



Regulatory Sandbox
Making India a Global Fintech Hub

July 2017

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Message from Confederation of Indian Industry

Over the last few months, the Government has undertaken a range of measures to promote digital payments. The endeavor commenced with the roll-out of the Jan Dhan Yojana, which aimed at providing bank accounts to all. The next step is to deliver subsidies and Government transfers to underprivileged sections of society through direct transfer to such bank accounts, linked to the unique identification card, Aadhaar. Already, almost 170 million JDY accounts been seeded with Aadhaar numbers. This combination of Jan Dhan Yojana and Aadhaar, supplemented by mobile telephony (the so-called JAM trinity) has thrown up tremendous possibilities for all kinds of financial transactions.

With the demonetization of large-value notes in November 2016, and the consequent brief shortage of currency, a further push was imparted to digital payments systems. Unstructured Supplementary Service Data (USSD) based mobile banking, Aadhaar Enabled Payment System (AEPS) with Banking Correspondents for fund transfer, and United Payments Interface (UPI) for smartphone transactions, all witnessed rapid growth post demonetization.

The Government has launched the BHIM app (Bharat Interface for Money) to enable digital payments. This recorded 17 million downloads in the first two months alone. The Bharat QR code is a low-cost inter-operable, mobile-based solution for a less-cash economy for digital payments without card machines.

Despite these path-breaking initiatives, India is significantly behind peers on digital transactions. However, what has already been done and the very many exciting new apps/developments - many driven by young start-up entrepreneurs - are opening up completely new vistas in the financial technology space. As new technologies and applications emerge, though, they often pose challenges to regulators. As in many other fields,

technology often runs ahead of the law, and new applications are constrained by regulations. Of course, in a sensitive and vital involving finance and money, caution is well advised. Therefore, ideas like a regulatory sandbox could be invaluable in testing new concepts in Fintech and digitization. Emerging applications in this area promise to create exciting new possibilities - from loan assessment for micro-businesses (like street vendors) to low-cost and instantaneous money-transfers for those who have no banking access - resulting in a multiplier for the economy, while ensuring greater transparency and traceability of transactions. The consequent improvement in tax revenues will help augment the country's resources for social welfare.

This report is part of the efforts of the CII National Committee on Telecom and Broadband to further the national agenda in these areas through a close and synergistic collaboration between industry and the government.



Kiran Karnik

Chairman,
CII National Committee on Telecom & Broadband



Message from Confederation of Indian Industry

The Indian financial services sector has undergone a significant transformation over the last few years. The sector, which has for decades been dominated by big banks and other major financial services players, is witnessing a growing popularity of financial technology (fintech) firms. Not only are the Fintech startups spearheading innovation but many banks and financial institutions are also looking to explore new technologies and investing heavily in digital service delivery channels.

Government of India's demonetization move in November 2016 and the 'Digital India' initiative launched in 2015 have provided substantial boost to the country's growing digital ecosystem. With the thrust on creating \$1 trillion digital economy by 2020, the Government aims at building a conducive ecosystem for a 'cashless economy'. The initiatives to enhance digital transactions, such as introduction of Unified Payments Interface (UPI) and Bharat Interface for Money (BHIM-an internet based mobile application) will help support faster adoption and transition to digital payments.

With demonetization, millions of Indians have enrolled for digital payments, with mobile payments being the most preferred mode. However, given the scale and pace for making India a "less-cash" economy, far-reaching, innovative and bold decisions are required to facilitate behavioral change amongst the common people in moving towards the digital platform. A robust regulatory framework, effective customer redressal framework, enhanced security measures to enable confidence and trust, incentives for larger participation and benefits similar to cash transactions are some measures that can further help ensure long-term success for digital payments.

India is poised to emerge as a global innovation hub on fintech with a large market of underserved or un-served customers. All it requires is multiple sections of industry to activate and leverage this potential to make India a "less-cash" economy. The key challenge in the global fintech sector is that often existing regulations are not able to keep pace with rapid technological developments. The purpose of this report is to take a brief look at the merits and gaps in existing regulations and provide suggestions for the way forward in 'Making India a Global Fintech Hub'.



Chandrajit Banerjee

Director General,
Confederation of Indian Industry



Foreword

Fintech has exploded in India in the last couple of years but there is still room for massive growth. With more than 600 startups in the space of lending, payments, insurance, trading, India is emerging as a Fintech products hub. The total Fintech software and services market in India is estimated to be worth \$8 billion and pegged to grow 1.7 times by 2020.¹ This growth and shift will be primarily led by innovative Fintech startups in collaboration with big banks or large corporations. India has everything to establish itself as a global FinTech hub with a large market of unserved customers, increasing mobile, broadband and fiber penetration, favorable demographics, an active start-up ecosystem and a large technology talent pool. Indian fintech firms have unique opportunities with the India Stack (Aadhaar, UPI, eKYC, etc.), which are not available anywhere else in the world. Government policies and regulations by important institutions like RBI, SEBI, IRDA, etc. will play a major role in shaping the fintech sector. But the Indian Fintech companies are currently focusing only on the local market and not tapping the developed markets which would allow them to gain visibility both in terms of customers and investments, which would catapult them into the league of more established firms globally. Over the last five years there has been a global upsurge of Fintech firms disrupting traditional financial services and developing new models of service delivery. Investors have been enthusiastic about the Fintech landscape and have made huge investments in the ever evolving and promising financial ecosystem. Unlike other sectors, Fintech firms, in addition to stiff competition from incumbent financial institutions, have to create an understanding of existing regulatory guidelines which adds to the uncertainty. India has witnessed a similar trend, where innovators have created applications and tools leveraging latest

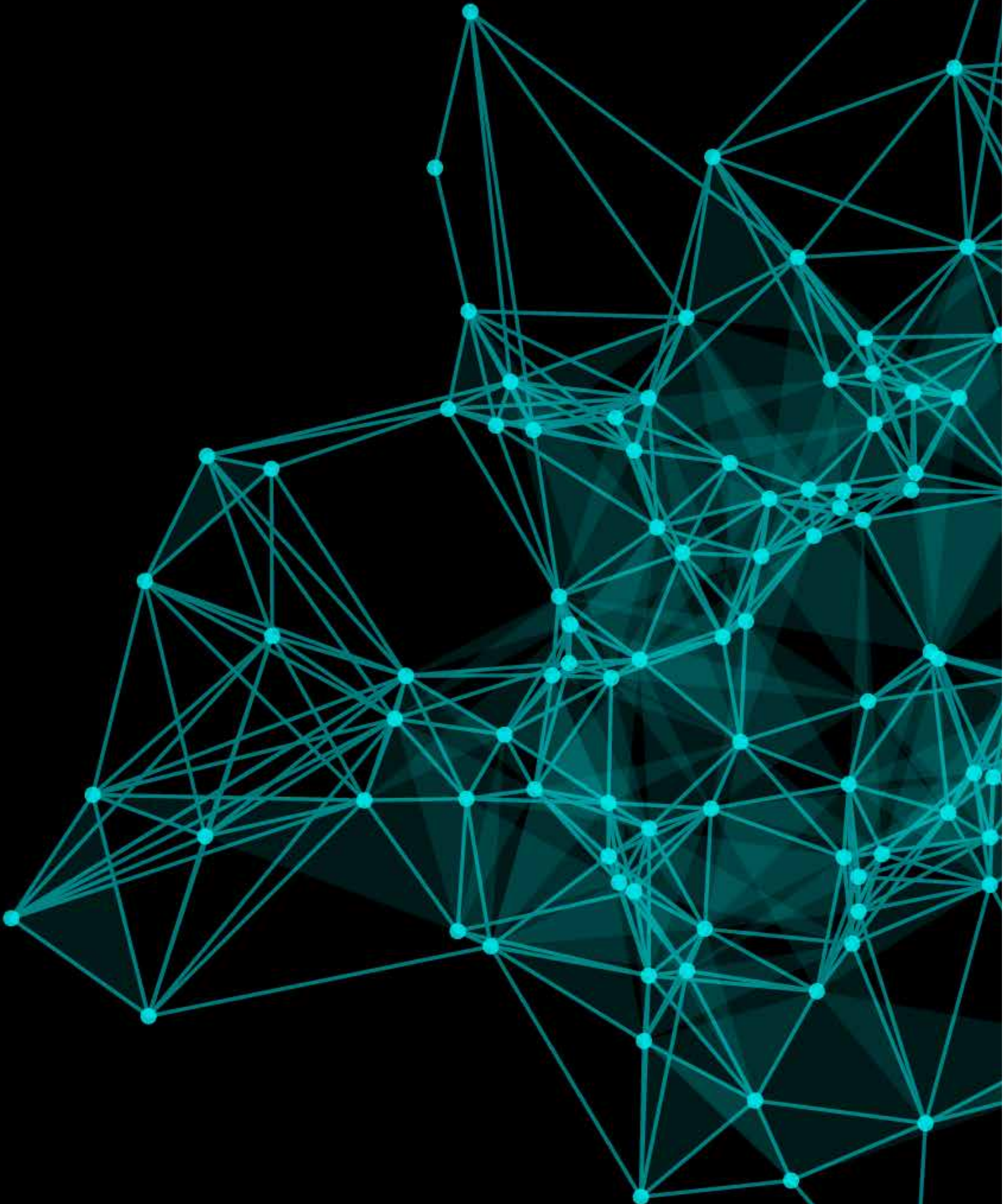
technologies including blockchain, e-wallets, and other exponential technologies to disrupt the financial landscape.

Globally, regulators face the challenge of nurturing innovation without over-regulating but at the same time protecting consumer interests. To overcome this challenge, many countries have adopted a “Regulatory Sandbox” based approach where the regulator works closely with emerging Fintech firms as well as existing financial services players in a relatively relaxed regulatory environment and gathers data from this sandbox to develop suitable regulations. The sandbox is an experimental environment where the regulator may tweak regulations, assess impact of regulatory changes and then use this data for final policy making.

In this paper, a framework for regulators to identify sandbox candidates and execute the sandbox has been presented.



Hemant Joshi



Introduction

The Indian financial services sector has undergone a significant transformation over the last few years. The sector, which has for decades been dominated by big banks and other major financial services players, is witnessing a growing popularity of Fintech firms. Not only are the Fintech startups spearheading innovation but many banks and financial institutions are also looking to explore new technologies and investing heavily in digital service delivery channels. The immense potential of this sector is clearly apparent in the global FinTech funding scenario. With more than \$17 billion funding and over 1400 deals in 2016, FinTech is one of the most promising sectors globally. With nearly \$270 million funding in 2016, India is ranked amongst the top ten FinTech markets globally.

Fintech firms have developed numerous technology solutions spanning across retail payments, lending, cryptocurrencies, financial products marketplace, credit scoring, etc. Specifically, there has been a huge upsurge in retail payments space driven by demonetization and increasing adoption of solutions offered by Fintech firms as well as NPCI (UPI, BHIM, Aadhaar Pay, USSD, etc.). Similarly, P2P lending has seen significant growth with over 30+ firms operating in this space.

Although India Stack, powered by Jan Dhan, Aadhaar & Mobile Trinity, can support incumbent banks and financial service providers, but its true power is harnessed by FinTech Companies in significantly reducing costs of acquisition and servicing. Aadhaar, which now extends to ~1.1 billion people in India can be levered for effective biometric authentication of financial transactions. It is proving to be an optimal digital identity, and it gives users the ability to securely utilize their

biometrics, when undertaking financial transactions. But despite the growth of Fintech solutions, India significantly lags other countries in terms of digital financial services penetration and there is still lot of ground to cover in terms of financial inclusion and providing banking services across the country. Presently, in India, only 52.8% of individuals have a bank account (as compared to a global average of 60.7%), and only 22.1% have ever used a payments card.² In contrast, we have over 1 billion mobile subscribers and we would have about 500 million Internet users. Given the vast network of mobile phones and limited business viability of branch banking model across many areas of the country, it is essential to develop an ecosystem that facilitates growth of mobile banking and Fintech solutions.

Fintech startups unlike other startups face additional challenges of operating in a heavily regulated industry and have stiff competition as their key competitors are well established banking players. The financial regulations have been traditionally defined keeping in mind the Banking sector players and are often not appropriate for new age products and services offered by Fintech firms. Given the nature of innovation and service delivery, Fintechs often challenge the existing regulatory frameworks as there could be ambiguities around the products and services provided by Fintech which may not appropriately get classified and addressed under the existing regulations. It is often perceived that such firms could pose potential higher risk to the financial system. However, there is also a need for fostering innovation in the system which can reduce costs for transaction, improve customer service or bring in operational efficiencies.

In order to achieve the twin objectives of nurturing financial innovation and safeguarding customer interests, several regulators across the world have built a regulatory sandbox – a sort of test environment for Fintech firms with relaxed regulatory requirements to assess their business model and impact on end consumers. The Fintech firms operate in a controlled environment for a specified period and the regulator ensures that the impact of failure is minimized with limited downside for the end consumer. The regulator closely monitors the key metrics of the sandbox and adjusts regulatory parameters on a periodic basis. After successful testing of the solutions in the sandbox, the companies are allowed to take their products to mass market based on the guidelines defined by the regulator.

The sandbox helps the regulator in developing guidelines for upcoming technologies, protect consumer interest, and being abreast with latest developments in the sector. At the same time, it also helps the Fintech firms to shorten their time to market, avoid issues related to identifying applicable legal requirements and other licensing challenges. The sandbox also helps reduce regulatory uncertainty, thereby providing an easier access to funding. Thus, the Fintech firms can focus more on the technology aspects and worry less about the regulations whereas the regulator can closely monitor and assess the developments in the sector. It fosters collaboration which furthers the interests of Fintech companies, regulators and eventually consumers.



India Fintech Landscape

The Indian Fintech landscape has seen tremendous growth in the last few years. The sector has witnessed significant investments from venture capital firms with over \$270 million invested in fintech firms in 2016. The growth of fintech has touched all aspects of financial services and made banking and finance more intuitive and empowering for customers. For service providers, technology based solutions have led to much lower customer servicing costs and also provide data for enhanced customer analytics.

The impact of fintech solutions can be seen primarily across retail payments, retail and MSME lending, cryptocurrencies and blockchain based settlement. The retail payments landscape received a major boost after demonetisation with over 307.5 million mobile wallet transactions in March 2017, a growth of over 475% over March 2016. The increasing focus of the government on digital payments and wide scale adoption of BHIM, other UPI apps and Aadhaar based payments has also helped the sector.

Another key sub-sector which is candidate for breakout growth is P2P lending. Low penetration of retail credit and faster turnaround time work as the key value proposition for

these firms. By end of 2016, there were over 30+ firms operating in the P2P lending space and the market is expected to reach \$5 billion by 2020. Cryptocurrencies and blockchain based settlements have been introduced in India but they are still in early stage of adoption. Bitcoin is the key cryptocurrency and is primarily used as an asset class rather than a means of transaction. There are multiple bitcoin exchanges operating in India and the currency is witnessing increasing customer interest due to upsurge in Bitcoin prices in recent months. For blockchain based settlements, few Indian banks along with fintech firms are working on developing a robust and scalable solution. Pilots transactions on blockchain have been executed across trade finance, supply chain & vendor financing and international remittances. Though full-scale deployment of blockchain based settlement solutions is yet to pick up, these solutions have potential to transform the clearing and settlement process and significantly reduce back-office processing costs. Globally, FinTech sector covers a vast array of businesses within financial services segments along with new emerging segments such as InsurTech - fintechs focusing on insurance. In Indian



context, fintech can be broadly aligned across the following twenty segments across six broad financial services areas. The twenty segments are described in the table below:

Table 1: Fintech Segments

Areas	Fintech Segments	Brief Description
A. Credit	1. Peer-to-Peer Lending 2. Crowd Funding 3. Market Place for Loans 4. Online Lenders – NBFCs using own capital 5. Credit Scoring Platforms	<ul style="list-style-type: none"> All forms of lending market places including Peer-to-Peer lenders and market place that connect non – institutional borrowers and with both institutional and non-institutional lenders Also, includes crowd funding and equity funding platforms NBFCs that use alternative scoring and digital channels for acquisition
B. Payments	6. M-wallets and PPIs 7. Merchant Payments and PoS Services 8. International Remittance 9. Crypto Currencies	<ul style="list-style-type: none"> Services that enable transfer of funds for various use cases - P2P (Person-to-Person), P2M (Person-to-Merchant), G2P (Government-to-Person), etc. Services targeted at both Payee and Merchants by enabling requisite payment infrastructure through mobile or other technologies
C. Investment Management	10. Robo Advisors 11. Discount Brokers 12. Online Financial Advisors	<ul style="list-style-type: none"> Wealth advisory services for mass affluent segments delivered through technology governed rules and investment strategies
D. Personal Finance Management	13. Tax Filling and Processing 14. Spend Management and Financial Planning 15. Credit Services	<ul style="list-style-type: none"> Tools and services for managing personal expenses and spends; also includes tools for tracking personal credit score and credit planning
E. Bank tech	16. Big Data 17. Blockchain 18. Customer Onboarding Platforms	<ul style="list-style-type: none"> Services that utilize many data points such as financial transactions, spending patterns to build risk profile of customer. This provides an alternate to traditional underwriting methods that are unable to serve people with limited credit data. There is significant value in unstructured data. However, it's difficult to analyze unstructured data to add value; a number of new tools are being developed to derive value from large data sets
F. Insure tech	19. Insurance Aggregator 20. IoT, Wearables and Kinematics	<ul style="list-style-type: none"> Small business insurance Usage based insurance

Fintech Firms: Emerging Areas



One of the key challenges with the global Fintech sector is that often existing regulations are not able to keep pace with the rapid technological developments. For many of the sub-sectors the guidelines or the regulations are still evolving.

Some of the emerging Fintech areas have been discussed in this Section.

Peer to Peer Lending

Peer to Peer Lending Snapshot

P2P lending firms primarily act as market place and connect borrowers to lenders. Unlike banks they do not incur interest cost associated for raising funds. So their primary source of revenue is not spread but fee income charged from both borrowers and the lenders. The borrowers are charged a fee based on their risk profile whereas lenders are charged administration fees and for other services provided by the P2P lending firm.

Given the attractive return for lenders and the ability to cater to borrowers who are not often serviced by the banks,

there has been a great deal of interest in this sector with over 30+ firms operating in this space in India in 2016. The sector is at inflection point and the market for P2P lending is expected to reach over \$5 billion by 2020.

Besides economic viability, there are several challenges with regards to customer maturity as well as financial literacy. The issues around customer protection with respect to KYC, interest rates, etc. are paramount for regulators globally in terms of increased systemic threat.

Exhibit 1: P2P Lending Market



5 The estimated market size to grow to \$ 5 billion by 2020



30 Number of Start-ups in Indian Market



35 The estimated percentage growth in the sector

Source: Deloitte Analysis

Cryptocurrency

Cryptocurrency is a currency which relies on cryptography to secure transactions and has an automated mechanism for creation of additional units of currency without involvement of any central bank.

These currencies have gained traction over the last few years and are increasingly used as an asset class as well as a mechanism for facilitating illegal transactions.

Exhibit 2: Global Bitcoin Price Fluctuations (Mar'13-Mar'17)



Source: BTC/USD - Bitcoin US Dollar

Bitcoin is the leading cryptocurrency and it gaining popularity as people are looking to invest in it as an asset class. As of May 2017, the bitcoin market size is \$34.6 billion with around 16.36 million coins in the market globally. Over the last one year (May 2016-17), the price of bitcoin in USD terms has jumped by over 300%+ making it one of the most attractive asset classes.

Given the trend in bitcoin prices, there is an increasing interest in India towards investing in Bitcoin. The Indian market has seen a surge in the usage of the virtual currency with multiple bitcoin exchanges and top players like ZebPay, Unocoin and Coinsecure recording a huge growth over the last one year.

Blockchain Based Settlements

Blockchain is the underlying technology used in cryptocurrencies like Bitcoin. While Cryptocurrencies have been more talked about usage of blockchain, there are other use cases of blockchain in areas of settlements and smart contracts. Multiple financial institutions have tested blockchain for remittance and international trade finance.

Exhibit 3: Blockchain – Savings Estimate



\$65-80bn

Global Bank Spend on Clearing and settlements

Source: SWIFT



\$15-20bn

Estimated cost saving by adoption of Blockchain settlements

According to a 2014 study by SWIFT, globally, blockchain can help reduce costs attributable to cross-border payments, securities trading and regulatory compliance by as much as \$15-20 billion per annum by 2022.

Lower transactions costs is just one aspect of blockchain technology. Blockchain backed clearing and settlements can be done in almost real time. Blockchain technology, by its nature, stores history of origin of payments, and does not allow change in the records. This feature helps build a decentralized source of truth which cannot be manipulated.

Given the huge potential of blockchain, Indian banks have also started exploring this technology. Over the last year, there have been multiple pilots executed by banks.

Table 2: Blockchain Technology use cases tested in India

October 2016	ICICI Bank	<ul style="list-style-type: none"> ICICI Bank conducted a pilot project with Dubai's largest bank Emirates NBD to execute international trade finance and remittance transactions using Blockchain
October 2016	Kotak Mahindra Bank	<ul style="list-style-type: none"> Kotak Mahindra Bank partnered with JP Morgan Singapore to test block chain trade finance solution on end to end financing
November 2016	Mahindra & Mahindra	<ul style="list-style-type: none"> Mahindra & Mahindra tested supply chain finance with help of IBM
January 2017	Yes Bank	<ul style="list-style-type: none"> Yes Bank provided Blockchain based vendor financing technology solutions to Bajaj Electricals which reduced cycle of bill discounting from 4-5 days to almost real time
January 2017	Axis Bank	<ul style="list-style-type: none"> Axis bank used Ripple's block chain technology to deliver real time international money transfers

Source: Deloitte Analysis

Though banks and regulators have carried out individual pilots, for the technology to take off different stakeholders need to come together and define the execution framework. There is huge network effect associated with this technology and any investment by a firm in infrastructure development will only be viable, if the other players join the ecosystem.



Regulatory Sandbox: The Nuts and Bolts



Regulatory sandbox provides a safe and secure environment to fledgling Fintech firms to try their ideas and test their innovations. The sandbox allows firms to operate in a live but controlled environment where some of the regulations have been relaxed. The sandbox environment has suitable safeguards to ensure that effect of failure of companies is limited and does not affect the stability of the overall financial system.

Firms and regulator work together to tweak the regulatory environment in the sandbox enabling the firms to experiment their products/offering without affecting the current financial system or compromising on customer protection. It also helps them assess the impact of regulations on their profitability and overall business model.

Operationalizing the sandbox: Typical process

Process Overview

For operationalizing the sandbox, regulator first develops broad guidelines and expectations from target companies. Applications are invited by floating a public notification.

The notification also covers the minimum eligibility criteria to shortlist respective firms for sandboxing. The eligibility criteria, though varies from a regulator to another, but it covers the following basic guidelines:

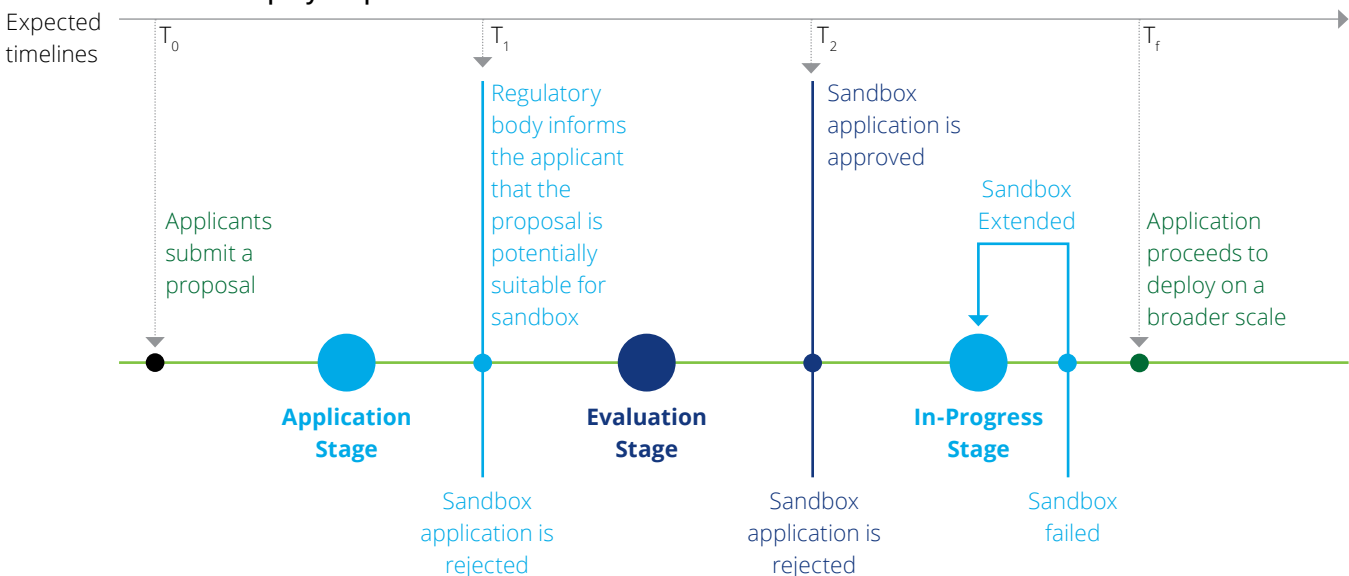
- 01. Genuineness of innovation
- 02. Direct benefits to customers

- 03. No risks to the financial system
- 04. Testing readiness of the product/ service

After receiving applications, there is a detailed evaluation process. In this process, in addition to the above mentioned eligibility criteria, applications are evaluated on business model & product offerings. More information, if required, is sorted from the innovator to clear any doubt regulatory body might have with respect to product or otherwise.

Post evaluation stage only a limited number of companies are selected. These companies are selected for a specified period during which they work closely with the regulator to assess viability of their products and services. Finally, once a company successfully exits a sandbox, it is required to submit a report and for it to go-live for broader customer base, it has to comply with all the applicable regulations.

Exhibit 4: Sandbox: Step-by-Step flow



T_0 , T_1 , T_2 , T_f are decided by regulatory bodies on case basis

Source: Deloitte Analysis

Present Framework

Reserve Bank of India (RBI), India's central bank, regulates the issue of currency and keeping of reserves with a view to securing monetary stability in India. RBI has not authorized creation of virtual currencies in India.

On 24 December 2013, RBI has cautioned the users, holders and traders of Virtual currencies (VCs), including Bitcoins, about the potential financial, operational, legal, customer protection and security related risks. The creation, trading or usage of VCs including Bitcoins, as a medium for payment are not authorised by RBI. On 1 February 2017, RBI reaffirmed the position and mentioned that it has not given any licence / authorisation to any entity / company to operate such schemes or

deal with Bitcoin or any virtual currency. Department of Economic Affairs, Ministry of Finance has on 12 April 2017, formed the inter-disciplinary committee chaired by Special Secretary (Economic Affairs) and representatives from Department of Economic Affairs, Department of Financial Services, Department of Revenue (CBDT), Ministry of Home Affairs, Ministry of Electronics and Information Technology, Reserve Bank of India, NITI Aayog and State Bank of India. The Committee would:

- i. take stock of the present status of Virtual Currencies both in India and globally
- ii. examine the existing global regulatory and legal structures governing Virtual Currencies

iii. suggest measures for dealing with such Virtual Currencies including issues relating to consumer protection, money laundering , etc.

iv. examine any other matter related to Virtual Currencies which may be relevant

Presently, considering there is no regulatory regime, virtual currencies stored in e-wallets are exposed to hacking and in the absence of any regulations, users were exposed to lack of recourse in case of any problems or disputes.³

Sandbox in Execution

Globally, regulatory sandboxes have been introduced in UK, Singapore, Australia, Malaysia and UAE. Each country has a certain "target group" for which sandboxing is done. All these countries have so far created sandboxed environment to support Financial Institutions (FIs) and fintech firms.

CASE in point

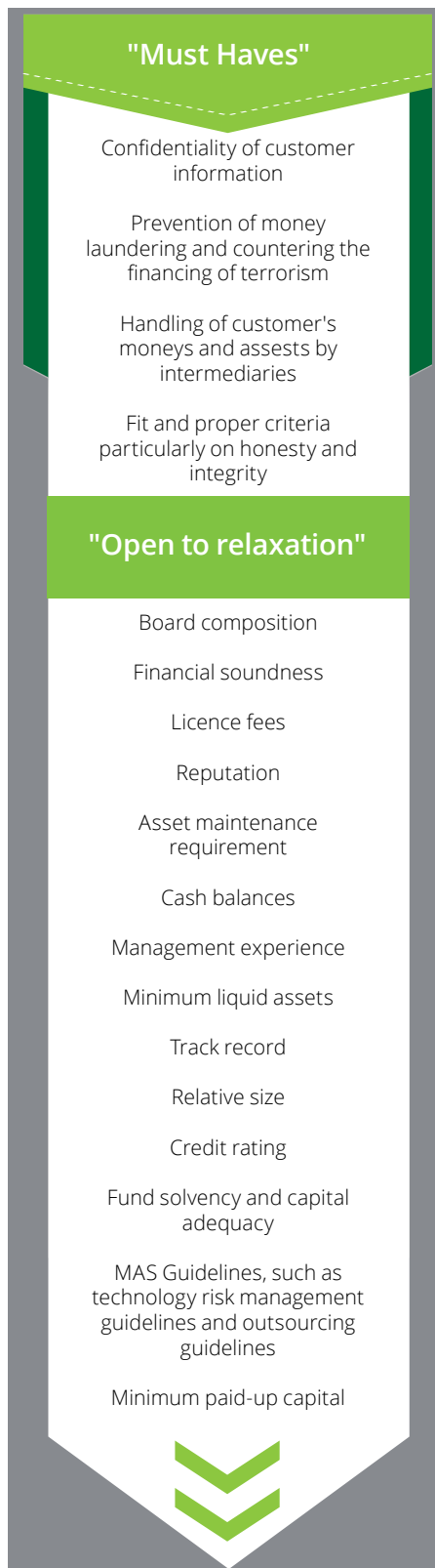
UK came up with the Innovate Program where they introduced the regulatory sandbox to support fintech firms from diversified areas and ever since it is being seen as a leader. Fintech firms are reaping fruits of good policy making and support extended to them. In the first quarter of 2017 ~\$375 million have been invested in fintech startups as compared to ~\$ 140 million during the same time in 2016. Also the number of applications for sandboxing has increased from 69 in May 2016 to 77 in January 2017. Whereas only 18 firms were selected in cohort one, 31 selections have already been announced for January 2017. For details on firms from cohort 1, refer to appendix



The sandboxes in UK & Singapore have been designed on per case basis and Australia has created an open Sandbox which is applicable to all with an option to customize for special cases. The regulators in the UK discuss the terms of product testing with applicants on an individual basis depending on the type of the project, testing goals and existing risks.⁴

The innovators are allowed to carry out their products' testing whilst complying to the minimum requirements as decided with the regulator. The regulators ask innovators to provide services to a select group generally referred to as "Control Group". The sample size of the control group is kept at statistically relevant level so that decisions could be taken later on the submission of final report. Though the innovators are free to decide the control group however they are required to get customers' consent for their participation in the testing phase by clearly issuing disclaimers explaining their state, compensation structure (in case of any loss) and duration of testing with an option to opt out at any time during the testing. Additionally, innovators are required to have minimum capital kept aside to compensate for any loss. On the customers' protection side, innovators are required to have a clearly defined grievance redressal mechanism and rights. Customers' interests are protected by making sure that innovators are in compliance with all corresponding regulations.

On product-level basis, call is taken by the regulatory body for exemptions provided to the specific offering vis-a-vis the standard practice. The whole regulatory side is covered under two heads namely as "open to relaxation" and "must haves". Open to exemption includes minimum capital requirements, board formation and similar other requirements while "must haves" includes confidentiality of customer information, AML and others. Some sandboxes take calls on case basis if a business/product does not fall directly under any regulatory body or are in "grey zone". In those cases, regulator



Source: Sandbox Requirements from Monetary Authority of Singapore (MAS)⁵

can use a 'no enforcement action' letter. This letters states that FCA has no complaints against the products or business model and is not going to take disciplinary action, as long as a firm deals with regulator openly, agrees with testing parameters and treats customers fairly. However, these letters do not bind the FCA with any obligations.

Testing duration under sandboxed environment is a function of product type, offered services and associated risks. The standard practice is of 3-12 months with an option to extend it further. If an extension is required then the sandbox entity is required to make an application to regulatory body for the required extension at least a month or two before the expiration of sandbox period. The reasons and proofs are submitted alongside the application of extension. The decision on extension is taken by the regulatory on its sole discretion.

During the testing, the regulatory bodies expect the sandboxed firms to work closely with them and submit reports on a pre-decided frequency. The focus of reporting largely remains at submitting pre-decided as monitoring factors. The monitoring factors reported by the innovators are covered under three main heads:

01. Customer Service: This head includes details around number of customers served, number of complaints received during the reporting time and steps taken to mitigate/address customers' issues. It also accounts for the number of complaints that reached regulatory ombudsman as well.

02. Operational Metrics: This head includes details around operational issues the product faced during the reporting time. Key challenges faced to resolve those issues and the current status of those challenges. This head also includes reporting of any fraud, operational inconsistencies, risks and blackouts occurred during the testing phase.

03. Business Metrics: Under this head business metrics including number of

active users, their frequency of usage, total revenue generated per user, profitability and other quantitative factors are reported.

A final consolidated report is submitted within first/first-two months post testing phase is completed. The report briefly contains information around:

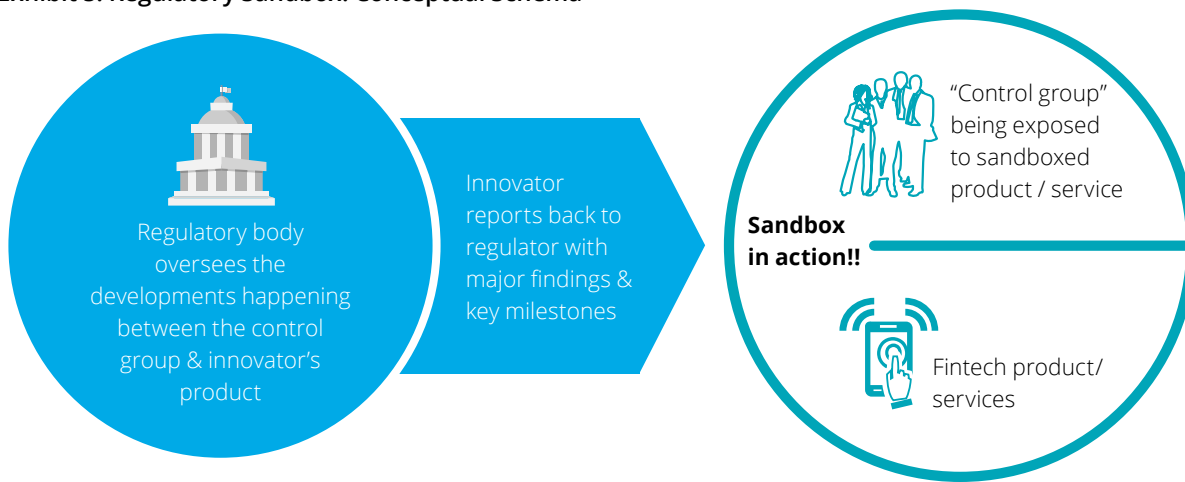
01. Key outcomes, key performance indicators against agreed measures for the success or failure of the test and findings of the test;
02. A full account of all incident reports and resolution of customer complaints; and
03. In the case of a failed test, lessons learnt from the test.

The reports are evaluated for viability of business with broader customer base. The services can be extended to rest of the customer groups if both regulatory body and the innovator are satisfied with the outcomes of sandboxing and innovator can comply with relevant regulatory requirements. On dissatisfaction or inability of the innovator to comply with the regulatory requirements can lead to discontinuance of the services. Other instances when discontinuance could be affected include breach of conduct at innovator's end or identification of a potential risk to financial system/customer protection.



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Exhibit 5: Regulatory Sandbox: Conceptual Schema



Source: Deloitte Analysis

The sandboxed entity can also opt to discontinue its services at its own discretion. Before exiting or withdrawing services the innovator is required to ensure that any existing obligation towards the customers is met. Exiting could be exercised by, but not limited to, any of the following:

01. Implement the exit plan and stop providing its products and services to new or existing customers
02. Send notifications to customers informing them of the closure of service and their rights to redress where applicable
03. Complying with obligations imposed by the regulator with regards to disposal of customer information

Key benefits of the sandbox

The potential benefits of a regulatory sandbox could be significant from:

- 01. Reduced time-to-market:** Uncertainty and delays due to regulatory landscape significantly affect the first-movers and discourage innovators to release and experiment their products. With regulatory sandbox in place and successful testing & exit can help in reducing the overall time to introduce products in market.
- 02. Better access to finance:** Most of financial products/services are heavily dependent on investments especially in form of equity funding. Regulatory uncertainty at different stages of product life cycle can lead to tougher times for innovators to raise required funds and thus resulting in stifling/stalling possible innovative products. It also leads to lower valuations as investors factor in the risks involved due to lack of clarity around the ambit of regulations. With regulatory sandbox in place, innovators can get easier access to finance as product's viability and regulatory comfort are confirmed.
- 03. Push for more innovative products:** Due to uncertainty around regulatory landscape, some innovators abandon their products/ offerings at early stage of its development without even testing

product's viability and offerings. With the sandbox framework it place more firms are empowered to manage regulatory risks during the testing stage thus resulting in more solutions being trialled and later potentially introduced to the market.

- 04. Minimizing costs:** Compliance costs in financial industry can be a huge deterrent and in fact a destructive/ fatal power for fintech startups. Presently it has been observed that large financial institutions are fined for financial misconduct or lack of oversight/ risk-management practices. Hence for newcomers it becomes imperative to be well-prepared to avoid any future difficulties. Moreover, the regulatory landscape keeps on evolving hence it becomes even more difficult for startups to keep up with the same. Thus sandboxes can be served, as launch pads for safe testing within legal barriers but free from burden and investments
- 05. Regulatory Clarity:** Regulatory sandbox allows the innovator and regulator to discuss various outcomes of the sandbox experiment. This helps both regulators as well as innovator to get a better understanding of potential future changes in regulations.

- 06. Limited failure consequences:** The protected sandbox environment allows the innovator to test out its product whilst making sure the impact of product/service failure is minimal on the financial system. Customer protection also ensures that no major leakage happens during the testing phase.

Exhibit 6: Key Benefits



Reduced time to market



Easier access to finance



Push for more innovations



Minimizing costs



Regulatory relief



Limited failure consequences



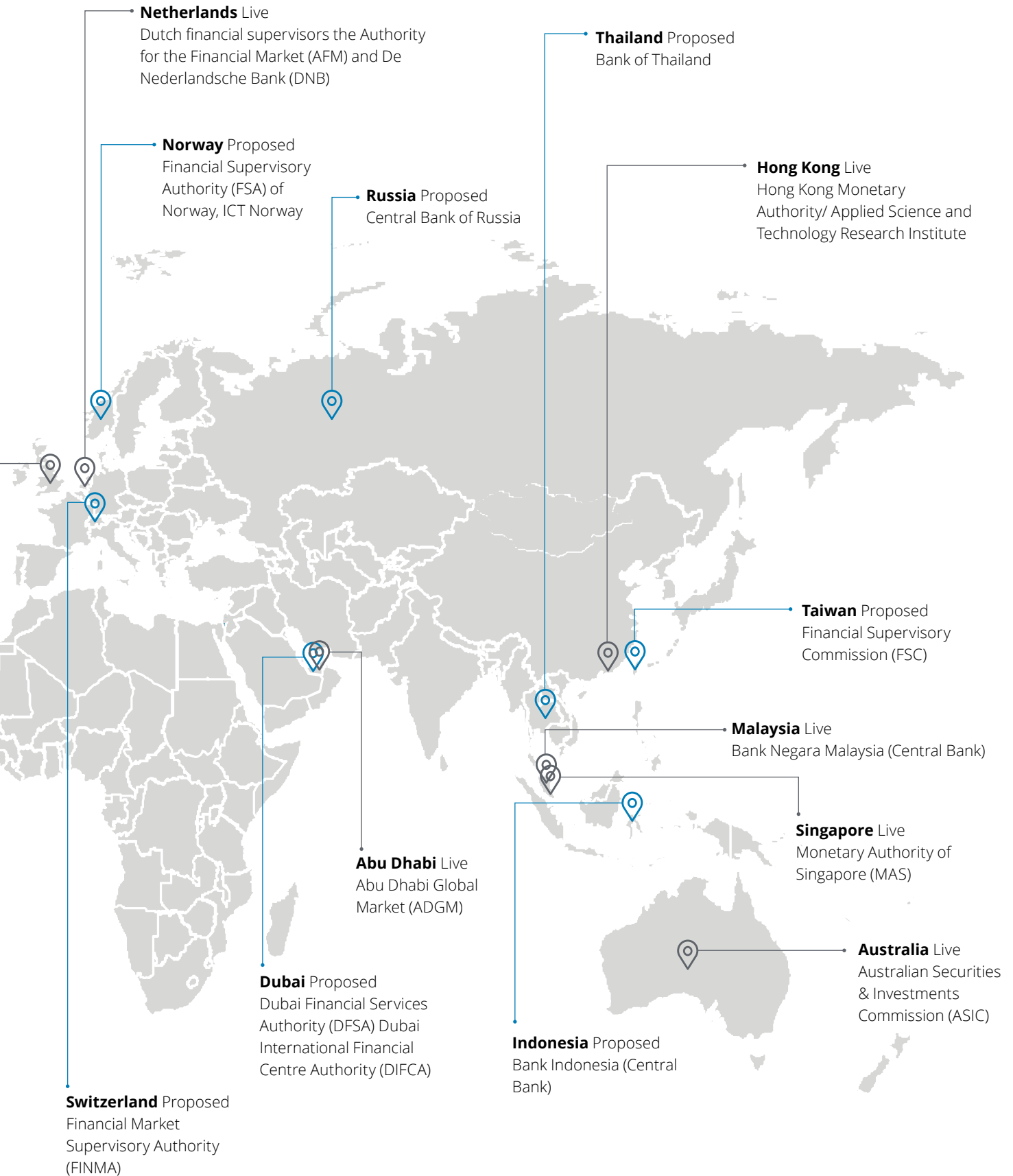
The map below shows all live and proposed regulatory sandboxes (and similar regulatory initiatives). Proposed sandboxes are ones on which a formal statement has been made by a regulatory or government body. Live sandboxes are ones which have already begun accepting applications or conducting trials.

As this is a dynamic space, the map is accurate as at time of publication.

Exhibit 7: Global regulatory sandboxes - Live and Proposed



Source: Deloitte Analysis



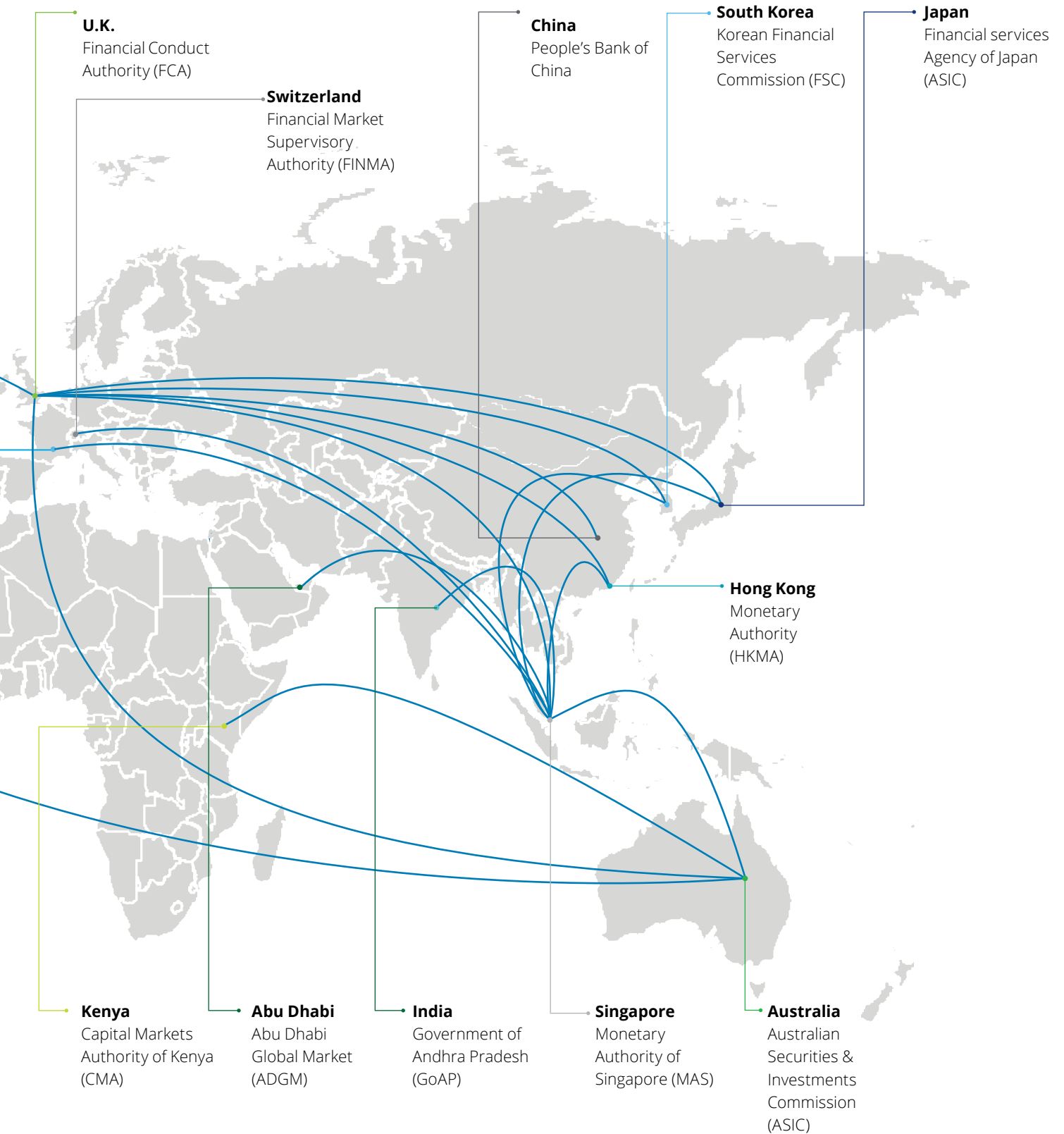
Since March 2016, a number of regulators have signed co-operation agreements to “enable the regulators to share information about financial services innovations in their respective markets, including emerging trends and regulatory issues” and help FinTechs in their region to scale internationally. The map below shows all the formal co-operation agreements between regulators.

Exhibit 8: Cooperation Agreement across Regulators



Location	Agreements with other regulators (In order of agreement date)
Abu Dhabi	1: Singapore
Australia	4: UK, Singapore, Canada, Kenya
Canada	2: Australia, UK
China	1: UK
France	1: Singapore
Hong Kong	1: UK
India	1: Singapore
Japan	2: UK, Singapore
Kenya	1: Australia
Singapore	8: UK, Korea, India, Switzerland, Australia, Abu Dhabi, Japan, France
South Korea	2: Australia, UK
Switzerland	1: Singapore
UK	7: China, Singapore, Korea, Australia, HK, Canada, Japan

Source: Deloitte Analysis



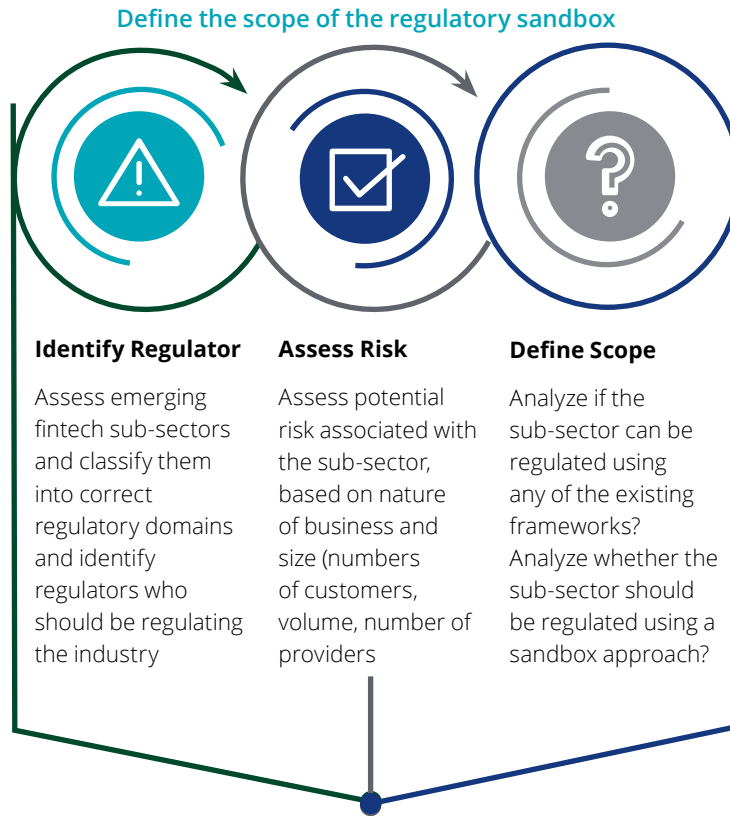
The Way Forward



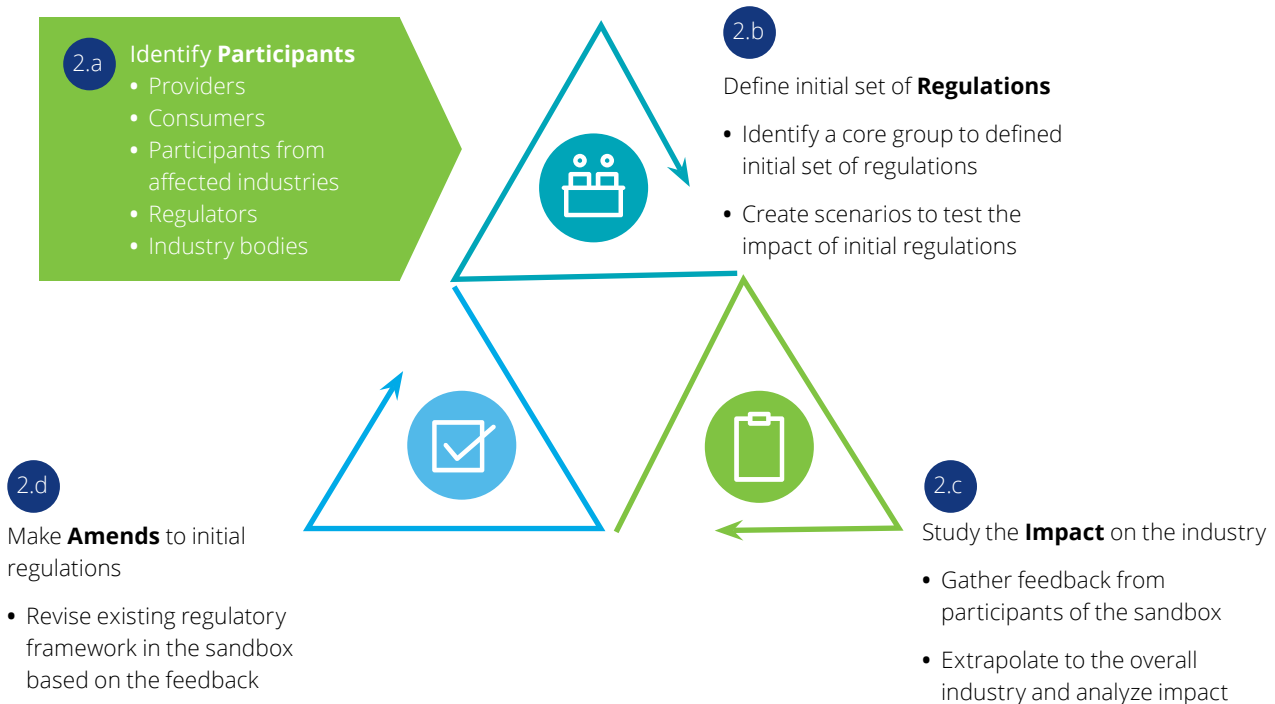
While FinTech innovations have helped in proliferation of formal financial ecosystem to a larger part of the society, they have created a number of challenges for financial regulators globally. Most of the providers in this space exist at the intersection of technology and finance, and often follow a market place model, owning minimum risk on their books. In other cases risk presented by these firms is different from core financial services providers. Several regulators have been proactive in addressing these risks and

have started taking steps to regulate areas such as digital wallets and P2P lending, however, there is still a lot to be done. A regulatory sandbox can be the way forward to address the uncertainty around FinTech regulations, build investor confidence and foster innovation. A two-step framework consisting of initial feasibility analysis and implementation of the sandbox has been created to help the regulators set up a regulatory sandbox.

Exhibit 9: Framework for feasibility analysis and implementation of sandbox



Define the outline and implement the regulatory sandbox to create a framework under which fintechs can operate



Source: Deloitte Analysis





01. Define the scope of the Sandbox

A. Identify Regulators: Many fintech firms span across the domains of existing financial regulators – Banking, Insurance, Securities, Telecom, Corporate Law regulators, etc. Additional complexity of these companies being technology companies warrant additional regulatory oversight. Therefore the first step in defining the scope of the sandbox would be to classify the industry into broad buckets of regulatory domains and identify relevant regulators to the industry.

B. Assess Risk: Assess the risk associated with the industry to identify the right businesses to be regulated through the sandbox. Risk could be a function of nature of the business of the startup or the scale of the industry which multiplies the inherent risk associated with the industry. Scale of the business is a function of numbers of customers catered to, volume and value of transactions, and number of providers in the industry.

Sandbox should be used to formulate regulations for fledging sub-sectors which have potential to transform financial service delivery models and have moderate to high risk. Industry with low risk do not warrant the resources to revise and implement regulatory guidelines as issues can be handled on a case by case basis.

Additionally, sub-sectors that have already achieved scale should not be subject to regulatory sandboxing. The sandbox

approach cannot be a substitute for bypassing regulations.

C. Define Scope: Scope of the sandbox should be defined based on genuineness of innovation, and whether the service or product can be governed by existing regulations. Disruptive innovation that pose new challenges to regulators should form a part of the sandbox in order to create a regulatory infrastructure that can help foster innovation, while protecting the interests of all market participants.

02. Define the outline and implement regulatory landscape: Once the scope of the sandbox has been defined, the next step would be to define the outline of the sandbox and implement the sandbox.

A. Identify Participants: While identifying participants it should be ensured that participants of different sizes and scale are represented in the sandbox, in order to ensure that monopolistic policies are kept at bay. Additionally, it is important that inputs are gathered from substitute, upstream and downstream industries in order to protect their interests.

Government and Industries bodies should be brought to fore, to increase awareness amongst startups and increase participation in the sandbox. Prominent incubators should also be partnered with to create a robust ecosystem.

B. Define initial set of Regulations: A committee representing all sandbox participants should be created to assist regulators in defining initial regulations. It

should be ensured that initial regulation do not increase regulatory burden on the providers to an extent of making the business unviable. While framing the regulations, aspects such as governance, business continuity planning, customer interface, and reporting requirements should be taken into account.

The focus in the initial stages should be to define the broad outline. Consumer interest should be protected through a grievance redressal mechanism and not through robust regulatory framework to start with.

Along with regulation, multiple scenarios to test the impact of these regulations should also be identified to facilitate impact assessment.

C. Study the Impact on the industry: While assessing the impact on the industry, impact on substitute, upstream and downstream industries should also be analyzed. Insights from customer grievances should act as a conduit to revise and strengthen initial set of regulations. Various scenarios should be stress tested and necessary modification should be made to the regulations to address any adverse situation.

D. Make Amends to initial regulations: Regulatory amendments should be incremental and should not stifle the providers. On the other hand gradual regulatory changes, would retain investor confidence and minimize business risk.

Appendix

List of firms under the UK regulator FCA's first sandbox

Firm	Description
Billon	An e-money platform based on distributed ledger technology that facilitates the secure transfer and holding of funds using a phone based app.
BitX	A cross-border money transfer service powered by digital currencies / blockchain technology.
Blink Innovation Limited	An insurance product with an automated claims process, which allows travelers to instantly book a new ticket on their mobile device in the event of a flight cancellation
Bud	An online platform and app which allows users to manage their financial products, with personalized insights, on a single dashboard. Bud's marketplace introduces relevant services which users can interact with through API integrations.
Citizens Advice	A semi-automated advice tool which allows debt advisers and clients to compare the key features of available debt solutions.
Epiphyte	A payments service provider that aims to provide cross-border payments using blockchain technology.
Govcoin Limited	A technology provider that has partnered with the Department for Work and Pensions (DWP) to determine the feasibility of making emergency payments using means other than cash or the Faster Payments Scheme. The payments platform will use blockchain to allow the DWP to credit value to a mobile device to transfer the value directly to a third party.
HSBC	An app developed in partnership with Pariti Technologies, a FinTech start-up, to help customers better manage their finances.
Issufy	A web-based software platform that streamlines the overall Initial Public Offering (IPO) distribution process for investors, issuing companies and their advisors.
Lloyds Banking Group	An approach that aims to improve the experience for branch customers which is aligned with the online and over the phone experience.
Nextday Property Limited	An internet-based property company that will provide an interest free loan for a guaranteed amount to customers if they are unable to sell their property within 90 days.
Nivaura	A platform that uses automation and blockchain for issuance and lifecycle management of private placement securities.
Otonomos	A platform that represents private companies' shares electronically on the blockchain, enabling them to manage shareholdings, conduct book building online and facilitate transfers.
Oval	An app which helps users to build up savings by putting aside small amounts of money. These savings can then be used to pay off existing loans early. Oval will be working with Oakam, a consumer credit firm, and a number of their customers during the test period.
SETL	A smart-card enabled retail payment system based on their OpenCSD distributed ledger.
Tradle	An app and web-based service that creates personal or commercial identity and verifiable documents on a distributed ledger. In partnership with Aviva they will provide a system for automated customer authentication.
Tramonex	An e-money platform based on distributed ledger technology that facilitates the use of "smart contracts" to transfer donations to a charity.
Swave	A micro savings app that provides an across-account view; enables a round-up service every time a user spends money and calculates an affordable savings amount based on the user's spending behavior.

Source: FCA

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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.

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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.

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