks are also increasingly experimenting with

technology and are making application programming interfaces (API) available to developers to tinker with. The idea is to pick the best one suited for the bank.

"A fully digital engagement with corporate and business clients depends largely on the technology set-up at both ends. While banks are investing heavily, the speed of adoption at the corporate customer's end needs to be the same," said Rana Kapoor, MD and CEO of Yes Bank.

The use of robotics and APIs will facilitate end-to-end digitisation and change the way business is conducted. One good example of this is instant refunds by e-commerce companies, Kapoor said.

India is far ahead of other countries in developing cutting edge banking technology. One area where it is at the forefront is development of artificial intelligence in banking.

"The competition is heating up, and India can be a provider in this space not only to companies in the country but globally as well," said Sreerama K V Murthy, CEO of Quadratyx Analytics, a technology consultancy that specialises in data analytics (AI), cybersecurity, artificial intelligence, and robotics process automation solutions for enterprises.

HERE COME THE ROBOTS

The biggest change underway in the banking system, without many realising it, is in the field of AI and machine learning. Big data, or data accumulated through customer transactions, are enabling targeted and need-based product offerings.

Banks have always been the earliest adopters of cutting edge technology, and it should be no surprise if a few years from now most functions in banks are handled by robots. And the first process to be taken over by robots will be customer service.

In an interview with *Business Standard* in May 2017, the then HSBC India chief executive officer, Stuart Milne, said getting a human to serve a bank customer would be a privilege of only the wealthiest. "For you and I, it will be robots."

Information technology advisory and research firm Gartner estimates that by 2020, almost 85 per cent of all customer interactions will take place on an AI platform, while the robotic process automation (RPA) industry will touch $5 billion globally.

In top private banks, chatbots are slowly taking over customer service functions. ICICI Bank's chatbots have had more than three million real-time conversations with customers and cleared six million requests. Similarly, HDFC Bank has in the past six months had 1.2 million conversations and 2.7 million queries attended to by chatbots. And customers at the other end of a phone don't often realise they are interacting with a robot.

Deep inside banks, AI and RPA technology are reaping rich dividends for the financial industry. Banks are launching AI-based services for their customers, as well as investing in RPA technology to slash high back-end costs.

Banks are using AI and RPA technologies across various functions, including for quantifying and minimising risks; customer support; loan underwriting; recruitment, training and retention; fraudulent transaction detection; core banking; analytics; helping risk managers assess, forecast and avoid delinquencies; and helping analysts and investment managers make more grounded valuations.

MORE MERCHANTS ACCEPT CARDS

	Number of PoS
Mar '14	1,065,984
Mar '15	1,126,735
Oct '16	1,512,068
Oct '17	2,958,301

PoS: Point of sale terminals

Source: RBI

A SURGE IN PLASTIC

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	Credit	Debit
Mar '14	19.18	394.42
Mar '15	21.11	553.45
Oct '16	27.34	748.28
Oct '17	33.87	826.25

Source: RBI

For example, SBI has an AI process automation that analyses past customer data, spending habits, and even brands the customer uses frequently, and customises offers around those habits, said Shiv Kumar Bhasin, SBI's chief technology officer.

"Where we have merchant tie-ups, we extend direct offers to the customers. Otherwise, we try to cross-sell others' products, analysing the data in hand," Bhasin said. For example, the bank may sell insurance products to a person servicing a long-term equated monthly instalment. It also automatically issues cheques to customers as soon as the seventh-last cheque in the book is used.

A substantial chunk of SBI's back-office work is done by robotics, especially in trade finance and other such complex processes, where a large amount of paperwork has to be processed, said Bhasin.

According to Kalpesh J Mehta and Shyam Govindan, partners at Deloitte India, RPA's capability to aggregate data from multiple sources could also enhance the efficiency of regulatory, non-financial, and risk reporting, as it can help eliminate or reduce the time-consuming processes of collecting, compiling and summarising vast amounts of information.

"Monitoring and testing provides a powerful example of RPA's potential to transform compliance operations," they said in an emailed response.

There are further marketing benefits that banks could take advantage of by deploying AI technology — which can systematically identify, design and market products for new and existing customers.

"This is the key feature that we've observed: the power of pricing, power of product features and power of product customisation actually moves into the hands of customers rather than the lender," said Mridul Sharma, executive vice president and head of technology at IndusInd Bank.

Virtually all private sector lenders in India have embraced this technology widely. Kotak Mahindra Bank has deployed RPA technology across verticals like operations, contact centres, trade and customer support. The aim is to implement it in areas where cost optimisation will be the highest, according to Deepak Sharma, the bank's chief digital officer.

Similarly, ICICI Bank has adopted software robotics extensively to power its operations, with over 500 software robots now undertaking 1.5 million transactions daily, according to Madhivanan.

AI, once scaled up and deployed, has the ability to change how banks handle client relationships. Loans and lines of credit will be designed and structured and the associated risk accounted for by robots and intelligent computers, across corporate and non-corporate segments. Customers will be offered tailor-made loans and other services, depending on an analysis of their spending and credit history, which will be done in real-time by AI software.

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Going forward, Natural Language Processing and AI's ability to imitate the human voice will transform the entire customer service experience and it will all seem natural, say experts.

"If you have to open a fixed deposit, you can simply say 'Hey Niki, open a fixed deposit of ₹10 million for me', or 'Hey, just send me my last month's statement', and it will be done for you, just as simple as sending a text message," said Nitin Babel, co-founder of Niki.ai, an AI start-up that has helped some major banks develop their chatbots.

COSTLY FOR NOW

While the benefits of implementing RPA across various banking verticals are evident, it is a costly enterprise that requires institutional patience for trial and error. A Deloitte survey found that 32 per cent of organisations were prepared for the technology implications of RPAs, but only 17 per cent of respondents indicated that they were ready to handle a workforce of people, robots and AI working side by side.

Most corporations know the risks of unsuccessful implementation. Too high an investment, inability to identify the right software or partner firms, or implementing the platform without the requisite support systems in place for employees, could lead to setbacks. The pace and scale of adoption and implementation are key to achieving the efficiency gains these technologies are said to provide.

But banks are pressing on, and Indian software developers are in big demand globally.

"We see a lot of automation in the bank loans and mortgage business. One of the largest mortgage providers in the US wants to automate its loan origination, processing and approvals activities. In fraud detection, we see AI and machine learning playing a major role, so for one of the largest banks in India we are in the process of developing their next-generation, AI-based, fraud prevention and detection system," said Murthy of Quadratyx. ■