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DIGITAL BANKING

NEW HORIZONS IN A CASH-LIGHT INDIA

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About FICCI

FICCI is the voice of India's business and industry. Established in 1927, it is India's oldest and largest apex business organization. FICCI is in the forefront in articulating the views and concerns of industry. It services its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,0000 companies.

Disclaimer

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Preface

Financial Foresights, the flagship quarterly publication of FICCI's financial sector team, provides a platform to industry, policy makers and other stakeholders to exchange ideas and views on important financial sector developments in the country.

The current issue of the publication focuses on the topic: 'Digital banking - New horizons in a cash-light India.' and presents insightful write-ups contributed by industry leaders from the digital banking space.

As you go through the pages of this edition, you would see that all our authors agree that innovation is increasingly becoming a part of the banking system in India. Yes, the speed with which different banks are moving in this direction may vary, but there is agreement that there has to be a well thought out strategy to deliver services to customers in a more efficient manner and at a time and place of customers choosing.

There are three trends that are shaping the future of the digital banking space in India. First, is the rapid growth of the more nimble Fintech players that are working to deliver services in a manner never seen before. Banks will have to work alongside such players to improve the customer facing side of their business as well as their own internal processes. Second, the experience of customers in other industries be it e-commerce, healthcare, education or transportation is improving at such a fast pace that they are now expecting similar delivery and interface even in the banking industry. Third, and this perhaps is the most important, is the whole push government is giving to digital economy in the country and which itself is inducing a change in consumer behaviour and making customers ask for more convenience from their banks.

While on this subject, one must mention that the way India Stack has developed, we can see this is one of the most transformative platforms created anywhere in the world for delivering services including financial services to people in a very transparent manner. UPI, BHIM app or the Aadhar based payment systems which may not even require one to have a phone for carrying out some of the banking transactions is a fascinating story to follow in itself and the government deserves full credit for ushering in such great innovations in the Indian marketplace. Our authors talk about this and other developments such as 'wearable banking', 'predictive banking' etc. – all of which are destined to change the face of banking in coming times.

In this issue, our financial sector team has tried to highlight the prospects of Digital banking in India and we hope that you will find it an interesting read. We are thankful to all our contributors for sharing their views, insights and perspectives. It is through such a collaborative effort that FICCI facilitates pushing the knowledge frontier for all stakeholders and bringing to light some of the key issues that merit debate and discussion. As always, we look forward to your feedback.

With best wishes

Dr. A. Didar Singh
Secretary General
FICCI

Industry Insights

Digital Banking - Transforming India ?

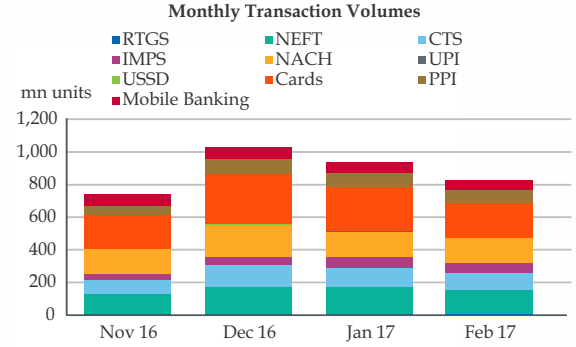
Bhaskar Som
Country Head
India Ratings & Research Advisory Services

The buzzword in India today is creating a cashless future. Buoyed by the successful acceptance of demonetization, the Government of India (GoI) is now pushing digital transactions. The GoI has set a target of 25 billion digital transactions in the next financial year (FY18) through multiple facilities, including platforms such as Aadhar Pay, Unified Payment Interface (UPI), Immediate Payment Service (IMPS) and debit cards. GoI has also launched a mobile application (Bharat Interface for Money - BHIM) for facilitating e-payments through bank accounts. The payments industry is thus seeing a lot of action from various fintech players to leverage on GoI's digital push.

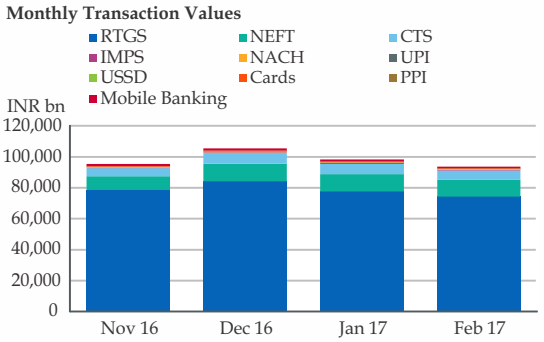
The traditional banking industry is thus facing the impact of digital technology. To remain contemporary and relevant, several commercial banks have already started aggressively innovating digital products and services for customers. Meanwhile, India today offers a unique architecture for digital banking which is not available in the US or China. This architecture includes an existing eKYC (know your client) system and the Aadhaar authentication framework, a signature and digilocker, the Unified Payments Interface - which allows for swift payment across banks - and finally, a consent architecture system, where information is made freely available to anyone else for use. India thus today stands at the cusp of a banking revolution through rapid penetration of digital banking.

However, if one looks at the total payment transactions done in the months post demonetization, it is apparent that the big digital push has not happened. RBI has started reporting payment transaction statistics for all modes of payments since November'16 - the volume and value of various types of transactions are shown in Exhibit 1.

Exhibit 1



Source: RBI, IRR Advisory



Source: RBI, IRR Advisory

RTGS - Real time gross settlement
NEFT - National electronic funds transfer
CTS - Cheque truncation system
NACH - National automated clearing house
USSD - Unstructured Supplementary Service Data
POS - Point of sale
PPI - Prepaid payment instrument

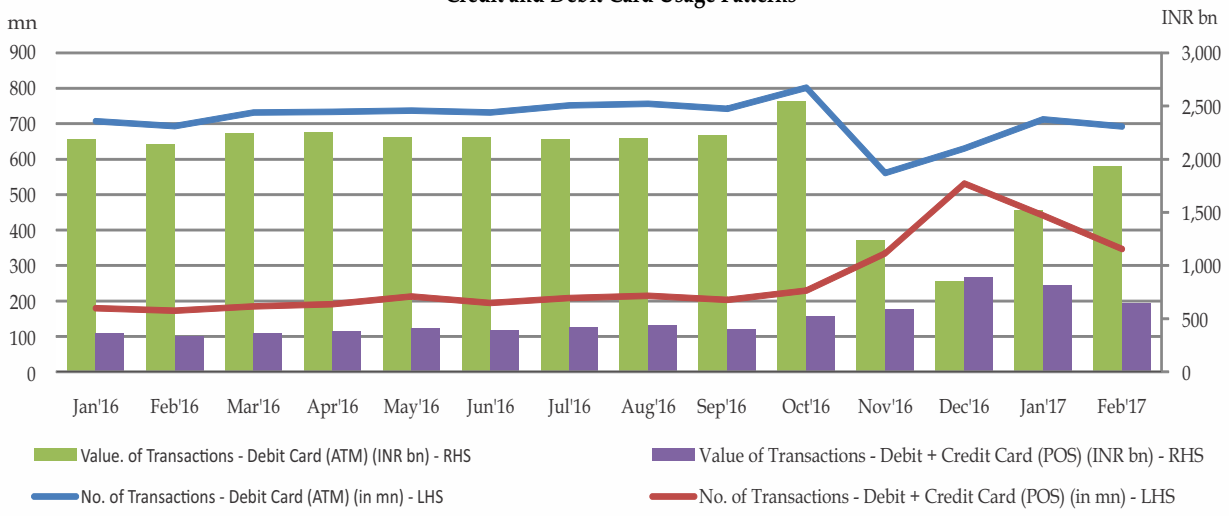
It is interesting to note that a total of 744mn transactions (including cheque payments) were done in India in Nov'16, which increased to 1,028mn in Dec'16, only to drop subsequently to reach 820mn in Feb'17. Of course, the data is representative since the information on mobile banking payments have been aggregated for only 5 banks. From the exhibit, it is apparent that NEFT, CTS, NACH and cards account for the bulk of the transactions by volume (~76%), while RTGS, NEFT and CTS account for ~89% of the transactions by value. Based on the above data, it is apparent that banks continue to dominate digital transactions in India. Volume-wise, digital transaction has seen over 20% reduction between December'16 to February'17, while value-wise the drop has been ~11% during the corresponding period. Further, to reach 25 billion transactions, the number of transactions needs to increase 2.5 times from current levels in the next one year.

Experts feel that increased smartphones penetration in India will drive digital banking in India. The smartphone user base in India crossed 300mn in 2016 and is expected to reach 500mn over the next 5 years. Thus, digital banking has the potential to ride on smartphone user base and grow exponentially over the next few years. In November, mobile banking accounted for 9.7% of total transactions by volume, only to drop to 6.9% in the next 3 months. Value-wise, mobile banking continued to account for 1.2~1.3% of total transactions.

The key issue is that the technology interfaces and other advances are merely enablers and not drivers for shift to digital payment. India continues to be primarily a cash economy, suffers from intermittency in a digital infrastructure, and there is reluctance from a large section of the population to embrace digital payments. Even spending through cards has not seen increased traction although they have been around for over two decades. IRR Advisory has analyzed the usage patterns for debit and credit cards post-Janaury'16. The same is presented in Exhibit 2.

Exhibit 2

Credit and Debit Card Usage Patterns



Source: RBI, IRR Advisory

As on February 2017, India had 840mn debit cards and 29mn credit cards. From Exhibit 2, it is apparent that Indians use primarily debit cards, and that too for ATM withdrawals. The usage of cards for POS transactions increased sharply immediately post demonetization, but has then seen downward correction. Assuming that an average individual uses his credit or debit card 2.5 times a month, the percentage usage of debit and credit cards for POS transactions was ~10% of total cards in FY'16 till

demonetization. If one assumes that people using debit or credit cards increased their usage in the period post-demonetization - say from an average of 2.5 times a month to 3.5 times in November and 5 times in December - then there is only a marginal increase of ~1% in card population usage for POS sales post demonetization.

Hence, while India may be prepared to transform into a digital economy and may have set up enablers in place, the drivers which can convert people into embracing digital banking are missing. In a country where 3% of the population files income tax returns and only 1% people actually pay income tax, there will be a lot of resistance to actually shift to a cashless India.

People need to be incentivized so that they find an economic merit in moving to digital payments. For example, GoI may consider providing a percentage cashback of value or a reduction in excise duty to buyers who buy over digital gateways. The financial incentive has to be lucrative enough for people not to pay in cash, while providing GoI detailed information on a person's spending to provide opportunity to bring under the tax purview and increase net revenues for the GoI. However, to ensure the same, all bank accounts, credit and debit cards, and other digital payment avenues available for an individual should be linked to his Adhaar and PAN card. This, of course, brings in the scary possibility that the State can be monitoring your every move in the near future!

Finally, there is no doubt that digital banking has brought in amazing customer experience. However, increased levels of cyber threats have the potential for causing significant disruptions in their services apart from risks related to sensitive customer information and internet frauds. It is therefore important to see how information technology systems and data security risks are monitored and managed. Regulations on digitalization in India are at a nascent stage and their evolution would also be important in charting the way forward for disruptive innovations in the Indian banking space. ■

Bhaskar Som *Country Head, India Ratings & Research Advisory Services (PGDM - IIM, Calcutta, B.Tech (Mechanical) - IIT, Madras, FRM),* a Fitch group company, has over twenty years of cross-sector experience in strategy formulation, quantitative analytics and risk management. Bhaskar is a member of IMC Chamber of Commerce's International Business Committee and was a member of the Expert Panel Group set up by Ministry of Finance for boosting infrastructure financing in India. Bhaskar has been a speaker at various forums on competitiveness, policy insights, innovative funding alternatives and banking trends.

Digital Banking & Technologies of Tomorrow

Rajiv Anand
Executive Director & Head – Retail Banking
Axis Bank

Innovation is among the most powerful forces that continue to shape human society. The advances in the material standard of living enjoyed by most (though not all) human beings are largely due to innovation. One of the principal arguments for free-market capitalism is that it is the economic system that encourages innovation most, because it allows innovators to capture a significant part of the remunerations of their work.

Financial services industry is no different. The accelerating rate of technological change, combined with shifting customer preferences and an evolving regulatory landscape, have dramatic implications for the ways in which financial services are designed, delivered and disbursed today.

Technology is overturning workflows and processes in the financial services industry. Tasks once handled with paper money, bulky computers, and human interaction are now being completed seamlessly entirely on digital interfaces. Almost every type of financial activity - from banking to payments to wealth management and more - is being re-imagined by some tech savvy banking incumbents as well as by startups. Meanwhile, the old guard is trying to solve a puzzle presented by the digital revolution: How can they benefit from the rise of digital, and how can they stay relevant?

Banking today has become Easy & On-The-Go

Gone are the days when banking was a chore, a frustrating activity which in many cases needed you to take a day-off to accomplish the task. Technology (Internet and Mobile phone) has virtually enabled banks to be where the customer is; enabling her to connect to the bank at a time and place convenient to her. Today we are closer to year 2030 than to year 2000. Imagine if we told you in year 2000 that you would be able to bank from your phone 24X7 and accomplish most of your banking transaction in less than a minute? Not many would have believed us! But mobile banking is a reality today with more than 100 million transactions a month. By the year 2030 most of today's technology will be redundant and will be replaced by other more evolved modes.

Mobile phones especially smart phones have created more opportunities to the common man than any other technology in the recent past. Today mobile banking and mobile wallets are the two fastest growing segments in the payments industry. Evolution of mobile banking on the back of mobile phone revolution in India has helped clients make faster and secure banking transaction on the move. For banks mobile banking is the most cost efficient mode of offering banking services. It is a win-win situation for both banks and clients.

Future is Increasingly Digital

Digital business is an overarching trend covering how the blurring of the physical and virtual worlds is

transforming business designs, industries, markets and organizations. Major business and technology advancements, such as the Internet of Things, 3D printing, and machine learning combine to disrupt existing business models and create an opportunity for entirely new ones. Digital technologies build on each other with wave after wave of innovation.

Customer expectations for banking services (both offline and online) are being reset by the experiences being provided by retailers and online providers, elsewhere. Thanks to companies like Google, Amazon, Apple, Uber and our very own e-commerce firms; customers now expect every organization to deliver products and services swiftly, with a seamless user experience. New digital attackers are definitely changing the rules and disrupting traditional value chains in many industries. The same could happen to financial services industry as well. Fintech startups are already accelerating innovation in financial markets by leveraging technology. But it will also be naïve to believe that technological advancement in banking will only be done by Fintech firms. Over the next couple of years you will notice that a lot of financial innovation will be spear headed by incumbent banks - either independently or in partnership with new fintech firms. You will increasingly see a trend where incumbents will be as good as fintech firms at innovation. Today a lot of banks are partnering with fintech firms for mutual benefits.

Some of the traditional players in banking have been very agile in experimenting with new age technologies such as Artificial Intelligence and Block-chain. Banks and non-banks are innovating and Indian ecosystem as a whole is gearing up for digital.

Technologies of Future

Two very important developments have the potential to herald a new age of digital payments - the rapidly growing smartphone penetration and the proliferation of bank accounts. India has over a billion mobile connections with around 240 million smartphone users and is expected to grow to 520 million by 2020 as per a report on Digital Payments by BCG and Google. The National Optical Fiber Network initiative under Digital India will connect 250,000 gram panchayats across rural India and increase adoption of data services. The Pradhan Mantri Jan Dhan Yojana (PMJDY), through 282 million accounts and 220 million cards (as on 29 Mar'17), has provided the infrastructure for universal access to banking.

The issuing infrastructure is largely in place and with the launch of Unified Payment Interface (UPI) will provide a significant fillip in the proliferation of low cost acquisition infrastructure by allowing smartphones to substitute costlier PoS devices. UPI will be a game changer in way that it is a unique interface which works 24x7 across the banking system and is instant, safe, secure, cost effective and convenient to use. UPI allows payments to different merchants without the hassle of typing one's card details, or net-banking password. UPI is built on top of the IMPS, which we have used to instantly transfer money between accounts with different banks. All money transfers with UPI are secured with the two factor authentications as mandated by RBI - the first factor being your phone and the Mobile PIN as the second. UPI is likely to benefit overall payments ecosystem as the payments service can be provided by banks to the merchant with an entry level smartphone and there is no need to install POS machine at the place of business.

Blockchain is another such new technology that combines a number of mathematical, cryptographic and economic principles in order to maintain a database between multiple participants (lenders & borrowers) without the need for any third party intermediary or reconciliation. In simple terms, it is a secure and distributed ledger/database, hardened against tampering, against which anyone can verify the validity of transactions. A block is the 'current' part of a blockchain which records some or all of the recent transactions, and once completed goes into the blockchain as permanent database. Blockchain represents the next evolutionary jump in business process optimisation technology.

With the advance of Smartwatch, banking is already slated to experience shift from your pockets to your wrists. Wearable banking will help banks roll out contextual

notifications to its clients, which means that actionable promotional content can be delivered at just the right time. The future lies in ultimate personalized, contextual engagement. However, smart watches are not the ultimate frontier of wearable technology. As the technology extends beyond Smart Watches to include Smart-eyewear, gesture-controlled devices and other connected products in the larger IoT (Internet of Things); we envisage an exciting world of 'Predictive Banking' to emerge. All the data you generate across your daily life can be captured (with your due permission of course), connected and analysed - from sensors embedded in everything from your wearables to your cooking utensils to your car. The area is unbound for exploration and as we explore further a billion possibilities can emerge. You can expect your bank to create products that shall connect with you on a deeper level but in a non-intrusive manner. Banks and financial institutions will be a part of an invisible layer around your daily activities. For example, by linking to your fitness band, we would like to encourage your fitness goals by rewarding you on your achievements. We can track your health data (pulse rate, sleeping habits, daily physical exercise, calorie intake, etc.) and create customized insurance plans for you at lowest possible annual premiums by partnering with various health providers.

Artificial Intelligence (AI) & Machine Learning is another important technology that combines natural language queries, predictive analytics, and self-evolving cyber security systems. Artificial Intelligence is the future & has already started to be part of our everyday lives. Machine learning is an approach to achieve artificial intelligence & machine is "trained" using large amount of data & algorithms that give it ability to learn how to perform the task. Another emerging technological advancement is cloud computing- the practice of using a network of remote servers hosted on the internet to store, manage, and process data, rather than a local server or a personal computer. The big benefits of the cloud are cut costs, improve flexibility & scalability, increase efficiency, serve client faster.

Conclusion

The combination of higher spending power and a freer adaption of technological adoption mean that banks and other financial institutions have an entire market of willing and able customers to offer better financial products/services at lower costs. The fact that unbanked population in India halved from 577 million to 233 million speaks volume about the advancement of financial inclusion efforts. Technology is the biggest enabler and equalizer today. As we connect one-on-one in real time, it has created massive new flows of trade for markets that were underserved or overlooked. Cell phone subscription in India has crossed one billion. So the first massive change in the network effect of financial inclusion is that millions of people who previously had zero access to digital services are now on the network and are connected for good.

It is also very encouraging that we have a central bank that is equally enthusiastic about promoting innovations and technology. The Reserve Bank in its continued efforts towards building robust and secure payment and settlement systems for achieving a less-cash society published Vision 2018 which highlights the need for making regulations more responsive to technological developments and innovations in the payments space. India now has the best digital infrastructure for financial universalization and the fact that we have the Jan-Dhan, Aadhaar and Mobile (JAM) layer, we have an indigenous Indian stack that is propelling us from being data poor nation to a data rich nation. Add to this the data available through GST Network, under which companies will upload nearly three billion invoices every month and government will effectively have real-time economic data 24X7.

Digital adoption and moving away from cash would not be without complications. Some objections can be easily addressed, such as a claim expressed by a fifth of a sample of respondents, who said in a recent survey that they like the feel of carrying cash. But other problems will be harder to ignore. The most intractable is the risk that parts of society will be left out of the

financial system, in a world where smartphones and plastic become the only ways to pay. In a near-cashless world vulnerable groups, such as the poor, the elderly and migrants, could become further marginalised, and those who are especially cash-dependent for income, such as street vendors, small traders, charities and the homeless, would fear to see a drop in their incomes.

Today banking is a complex business delivered through multiple channels. The challenge is to offer consistent omni-channel experience. Each channel should promote other channels and should be seamlessly integrated. For example, when interacting with a branch employee, the customer may be assisted in how to use mobile banking. When calling the call-centre, the customer may get help with online banking. Today, far too many banks create silos for each channel - including separate reporting lines and separate sales goals. This has to quickly change because in the customer's mind, all channels merge together to form the aggregate customer experience. When customers are given choices on how to do business, and those choices are relevant and the experience is consistent, they are much more satisfied.

Finally it is customer preference which will drive business models. Customers with new expectations and the need to build trusted relationships are forcing incumbents seek value propositions where experience, transaction efficiency and transparency are key elements. As self-directed solutions emerge among competitors, the ability to differentiate will be a challenge. In addition to social changes, the driving force behind innovation in financial services can largely be attributed to technological advances outside the financial services sector that will bring new opportunities to understand and manage the risk (e.g. telematics, wearables, connected homes, industrial sensors, medical advances, etc.). While it will be fairly easy to replicate technology, the critical aspect will be building a culture of innovation and the ability to leverage insights to build solutions that will determine who will be able to maximize the opportunities and emerge as a winner. ■

Rajiv Anand, *Executive Director & Head – Retail Banking, Axis Bank-An executive director with Axis Bank, Rajiv Anand heads the retail banking business for Axis Bank. He has led the digital transformation journey making Axis Bank a widely recognized leader in technological innovation which can be testified through its pioneering launches on social payments, integrated wallets as well as a best-in-class banking app that incorporates features like augmented reality and locker booking.*

Over a career spanning more than 25 years, Rajiv has focused on various facets of the financial services industry having held key management positions at leading global financial institutions. He is widely recognized for his strengths in capital markets and successfully building new businesses to scale.

Rajiv joined the Bank in 2013 from its asset management arm, Axis Asset Management Co. Ltd., where he was the Managing Director & CEO.

Digital Banking - An Indian Perspective

Raghavendra Bhat M.
General Manager
Karnataka Bank

Digital Evolution

Digital Banking may be viewed as adoption of various existing and emerging technologies by the banks, in concert with associated changes in internal operations as well as external relationships for providing superior customer services and experiences effectively and efficiently.

Today we find ourselves in a digital wonderland, where the milkman accepts wallet payment without a fuss, a man buys a geometry set worth about Rs 100 for his daughter using a credit card and the vegetable vendor uses QR code based "Scan & Pay" utility.

The new innovative digital technologies and futuristic thought processes have given birth to whole new businesses and social dimensions. Projects such as Make in India and Digital India are now the buzzwords to a bright and sustainable industrial and financial progress of our nation. As part of its impetus for DIGITAL TRANSFORMATION in India, Government also encourages technology adoption / up-gradation while providing connectivity with high speed bandwidth to every nook and corner of the country. This has exposed the full potential of the hitherto untapped market in India. Latest technology and service offerings in the new age Digital Payments space by the Banks, such as Unified Payments Infrastructure (UPI) including BHIM (Bharat Interface for Money) which is a Mobile App developed by National Payments Corporation of India (NPCI), Bharat Bill Payment System (BPSS), mobile money, e-wallets, payment aggregation etc. have created a revolution by themselves.

Currently there are several technologies, infrastructure and processes available to enable banks to become super-efficient and dependable banks. Adaptation and implementation of highly capital intensive global technologies, infrastructure and processes are decisive in order to remain ahead of the curve. Transition and Inter-operability related issues viz. from traditional banking to state of the art digital banking such as data integrity, authentication (including third party authentication) and trust factors in a digital banking environment are gaining importance. Digital banking provides mission critical solutions to bankers for their short term and long term business and technological requirements. Today, aspects such as enhanced customer satisfaction and value through unified customer experiences, faster output, infinite banking volumes, financial inclusion, operational efficiencies, scale of economy etc. are being sought after, by leveraging digital banking and mobile technologies. Becoming a digital bank can improve efficiency and provide a better customer experience.

Digital Banking – a boon or bane

Going by the deep penetration within a relatively lesser turnaround time, state-of-the-art digital payment systems are now poised to take quantum leaps in this new era that is largely driven by the ubiquitous Internet. These disruptive dynamics and revenue models are literally the new game changers - causing tangible and tactical shifts across major verticals. E-commerce and M-commerce success is largely attributed to the phenomenal growth of various

digital payment technologies such as card payments, electronic fund transfers, payment gateways, e-Payments, smart cards, mobile money wallets etc. Pivotal to embracing such new age payment systems are the people, technologies, and processes that have together created vast, robust and dependable networks and seamless systems that guarantee humongous transactional volumes at breakneck speed, with dependable security and counter-checks built around them.

All these and rest are taking India to the threshold of the big league and to make the country battle-ready to compete with the most influential industrial and financial powers of global businesses. With digital banking and mobility, the need is no longer to "leap-frog" but to "deep-dive" into the future. Going digital and mobile for a Bank is no longer an option, it's a simple bare necessity - to collaborate and flourish. Today's challenging digital payments ecosystem has become a burgeoning marketplace.

Banks have already started evaluating the reduction in number and size of branches (both the number of units and the size of existing facilities). In addition, the investment in digital technology to replace more expensive human interactions is also being considered. This includes, but not limited to, tablets for universal bankers, automated teller machines and digital kiosks to facilitate account opening and customer inquiries. To be successful in a digital environment, banks focus on improving their digital maturity across various dimensions of customer service.

Customers' Standpoint

Banks are now increasingly worrying about their very bastions being co-shared by a string of new age players. And the end-customer is the single largest beneficiary - with a bouquet of services and service providers to choose from and along with hugely competitive pricing models. Banks will have to increase their operational efficiency and improve the customer experience by meeting the customers' expectations swiftly in order to keep their position in core markets.

The level of automation and digitalization of the account opening and on-boarding process has become very crucial. The most important aspect is to improve the ability for consumers to open any new account using digital channels and to efficiently onboard the new customer digitally. In this area, traditional banks still differ strikingly from the new market players who offer a convenient end-to-end online process.

The ability to offer basic as well as value-added content and functionalities through digital channels is another important aspect. Value-added content and functionalities, in contrast, will contribute strongly towards a positive customer experience. Value-added functionalities include digital document safekeeping, access to financial news, digital investing, personalized digital alerts, digital savings tools, online chat, social media banking, e-lobbies etc., among others.

Simplicity of design, availability of contextual offers and ability to personalize the experience are definitely some of the key success factors. The differentiation between competitors with regard to design and ergonomics will decide the winner. In the coming days design will be a much bigger differentiator, with simplicity being the overarching goal. Elements allowing consumers to personalize their digital banking experience, such as contextual cross-selling, the ability to set up personalized digital alerts and even the ability for the customer to design their own digital banking app (font sizes, accessibility of certain functions, etc.) will gain prominence.

It is the ability to leverage customer insight for improved information access. All new functionalities need to be part of the same digital banking application. Instead of having every piece of functionality, bank can dream up crammed into one big-honking mobile banking app. In the future, digital banking applications will be judged based on the fewer number of touches/clicks needed to get from one screen to another. Banks are forced set a goal to improve the individual customer experience.

The level of enhanced security available to protect identity and funds access is equally imperative. Identity protection and account security will continue to be the focus area as hacking incidents become more sophisticated and widespread. Banks have to implement biometric security, including fingerprint technology, facial recognition or voice recognition etc as part of person identification.

Challenges of Digitalisation

Secure banking based on technology and its ramifications including cyber-crimes in today's

digital banking landscape has to be reviewed continuously. The dark side of being digital i.e. cyber security risks are to be taken care and risk mitigation measures need to be strengthened. Advanced fraud detection mechanisms and the possibility to leverage personalized security preferences and alerts will have to become more widespread. For any security enhancement to be accepted and efficient will require that the user experience is not impacted. Banks should consider investigating and implementing additional layers of security that will reduce the potential for device and account level fraud. While ready to manage breaches, the goal should be to reduce the potential for losses and customer impact.

Use of advanced data analytics will help in combating several issues mentioned above. Adoption of technology and convincing the customers to opt for self-service modes of banking is the biggest challenge. In addition, consumers are becoming impatient with banks who offer irrelevant products/solutions without proper study of customer understanding. While new generation banks are performing better and better with contextual offers that are based on collected insights, consumers expect no less from traditional banks. Also the need to reduce costs and increase efficiency is assuming more significance than ever. In this regard, improving a bank's digital maturity ensures higher efficiency in its processes such as credit offering, improved interaction and customer experience.

Renewed skills development of workforce and investments into training and manpower development is the need of the hour. Customer segmentation is another aspect which will not only facilitate ease of interaction, but also enable targeted product placement, thus increasing the likelihood of further acceptance.

All the while, it is important to be conversant with the regulatory, security, technology and business challenges that await both - traditional banks as well as the latest entrants such as payment banks. Taking digital banking to the unbanked is another task, a social obligation. Achieving financial inclusion targets by innovative use of digital banking thereby promoting rural banking in a more comprehensive manner cannot be forgotten.

Status post-demonetisation

Recent demonetisation exercise of higher denomination notes by the government has really accelerated the transformation of digital banking in India. Growth in the number of digital transactions has been exponential since November 2016. Backed by Government thrust, people of India finally seem to have accepted/embraced digital economy. Demand for cash is diminishing slowly. New payment initiatives such as Aadhaar-linked cashless payment solution which enables a merchant to facilitate Aadhaar based payment for cashless purchases by customers called 'Aadhaar Pay' and 'Bharat QR', an integrated payment system using the customers' mobile phone to pay through debit or credit card by scanning a code at the merchant's place etc., have come to stay. However with all these revolutionary new technologies, improvement in operational efficiencies in order to ultimately increase bottom lines and shareholder value will remain a challenge for all banks. Role of analytics and innovative revenue models need to be further fine-tuned. To reap maximum advantage in an increasingly digital society, it is imperative that banks must demonstrate superior performance in all spheres of customer service. ■

Raghavendra Bhat M. *B Com, CAIIB, General Manager, Karnataka Bank, Head Office, Mangalore-Raghavendra Bhat M. joined Karnataka Bank in the year 1981. In his illustrious career of 36 years with Karnataka Bank, he has worked as head of several branches and also headed Delhi and Bangalore regions. He has vast administrative exposure as an executive, having worked in the Credit Department, as head of Information Technology Department at Head Office and also as head of Data Centre of the Bank. Currently he is the General Manager in charge of IT & MIS Departments, Risk Based Supervision Cell, Risk Management Department, IT Bus Cell, Head Office.*

Making Banking More Human

K P Sunny
General Manager,
Digital Banking, Strategic Initiative & Optimization
Federal Bank

Who wants Digital Banking?

I am fond of reading and normally carry a book when I travel. For that matter all at home are avid readers. The difference is that, youngsters travel with hundreds of books in their kindle. With devices of the size of mobile phone, they carry thousands of songs and many hours of video.

Things have changed. Virtual Private Assistants like 'OK Google', 'Siri' and 'Alexa' are literally waiting to execute your commands. One does not venture to drive out without GPS these days and driverless cars are round the bend. Whether it is sports or shopping, booking a ticket or buying a pizza digital transformation has taken over.

"South Korea plans to put driverless cars on the road by 2020, IOT insurance market will be worth 42.76 billion USD by 2022, Chinese factory replaces 90% of humans with robots production soars, Amazon conducts first commercial drone delivery and Precision agriculture could start a green revolution in India. " These statements would seem to have come from science fiction a few years ago but not anymore. These are real life headlines from prominent media. All around there is a transformation happening whether we are prepared for it or not.

Of course, banking cannot stay behind. Customers who have travelled in an Uber cab or did an Amazon purchase expect similar experience at their bank counters. We cannot blame them. If we are to borrow from Mr. Nandan Nilekani, there's demand for 'a WhatsApp moment in banking'. Digital banking has become the latest buzz word.

What is Digital Banking?

With demonetization and the subsequent thrust from the government for cash less transactions, the share of digital and online transactions have been steadily gaining momentum. The relaxations given in MDM and the new tax regulations; all help in bringing in more customers for digital.

Share of digital transactions will get further boost, when the internet become faster, cheaper and reliable, especially in rural and semi-urban centers.

But at the same time, when it comes to what we mean by 'Digital Banking', there seems to be a little bit of misperception. Many industry insiders and their clients use the word digital banking in a much narrower sense. Many limit it to cash-less or paper-less transactions. This is not so. World over, 'Digital Banking' per se has a wider meaning, though digital transactions form a subset of it.

What exactly is Digital Banking? Christel Quek, who was with Twitter answered the question like this, "It's really about behavior and not technology or channels, that influences strategy, content, and drives advocacy. It's not about being mobile first or digital first, but being people first." Technology is only a means and not the end. Customer experience is the key.

This is obvious from the trend seen in other industries. All the innovations are moving towards providing better and superior customer experience.

Bank–Startup partnership

Which are the technologies that lend a hand to Indian banking to bring the Uber or Amazon

experience to their customers? One can pick and choose from a long list. But big data analytics can occupy the prime position.

Already fintech companies are offering online instant checkout loans based on minimal or nil documentation. Analytics help them to do credit scoring centered on non-traditional sources of data which were hitherto not available or not being considered.

What is all the more interesting is to note that banks are coming out of their shell to partner with fintech startups to offer innovative solutions. HDFC Bank partnered with a startup to bring forth Chillr, a payment app using IMPS. Federal Bank is offering a mobile based account opening using Aadhaar as KYC document. Yes Bank and Flipkart came up with Phonepe a payment app based on UPI. More are on the anvil.

Role of India Stack

For the first time the local innovation is not following the footsteps of the Silicon Valley. The journey India started in 2010 to provide a unique identity to its billion citizens has in a way helped to author a revolution in the fintech domain. It paved the way for India Stack, a set of APIs which empowers even startups to develop fintech applications with ease and par take in India's digital transformation. India stack now include Aadhaar for eKYC, eSign for paperless execution of agreements, UPI for seamless online payments and eLocker for electronically storing and sharing documents.

India Stack is going to be a game changer as far as India is concerned. Banking, known for its age-old methods, is ripe for a change and the end consumer seems to be welcoming it with open hands. Fintech disruption is an accepted truth today as evidenced by the fact that many banks are coming forward for engaging with startups. With a variety of startups trying out all permutations and combinations with India Stack, we can be rest assured that India is about to usher a new era of digital banking and better customer experience.

API Economy

The digital branches like SBI In Touch are only a beginning. If we go by the trends, what Bill Gates said in 1994 is coming of age. 'Banking is necessary, banks are not; how banks can survive in the digital age'. The demand for APIs from fintech startups is on the rise and banks have begun to realize the potential of an API economy. A number of startups are already working on the online lending products. Not only fresh graduates out of college, but even veterans with decades of industry expertise are taking the startup route to innovate in the fintech arena.

The ultimate model can be one where banks may play a backend role providing a sturdy and robust platform of banking while startups can be handling the user experience at the front end for an opex fee. At least on the retail banking front, banking-as-a-platform may not raise many eyebrows. The question that is yet to be settled is about branding and marketing – will the final product be cobranded or not?

Dilemma of Traditional Banks

So, traditional (in mindset) banks are in a fix now. They are not sure whether to stick to the old menu or go out and paint the town red. But they know that the time left for them to decide is short. Innovation is gaining momentum with the help of catalysts like India Stack. In the meanwhile tech-savvy customers are enjoying the convenience which they never have enjoyed before.

Cyber Security – a matter of concern

However all is not rosy as far as digital banking is concerned. While government is trying to ensure financial inclusion and the banks are enticing customers to go digital to cut cost, the less tech savvy customers may find it difficult to switch over in a fast mode. There is also the risk of fraud, as the reluctant customers may not be aware of the precautions they should take to ensure secure transactions. They can easily fall prey to all types of cyber frauds like vishing, phishing etc.

Another threat is that the new startups with less domain expertise may not fully appreciate the implications of security of online transactions and extent of fraud that can happen. The recent UPI fraud is an example in case. Indian Computer Emergency Response Team (ICERT) has already alerted banks and associated entities about the enhanced threat as India embraces digital banking on a higher scale.

Digital Banking throws up many opportunities. With the new directive of RBI of using OTP for eKYC with Aadhaar, one can open an account literally sitting at home or abroad. At the same time cyber security should be of prime concern.

Digital Inclusion

For the rural India, this is a cultural change, if not shock. There has to be

earnest efforts to help them to adopt digital banking. There is no doubt that they will acquire the skill, the way they pushed India to the second or third slot for global mobile usage. It is that they need some time and guidance. The technology adoption rate in the rural & semi-urban demography seems to be a tad faster than in the urban market. Though we have moved to advanced marketing techniques, "word of mouth advertising" still proves to be effective in the Indian market. Importantly, in the age of deteriorating customer loyalty, the rural & semi-urban customers seem to be more loyal, once they are convinced about the product.

With the Central Government keen on propagating digital banking, for the declared goal of bringing down corruption, the share of digital transaction will only go up. This will make the role of banks easier in ensuring a better customer experience through digital banking.

Digital Operations

While these changes are happening at the customer facing part of the banks, similar transformations are happening inside counters also. Indian banks have started relying on robotics to get things done at their operations departments. Robotics will help banks to cut cost of operation. Yet another technology being employed for customer service is chat bots and virtual agents. A virtual agent can give L1 support at a much lower cost. Supported by Natural Language Processing and Artificial Intelligence capabilities, which are now available on cloud platforms, most of the time the customer may not even notice that he is chatting with a chat bot. Machine learning and analytics comes handy to the banks in the area of fraud monitoring and cross selling. Chatbots in banking could help us assign a banker to every customer. All of a sudden, customers have started feeling more connected with banks & they will eventually start to feel like a king. Customers will feel more in control of their financial relationships.

Technology in search of Business Case

Internet of Things, Augmented Reality, Virtual Reality, Real-time Translations and Voice-to-Text capabilities are some of the technologies standing in queue and waiting for appropriate business cases. A few banks have started experimenting with block-chain but again, many are not sure about the use cases.

Making Banking more Human

All these point to some exciting times for banking in India and elsewhere. As Yann Ranchere, Director at Anthemis and Finance 2.0 blogger, put it, "It's making banking more human." And that definitely is going to make the ordinary banking customer a lot happier and satisfied.

With digital banking on the rise, it is paving way to a whole new level of "Personal Relationship Banking". Till date, digital transformation was blamed for keeping customers away from our bank counters and thus missing the personal connect. With the advent of social media banking, banks/ fintech companies are ensuring their presence alongside customers always, which allows us to learn & understand customers better. Be rest assured that your bank will be there to offer you a loan when you are in dire need of it.

Passing of government subsidies directly into accounts of citizens and automating a lot of manual works are helping us to be a more transparent society. Transacting digitally will only instill more confidence amongst public and it brings back the mantle to the customer, making the case more customer- centric. ■

K P Sunny, General Manager Digital Banking, Strategic Initiative & Optimization, Federal Bank

K P Sunny has 35+ years of experience in commercial banking in the areas of branch banking, treasury operations, corporate planning, banking operations and banking technology.

He has a commerce background and is a certified associate of Indian Institute of Bankers. He is qualified in Business Finance, Application Programming, Web Applications and Machine Learning.

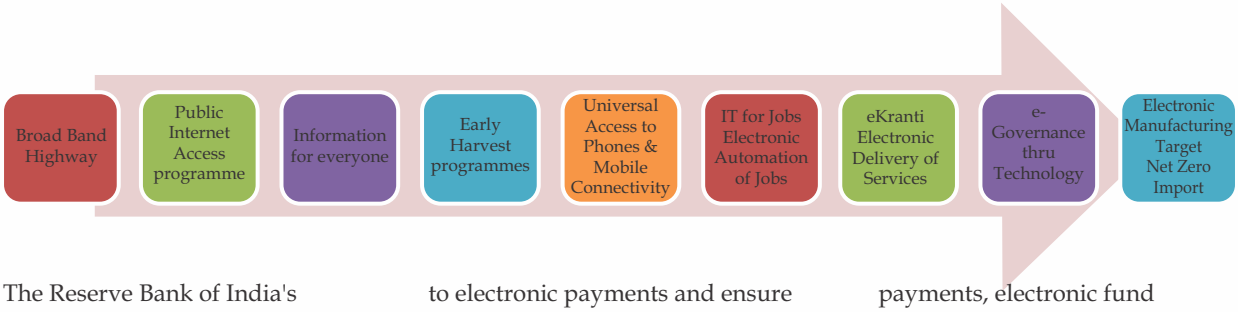
He was a member of the RBI Committee responsible for UAT of the Negotiated Dealing System (NDS) and has also helped in the formulation of its Business Rules. He was also part of the NPCI steering committee for Unified Payment Interface and was the member of the management committee of Indian Banks' CIO Forum. He was the CIO of the Bank before he was appointed as the General Manager in charge of Digital Banking and Strategic Initiatives. He also heads Bank's Launchpad initiative for mentoring startups.

He is much interested in innovation, lateral thinking and machine learning. He is an avid reader and enjoys books from authors like Malcom Gladwell and Edward De Bono

Digital Banking in India

Prasanna Lohar
Head Technology – Innovation & Architecture
DCB Bank Limited

We understand significance of Digital & how clearly it's disruptive & game changing for banks & its customers. under Digital India programme we are experiencing a New India on the rise like never before. The new innovative leadership and futuristic thought processes have given birth to whole new business and social dimensions. Ambitious projects such as Digital India, execution of payments bank, Make in India, Aadhaar enabled use cases , wallet disruptions & RBI initiatives along with NPCI e.g. UPI, BBPS, AEPS, India QR are now the keywords to a bright and sustainable financial progress of our nation.



The Reserve Bank of India's "Payment and Settlement Systems in India: Vision-2018" aims at building best of class payment and settlement systems for a 'less-cash' India. The broad contours of Vision-2018 revolve around 5 Cs - coverage, convenience, confidence, convergence and cost. To achieve these, focus on four strategic initiatives such as responsive regulation, robust infrastructure, effective supervision and customer centricity is important.

RBI has periodically put forth its vision for payment & settlement systems so that the banks migrate to electronic payments and ensure that the payment systems in India are safe, secure, authorised, efficient and accessible.

Digital banking provides mission critical solutions to bankers for their short term and long term business and technological requirements. Following are three driving factors in India.

1. **Adoption:** Post demonetisation e-commerce & m-commerce success is largely attributed to the phenomenal growth of various digital payment technologies such as card payments, electronic fund transfers, payment gateways, e-payments, smart cards, mobile money wallets etc. Pivotal to embracing such new age payment systems are the people, technologies, and processes that have together created vast, robust and dependable networks and seamless systems that guarantee herculean transactional volumes at breakneck speed, and with dependable security and counter-checks built around them.
2. **Agility:** Today, aspects such as

enhanced customer satisfaction and value through unified customer experiences, fastest possible throughput, infinite banking volumes, financial inclusion, operational efficiencies, scale of economy etc. are being sought after by leveraging digital banking and mobile technologies.

3. **Arrival Of Players:** Traditional banks should be worried about their very bastions being co-shared by a string of new age players e.g. Payments Bank, Fintech culture around. And the end-customer is the single largest beneficiary - with a bouquet of services and service providers to choose from and along with hugely competitive pricing models.

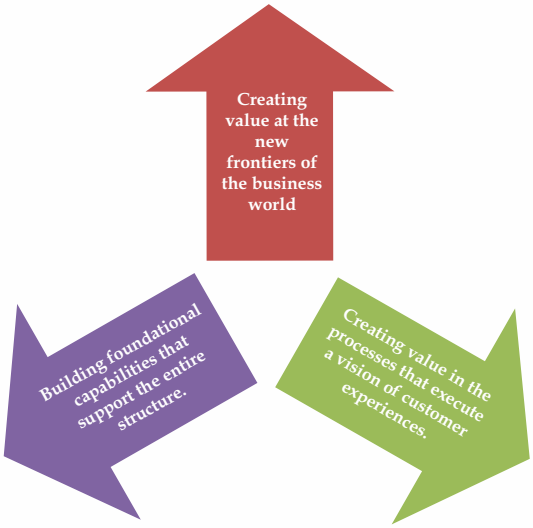
Digital

Everyone wants to go digital. The first step truly understands what that means?

- For some, it's about technology.
- For others, it's is a new way of engaging with customers.
- And for others still, it represents an entirely new way of doing business.

None of these definitions is necessarily incorrect. But such diverse perspectives reflect a lack of alignment and common vision about where the business needs to go. This often results to missed opportunities, sluggish performance, or false starts.

Business leaders must have a clear and common understanding of exactly what digital means to them and, as a result, what it means to their business.



To be meaningful and sustainable; digital should be seen less as a thing and more a way of doing things.

Creating value at new frontiers

Being digital requires being open to re-examining your entire way of doing business and understanding where the new frontiers of value are. e.g. Onboarding through e-KYC system instead of manual process, exposing of services in form of APIS to partners, providing banking services on various channels Viz. mobile or online apart from traditional channels.

At the same time, being digital means being closely attuned to how customer decision journeys are evolving in the broadest sense. That means understanding how customer behaviours and expectations are developing inside and outside your business, as well as outside your sector, which is crucial to getting ahead of trends that can deliver or destroy value.

Creating value in core businesses

Digital's next element is rethinking how to use new capabilities to improve how customers are served. This is grounded in an obsession with understanding each step of a customer's purchasing journey-regardless of channel-and thinking about how digital capabilities can design and deliver the best possible experience, across all parts of the business Making this happen requires an interconnected set of four core capabilities:

1. **Proactive decision making**

   Relevance is the currency of the digital age. This requires making decisions, based on intelligence, that delivers content and experiences that are personalized and relevant to the customer. It extends to personalizing & optimizing the next step in the customer's journey. E.g. omnichannel banking, blend data from multiple channels into one view of what customers are doing and what happens as a result. In the back office, analytics and intelligence provide near-real-time insights into customer needs and behaviours that then determine the types of messages and offers to deliver to the customer.

2. **Contextual interactivity**

   This means analyzing how a consumer is interacting with a brand and modifying those interactions to improve the customer experience. The rising number of customer interactions generates a stream of intelligence that allows brands to make better decisions about what their customers want. And the rapid rise of wearable technology and the Internet of Things represents the latest wave of touch-points that will enable companies to blend digital and physical experiences even more. e.g. Customer starts journey to buy a mobile from his mobile device and later in searching on laptop and end up visiting nearest shopping branch. Experience on all channels should be seamless and all channels should interact internally to serve him in best way.

3. **Real-time automation**

   Automation of customer interactions can boost the number of self-service options that help resolve problems quickly, personalize communications to be more relevant, and deliver consistent customer journeys no matter the channel, time, or device. e.g. onboarding, servicing & engagement model to be automated for any customer across channels. Customer can open his account anytime from any channel and its straight through.

4. **Journey-focused innovation**

   Serving customers well gives banks to be innovative in how they interact with and sell to them. That may include, for example, expanding existing customer journeys into new businesses and services that extend the relationship with the customer, ideally to the benefit of both parties. These innovations in turn fuel more interactions, create more information, and increase the value of the customer-brand relationship. E.g. offering him trip to his favourite destination as he is fond of tourism, notifying him of an offer of movie tickets as he is fond of seeing movies every weekend.

Building foundational digital capabilities

The final element of our definition of digital is about the technological and organizational processes that allow an enterprise to be agile and fast. This foundation is made up of following two aspects -

1. Being digital is about using data to make better and faster decisions, devolving decision making to smaller teams, and developing much more iterative and rapid ways of doing things.
2. A digital mind-set institutionalizes cross-functional collaboration, flattens hierarchies, and builds environments to encourage the generation of new ideas. Incentives and metrics are developed to support such decision-making agility.

Digital Pillars & Building Blocks of Banking

Let's look at "building blocks" that have allowed banks to achieve enormous success on a global scale.

Every bank today seeks to build enterprise value and drive growth through new distribution models, innovative products and services, enhanced customer experience and by harnessing advanced technologies. The fact that a few organizations stand out from the crowd, clearly indicates that their achievements aren't easy to emulate.

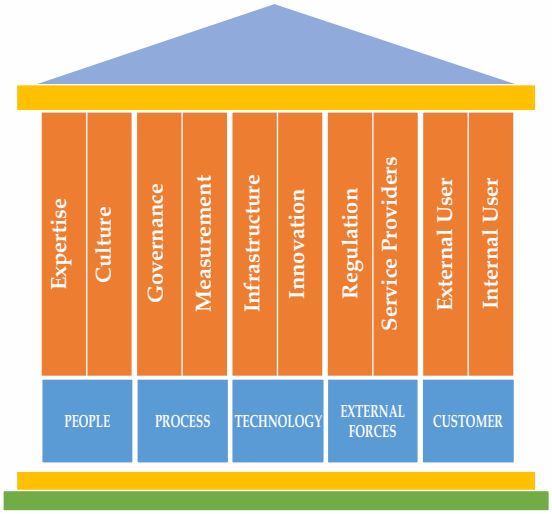
In the banking sector, products, services, and customer interactions are geared towards both non-physical and (increasingly) real-time delivery. Hence, the opportunities presented by the information economy are truly enormous, and the risks of being marginalized are very real.

To make rapid progress initiatives & to capitalize on these opportunities that they desire to realise the value from the digital and data revolution, banks need to address the following 5 "Pillars" that form the base of any information-centric company:

1. **People**

a. **Expertise** - It is imperative to benchmark certain crucial skills, and to have appropriate recruitment and skill development processes in place. In the absence of this, it is difficult for analysts spread across multiple functional disciplines (like risk, decision sciences, marketing, and operations) to harness their joint capabilities optimally.e.g. need of UI/UX Engineer, Digital officers, Data Scientist is need of time.

b. **Culture** - Banks must shift their orientation from an 'inward



looking' to an 'outward seeking' mindset. Management processes and incentives must be aligned to drive high performance, status quo approaches must be judiciously challenged, and innovation must be fostered. Building and nurturing talent must be made an imperative.

2. **Process**

a. **Governance** - While a bottoms-up, functional approach can deliver a quick start, to truly become an information-centric organization, it is absolutely essential to have senior leadership drive this endeavour with a cross-organizational mandate. They need to lock down strategic intent, assess status, prioritize initiatives and establish necessary processes across each pillar to achieve change quickly and at scale.

b. **Measurement / KPIs Financial** institutions have established detailed KPI's (key performance indicators) for their businesses. However, if they are to accord with the need for speed, accuracy and relevance demanded by the modern consumer, they must be significantly refined and supplemented e.g. digitisation of all operation process can be a KPI.

3. **Technology**

a. **Infrastructure** - Upgrading the existing infrastructure to capture and harness the expanded internal and external data sets now available is a necessity. Senior leaders must ensure that the infrastructure being built is aligned to specific strategic goals. That the level of investment and pacing is linked to the potential value that can be derived and, importantly, that this build out is aligned with progress on the other pillars e.g. implementation of cloud , block-chain , enterprise service bus , virtualisation etc potential investment should come on time.

b. **Innovation -** Running an innovation centre around new technology adoption for banking, enhancement of existing services through innovations, internal process re-engineering trough robotic process automation, DevOps practices, digital awareness within organisation and bring out innovation from internal employees.

4. **External Forces**

a. **Regulation** - Keeping eye on changes in regulation and adhere to expected output is required. RBI recently done lots of changes during demonetisation. Meeting those regulations & compliance is vital for banking to have stable and secure banking .e.g. regulation around limits of transaction , 2nd factor authentication , fraud risk management modules and so on to be implemented on time

b. **Partnerships** - Partnerships provide enormous value, on three major fronts - as sources of talent, expertise and relevant external data; as a supplement to internal resources and investment capacity; and as a means to jointly create entirely new distribution systems, products and services. E.g. running Hackathon, campaigns among fintech can bring potential partners to server customer needs on time and with super experience.

5. **Customer**

a. **External Customer** - Achieving a better customer experience should be the main premise of each digital transformation strategy. This is critical for achieving the long-awaited customer loyalty. New implementations in digital services and products must be "smart, responsive and tailored to the customer", describes Ferrari.

b. **Internal Customers** - All

departments should be involved in this new strategy, not just marketing or innovation but also the legal and regulatory teams. Cross knowledge is one of the pillars of the new digital culture and fosters responsiveness in business processes, in efforts to create, launch or improve a product or service. E.g. brainstorming around a account opening strightthrough process among business, technology , compliance, security etc will give improvement to that solution

24X7 Banking Model

Becoming a 24x7 bank can transform a traditional banking organization from being a reactive product provider to being a proactive financial advisor.

24x7 bank leverages the vast amount of insight it possesses to become central to a customer's financial and non-financial digital ecosystem.

The 24x7 bank reinvents itself as a value aggregator, advice provider and access facilitator, acting proactively on the customer's behalf, improving reputation and trust.

1. **Omni-channel Distribution & Architecture**

   By having a retail-like distribution strategy that gives every channel the same sales & service functionalities, the same interaction logic and total integration, banks give customers a seamless experience and full freedom to choose the channel(s) they prefer in every stage and need.

2. **Customer Experience Management**

   As traditional processes of pre-sale, sale and post-sale are becoming more linear and "woven" into the whole banking experience, every interaction needs to be sales- and service-oriented in order to catch all the interaction opportunities, whilst at the same time engendering experience excellence throughout (all channel, 24x7).

3. **Partner Ecosystem Set-up and Orchestration, Including Digital Wallet**

   Banks can leverage the existing ecosystem (individual, SME and corporate customers; merchants; partners) to connect and fulfil customer needs, through an insightful and tailored experience.

4. **Customer Analytics, Big Data**

   Banks should use analytics based on internal, external and "sentiment" customer data to create a deep, intuitive and actionable understanding of overall customer needs, and driving capabilities such as next best action, personal finance management.

5. **Multichannel CRM**

   Banks should have a truly multichannel CRM system, to create a holistic view on customers and deepen the relationship. It's possible to interact with customer from all channels in a more valuable way, both for clients and for the bank.

6. **Bank as Service**

   To accelerate going to market, a bank can acquire specific digital

capabilities "as a service" - for example in areas such leveraging cloud delivery, digital media and digital channel expertise to create targeted and personalized advertisements, whilst cutting mass media costs.

7. **Contextuality**

   Using customer insights and advanced analytics to proactively provide personalized solutions. By tapping its wealth of transactional data, without ever sharing analytic information outside of its four walls, the bank reaches out to the right third-party providers and other key players to build a digital customer experience combining mobile, big data, analytics, digital marketing coupling, ticketing capabilities.

8. **Banking beyond the borders**

   Using customer data to become a virtual advisor. Provides services that are digitally optimized across a variety of platforms that offers a human touch for high value interactions. A 24x7 bank drives continuous daily interaction by building partnerships and connections with provider partners who offer goods and services in every area of consumption, including retail, home services, health and security, travel and leisure, communication and transportation.

Digital Banking is a Journey

We have experienced DIGITAL going by the deep penetration within a relatively lesser turnaround time, state-of-the-art digital payment systems are now poised to take quantum leaps in this new era that is largely driven by the ubiquitous internet. These disruptive dynamics and revenue models are literally the new game changers - causing tangible tectonic shifts across major verticals.

Intent is very clear by national leadership to be Digital India, to be Cashless India, to be Educated India. In spite of various current challenges e.g. network , culture , device availability , connectivity , electricity in remote areas , logistics expenses with digital banking and mobility, the need is no longer to "leap-frog" but to "deep-dive" into the future. Going digital and mobile for a bank is no longer an option, it's a simple bare necessity - to collaborate and flourish. All these and rest are taking India to the threshold of the big league and to make the country battle-ready to compete with the most influential industrial and financial powers of global businesses.

We can't create a digital vision if you don't have leaders who understand digital. Digital India has leaders & the goal is to make banking cheaper, more efficient and easier to access for all of the country's citizens. ■

***Prasanna Lohar**, Head Technology – Innovation & Architecture, DCB Bank Limited. Prasanna has 16+ Years of Experience as Technologist who has delivered rock solid software solutions for industry leading enterprises with lean and agile teams. Technical Architect with view in articulation and decision making skills to choose from one of multiple technologies in the presentation, integration, service layers, operating platforms. A Professional Banker having experience in Digital, Mobility, Payment, Analytics, Security, UI/UX, & Innovation areas.*

Currently He is working as Innovation Head & Technical Architect at DCB Bank. He is setting up innovation framework at DCB Bank.

At DCB he has worked as Digital Head & part of various team deliveries like India's first Aadhaar enabled ATM, Straight Thru Fixed Deposit A/c Opening product - Zippi, Omni-Channel Framework for Bank, Mobile banking & Mobile Apps, Internet Banking Initiative, Unified Payment Interface (UPI), Bharat Bill Payment , Switch & Cards relevant initiatives.

Over 1.6 decades of Industry Experience Engineering and Development, Product Development, Strategy, Governance, Risk Management, Finance, Business Process Management, Audit, Compliance, Consulting, Enterprise Architecture, Mobile Apps, Digital Transformation , Fintech, E-Commerce, Payments, Platform and Product Innovation, Data Science, Machine Learning, Artificial Intelligence, Open Stack Cloud, Analytics, Big Data, IOT, BlockChain, Biometric , Virtualization, UI-UX, , Mobile Innovation, Product Roadmap Strategy, Security solutions ,Business Development

Since 2016, Representation for Bank at various Banking Conferences as Key Note Speaker / Panellist on latest trends. Represented Bank at various Panel discussions, Magazine interviews, Column Writer on Digital Banking Forums & current industry trends. He has received many awards in Banking Sector Viz. DC Movement, ZIPPI Product, and Mobility Drive in Branch Banking, Rupay Card , India's First Aadhaar ATM , Top 100 'Infosec Maestros', CIO Powerlist Nomination for 2017.

'SMART Digital Banking Platforms'
for Enriched Customer Experience and Growth

Murali Mahalingam
Industry Director, Banking & FS
SAP

Background

The financial sector in India is currently experiencing a golden period, and its key driver is the effort to move towards a less-cash economy. The Government of India recently announced its step to demonetization. This has created the greatest impetus for the transition from cash to digital transactions for the Indian economy.

The foundation for a less-cash economy was set in the JAM (Jan dhan-Aadhar-Mobile) trinity. The PMJDY scheme initiated in August 2014 as a tool for financial inclusion has managed to get over 22 crore bank accounts created for previously unbanked citizens. RBI has strengthened this initiative by offering new banking licenses to payment banks and small banks in 2015. The objectives of setting up payments banks was to further financial inclusion by providing (i) small savings accounts and (ii) payments/remittance services to migrant labour workforce, low income households, small businesses, unorganized sector entities and other users.

Aadhaar, the world's largest national identification number project, has covered over 99 per cent of Indians aged 18 and above (as of 27th Jan 2017), per UIDAI. With Aadhaar helping in direct biometric Identification for the unbanked and Jan Dhan bank accounts and mobile phones allowing direct transfer of funds into their accounts, the foundational infrastructure for digital banking has been created. The JAM trinity alone wasn't adequate to make digital payments a preferred transaction mode. It took other technologies such as UPI (Unified Payments Interface) and wallets, which have become the alternate payment modes available post-demonetization and are gaining recognition. The latest step by government is the introduction of the BHIM platform. While apps cater to the estimated 25 crore citizens with smartphones and internet access, *99# caters to the estimated 35 crore citizens who use feature phones or other phones without data. The third segment of people, those without phones, are often the rural, poor and socially disadvantaged and thereby the neediest for easy access to financial services. Being the most difficult category to reach out, It is important to provide assisted banking through banking correspondents to create an account leveraging AEPS (Aadhar enabled payment systems) and deposit and withdraw money through Micro-ATM's (an AEPS tool).

These micro-ATMs would be able to conduct an eKYC (Electronic Know Your Customer) using Aadhaar and open a bank account, making them complete one-stop-shops for all banking needs. Soon, Aadhaar Pay (Aadhaar enabled Point of Sale devices, complete with fingerprint scanners) will be installed and enabled at retail touchpoints. These will allow for direct transactions from a customer's Aadhaar-linked bank account to the retailer, requiring

only the customer's Aadhaar number and biometric data (fingerprint/iris scan) as authentication.

All the above initiatives through the BHIM platform (UPI, USSD, Aadhaar Pay), IMPS (Immediate Payment Service) and debit cards creates one of the largest interoperable payment eco systems in the world as India leap frogs towards adoption of digital payments and moves towards a less-cash economy. There is an emergence of fintechs who have an important role to play and contribute to the less-cash economy. Fintechs are focusing on services for unbanked like digital payments and SME credit, and process enhancements like API Banking and Robotics to help strengthen the digital agenda.

Challenges

Banks and financial institutions are facing challenges due to the dynamic changing landscape. The bank's core IT systems are running multiple systems, some of which are legacy and others are based on newer technologies, thus resulting in a two-speed world. Banks spend around 80 to 90% cost in maintaining these legacy applications and there is less budget available for innovation with the newer technologies. The current multi-channel applications have challenges of scalability, security, integration and agility resulting in impact on customer service and customer experience.

On the customer experience side, digital millennials are expecting simplified and personalized experience, faster response and automation of services. Banks need to gear up to overcome these internal and external challenges. On the regulatory side banking technology needs to be agile in handling regulatory changes like GST and INDAS within the given timelines.

SMART Digital Platforms for the cash-light India

To overcome the above challenges the need of the hour is to have a SMART digital banking platform that is S-Scalable and Secure, built with Modern IT architecture, that provides for business Agility, and helps banks and financial institutions to Re-imagine business models and processes and helps reduce their TCO (Total cost of ownership).

Let us look at the capabilities that are needed from this platform on all these aspects.

Scalable and Secure

The platform needs to provide a seamless onboarding experience for customers with E-KYC, Aadhar, UPI, BHIM integration etc. It needs to be able to scale based on the volumes we are envisaging for digital payments. Eg Paytm has already crossed 200 million customers and many others are envisaging this volume in the short term. Recently there has been an increase in cyber-attacks on banks in India. It is important to bring in Cyber Governance and leverage analytics, machine learning and deception techniques as also secure coding and testing practices for threat prevention and deduction and thereby reducing risks for banks.

M- Modern IT architecture that has modern data warehouse combined with advanced analytics capabilities for data driven decision making. Newer technology innovations eg API based, AI (Robo advisories), Block chain technology, IOT

Modern architecture that is based on "Modern Data warehouse" that combines structured and unstructured data (leveraging social media insights) to provide a single version of truth with comprehensive current and historical information. This rich data is the new oil that will help banks generate new revenue streams. The recent demonetization has left a large digital footprint and banks are in a unique position to mine this data using advanced analytics technologies for customer segmentation. Banks will thus be able to provide real-time contextualised offers based on customer profiling, drive cross-sell and up-sell, increase market share, and identify EWI (Early warning indicators) for identifying non-performing assets, which will help reduce risk.

- The digital banking platform needs to brings together both transactional business processes and analytical business intelligence. With this, the bank can turn data insights into actionable information, thus allowing the bank to be transparent and responsive based on facts and not guesses. With the platform in place, banks can start small, and as new issues come up they can incrementally add connected solutions to address new business challenges without negatively impacting operations. From this extensive foundation, a digital core, banks can set themselves up to address today's issues while having the agility to handle future innovations. This enables banks to explore new business models such as banking as a service by extending the value chain through partners with retailers, manufacturers, digital communities and others, build market places for financial services and with integrated banking through low cost cloud platforms and mobile services
- Banks in India need to adopt new innovations eg APIs, Artificial Intelligence, Block chain, Augmented and Virtual reality, IOT. Banks are working on making their APIs available for integration with customers and payment regulators. For eg. Yes bank is offering the digitization of the B2B supply chain with the launch of API banking services. API banking allows the bank's banking systems to be seamlessly and securely integrated with corporate clients' ERP systems. Banks are also leveraging Robo advisors for improving customer service, eg HDFC bank has launched- IRA (intelligent robotics assistant) at one of its branches to help with smoother customer service, marketing, employee assistance and process automation. We will be seeing many more banks using these advisors in future for customer service. Block chain technologies are evolving with use cases in vendor financing, trade finance, outward/ inward remittance, asset tracking, record management, e-KYC, etc. For example, YES BANK has implemented a multi-nodal Blockchain transaction to fully digitize vendor financing for Bajaj Electricals. ICICI bank has successfully executed transactions in international trade finance and remittance using blockchain technology in partnership with Emirates NBD, a leading banking group in the Middle East. IOT integrations of POS devices with Aadhar, finger print scanners etc is another important step to help move towards cash less transactions.

Agile platform that helps banks to innovate and launched new products to go to market faster. Eg SBI launches its SBI Buddy(wallet) with innovative wallet offerings in a short period in 13 languages to help promote digital and inclusive banking. Further value added services are offered along with wallet eg bill payments, movie tickets, rail and airline ticketing, food and dining, gifts etc all this linked to the digital mobile wallet there by promoting cash-less payments.

Re-imagine business models & process. Traditional banking models are no longer sustainable. Indian banks are revaluating the customer engagement strategies, networks and digital capabilities and data insights to find new real time ways of delivering the product and services. Indian banks are creating their market place with e-commerce players eg Flipkart, Amazon etc partnering to offer value added services eg smart buy from HDFC offers flights, hotels, travel, utility and integration with flipkart to provide customers a one-stop seamless experience. This re-imagined models will help banks to cross-sell and up-sell products and services to customers and increase wallet share and be more profitable.

Banks need to reimagine process eg robo-advisors offering advice to wealth management customers, interactive chat-bots offering advice in account management. These enriched processes will help improve customer satisfaction. Banks are collaborating with fintechs to

enrich offerings in the areas of digital payments, digital lending and wealth management. This collaboration would help banking customers to get more innovative offerings.

T- TCO reduction. The new generation platform investment will help banks and financial institutions reduce TCO thereby justifying the returns on these investments. Hence, there is need to monetise the investments by quickly gaining customer wallet share through all the above mentioned digital innovations.

Way Forward

The goal for the future should be to first encourage digital payments at cash touchpoints (like Railways, Oil Marketing companies (LPG, Petrol & Diesel), Farming, Food, FMCG, etc.). Second, all businesses should be incentivized to pay employees and contractors in a digital manner. Third, micro and small retail payments should be brought into the net via an exponential increase in merchant acceptance points that take payments via BHIM. These touch points should leverage the new generation SMART digital banking platforms to transition from cash to cash-light india to providing contextual, efficient and enriched customer experience focused on agility and convenience of the customer. ■

Disclaimer: The views expressed in the article are personal and do not reflect the views of SAP India ltd.

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Murali has been with SAP for the last three years and is helping banks and financial institutions strategize and Re-imagining customer service and experience in a Digital world and derive value leveraging new generation Digital Platforms. He has been a Speaker in Industry events conducted by FICCI and IBA sharing his insights with banks and financial institutions on these topics. He has worked with leading product software companies, such as Infosys, Misys and with leading banks such as ICICI bank and DCB.

Digital Banking - New Horizons in a Cash-light India

AKS Namboodiri
General Manager IT & IRMD
Dhanlaxmi Bank Limited

The demonetisation of Indian Rupees 500 and 1000 announced on 8th Nov 2016 has no doubt thrown open a new door to the digital banking world.

The digital activity levels were low in the initial weeks of demonetisation as people were busy depositing or exchanging the banned notes. But it increased from December as demonetisation progressed. There was a sudden surge in the volume of digital transactions and for many people it was an enforced learning of the new technologies.

The following table illustrates the sudden growth

(Value in % y-o-y)	Oct'16	Nov'16	Dec'16	Jan'17	Feb'17
NEFT	37.6	38.3	40.8	60.2	49.5
CTS	2.9	8.6	13	19.3	0.8
IMPS	150.7	135.9	186.6	196.7	184.2

Growth was good in October 2016, mainly on account of festive season. But it continued further from November 16 to January 17 as well. This was a positive fallout of demonetisation. However, the pace of growth moderated somewhat in February. Another fallout is the phenomenon of cash losing its appeal as demonstrated by a decrease of about 38% cash withdrawals after December 30, 2016 demonetisation is proving John Maynard Keynes' liquidity preference theory wrong.

Coming back to the digital banking scenario in India, the challenge is around on-boarding customers to digital platforms. It was found that only 23% of people with access to the internet do digital banking. Digital on-boarding is a revolution in terms of customer experience, with strong commercial implications: the new processes have a great potential for business development through cross-selling and up-selling techniques and above all for increasing customer's loyalty by implementing a customer journey design that's attractive and comfortable. Currently there are few completely online on-boarding processes, although very likely the trend will change in the medium term.

Increasing online bank fraud has proved that security is a vital issue, both to establish a relationship of trust with the consumer (a security breach in a banking system can be a huge blow in terms of public image and business) and to face regulatory compliance, as with -of course- protecting business assets. Given the nature of the on-boarding processes, biometric security measures will be crucial in these new environments. The key to successfully developing a secure biometric system is linked to three major concepts: security, comfort and availability.

While most banks are burdened by legacy systems and processes, India has leapfrogged into the era of innovation in banking by adopting the latest in technology. Today's digital age and hyper-connected environment requires banks to re-imagine their business continuously, and Indian banks are leading the pack when it comes to transforming from digital to truly digital. The year 2017 will be no different for the Indian banking sector; there will be growth fuelled by innovative initiatives such as Unified Payments Interface (UPI) and technology. Our top picks for major technology trends that will reshape Indian banking are as follows:

1. **Open banking is the new norm**

   Open banking-a connected ecosystem for financial and non-financial services with multiple underlying service providers-is the future of banking. The launch of UPI by the National Payments Corporation of India (NPCI) has thrown open the gates for innovation in the open banking space.

2. **Banking on the cloud first strategy**

   Progressive banks are already making strides in cloud adoption. Disruptive technologies that are changing the face of business-Big Data, blockchain, artificial intelligence (AI), IoT-will be leveraged using cloud computing. Indian banks are coming around to the idea that the business agility provided by cloud outweighs the concerns. Business models for emerging banks and fintechs will also be largely driven by the cloud-first strategy. Demonetisation is pushing India towards a cashless society, and as banks prepare to deal with the increased influx of electronic transactions, cloud will provide banks with the required elasticity to meet these demands.

3. **Usage of Blockchains**

   As banks try to become more efficient and agile to meet the increasing demands of customers, blockchain will be one of the enablers for re-imagining processes. In 2017, banks will increasingly move some projects from pilot to production and leverage blockchain to automate inter-organisational processes. The recent Emirates NBD and ICICI Bank partnership to launch a blockchain pilot network for international remittances and trade finance is a precursor for advances in this technology.

4. **Artificial Intelligence**

   Artificial intelligence (AI) has the potential to transform both front office and back office operations with its self-improving programs. AI has already proven itself in providing seamless differentiated customer experience on digital channels, and security measures with its integration within the banking infrastructure.

5. **More things to bank on**

   The year 2016 was the year of mobile-first strategy. Indian banks leveraged the increasing adoption of mobile to provide customised offerings on their apps. However, digital technologies are evolving at an unprecedented rate, and so is customer adoption. To keep pace, banks would be required to provide services on a gamut of connected devices and wearables. Apps, while still widely used, are not the only channel for customer interaction. Today we have smart virtual personal assistants on mobile phones that can engage with customers in a more interactive manner.

6. **Banking architecture simplification**

   All of these overlying technologies will be built on the bedrock of banking architectural simplification. The new year will see banks move to componentisation instead of the traditional monolithic architecture. In other words, complex architecture will be broken up into smaller bite-sized pieces for ease of deployment and upgrade for specific functionalities. Componentisation will not only increase agility to modernise selectively to keep pace with current technology trends, but also allow for risk-mitigation of projects. With initiatives like demonetisation, the Indian government has made it clear that India will be yanked away from a cash-based economy. GST rollout will give further impetus to the Indian economy. In 2017, banks will not only have to keep up with the growing expectations of a billion connected customers, but they'll also have to make sure that they

are leagues ahead of the emerging competition.

7. **Cyber security**

   Increasing cyber attacks and online frauds gives sleepless nights to several CEOs. The end result is going to be much more increase in information security spending.

The world has changed and continues to change rapidly. The convergence of telecom, media and computing has changed the way we work, play and live. Everything is moving faster - trends, novelties, news, products, markets, etc. Linearity is dead. Markets are now complex, internet-driven, adaptive systems. The analogy of the market change is akin to a "simple-pendulum" - where the movements are predictable to a "dual-pendulum" - where patterns are erratic. Whilst both follow laws of gravity, the "dual" one has the force of "each other" as well. The secular shift in technology, mobility, social computing and analytics have led to changing consumer behaviour. Some have understood and acted to adapt to this change. Amazon, Apple, Facebook, Google and Netflix have created market value of over US $1 trillion. They could do that as they leveraged change and in the process transformed customer expectations, created new operating models and blew a few mature companies out of the water. In contrast, some others such as Nokia, Motorola, Borders, Barnes and Noble, Blockbusters and HMV slept! The new masters have created the ability to use the networks and information that they create around their customers, products and services to produce a highly personalised customer experience. Historical sources of competitive advantage - brand, customer relationships, distribution channels, size and money - do not hold up any more. However, it can hold up if you change, i.e. interface with analytics, the data and the software that surround our products to create a new experience. The digital and physical worlds are starting to come together. Digital experience is far more personalised.

In the summer of 2014, the noise levels on "disruptions" started becoming louder. Banking globally will get disrupted, said the pundits. The disruptions were largely in four broad areas: faster loans (10 sec instant loan plan of HDFC Bank); convenient payments on e-commerce; mobile-to-mobile payments substituting; remote advisory using analytics. All of them were not creating a bank, but were riding "over the top" of the banking system. The customer, the payment platform, were that of the banks. All they created were applications using networks and information to provide convenience at an attractive price point.

The digital banking innovations will peak new horizons in the coming months helping more and more to bring efficiencies creating a better customer experience through best pricing, speed and convenience.. ■

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Smart Apps & Bots – The New Face of Indian Banking

Shantanu Sengupta
Managing Director & Head - Consumer Banking Group
DBS Bank India

The digital revolution has come a long way since the first ATM was setup in the late '80s in India. It is now time for banks to evolve along their digital journey. With slow internet-speed and minimal digital penetration, Indian consumers have long been comfortable standing in serpentine queues to conduct simple everyday transactions. Infact, there was a time, when the most efficient bank in India took two days to transfer money from one bank to another. The banking landscape has markedly changed since then. Over the last decade and a half, Indian banks have rapidly adopted technology to lower cost, improve efficiency and migrate to the "digital age". The journey has been long and arduous, but India has made the leap from branches to ATMs to transacting online to mobile banking. Opening bank accounts, transferring money, making payments and e-commerce transactions can now all be done with the click of a button. However, has India successfully made the transition from "bricks" to "clicks"?

Paradigm shifts perpetuated by technology

Technology has now been cast in a new role. It is becoming an enabler for banks to foster stronger relationships with their customers. The mid-nineties saw a few pioneering global banks venture into the virtual zone by offering products via the internet. Fast-forward to present day and you see banks in the UK and the US exploring "wearable banking". Going beyond smart phones, banks are now looking at gadgets that can be simply strapped on the wrist, to facilitate banking transactions. So, to answer the above question, banks in India have successfully embarked upon their journey to digitization.

A *survey conducted by McKinsey and Company found that across ASEAN (Singapore, Malaysia, Brunei, Cambodia, Indonesia, Laos, Myanmar, Philippines, Thailand and Vietnam), the proportion of people using digital banking doubled from 2011 to 2014, with Indonesia and Vietnam showing about sevenfold growth. As per this survey, about 40 percent of Asian mass affluent customers now prefer online or mobile banking; among those under 40 years of age, around half prefer digital banking. Digital-banking consumers number 670 million today in Asia and are expected to become 1.7 billion by 2020. Clearly, the numbers talking for itself.

Paving the way for a digital future

While any disruptive technology causes turbulence, it also enables industries to unleash their creative genius and serve their customers in a more efficient manner. Imagine the face of the banking industry in a time when every adult Indian has an Aadhaar number (an online biometric identity), a smart phone and a bank account. It doesn't take a genius to connect the dots. A conflation of these factors can

Source:
** McKinsey & Company report titled "Digital Banking in ASEAN: Increasing Consumer Sophistication and Openness".*

herald a new era for not only Indian banking but also for the millions of customers that the industry serves. The last few years have seen an exponential growth in the usage of smartphones, which are expected to reach a penetration of 700 million by 2020. **Currently over 1 billion residents have an Aadhaar number of which already over 280 million Indian residents have an Aadhaar-linked bank account and around 1 billion direct benefit transfer (DBT) transactions have happened, whose value is in the billions of dollars.

Additionally, the government promoting financial inclusion through the Jhan Dhan Yojana has led to over 200 million new bank accounts being opened, with the government aiming to ensure that 98% of households in the country hold a bank account. Giving a thrust to an increasingly conducive policy environment is the "India Stack", a digital infrastructure conceptualized by the think-tank iSpirit and created over the last 5-6 years in collaboration with the Government of India. The "India Stack" is the largest Application Programming Interface (API) on the planet whose main aim is to propel India into a paperless and cashless existence. The possibilities are infinite.

Numbers tell a compelling story

***Latest statistics show that India witnessed a remarkable 32% annual growth in internet users. The country has over 350 million internet users, and is second only to China in terms of the largest internet user rate. However, according to data as on August 2016, only 53 per cent of the country's population had bank accounts as against 79 per cent in China and more than 80 per cent in the U.K., the U.S. and Germany. ****Post the demonetisation exercise, the total number of credit card transactions registered an almost 25% increase from 895 lakh transactions in October to 980 lakh transactions in November and subsequently settled at 1,118 lakh transactions in December. Value of card transactions declined by 40%, during the time period. However, data as per the Reserve Bank of India (RBI) indicates a sharp change in the way Indian people are migrating to alternative methods of digital payments like m-wallets and UPI (Unified Payments Interface). While the total value of transactions over PoS (point of sales) has shot up by 41%, value of debit card transactions saw more than a 100% increase. From October 2016 to December 2016, number of transactions using digital payment solutions (including digital wallets, PPI cards and paper vouchers) shot up by more than 105% while the average value of such transactions increased by 2%.

A host of factors have combined to accelerate the advent of the digital era. Key among them is the creation of a strong ecosystem designed to enable digital banking. Among other thing, this includes the rapid increase in internet and smartphone adoption. As industry, government and regulatory bodies join hands, a wave of innovation brought about by technology will fundamentally transform the banking industry. Data will soon become king and the banking industry would do well to leverage upon this asset. Reduction in transaction fees in return for this valuable data will accelerate the transition to a cashless economy. Banking models will change from high -cost, high-value, high-fees and low-volume to high-volume, low-value, low-cost, and no fees. This will not only lead to a sharp rise in accessibility and affordability, it will also ensure that there are no unbanked Indians, in the future.

New age initiatives

With an emphasis on making banking joyful for our consumers, DBS is fast blurring the lines between being a banking entity and a technology company. DBS in Asia is committed to creating an ecosystem which can generate handsome digital dividends. Innovative solutions launched by the bank across Asia, go beyond just transacting on a digital platform. The bank has launched a number of apps which are designed to connect with the digital natives

Source:
*** Data on smartphone penetration, Aadhar numbers, bank accounts and DBT transactions sourced from Mr. Nandan Nilekani's speech and presentations.*
**** http://www.thehindu.com/news/national/karnataka/%E2%80%98Bank-account-penetration-set-to-increase-in-country%E2%80%99/article14578561.ece & http://www.gbim.com/demonetisation-affects-digital-economy-india/*
***** Data on post demonetisation transactions sourced from https://yourstory.com/2017/02/digital-india-post-demonetisation/*

of today and enable consumers to "live more, bank less". These include DBS PayLah!, a mobile wallet for peer-to-peer payments introduced in May 2014; DBS SMS Banking, which allows users to perform simple banking transactions, introduced in October 2014; and DBS FasTrack, an app introduced in September 2015 that provides seamless ordering and payments solutions to merchants. A great example of our efforts to espouse digitization is the Home Connect mobile app that allows a house hunter in Singapore to simply hold a smartphone up to scan a street and recall the latest transacted prices of nearby properties on a map. The app also lets the user evaluate nearby amenities, calculate mortgage repayments or connect to a loan officer right then and there. Such kind of solutions by a bank would have at one time been considered absolutely incredible. However, digitally savvy consumers of today demand innovation and it is the need of the hour for banks to stay one step ahead.

With this in mind, last year DBS Bank launched digibank, the first digital-only bank in India. Its users can open an account at any one of 500 selected cafes using their fingerprint and Aadhaar number. digibank offers 24-hour customer service via an artificial-intelligence-driven virtual assistant and promises its customers a simpler, faster and smarter banking experience. Indian officials hailed its debut as the "WhatsApp moment of banking". Its growing acceptance indicates a rising trend among consumers to digitize every aspect of their lives.

Banking at an inflexion point

Banks need to be porous to new ideas and nimble enough to implement these ideas. Technology is infiltrating every aspect of our lives, making everything from transacting to payment of bills to filing tax, easier and more efficient. In order to make this leap into India's digital future, banks, fintech companies, and infrastructure companies will have to collaborate to give shape to the future. Stakeholders will have to make consumers their priority and invest heavily in user experience and the customer journey. The banking industry forms the fulcrum of any economy, and thus should be at the forefront of this digital evolution. ■

Shantanu Sengupta, *Managing Director & Head - Consumer Banking Group, DBS Bank India*

Shantanu Sengupta joined DBS Bank India in December 2015 and is the Managing Director and Head of Consumer Banking Group for DBS India.

Shantanu has extensive experience in Consumer, Commercial Banking and Wealth Management, having spent nearly two decades with several leading international banks like The Royal Bank of Scotland N.V. (RBS), ABN Amro Bank, Citibank and Bank of America.

Prior to joining DBS, Shantanu worked as the Head of Retail Banking India for RBS, where he was responsible for spearheading the digital transformation of their Retail Bank.

New Horizons in Less Cash India

Deepak Sharma
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India Today

As India stands on the cusp of a digital revolution which has no parallel in size and scale anywhere in the world, it is important for us to reflect on its uniqueness and benefits. As the second most populous country with diversity across regions, languages, education, socio-economic background and rural/urban phenomenon, India is truly a rainbow country. Complexity also presents challenges of proportion which are unmatched globally.

Access to financial services, transfer of government benefits directly to citizens and a transparent taxation system are some of the major priorities of the government. This can be achieved in a growing economy where opportunity and access to credit is available to all segments across rural and urban India.

Access to capital is a critical aspect of entrepreneurial drive which can encourage self-employment and growth of small and medium enterprises. As India has embarked towards a less cash economy on the back of digital adoption, it will create multitude of opportunities for citizens and all sectors of the economy.

Railroads of Digital India

The last few years have witnessed a massive roll out of rail roads supporting a digital & less cash economy. Some of the major levers of change are:

Data

Roll out of 3G/4G networks by telecom operators has brought access to data and information at the fingertips of every citizen. Connectivity at affordable cost has propelled consumption of products and services which can be accessed, consumed or initiated over such networks. This comprises citizen service, banking, e-commerce, weather and market information, payments and e-tax, media and messaging services amongst several others.

Device

India has crossed the 350 million mark of smartphone users, and continues to add 5-6 million incremental users per month. We are the fastest growing smartphone market in the world. As a mobile-first and mobile only country, more products and services are designed for 4-5 inch screens. This has created opportunities for device manufacturers, distributors, content developers, app developers, mobile security firms, digital marketing firms & other businesses which are smart phone centric.

Identity & Access

India Stack which comprises Aadhaar, Digital locker and e-sign has been a game changer. Bank accounts, Pan card, tax records, railway ticketing and gradually almost everything will get linked to a single document - Aadhaar. It will become the backbone of identity and access management, thereby bringing every citizen in the formal economy. This would create a single source of information and repository for all financial and non-financial transactions. Similarly, access to all documents like employment and education records, property, insurance, motor vehicle, driving license, passport and health records can be stored and accessed through digital locker. With Aadhaar based e-sign and

consent layer, this information can be shared by users for initiating any transactions in the digital ecosystem.

Payment Infrastructure

In the last couple of years, there has been massive infrastructure roll out on the payment front, more so in the last six months. In the first wave, Jan Dhan provided access to a bank account to every citizen. Subsequently, the Government to citizen payment under the Direct Benefit Transfer (DBT) scheme provided credit through the bank account. Similarly, state and central governments started driving e-governance and tax payments through the electronic platform. This has created a cashless government payment ecosystem.

On the consumer side, while ATM & debit cards were the first wave of electronic payments, the idea of a less cash India was at cross purposes with ATM usage. Point of sale (POS) terminals were a substitute to drive less cash; however, the cost of terminals, number of active terminals and the active card base was a deterrent to faster adoption. The roll out of Rupay, Bharat Billpay System, IMPS, UPI, Bhim App, Bharat QR code, Aadhaar Pay & NACH has created massive digital payment infrastructure which has no match with any other country in the world. This is also instrumental in lowering transaction cost for merchants and consumers. This creates significant opportunity for banks and fintech to build payment and transaction experiences at low cost.

GST & FASTag

Rollout of GST and Fastag are two major initiatives which will have a huge impact on transparency in taxation, efficiency in movement of goods and seamless payments. This will also generate enormous amount of data on the fly and will be invaluable for merchants and enterprises.

Imperative for us

In the past, ports, highways, rail roads and power sector were referred to as infrastructure but digital rail roads rolled out in the last few years have created the most significant, impactful and unique infra opportunity for every segment. Cash has a significant cost, often not realized by the user. By certain estimates, cost of cash in terms of printing, storing, distributing, collecting and inefficient utilization is 1.7% of GDP, and as we move towards less cash, this saving can accrue to the economy. Government's commitment to drive this through campaigns, education and incentives makes it imperative for us to turn it into a movement. Money lying in a bank account can be used more efficiently by holders as it earns interest and can be deployed more meaningfully unlike idle cash, which depreciates with inflation. This change in attitude can help kick in the cycle of growth in the economy.

Digital transactions, GST and income tax data can help banks and financial institutions build flow based lending models. Thereby, this can provide access to credit to a large numbers of individuals & enterprises who were either denied credit or had to borrow money through informal channels at very high rates. It will not only bring fiscal discipline but also financial discipline in the user. Further, data will create new sources of trust.

Less cash India through digital railroads will also drive innovation in payments, transactions, digital services, cyber security, merchant and enterprise service space. Fintech and technology companies as well as banks will leverage this opportunity to create new business models, reaching new customer segments and serving existing customers more efficiently. We are at a sweet spot and the journey looks exciting from here onwards. ■

Disclaimer: The views expressed in the article are personal and do not reflect the views of Kotak Mahindra Bank Ltd.

Deepak Sharma, *Chief Digital Officer, Kotak Mahindra Bank Ltd.: global first products like Jifi, Hashtag banking, Bharat Banking, M-Store & Kaypay. Deepak believes in constant innovation and focuses on building business models which are customer centric and disruptive.*

Deepak has worked across various international markets and brings global perspective to his business. Prior to this, he was responsible for setting up the Bank's highly successful Non Resident Indian (NRI) & International Remittance business. Deepak also played a key role in launching the Bank's affluent banking programme - Privy League.

With over 22 years of experience, Deepak's professional tenure spans across the banking, telecom and service verticals. Prior to joining Kotak, he was part of the leadership team of Consumer Banking at Standard Chartered bank from 2003 to 2008. As National Head for Corporate Business, he was responsible for building the corporate payroll and Wealth Management business.

Deepak has completed an advanced programme in Strategy from IIM Calcutta & Lead Certified in Corporate Innovation from Stanford GSB. He is also part of various trade and business committees and writes on subjects related to business.

Digital Banking – The Holy Grail for the Banking Industry

Sujatha Mohan
Head, Digital & New Initiatives
RBL Bank

November 8, 2016, created a tectonic shift for Indian industry by creating a vacuum in cash and getting people to adapt to a cashless mode of living. There were many theories around the success of this move. But the idea is not to theorise on this subject but to analyse how this has created a changed environment in the industry.

This one event has definitely got the CXOs thinking about the possibility of removing cash from the ecosystem and innovate low-cost models for banking.

Digital Banking can be broken into three key areas of development:

- Building the Omni-Channel and pushing the seams to develop the Opti-Channel Interface
- Building the base for connected Enterprises: This falls in the realm of Transaction Banking, Open Bank Architecture and seamless experiences for businesses to connect their clients
- Building a data-oriented culture to service the two broad segments, Retail and Corporates, better. Analytics at the base of all actions is the key

Building Omni-channel or Optic-Channel Interface

Building a channel experience that gets customers to approach the bank for all its needs requires a huge amount of design thinking and user experience management. Channels of engagement are changing and the channel that is being used cannot be thought of in a very uni-dimensional or uni-channel manner. What is required for great customer experience is to think of every micro experience that a customer has to engage with the bank and ensure that the experience is well thought through.

What is driving the need for this change is the changing topography of the mobile penetration. The number of mobile internet users is expected to rise to 300 million by 2017, as against 159 million as of January 2017, as per a report by IAMAI and KPMG. So also the ongoing thrust by the Indian government is laying the foundation for a larger consumption of mobile transactions.

Mobility vs. the Web Channel discussion has been building for some time now. India has been pushing the threshold, especially with RBI taking the lead in pushing the mobile banking agenda. The speed of mobile and data penetration is high. Consequentially, the adoption of mobile banking is on the rise and this is also aided by an economy which has a very large youth population. According to reports, India ranks 4th amongst G7 nations with respect to mobile banking adoption.

Smartphone penetration is currently pegged at around 50 per cent of the Indian population. Given this, having an integrated Omni-Channel story weaving an Opti-Channel based on customer segment/location of transaction is a necessity.

What does Omni-Channel to Opti-

Channel mean for banks to deliver? Banks have to start thinking of putting together a robust channel strategy for the same. Channels are not about mobile and internet alone; channels include the assisted channels, SMS-based banking, ATM channels, NUUP channel and many more. For customers, so many channels can be confusing, more so if the processes and products are not well integrated across channels and the banks are not able to provide a seamless and smooth process that interplays between channels based on specific needs of the customer segment. Digital is nothing but smoothened processes that allow customers to opt for a channel of their choice and at the same time gives frictionless experience and instant gratification.

To give an example, one of the most onerous processes that banks have is the entire customer onboarding process and the step that seems to take the whole experience to an absolute low is the KYC process. Thanks to the arrival of the India Stack, the customer identification process and consequentially the KYC process has largely been simplified. And yet, banks struggle to provide an integrated experience for want of systems that are loosely coupled and yet give an integrated experience externally.

Let's take the e-KYC based account opening and see the possible flows:

- In case of the youth segment, end-to-end account opening can be digitised, as is the case with RBL Bank's Abacus product
- In case of customer segments which prefer assisted account opening, it can be done as a multi-step process using only the e-KYC step, to be done by the customer and the rest by the branch
- In case of customer segments that prefer assisted account opening but cannot access a branch, it can be a tab-based account opening done by a BC representative and the e-KYC step cane be done by the customer.

All of the above can follow the same steps, with each step in the process being managed by one or many participants involved.

There are a lot of changes that banks have to make to their internal systems but this is the real value of a truly digital bank.

The other aspect that is to be guarded against is the current euphoria around digital. Digital almost always gets centered on payments. In truth, payments deliver a 'Less Cash' economy. There is a lot to be gained by focusing on every customer interaction with a bank and ensuring that every interaction is sieved through an Opti-Channel lens so that the customer experiences huge comfort in getting his banking done.

Building the base for connected enterprises

As technology advances, enterprises have started to connect through seamless integrations. A crying need for all kinds of innovations lies on the base that enterprises are willing to participate in a larger web of connected enterprises and are willing to participate in a shared economic structure. As fintechs progress, innovating on the edge, this need has become that much more urgent. India is a country where people tend to demand more for less. There is no better way than to provide greater nimbleness to partners and corporates to drive their customer needs by ensuring all needs of their customers including banking processes are well integrated.

When we look at traditional value chains, it is obvious that the extreme ends of the chains i.e. the consumer, is getting digitised rapidly. As the consumers get digitised, it's imperative that the rest of the chains also get digitised to deliver greater value to the consumer and keep him engaged. It is really interesting to see divergent and varied consumer needs basis the industry vertical of the corporate, SME or Fintech. Fact is that these varied needs can be met using a combination of well-designed digital assets.

The API Banking/Open Banking strategy, which banks such as RBL Bank and Yes Bank are following, is offering enterprises an opportunity to offer tailor-made solutions for their customers and also innovate with internal processes to bring in better efficiencies. The entire journey of connected enterprises rests on the tenet that as consumers digitise, all kinds of enterprises are under stress to make their customer engagement stronger; and all areas where customer engagement touches a banking transaction, the flow of transaction and information

has to be seamless and without manual intervention/process steps; for example, connected enterprises backed by mobility. Payment transactions integrated with ERPs through APIs alongside a mobile-based transaction authorisation function makes the whole experience absolutely seamless for a CFO.

With increased use of mobility and connected enterprises, there is an ever-growing fear of security and privacy. These are areas where one can build a greater element of trust by increasing transparency and at the same time enabling enterprises to experience comfort through additional controls and governance. In the world of digital, this is like walking on thin ice. A strong backend and efficient management capability in the event of an issue coming up is the key to success of connected enterprises.

With the changing environment in India and the government's aggressive push towards a digital and 'less cash' economy, digitisation of most supply chain structures need cutting-edge digital solutions. Connecting the enterprises and adding value-added services will enable enterprises to exist in various webs of transaction flow and have integrated experiences that were hitherto very manual and low on efficiency.

Also, these connected enterprises will lay the foundation for dependable data, which will push credit into segments where there was paucity, especially in the SME and MSME segment.

This next step in this evolution is to get transactions on a block chain. Once this is done transactions will be non-repudiable creating a whole new structure of secure transactions. This will definitely reduce concerns around security.

Using data insight as digital base

Today, we are fast progressing into a data-rich economy. Connected systems, mobility and platforms that complete transactions leave a lot of data footprint which can be consumed for the consumer good. For all consumers, managing risk is an imperative. Banks have a unique opportunity to help enterprises, connected to them, to de-risk by providing insights that may not be directly available.

So also, there are immense opportunities available for the following:

1 Cross-sell a variety of banking products basis customer behaviour

2 Lend basis data and patterns and not CIBIL scores opening a new range of customers

3 Offer risk mitigation solutions by blending private and public data

4 Reduce frauds for banks and their enterprises by offering fraud management information

The possibilities are immense and India is on the cusp of delivering Digital 3.0 in a big way. ■

***Sujatha Mohan**, Head, Digital & New Initiatives,RBL Bank brings with her around 26 years of experience with deep knowledge in a variety of functions and industries. She has experience in working in custodial services, treasury and technology. She has worked extensively in technology around core banking, Payments, transaction Banking, Business Intelligence, retail Solutions and so on.*

In her current role she manages New Initiatives for the bank. She carries the responsibility to make the bank the partner of choice for the Open Bank Strategy that the bank has consciously adopted. She is responsible for developing RBL Bank's Platform strategy. The delivery includes creating the technology architecture, the business orientation, process management and strong customer service in the digital banking services.

Before taking over the strategic role she has been a Key leader involved in the technology transformation for RBL Bank. She has been involved in setting up most of the key systems in the bank and has helped deliver some strategic initiatives which have enabled the bank to win awards and accolades. Asian Banker award (2013 and 2015), IBA best IT Team award to name a few, has also helped create a strategic position for the bank in the technology space.

Before joining RBL Bank she has worked in various capacities in Oracle Financial Services Software Limited (erstwhile iflex solutions), ANZ Grindlays Bank and SHCIL. She has rich experience in technology and is also a subject matter expert in multiple areas in Banking

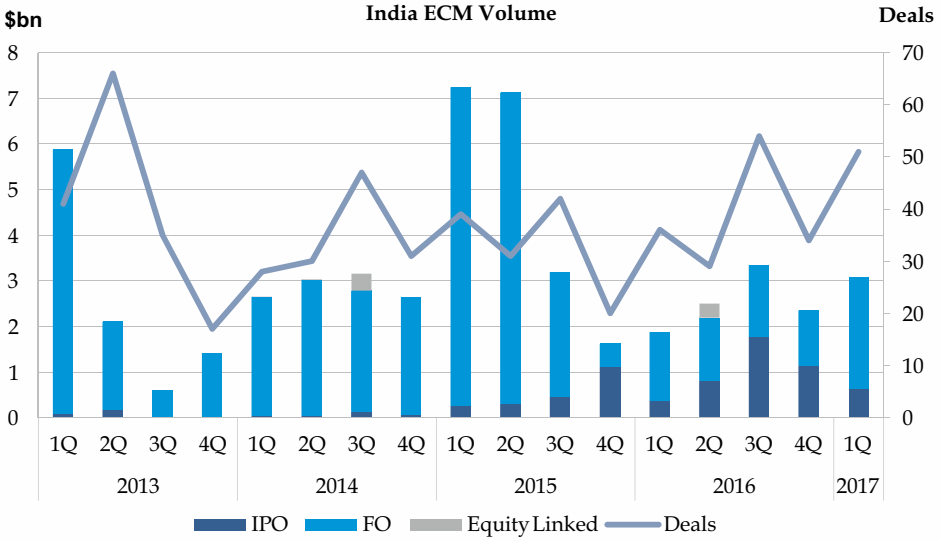
FICCI – Data Centre

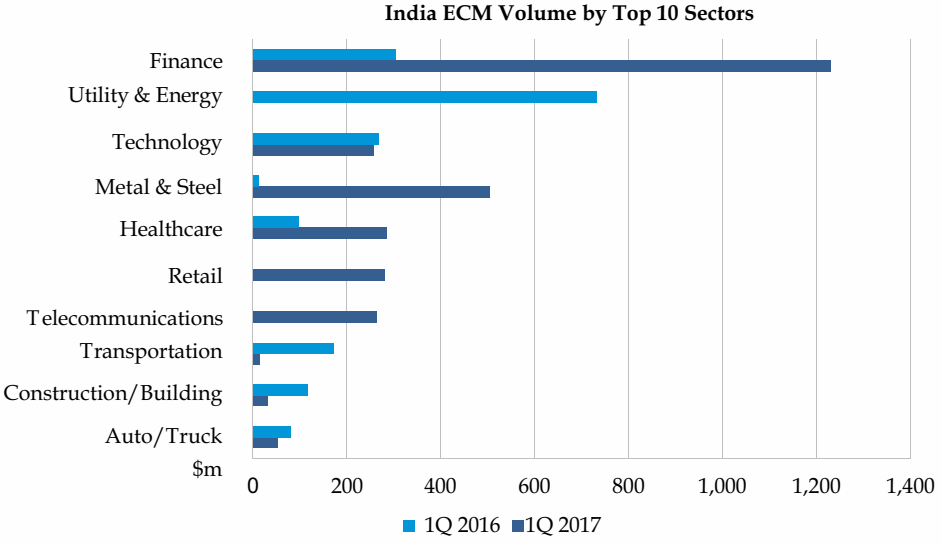
Equity Capital Markets

- **Indian ECM** volume stood at $3.1bn (via 51 deals) for 1Q 2017, up 64% on the $1.9bn (via 36 deals) raised in 1Q 2016
- **IPO** volume increased to $626m (via 30 deals) for 1Q 2017, compared to $383m (via 24 deals) for 1Q 2016. There were no convertibles issued for the first quarters of 2016 and 2017
- **Follow-on** volume for 1Q 2017 increased 65% to $2.5bn (via 21 deals) from the $1.5bn (via 12 deals) for 1Q 2016
- **Yes Bank Ltd.'s** $754m follow on via book runners **CITIC, BAML, IIFL Holdings and Motilal Oswal** is the largest ECM transaction for 1Q 2017

In association with

dealogic





Top 10 ECM Deals - 1Q 2017

Date	Issuer	Sector	Deal Type	Deal Value ($m)	Bookrunners
29-Mar	Yes Bank Ltd	Finance	FO	754	CITIC, BAML, IIFL Holdings, Motilal Oswal
3-Mar	Hindalco Industries	Metal & Steel	FO	502	BAML, AXIS, CITI, JM Financial,SBI
14-Mar	Avenue Supermarts	Retail	IPO	281	KOTAK, AXIS, Edelweiss, HDFC, ICICI, FFS, JM Financial, Motilal Oswal, SBI
23-Feb	Bharat Electronics	Technology	FO	252	SBI, ICICI, Edelweiss, DB
27-Feb	Idea Cellular Ltd	Telecommunications	FO	193	CITI
28-Jan	BSE Ltd	Finance	IPO	182	Edelweiss, AXIS, JEF, NOM, Motilal Oswal, SBI, SMC Capital
28-Mar	Canara Bank	Finance	FO	173	SBI
2-Mar	Apollo Hospitals	Healthcare	FO	160	DB
20-Feb	Max Financial Svcs	Healthcare	FO	125	CITI
27-Mar	South Indian Bank	Finance	FO	97	Edelweiss

Asia Pacific ECM Volume by Nation 1Q 2017

Pos.	Nationality	Deal Value ($m)	No.	% Share
1	China	47,956	255	63.6
2	Japan	12,755	74	16.9
3	India	3,080	51	4.1
4	Hong Kong	2,538	66	3.4
5	Australia	2,480	142	3.3
6	South Korea	2,414	36	3.2
7	Taiwan	1,416	31	1.9
8	Thailand	804	9	1.1
9	Philippines	688	2	0.9
10	Malaysia	565	17	0.8

India ECM Volume 1Q 2017

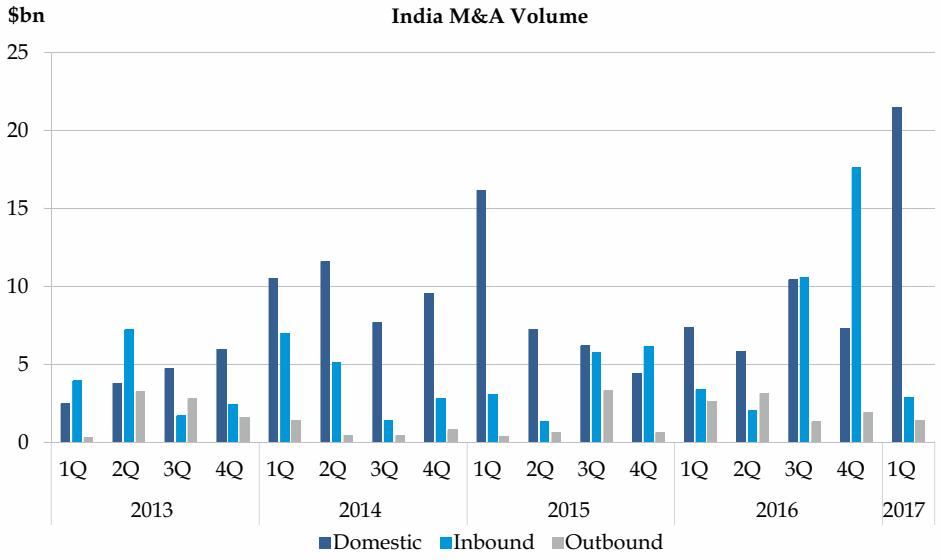
Pos.	Bookrunner Parent	Deal Value ($m)	No.	% Share
1	Citi	418	3	13.6
2	State Bank of India	404	7	13.1
3	Bank of America Merrill Lynch	289	2	9.4
4	Motilal Oswal Financial Services L	256	4	8.3
5	Edelweiss Financial Services Ltd	253	5	8.2
6	Deutsche Bank	223	2	7.2
7	CITIC Securities	189	1	6.1
7	IIFL Holdings Ltd	189	1	6.1
9	ICICI Bank	167	3	5.4
10	Axis Bank	165	4	5.4

India IPO Volume 1Q 2017				
Pos.	Bookrunner Parent	Deal Value ($m)	No.	% Share
1	ICICI Bank	104	2	16.7
2	Kotak Mahindra Bank Ltd	68	2	10.8
3	Axis Bank	57	2	9.2
3	Edelweiss Financial Services Ltd	57	2	9.2
3	Motilal Oswal Financial Services L	57	2	9.2
3	State Bank of India	57	2	9.2
7	Fortune Financial Services (India)	31	1	5.0
7	HDFC Bank	31	1	5.0
7	JM Financial Ltd	31	1	5.0
10	Jefferies LLC	26	1	4.2
10	Nomura	26	1	4.2
10	SMC Capitals Ltd	26	1	4.2

India FO and Conv. Volume 1Q 2017				
Pos.	Bookrunner Parent	Deal Value ($m)	No.	% Share
1	Citi	418	3	17.0
2	State Bank of India	346	5	14.1
3	Bank of America Merrill Lynch	289	2	11.8
4	Deutsche Bank	223	2	9.1
5	Motilal Oswal Financial Services L	198	2	8.1
6	Edelweiss Financial Services Ltd	196	3	8.0
7	CITIC Securities	189	1	7.7
7	IIFL Holdings Ltd	189	1	7.7
9	Axis Bank	108	2	4.4
10	JM Financial Ltd	100	1	4.1

Mergers & Acquisitions

- **India** ranked as the second targeted nation in **Asia Pacific region** for 1Q 2017 with $24.3bn, up considerably on the $10.5bn announced for 1Q 2016
- India **Outbound M&A** volume down 48% to $1.3bn for 1Q 2017 compared to $2.6bn for 1Q 2016
- India **Inbound M&A** volume down 15% to $2.9bn for 1Q 2017 from the $3.3bn for 1Q 2016
- **Domestic M&A** volume increased considerably to $21.5bn for 1Q 2017, compared with $7.3bn for 1Q 2016
- **Vodafone India Ltd.'s** merger with **Idea Cellular Ltd**. in a $14.4bn valued transaction is the largest announced M&A transaction for 1Q 2017

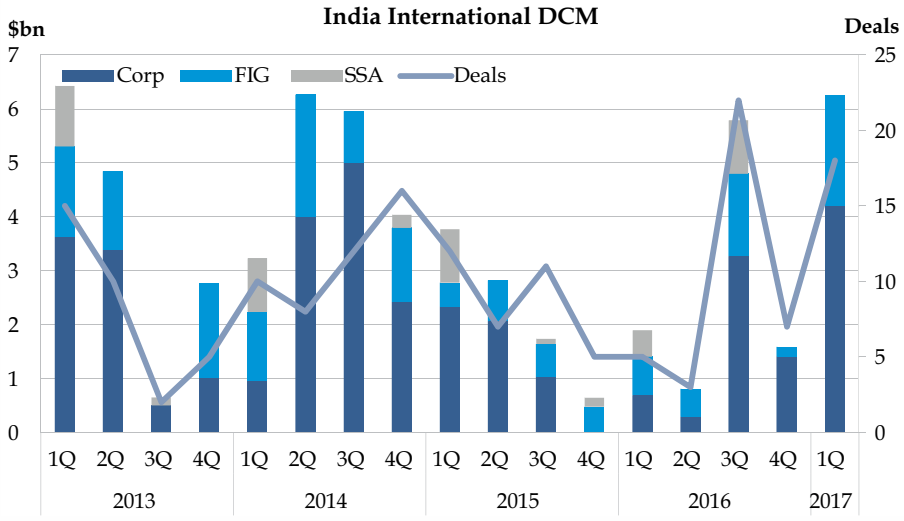


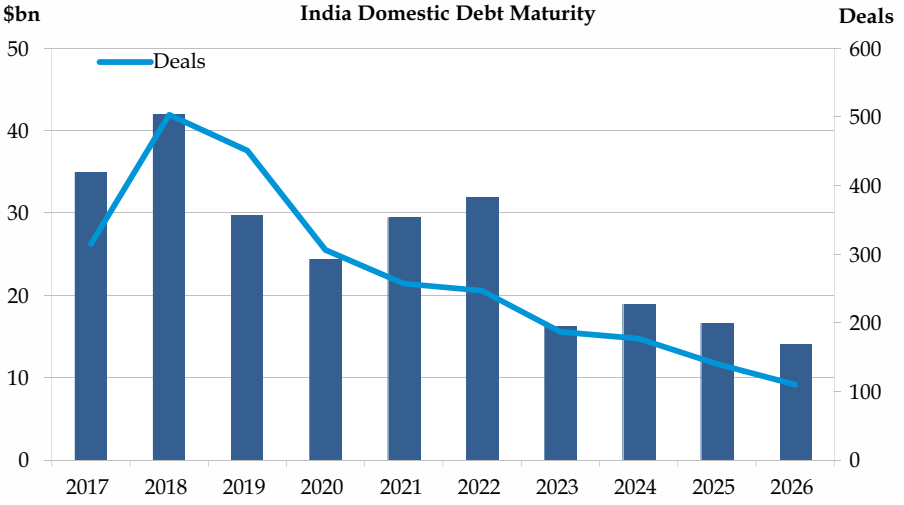
India Announced M&A Attorney Ranking 1Q 2017				
Pos.	Attorney	Value $m	# Deals	% Share
1	AZB & Partners	17,770	18	73.1
2	Vaish Associates Advocates	14,993	2	61.7
2	Slaughter and May	14,993	2	61.7
2	S&R Associates	14,993	2	61.7
2	Bharucha & Partners 1	4,993	2	61.7
6	Shardul Amarchand Mangaldas & Co	218	4	0.9
7	Allen & Overy LLP	200	1	0.8
8	Luthra & Luthra	100	1	0.4
9	BMR Legal	89	1	0.4
10	Corrs Chambers Westgarth	55	1	0.2

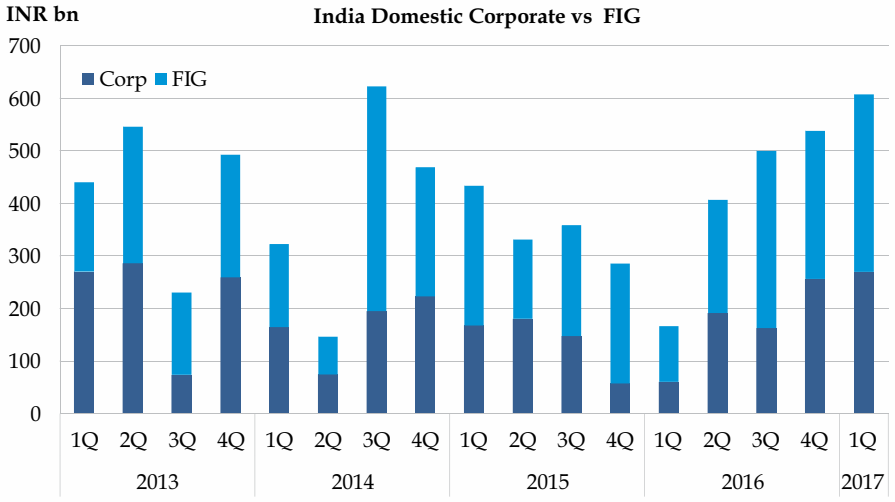
India Announced M&A Advisory Ranking 1Q 2017				
Pos.	Advisor	Value $m #	Deals	% Share
1	Morgan Stanley	15,243	3	62.7
2	Kotak Mahindra Bank Ltd	15,229	4	62.7
3	Axis Bank	15,030	3	61.9
4	Rothschild & Co	15,005	3	61.7
5	UBS	14,993	3	61.7
5	Robey Warshaw LLP	14,993	2	61.7
5	Goldman Sachs	14,993	2	61.7
5	Bank of America Merrill Lynch	14,993	2	61.7
9	Citi	1,108	3	4.6
10	Jefferies LLC	245	1	1.0

Debt Capital Markets

- **India DCM** issuance for 1Q 2017 reached $21.1bn (via 145 deals), up considerably on the $6.2bn (via 86 deals) raised in 1Q 2016
- **Corporate IG** and **Agency bonds** accounted for 56% and 24% of the total DCM volume with $11.9bn and $5.0bn, respectively for 1Q 2017
- **SBI** led the offshore issuer table for 1Q 2017 with a 16.8% share, while **Power Finance Corp** topped the domestic issuer ranking with a 18.4% share
- India **Domestic DCM** volume reached INR982.3bn for 1Q 2017, up considerably on the INR286.0bn raised in 1Q 2016. Activity increased to 128 deals during 1Q 2017 from the 81 recorded for 1Q 2016
- **International** issuance for 1Q 2017 reached $6.3bn, compared with 1Q 2016 volume of $1.9bn. Activity increased to 18 deals versus 5 deals for 1Q 2016

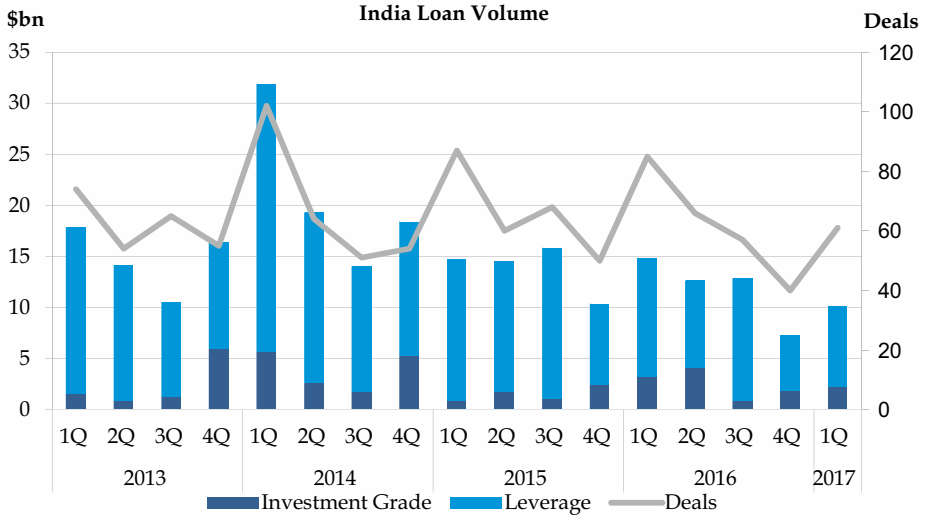


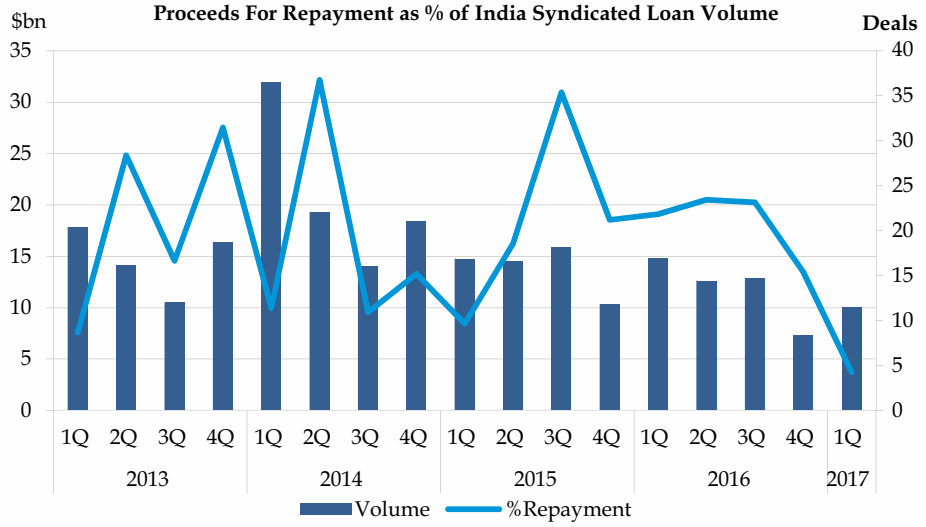


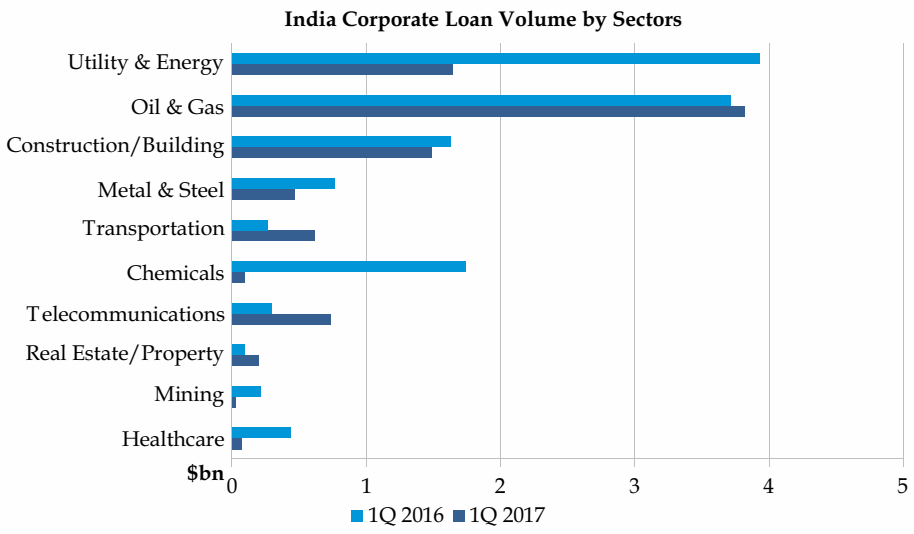

INR bn
India Domestic Corporate vs FIG
700
600
500
400
300
200
100
0
Corp
FIG
1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q
2013
2014
2015
2016
2017

Loan Markets

- **India loan** volume reached $10.1bn (via 61 deals) for 1Q 2017, down 32% on the $14.8bn (via 85 deals) for 1Q 2016
- **Leveraged** loan volume decreased 32% to $7.9bn via 58 deals, compared to $11.6bn (via 80 deals) for 1Q 2016
- **Investment grade** loan volume was down to $2.2bn (via 3 deals) versus $3.2bn (via 5 deals) for 1Q 2016
- Among the corporate borrowers, **Oil & Gas** sector topped the industry ranking for 1Q 2017 ($3.8bn) with a 40.9% share
- **RIL Ltd.'s** $1.8bn **IG** deal arranged by **ANZ, BNP, BAML, BOC(HK), Bank of Nova Scotia, MUFJ, BAR, CITI, Credit Agricole, DBS, EDC, HSBC, JPM, KDB, Mizuho, National Bank of Abu Dhabi, SCB, Sumitomo, UOB, Westpac, Mega International** is the largest transaction for 1Q 2017.






India Corporate Loan Volume by Sectors
Utility & Energy
Oil & Gas
Construction/Building
Metal & Steel
Transportation
Chemicals
Telecommunications
Real Estate/Property
Mining
Healthcare
$bn
0
1
2
3
4
5
1Q 2016
1Q 2017

Project Finance

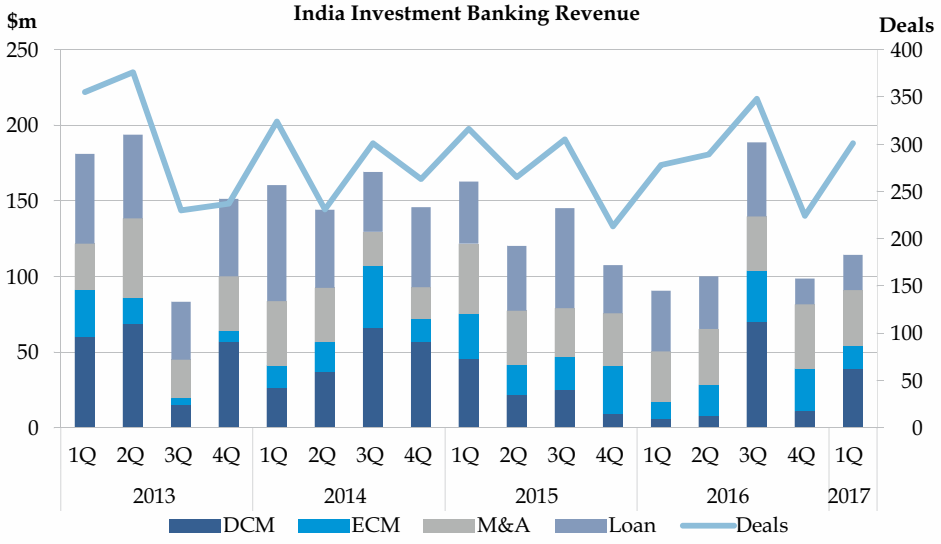
India Project Finance Loans Ranking 1Q 2017				
Pos.	Mandated Lead Arranger	Value $m	# Deals	% Share
1	State Bank of India	2,205	15	48.8
2	Axis Bank Ltd	1,292	6	28.6
3	UCO Bank Ltd	588	2	13.0
4	ICICI Bank Ltd	312	3	6.9
5	Andhra Bank	59	1	1.3
6	Allahabad Bank	25	1	0.5
7	Corporation Bank	10	1	0.2
7	India Infrastructure Finance Co Ltd	10	1	0.2
7	Indian Overseas Bank Ltd	10	1	0.2
7	Oriental Bank of Commerce	10	1	0.2

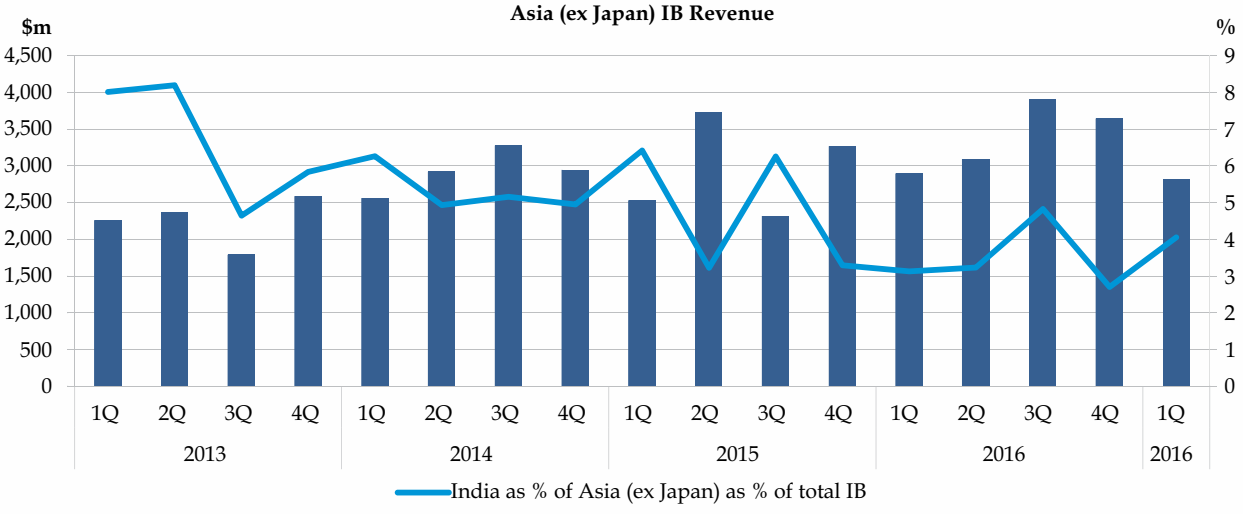
India Sponsor Ranking for Project Finance 1Q 2017				
Pos.	Sponsor	Value $m #	Deals	% Share
1	Indian Oil Corp Ltd	824	2	10.8
2	Adani Group	811	7	10.7
3	Jindal United Steel Ltd	578	1	7.6
4	RSPL Ltd	537	1	7.1
5	Doosan Power Systems India Pvt Ltd	475	1	6.2
6	Sikkim Power Investment Corp Ltd	405	1	5.3
7	RPG Enterprises	350	2	4.6
8	JSW Group	325	1	4.3
9	KSK Power Ventur plc	254	1	3.3
10	Sterlite Technologies Ltd	206	1	2.7

Top 10 Indian Project Finance Deals 1Q 2017				
Financial Close Date	Borrower	Project Name	Sector	Value $m
24-Mar	GSPL India Gasnet Ltd	Mehsana Bhatinda Jammu Srinagar Pipeline Project Additional Financing	Gas pipeline	713
10-Feb	IndianOil LNG Pvt Ltd	Kamarajar LNG Terminal Project	Oil Refinery/LNG and LPG Plants	646
24-Mar	Jindal United Steel Ltd	Odisha 1.13MTPA Carbon Steel Plant Project	Steel mill	578
28-Mar	RSPL Ltd	Kuranaga Soda Ash Plant Project	Petrochemical/ Chemical Plant	537
31-Mar	Doosan Power Systems India Pvt Ltd	Doosan 2640MW Thermal Power Plant Project	Power	475
8-Feb	Teesta Urja Ltd	Teesta III Hydroelectric Power Plant PPP Additional Financing	Renewable fuel	405
9-Mar	Dhariwal Infrastructure Pvt Ltd	Dhariwal Coal-based Power Plant Project Additional Financing	Power	332
11-Jan	JSW Jaigarh Port Ltd	JSW Jaigarh Port Expansion Project Additional Financing	Port	325
3-Mar	Raipur-Rajnandgaon-Warora Transmission Ltd	Raipur-Rajnandgaon-Warora Transmission Line Project	Power	254
16-Feb	KSK Mahanadi Power Co Ltd	KSK Mahanadi Power Project Cost Overrun Financing	Power	254

Investment Banking Revenue

- **India IB** revenue reached $114m for 1Q 2017, up 26% on 1Q 2016 ($91m). Revenue was also up 16% compared to last quarter 2016 ($99m)
- **Syndicated Loan fees** accounted for 20% of total India IB revenue for 1Q 2017 with $23m which is down by 42% on the $40m for 1Q 2016
- **DCM revenue** accounted for 34% of total India IB revenue for 1Q 2017 with $39m which is up considerably on the $6m for 1Q 2016
- **M&A fees** accounted for 32% of the total India IB revenue for 1Q 2017 with $37m which is up 10% on $33m for 1Q 2016
- **ECM fees** accounting for 13% of the total India IB revenue, increased 32% to $15m in 1Q 2017 from the $11m for 1Q 2016





NOTES

Financial Foresights Distribution & Readership

The publication is presently disseminated online to a large set of audience of over 5000 people.

The readership mainly comprises:

- FICCI members across the country
- Economists & academicians
- Senior government officials
- Members of the diplomatic community (India and abroad)
- Policy experts

The electronic version of the publication is also disseminated globally through FICCI's international offices.

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- 5 complementary delegate passes in any three of the financial sector conferences (Banking, Fintech, Capital Markets, Insurance & Pensions)

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- 3 complementary delegate passes in any three of the financial sector conferences (Banking, Fintech, Capital Markets, Insurance & Pensions)

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1. **Strong brand image**

   FICCI is the largest and oldest apex business organisation in India with a strong brand image. Association with FICCI would therefore help in creating a stronger brand image for the partner.

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