



Confederation of Indian Industry



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Inclusion 2.0: Leveraging technology disruptions to realise India's digital economy



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Foreword



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Chairman, CII BANKing TECH Summit 2017 and
Chairman, Microsoft Corporation (India) Pvt. Ltd.

CII's BANKing TECH Summit is the flagship annual gathering of the Indian banking technology industry focused on the Digital Transformation of the Indian Banking and Financial Services Industry. The 11th edition of the BANKing TECH Summit focuses on some of the current challenges and opportunities facing the Industry and how Technology can be harnessed to bring banking and financial services to all Indian citizens, cost effectively and securely so that all Indian citizens can get the benefit of India's rising prosperity, Truly - "Banking for All, All for banking".

This is one of the most exciting times to be part of the Indian BFSI. We are seeing innovation taking place at the National level and for the first time Indian Banks are leading their Global counterparts in the use of innovative technology to provide products and services to India's 1 Billion plus population. The existing Banks have adopted new technologies like mobility, social, HPC, VR/AR, analytics, machine learning, Artificial Intelligence, cloud, security to expand their customer base and reach out to new consumers with new products and services. New entrants both in the Banking and NBFC's have entered with differentiated offerings and at lower costs using the power of technology. At the same time we are likely to see further consolidation of BFS through M&A. Meanwhile the Industry is saddled with huge non-performing assets, increasing costs, and heightened security challenges. Technology will play a key role in providing solutions in these areas also.

The recent initiatives by the Government around demonetization and the move to cashless transactions, will further drive innovation and new entrants into the Industry. The amendments to the banking act clearly demonstrates the Government, RBI and Banking institutions intent to ensure stable growth of the economy by ensuring a healthy BFSI. Building Trust within the industry will be paramount to India's further growth. Newer technologies pose different challenges to the banks and regulators, with security being a key concern. With cyber-frauds on the rise, the regulators and the bankers would have to come together to ensure control mechanisms are in place.

With these developments as a backdrop, CII and PwC have put together this report which showcases how the financial services industry is evolving and how the power of Fintech can be harnessed in taking banking to the remotest corner of the country, while simultaneously improving efficiency and effectiveness.

We hope this report is helpful and we welcome any thoughts you may have.



Message from PwC



Vivek Belgavi
Leader, Financial Services
Technology, PwC India

The last few years have seen huge momentum across the financial services industry towards adopting innovative technologies to solve complex problems. The underlying principles for each of the innovations are **simplicity, supreme customer experience and efficiency**.

The rise of FinTech companies has pushed traditional banks to transform rapidly and embrace a new technology-driven business model. Innovative technologies such as artificial intelligence, machine learning, big data, blockchain, robotic process automation, drones, virtual reality and digital are ensuring a rapid innovation cycle for all the players in the domain. Innovation labs are being set up by traditional banks, NBFCs are offering digital solutions and payment banks are placing technology at their core. The innovative solutions offered by FinTechs are driving banks to collaborate with these companies in order to extract the best value. Though traditional banks still have an edge given their reach and deep industry experience, the -traditional players are quickly catching up by innovating and thus drawing new customer segments into the fold of financial services. We envision a future where the overall cost of financial transactions will reduce drastically and it will be easier for all players to reach out to the rural masses.

Moreover, a strong push from the Government of India has given the non-banking population easy access to financial products. Payment organisations have demonstrated the advantages of mobile-led solutions and the traditional banking organisations are now trying to make inroads into rural India by launching innovative mobile-based banking solutions. Demonetisation has been a major trigger for digital adoption and other government schemes on financial inclusion have also been well accepted by the masses. With support from the government, large technology companies are using new ways to reaching out to the rural masses and educate them about the various financial products, thus ensuring that their hard-earned income is rightly invested.

Overall, there is a huge wave towards creating a democratic field among the financial services players as well as consumers. Our report titled 'Inclusion 2.0: Leveraging technology disruptions to realise India's digital economy' is an endeavour to address the various aspects related to widening access and technology adoption in the realm of financial services.

PwC outlook: 2017

Following a transition from a product to a customer-centric business model, traditional banks are trying to reach out to the rural masses and penetrate the non-banking segment. The success of non-banking financial companies (NBFCs), payment banks and microfinance companies due to latent credit demands and increased consumption in the last few years has proved that there is value for financial services companies in

investing in the rural population. FinTech companies are now enabling the mass adoption of technology by collaborating with various traditional banking and non-banking players and ensuring that services reach the rural strata quickly and efficiently. Our global Retail Banking 2020 report predicts the following trends:¹



PwC's 2020 Retail Banking report

Banking the unbanked will become a primary policy objective

Wealth management will move alongside deposit taking as a baseline service

Fee-based revenues will increase as a percentage of total

Banks will organize themselves around customers instead of products or channels

Customer trust will be returning

FinTech has evolved from start-ups that want to take on and compete with incumbents to a broader ecosystem of different businesses that are, in many cases, looking for partnerships.

FinTech start-ups don't just need capital, they need customers. At the same time, incumbents need new approaches to drive change and deliver innovation.



¹ PwC. (2014). Retail Banking 2020: Evolution or revolution? Retrieved from <https://www.pwc.com/gx/en/banking-capital-markets/banking-2020/assets/pwc-retail-banking-2020-evolution-or-revolution.pdf> (last accessed on May 1, 2017)

Fintech and financial services are competing less and coming together



More than 60% believe business is at risk

67% of the incumbents are increasingly concerned they are losing revenue to innovators



Financial Institutions are embracing the disruptive nature of Fintech
77% of Financial Institutions will increase internal efforts to innovate



Financial Institutions are learning to partner and integrate
82% expect to increase FinTech partnerships in the next three to five years

Key emerging technologies are enabling convergence



Investment in enabling technology will help narrow the growth

30% of large Financial Institutions are investing in Artificial Intelligence



Blockchain to move into mainstream

56% seek to engage with blockchain in some form and eventually make it a part of their core business



Regulations trigger disruption and innovation

51% see new business models as a regulatory barrier to innovation

Managing expectations will be key



The only way to get returns is to invest to learn

Source: PwC's Global Fintech Report- Blurred lines: How FinTech is shaping financial services

Initiatives by the Government of India like 'Broadband for All,' which aims to cover 2,50,000 villages through the National Optical Fibre Network (NOFN) and the ever-expanding 4G and 3G networks of Indian telecom companies will ensure Internet connectivity even in remote areas, which is a critical necessity for the use of digital and technology solutions. Earlier, the high investment required in technology was a barrier towards its adoption in financial services. However, with the pay-per-use and cloud models, capital-intensive technology is within the reach of organisations of varied sizes. Use of alternative

credit mechanisms can assist the banking sector in effective risk management and decreasing the need for risk provisions considerably. Sales force transformation and use of analytics and technological integrations with other partners can have a considerable impact on the top line of the banking player, while end-to-end digitisation, customer self-service solutions and use of alternative credit scoring mechanisms can enhance the bank's bottom line. The savings due to the use of technology and digital solutions can be further passed on to the customers to achieve the envisaged social impact.



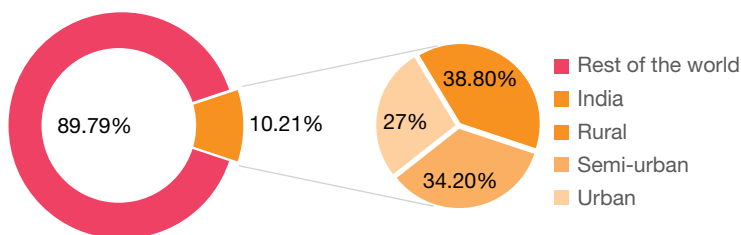
Issues currently faced by banks

Financial institutions (FIs) are aggressively collating and crunching consumer data and adopting advanced technology to develop financial products and services which are economical, sustainable, accessible and easily understood by the masses. However, despite the wide range of advanced products being offered by FIs, their distribution channels and the yottabytes of consumer data at their disposal, India

remains a nation where only two-thirds of all adults in India own bank accounts and only 40% of the population have active accounts.²

On the consumer side, 38% of India's population is illiterate,³ only 24% is banking literate⁴ and the banking confidence index is at 72%² of the banked population. Moreover, only 20%⁵ of the female population in India has bank accounts.

Snapshot of Indian banking sector



Percentage of bank branch distribution

13.54

Branches for every lakh Indian

| | |
|---|-------------------------------------|
| 18.7 | 7.8 |
| For urban population | For rural and semi-urban population |
| *Number of bank branches per lakh adults. | |

45.54

Branches per 1,000 sq. km

| | |
|-----------------------|--|
| 19.71 | 40.554 |
| ATMs per lakh Indians | Global average of ATMs per lakh adults |

Source: The Hindu Business Line; Business Standard; MasterCard Index of Financial Literacy, 2015; S&P Global Financial Survey; Economic Times; Financial Express

| Parameter | Measure | Interpretation |
|--------------------------|---|---|
| Financial infrastructure | 7.8 branches per 1 lakh rural Indian adults CAGR of 5% in a number of rural branches since 2006 | <ul style="list-style-type: none"> Limited infrastructure catering to rural needs Fewer touchpoints for accessibility |
| Financial literacy | India ranked 13 out of 17 Asia Pacific nations 76% Indians do not understand basic financial concepts | <ul style="list-style-type: none"> Lack of information resulting in avoidance |
| Consumer security | 32 lakh cases of compromised cards 11,997 cases of bank cyber crime reported between April and December 2015 | <ul style="list-style-type: none"> Distrust towards banking among people needs to be addressed |

² Government of India. (2017). Economic Survey 2016-17. Retrieved from <http://indiabudget.nic.in/es2016-17/echapter.pdf> (last accessed on 1 May 2017)

³ Singh, R. (2016). Female literacy and economic development in India. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, VIII(2). Retrieved from http://rupkatha.com/V8/n2/07_female_literacy_india.pdf (last accessed on 1 May 2017)

⁴ Staff writer. (2015). S&P survey: More than 70% Indians fare badly in financial literacy. *Livemint*. Retrieved from <http://www.livemint.com/Money/2f9bZsVo7eempRU9yLvPAL/SP-survey-More-than-70-Indians-fare-badly-in-financial-li.html> (last accessed on 1 May 2017)

⁵ TNN. (2015). In India, 80% of women don't have bank accounts: UNDP report. *Times of India*. Retrieved from <http://timesofindia.indiatimes.com/india/In-India-80-of-women-dont-have-bank-accounts-UNDP-report/articleshw/50179848.cms> (last accessed on 1 May 2017)

1. Inadequate infrastructure

People in rural areas still have to travel miles to access a banking interface. The number of branches serving rural areas has witnessed a paltry CAGR of 5% from 2006, while it was 8% and 7% for urban and metropolitan areas respectively. Although India is a vast country, it has only 2.3 lakh ATMs and 14 lakh point-of-sale (POS) terminals,⁶ which is almost half the number of such facilities in developing countries and one-fourth that in developed countries. Though digital channels like apps, websites, SMS/text, ATM, video teller machines (VTMs) and e-kiosks are narrowing the gap between banks and customers, rural Indians are more comfortable with physical channels. Amalgamation of retail stores and banking can be a revolutionary step towards financial inclusion.

2. Financial literacy

According to a survey by Standard & Poor's Financial Services LLC⁷, 76% of Indian adults are unable to understand key financial concepts, which is seven percentile points lower than the worldwide index.

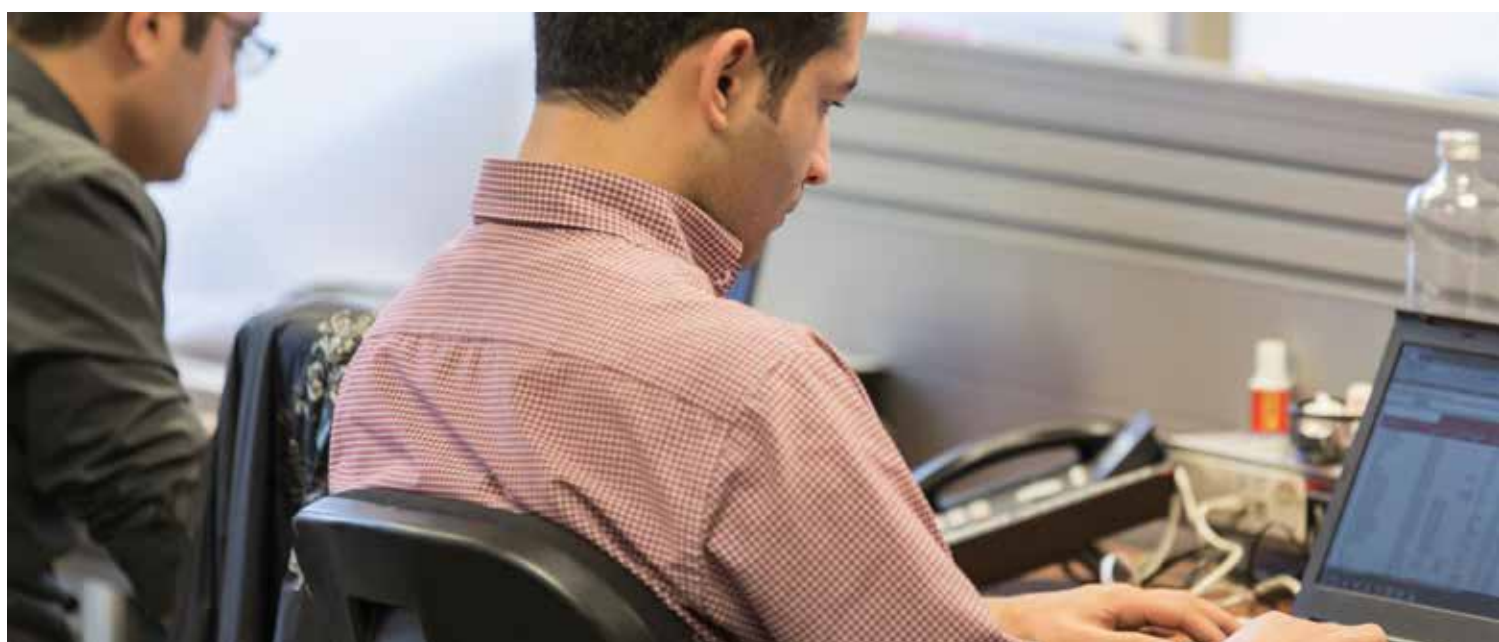
Lack of adequate knowledge results in confusion, apprehensions and obstacles that prevent people from availing of the many banking products and services⁸. Improving Financial Literacy (FL) among these individuals may lead to the selection of products that best suit individual needs. It will also make individuals aware about the different kinds of banking channels and their features.

Launching of such FL programmes would remedy the situation. RBI's Financial Awareness Messages (FAME) initiative and pictorial booklets such as 'Raju' and 'Money Kumar', which explain the various financial instruments and the role of RBI are much needed to increase financial inclusion.⁹ Several technology giants and financial companies are also introducing FL programmes through short documentary films and classroom training, use of dedicated apps and websites to explain banking concepts.

3. Consumer security and fraud

Regulatory bodies are constantly tightening and enhancing regulatory policies to prevent cybercrime and fraudulent activities. At the same time, FIs are redesigning their products and services in order to make them convenient and regulatory compliant. Nevertheless, there is a lack of confidence among end users, and Indian consumers tend to trust older or public FIs more than private or newly established institutes. This lack of trust needs to be addressed by regulatory bodies through clear guidelines and effective communication.

Financial Literacy is not limited to opening a bank account. It is complete only when an individual is able to perform transactions independently and securely. Security breaches are higher among the financially illiterate and in rural areas, where consumers are more likely to share confidential bank details with their relatives or strangers as they are unable to use advanced channels like ATMs, apps or USSD services. Hence, a successful FL strategy needs to take into account the demographics, literacy and banking competency level of consumers.



6 Hota, A. P. (n.d.) Cash to cashless economy — the challenges. Retrieved from <http://www.thehindubusinessline.com/portfolio/your-money/cashless-economy/article9391830.ece> (last accessed on 1 May 2017)

7 Standard & Poor's Financial Literacy Survey

8 Singh, C. (2016). Challenges to financial inclusion. Retrieved from <http://www.thehindubusinessline.com/opinion/jan-dhan-yojana-fraud-should-be-curbed/article9169214.ece> (last accessed on 1 May 2017)

9 RBI. (2007). Financial education and RBI. Retrieved from <https://www.rbi.org.in/FinancialEducation/Home.aspx> (last accessed on 1 May 2017)

Whitespaces for banks to reach out to masses

FinTech companies are fully embracing technologies to deliver traditional banking services that are adaptable and flexible to customers. The digital disruptors are characterised by mobile functionality, simplicity, use of big data, accessibility, agility, cloud computing, personalisation and convenience. Traditional bankers, in turn, need to focus on ways and means in adopting these disruptors and using them to reach out with the masses.

Traditional bankers have legacy processes and a wide organisation structure which hinders the culture of agility and innovation, whereas challenger banks have a flatter organisation structure and fewer barriers to change, which encourages innovation and the ability to rebuild faster. It is time that traditional bankers rise up and respond to the new challenges.

Banks need to leverage the existing customer base they have built on trust and security over decades and offer them services which do not entail detailed paperwork, manual interventions, longer processing and response time, and high fees. They have to work on their strengths and strategise in order to serve their customers in this new digital world.

1. Smartphone banking

Banks can consider reinforcing their capabilities by using the huge amount of transactional data to consolidate customer data, digitise business processes quickly and continuously evaluate new technologies through dedicated innovation labs or partnership models.

Several banks have introduced apps that squeeze the key functionalities of a bank into a smartphone. By providing quicker and faster services through e-wallets, faster responses to queries through 24x7 virtual assistants powered by artificial intelligence and benchmarked security standards, smartphones have evolved into branchless banks.

2. Smartphone-enabled pre-paid instruments

Around 41% of India's population is below 20 years¹⁰. This group is also very tech-savvy and constitutes a huge market which banks can tap through innovative products. Innovative banking services can be used to cater to this segment. This age group makes a lot of purchases using either cash or their parents' cards. As a result, it is difficult to monitor or track their usage and consumption.

Banks can combine prepaid debit cards and smartphone apps and allow these to be controlled by the youth as well as their parents, thereby creating a new target segment.

These pre-paid debit cards can be backed by any of the existing global card/payment providers. They can be linked to a simple mobile app which has separate log-ins for the young people and their parents. The card and the app can have several features that are likely to attract parents—such as the ability to monitor and manage the card remotely, instant loading of cash, SMS alerts for transactions declined and card lock for stolen cards.

These kind of cards may be embraced by parents who are keen to educate their children on how to manage money. A mobile-only, branchless banking service provider in the UK has come up with such a prepaid card and app which is aimed at the UK's seven million 8–18-year-olds.



¹⁰ Census of India, 2011

Fast-tracking outreach programmes through mass adoption of technology

While technology firms are venturing into the payments and financial services industry, banks today are constantly upscaling and adopting technologies to reach out to untapped masses. This is blurring the lines between FinTech companies and traditional banks.

1. Rural segment

Banks across the domestic and international segment are aggressively investing in technology to cater to a larger audience. One major area is the development of apps for rural customers to enable easy access to banking. The rural population predominantly uses banks for agricultural/farm-related loans/services as well as traditional banking services. However, investment in financial products through banking channels is very limited. Some of the issues may be the lack of easy access to bank branches due to location in remote areas and unavailability of banking services in their native language. Another value-added service which would be beneficial to them is the provision of agriculture-related information like crop-wise prices, accurate weather/soil information, and guidance on how to plan their sowing and harvesting activities. Catering to these requirements using technology would allow banks to effectively reach out to the rural population.

2. Semi-urban segment

Apart from the rural population, another segment that needs to be tapped is customers in Tier 2 and 3 towns and senior citizens. The number of bank branches/facilities available in a smaller developed towns is lower than that in metro cities. Hence, customers including senior citizens in Tier 2/3 towns often face challenges in availing loans. Technology solutions that reduce the turnaround time, improve convenience and allow easy accessibility to banking services need to be looked into. Some banks in India have taken initiatives in these areas.

A newly licensed bank, in association with the Unique Identification Authority of India (UIDAI) and National Payments Corporation of India (NPCI), has developed a faster method of payment using Aadhaar authentication¹². By using the merchant's smartphone and STQC-certified Aadhaar biometric reader, the payment can be completed with just the bank name and Aadhaar number. The process of onboarding the merchants are also undertaken through e-KYC.

A major Indian bank has introduced products that will allow customers to avail of a loan against securities by linking their demat account. Customers can pledge shares and securities available in the linked demat account to avail of a loan/OD facility in a matter of minutes.¹¹

Such a service would enable first-time borrowers without a credit history and senior citizens to obtain loans easily. People can also use this service when they need money urgently—for example, a medical emergency.

3. Aadhaar-based payments

Another huge opportunity for tapping customers is presented by the Aadhaar card. Since its introduction, there have been 113 crore enrolments till date. This means that if a bank/financial service provider links its services to Aadhaar, it has the potential to cater to 100 crore plus customers. This is one of the simplest ways to perform transactions, as it does not require a customer to swipe debit cards, remember passwords or account numbers, have a USSD code to transfer money, or download an app. Importantly, there are no transaction fees for both merchants and customers. Thus, using Aadhaar, cashless purchases can be facilitated for customers in a cost-effective and scalable way and the government's initiatives towards boosting cashless transactions can be supported. The biggest benefit is that it enables citizens in the deepest corners of the country to participate in India's digital movement—even those who do not own a phone but want to pay digitally. People only need to have a bank account and their Aadhaar linked to it. We increasingly see the use of Aadhaar—be it to buy a new mobile connection, or to register an agreement. This can be extended to cashless payments as well—with only a person's fingerprint being used for authentication.

11 HDFC. (2017). Press release. Retrieved from https://www.hdfcbank.com/htdocs/aboutus/News_Room/pdf/Press-Release-HDFC-Bank-launches-Digital-Loan-against-Securities.pdf (Last Accessed on 1 May 2017)

12 IDFC Bank- Aadhaar Pay- <http://www.idfcbank.com/aadhaar-pay-campaign.html> (Last Accessed on 1 May 2017)

4. Harnessing the existing infrastructure

The banking fraternity is constantly endeavouring to extend banking facilities to the remotest areas of the nation. While the banks' approach would be to simplify banking and bring services to every doorstep, there are logistical issues in terms of opening up a large number of branches. A simple and efficient means to reach out is the use of existing networks which span the length and breadth of the country. So, while banks are leveraging technology to reach out to the neglected masses, organisations in the communications business have acted as game changers. India Post is a government service available across India, and since it is now offering banking services, it would be in position to provide access to basic banking services to every Indian.

5. Drone-based technology

Lastly, a potential technology which can help banks reach out to users in a faster way is the drone. This technology will impact how a user transacts with their FI in the future. Potential scenarios include:

- Delivering cash or replacing a payment card or smartphone
- Delivering paper documents, such as signed documents for mortgages
- Monitoring agriculture set-ups in order to enable quicker sanction of crop loans/agriculture loans
- Documenting accidents supplemented by the sensor data captured by cars (auto insurance companies)
- Assessing property for loans and insurance claims

The use of drones can involve two scenarios—one where a customer has his/her own drone or one where a bank/FI can

offer drone services to its customers. Personalised drones can enable individuals to interact with their FI wherever they happen to be by delivering items and transacting on behalf of their user. In addition to delivering paper documents and other physical items, drones would also be able to provide additional services such as taking photos and performing a notary type function.

Further, drones may also be used to streamline and improve back-office operations of banks by further automating the delivery and handling of physical items. Usage of drones for emergency communication and services would lead to increased resiliency. For example, drones may be used to quickly deploy the infrastructure of an emergency communications network by both delivering the needed system parts and serving as communication relays to fill gaps in coverage.

In conclusion, the advantages of drones include improved speed and timeliness and accessibility to unreachable areas. The issues/concerns associated with using drones, however, are the usual cyber security threats like hacking/impersonation and security attacks¹³.

From a FinTech firm's point of view, while start-ups are currently only focusing on providing cashless payments, their audience in this case is limited to customers who want cashless transactions. In the long term, for reaching out to a larger population, it is expected that the FinTech firms would either collaborate with traditional banks or expand to an extent where they can provide complete end-to-end banking services.

There is no doubt that tech giants will enter and disrupt the financial services landscape. Social media giants have a massive reach of over billions of users and are expected to compete with all other services to be at the centre of customers' digital lives. Since finance plays an important role in our lives, the business planes of these tech giants will inevitably intersect with the FinTech landscape.



13 Schutzer, D. (2015). Do drones have a role in financial services? CTO Corner. Retrieved from <http://www.fsroundtable.org/do-drones-have-a-role-in-financial-services/> (Last accessed on 1 May 2017)

FinTech innovations to drive financial inclusion

The traditional banking system is undergoing a much-needed digital transformation with changing customer requirements, the need to include the 'financially excluded' segment and simultaneous competition from incubators. As an emerging market, the huge untapped financially excluded market in India has space for all—legacy players and incubators—to grow, compete, collaborate and provide wider access to financial services.

With the aim of increasing financial access and opening up the market, RBI has issued guidelines on Aadhaar OTP service and eKYC, thus facilitating the account opening procedure. It has also created niche entities such as payments and small banks which will focus on offering basic financial services to the unbanked. The regulatory thrust and existing inefficiencies have created a conducive environment for even the nimbler and innovative FinTech companies. Their solutions have seen an increased uptake in the last few years owing to millennial customers' extraordinary willingness to adopt technology.

Given the advantages that each of these technologies and companies have to offer, the industry is witnessing more collaborations than ever. As per PwC's Global FinTech Survey,¹⁴ 82% of FIs expect to increase partnerships with FinTechs in the next 3–5 years. These partnerships are leading to innovative business models that enable the financial inclusion of specific segments like small and medium-sized enterprises (SMEs). Nevertheless, there are a few areas which, in our opinion, will have the maximum impact on accelerating financial inclusion:

- **Enabling access to credit:** With appropriate access to credit, personal and small businesses can drive stronger and more inclusive growth. Currently, there is a huge gap in the credit industry owing majorly to geographical inaccessibility and/or scarce or no credit history. Traditional lending and credit scoring models are highly regulated and require a strong existing credit history; therefore, retail customers and SMEs without proper documentation, KYC and forecasted repayment capability do not have access to formal credit. Banks are thus partnering with FinTech companies and leveraging their alternative credit decision-making frameworks

to lend to this section of society. Technology sits at the forefront of these digital lending initiatives which use Internet-mediated platforms to connect customers with the suppliers of credit.

- **Digital remittances:** Remittance to people in rural areas is slow and expensive. Villagers often have to travel long distances to collect remittances due to them.¹⁵ Technology-based models adopted by many banks (at times backed by FinTech partnerships) are helping people solve this problem by enabling them to send money around the world using a mobile phone for a fraction of what traditional vendors charge.

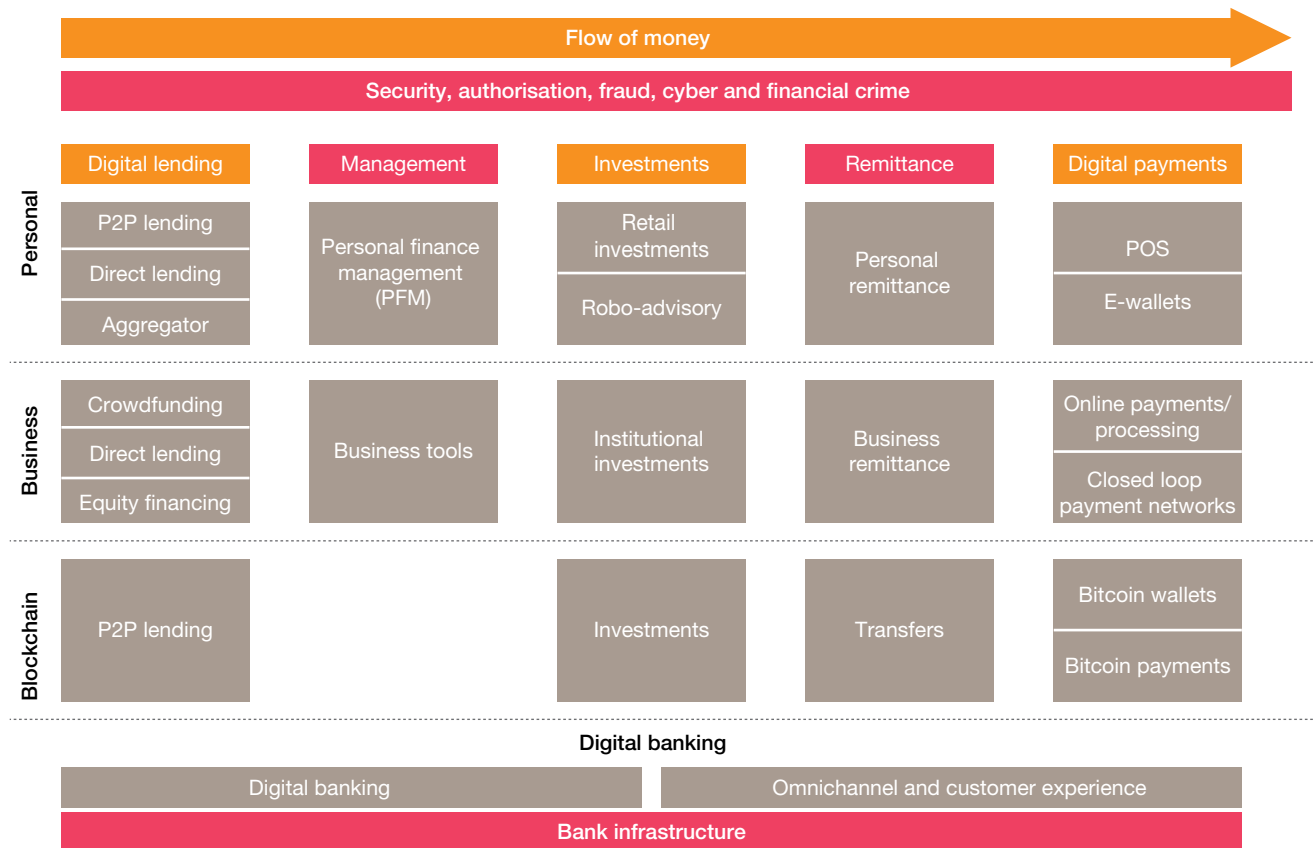


14 PwC. (2017). PwC Global Fintech Report – Redrawing the lines: FinTech's growing influence on Financial Services. Retrieved from <https://www.pwc.com/gx/en/industries/financial-services/fintech-survey/report.html> (Last accessed on 1 May 2017)

15 World Bank. (2016). Press release. Retrieved from <http://www.worldbank.org/en/news/press-release/2016/04/13/remittances-to-developing-countries-edge-up-slightly-in-2015> (Last accessed on 1 May 2017)

- Cashless payments:** With approximately 90% of retail transactions still in cash,¹⁶ simplification of digital payments is driving financial inclusion. Some of the solutions which are gaining high traction include Unified Payment Interface (UPI), e-wallets, mobile-based POS

(mPOS), online payments, and mobile and Internet banking. The licensing and eventual roll-out of payments banks is also minimising the high upfront investments traditionally required in the banking infrastructure.



The attractiveness of these new technology-based models is increasing, especially among customers who are not used to a traditional bank account. These customers now have access to simplified basic services such as remittance, credit, insurance and customer servicing. As customers' needs mature towards greater usability, affordability, reliability, mobility and continuity, technology will become more relevant.

1. Digital transformation enabling financial inclusion for the masses

Payments and financial technology is one of the areas experiencing maximum enablement and hence transformation in the Indian market. A major breakthrough in digital transformation, which offers the potential of wider financial inclusion, has resulted from the support of regulators in laying down the foundation for extensive

technology innovation in this field. The introduction of UPI by the National Payments Corporation of India (NPCI), the draft guidelines on peer-to-peer (P2P) and alternative lending platforms and the plan to come up with guidelines governing the use of virtual currency are just a few such examples.

Multiple use cases leveraging these technologies have emerged and they are driving financial inclusion for the masses as well as the other neglected segments of society.

2. Driving financial inclusion by simplifying P2P remittances

Given the current state in India, the smaller the remittance size, the higher is the transaction cost percentage, which makes access to remittance channels extremely difficult for rural and remote masses. Technology is being leveraged to solve this problem.

¹⁶ http://www.mastercardadvisors.com/_assets/pdf/MasterCardAdvisors-CashlessSociety.pdf (Last accessed on 1 May 2017)

Many start-ups have entered the space and have simplified mobile money transfer. One such application facilitates P2P money transfer for customers of banks without using bank account details. Likewise, several leading banks are leveraging NPCI's Immediate Payment Service (IMPS) platform to launch their own mobile wallets. In some cases, digital wallets are integrated with social media features for payment solutions enabling money transfer, P2P transfer, etc.

The UPI platform collectively uses Aadhaar, mobile and account numbers to achieve the goal of simplifying digital payments and collections. With a seamless user interface and payments through a virtual payment address (VPA), UPI can enable customer-centric business and technology models for the mass market. For instance, wallet players can create sponsor bank entities, with the banks participating in UPI, thus enhancing the overall customer experience for targeted customers of the bank.

3. Financial inclusion of SMEs through alternative lending

The SME sector in India contributes around 8% of the GDP, constitutes 40% of the country's exports and provides employment to around 60 million people (making it the second largest employment provider).¹⁷ However, a majority of the SMEs do not have access to formal credit due to issues like small ticket size of loans, high underwriting, transaction and acquisition cost, lack of collaterals, lack of formal credit rating leading to perception of high risk, which in turn results in high turnaround time for loan processing.

A majority of the challenges are being overcome through the application of technology. Banks are partnering with FinTech firms and are taking the entire process online to reduce the transaction cost and turnaround time. They are looking for alternative sources of data to measure the creditworthiness of SMEs. This has led to the emergence of a new sector known as alternative lending, which is essentially an online platform for lenders (retail or institutional) to lend directly to borrowers (individual or corporate).



4. Financial inclusion by simplifying government payments

Many banks are driving financial inclusion by acting as sponsor banks for disbursing government to payment (G2P) payments. Many FinTech companies are leveraging the IMPS platform and offering solutions to banks to simplify government payments. They are also working on suitable acceptance channels for banks. Low-cost POS devices are helping villagers in remote areas deposit and withdraw funds.

Another noteworthy example is that of a tie-up between a digital payment solution company's tie-up and milk dairies and cooperative societies to digitise the payments of supplying farmers. The tie-up enables direct payments in farmers' prepaid cards, thus ensuring transparency and regularity in payments and reducing farmer dissatisfaction.

5. Low-cost technology to improve acceptance infrastructure and widen reach

In India, the reach of financial services is restricted by infrastructural issues and traditional ATM and POS terminals are only able to do so much. To counter these problems and to capitalise on the opportunity, banks and technology firms are looking to leverage the growing smartphone penetration. As a result, the adoption of mobile devices for POS transactions or mobile POS is expanding.

SMEs in emerging markets like India do not have a high investment capital and are hence restricted in the ways they can accept payments from customers (most accept 'cash-only' payments). Mobile POS platforms represent an affordable channel for them to accept non-cash payment from cards and mobile phones. These systems require less upfront investment; moreover, their maintenance is more economical than that of conventional POS systems. Many merchants are also seeking to replace the traditional fixed payment terminals and cash registers with tablets linked to mobile POS devices or smart POS. This is expanding the reach of 'integrated payments' to a large volume of SMEs. These players have offerings that provide low-cost, fast and bank-agnostic mobile POS terminals across India. Several payment banks and enablers have started tying up with kirana stores in semi-urban and rural areas as they seek to grow in regions underserved by banks.

17 RBI. (2015). Report on trends and progress of banking in India 2014-15. Retrieved from <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/0FLTP577BF4E172064685A26A73A6BC9210EC.PDF> (Last accessed on 1 May 2017)

Risks and threats due to new-gen techs and FinTechs

The growth of blockchain, alternative credit solutions and new Fintech companies has not only immensely increased the market competition but also greatly amplified the complexity of the industry. With traditional and newer channels coming together to effectively embrace these innovative technologies, it is vital to take cognisance of the risks and threats around their adoption and their impact on the entire financial system. As these companies may unbundle the existing financial services value chain, financial system regulators are bound to issue additional regulations.

1. Changing regulatory landscape

Being very nascent and with no clearly defined product categories, FinTechs and such new generation financial service providers have largely fallen outside the purview of any banking/FS regulations. This scenario is sure to change, with several major regulators having highlighted the need to bring this umbrella of companies under regulation.

The Indian banking regulator, RBI, had set up an inter-regulatory working group consisting of representatives from IRDAI, PFRDA, NPCI, RBI and key industry players to understand the FinTech space, assess the opportunities, and identify the risks and threats emanating from it. The findings are expected to help RBI and other regulators to realign and develop a regulatory framework to address the risks and improve the role of FinTech in the Indian financial services space.

‘The fast-growing financial technology sector could hold big “systemic risks” for the banking sector and the broader economy which need to be addressed by bank regulators around the world’ - Mark Carney, Governor, Bank of England¹⁸

Regulations around capital requirements, leverage and risk retention, interest rate monitoring and regulatory reporting are expected to be issued in the near future to ensure that these companies do not gain any undue regulatory arbitrage without proper control mechanisms in place.



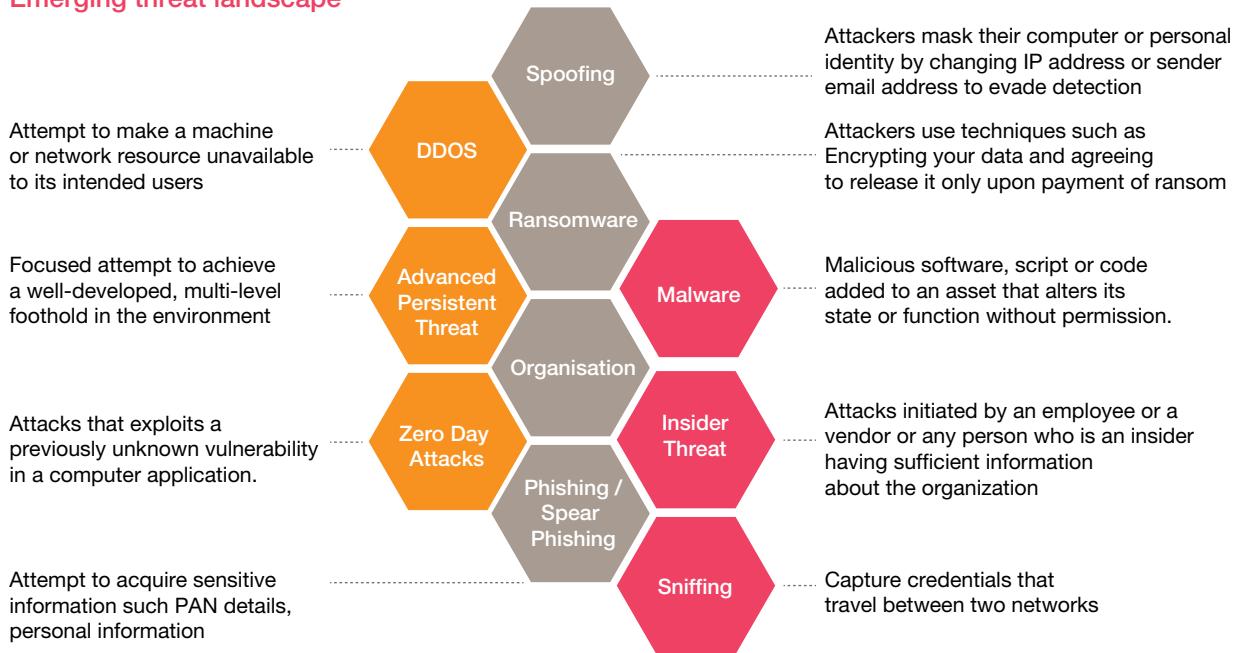
¹⁸ Carney, M. (2017). Building the infrastructure to realise Fintech’s promise. Speech presented at the International FinTech Conference, Old Billingsgate. Retrieved from <http://www.bankofengland.co.uk/publications/Documents/speeches/2017/speech974.pdf> (Last accessed on 1 May, 2017)

2. Data and cyber security threat

Maintaining the security and privacy of data is one of the key concerns that may hinder the acceptance of FinTech companies by both regulators and customers. Most P2P

lending players use several non-conventional and personal data sources, including social media information, for their credit assessment. Traditional players have highlighted this as one of the concerns around partnering with these firms, with more than 55% incumbents identifying IT security as one of the challenges.¹⁹ The volume and variety of data are a goldmine for any data thief.

Emerging threat landscape



The Consumer Financial Protection Bureau (CFPB) in the United States had levied a penalty of 100,000 USD on a large digital payment platform to strengthen its security features, provide additional trainings on data security and create comprehensive, well-defined policies. They have also committed to the redressal of complaints against marketplace lenders.²⁰

As technology continues to drive innovation in banking, rapid growth and adoption of digital technologies are leading to increased information security incidents. According to PwC's

Cybercrime Survey²¹, Indian organisations have detected a sharp increase from an average of 2,895 incidents a year to 6,284 incidents in 2015–16.



19 PwC. (2016). PwC Global FinTech Report – Blurred lines: How FinTech is shaping Financial Services. Retrieved from https://www.pwc.com/il/en/home/assets/pwc_fintech_global_report.pdf (Last accessed on 1 May 2017)

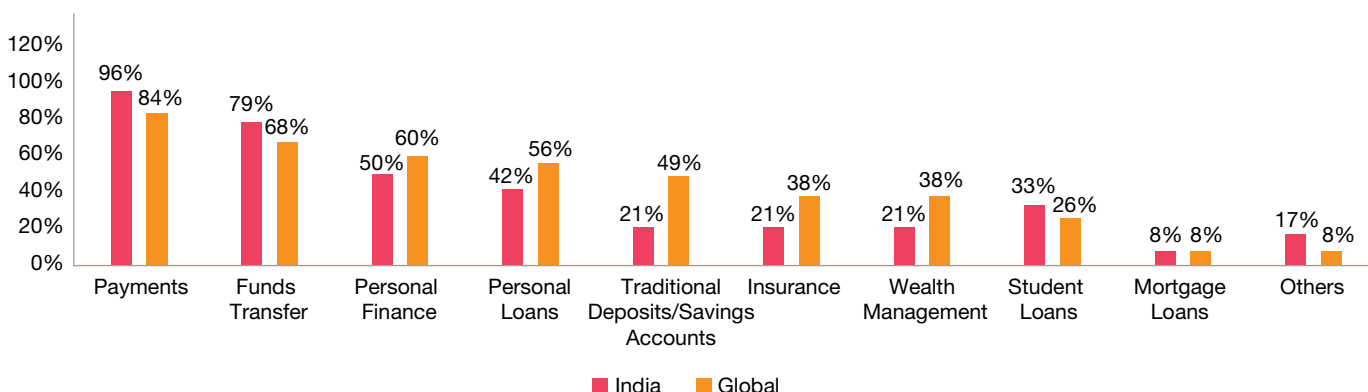
20 Shu, C. (2016). Dwolla fined \$100,000 for misrepresenting its data-security practices. TechCrunch. Retrieved from <https://techcrunch.com/2016/03/02/dwolla-fined-100000-for-misrepresenting-its-data-security-practices/> (Last accessed on 1 May 2017)

21 PwC (2016) Global Economic Crime Survey- Adjusting the Lens on Economic Crime: Preparation brings opportunity back to focus (Last accessed on 1 May 2017)

The velocity, volume and variety of information security attacks continue to grow, with increasing adoption and

dependency on emerging technology innovations in the banking space.

Cybercrime Survey: Cybercrime Incidences across products



3. Depreciation of credit quality

The disruptions brought about by FinTech are mostly in the fields of consumer banking and payments. An overwhelming majority of the participants of PwC’s Global FinTech Survey 2016 consider the consumer banking, payments and funds transfer, and investment and wealth management sectors to be impacted the most. With several newer segments of clients being brought into the fold of the organised financial system, the existing metrics of credit risk assessment have metamorphosed.

While in its current state FinTech only contributes to a miniscule percentage of the organised financial industry, the exponential growth and integration of FinTech companies into the existing financial network, along with the lack of well-established regulations, will have the power to destabilise the current markets and significantly increase the systemic risks.

4. Consumer protection

In the traditional banking channels, the bank bears the direct risk for any form of loss. Similar investor protection and awareness principles govern financial advisors. The

stronger regulations around liquidity requirements and capital maintenance have isolated the end customer from any large-scale unaccounted financial risks. Additionally, stronger bankruptcy laws and depositor protection programmes provide additional assurance to the customer on their investments/deposits.

However, with marketplace lenders acting as intermediaries that connect the borrowers with potential lenders, the actual credit risk has shifted to the investor. This may not only impact the reputation of a company and the whole FinTech industry but also lead to legal issues.

5. Misconduct and fraud

FinTech innovations have the ability to minimise manual interventions and harness the existing data available to improve oversight functions in monitoring stakeholders, including customers and employees. On the other hand, these innovations may intensify the impact/scale of any illicit actions without detection. High levels of competition and the need for customer acquisition may catalyse the institutionalisation of such innovations without adequate consideration for the development of proper controls/regulations. Such lapses in controls could lead to large-scale frauds, invite regulatory action or even lead to the downfall of a company.



6. Infringements of existing operational risk controls

The growth of FinTech companies, including P2P lending and other non-traditional banking channels, caters to a large extent to the traditionally unbanked clientele. With simpler client acceptance norms, anonymity, minimal documentation and faster approval times with minimal verification and no regulatory requirements, the probability of misuse of these technologies is very high. These lapses in the establishment of controls for client acceptance and end-use utilisation are likely to impact the KYC norms. However, many players opine that stronger guidelines will hamper the agility and solution-mindedness of these firms. The draft guidelines issued by RBI for the regulation of payment and e-wallet companies—which make it imperative for wallet companies to strengthen their KYC compliance norms, including full KYC for even small-ticket transactions—have been met with strong opposition. While the proposed move will establish a better risk control framework, it will increase the operational costs and impact margins.

Although strong laws and compliances around anti-money laundering, Foreign Account Tax Compliance Act (FATCA) and Counter Terrorist Financing (CTF) guidelines exist for traditional channels, the newer channels have largely remained outside their ambit. This has led to concerns among several regulators across Europe, Asia and the US on the possible use of these systems for illegal activities. Incidents such as charges of embezzlement against the head of digital currency exchange²² and charges of misutilization of funds from new gen companies for criminal activities²³ have brought these issues to the foreground. FinTech companies will have to adjust their operations and start investing in related infrastructure to ensure compliance.

On the whole, financial services is in the cusp of a revolution which will be driven by financial inclusion and mass banking. The rapid innovation model adopted by all the banking players will definitely give customers an edge and a host of options to choose from. Adoption of the customer-first approach for the rural population will change the banking landscape in India. However, technology and the associated risks needs to be assessed and controlled.



22 Hong, N. (2016). Liberty Reserve founder pleads guilty to money laundering charge. The Wall Street Journal. Retrieved from <https://www.wsj.com/articles/accused-founder-of-liberty-reserve-expected-to-plead-guilty-1454095399> (last accessed on 1 May 2017)

23 Buhayar, N. & Alloway, T. (2015). Prosper said to arrange loan to San Bernardino shooter. Bloomberg. Retrieved from - <https://www.bloomberg.com/news/articles/2015-12-08/prosper-said-to-arrange-loan-to-san-bernardino-shooter-weeks-ago> (last accessed on 1 May 2017)





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The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has over 8,300 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 200,000 enterprises from around 250 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

The CII theme for 2017-18, **India Together: Inclusive. Ahead. Responsible** emphasizes Industry's role in partnering Government to accelerate India's growth and development. The focus will be on key enablers such as job creation; skill development and training; affirmative action; women parity; new models of development; sustainability; corporate social responsibility, governance and transparency.

With 66 offices, including 9 Centres of Excellence, in India, and 10 overseas offices in Australia, Bahrain, China, Egypt, France, Germany, Singapore, South Africa, UK, and USA, as well as institutional partnerships with 344 counterpart organizations in 129 countries, CII serves as a reference point for Indian industry and the international business community

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