



TRANSATLANTIC

POLICY WORKING GROUP FINTECH

The Future of RegTech for Regulators

Adopting a Holistic Approach to a
Digital Era Regulator

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The purpose of the TPWG is to foster an open, collaborative, and inclusive dialogue with respect to FinTech policy approaches and frameworks in the UK, US, and around the world. The goal is to help advance policies that foster responsible FinTech innovation through information sharing and the exchange of global best practices.

Set up by Innovate Finance alongside our US partners in 2016, the group will respond to cross-sector FinTech issues, engage key public policy stakeholders, and facilitate debate on the key policy issues shaping the development of FinTech globally.

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Overview

In much the same way technological developments are fundamentally changing the nature of industries from transport, to telecommunications and travel, we are beginning to see a shift in the composition of financial markets, services and institutions. At the crest of this wave sits the growth of financial technology, popularly known as "FinTech." FinTech in the United States and other western markets has focused on a number of core areas from digitizing payments and expanding access to alternative finance, to the provision of automated financial advice.¹ This trend has been characterized as a "disruption" to traditional retail financial services, however, as this wave has sought to "unbundle" services from universal banking, it has also led to new challenges and opportunities for regulators globally.

In order to address this sea-change, financial regulators have had to scramble to both understand new technology underlying financial products and services and, in some cases, grapple to understand entirely new products. FinTech has generally been greeted warmly, as it has the potential to increase the penetration of financial services into unbanked and underbanked markets, but the financial regulators must always ensure the safety and soundness of the financial system, as well as the potential for consumer harm. The US has lagged behind some of its international counterparts, but has demonstrated a more open mind toward financial innovation in the last few years.

Consumer-facing FinTech has received most of the attention from the public, but behind the scenes, RegTech has been generating conversation and excitement. Regulatory technology, or RegTech, has been broadly defined by the United Kingdom Financial Conduct Authority (the "FCA") as "a sub-set of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities."² In this paper, we are looking at how RegTech can be adopted and integrated into the financial regulatory framework in order to provide more efficient, flexible, and accurate data to ensure the compliance of regulated entities and the safety and soundness and stability of the US and global financial systems. A holistic approach, which provides for a more accepting and tech-savvy financial regulatory culture, a more flexible and forward-thinking infrastructure, and new or revised technology-focused statutes and regulation, provides the best option for a fully RegTech-integrated financial regulatory system.

This paper provides insight into the current global FinTech and RegTech initiatives, which can act as inspiration or instruction for the United States. This paper does not seek to endorse any particular technology or approach, but simply to provide a resource for better understanding the current state of FinTech and, particularly, RegTech, and the options for achieving better integration of technology into the financial regulatory framework. We outline a framework, which can be used together or separately, but is also sequential, to stimulate conversation and innovation.

These are: (i) the **"Ecosystem"** approach, (ii) the **Digital Financial Infrastructure** ("DFI") approach, and (iii) the **Rule and Process Change approach**. Each will be addressed with examples of their implementation from around the world. We also examine sandboxes—both regulatory and industry—which are increasingly being used as a means to support growth of emerging sectors, such as the FinTech sector, and can be a RegTech tool for financial regulators to develop understanding and to provide limited regulatory relief.

It is the argument of this paper that in outlining such a technology-led approach to innovation, we may begin the process towards simplifying some regulatory complexity, while continuing to safeguard consumers and markets. Central to this position, is the view put forward in a recent paper entitled *FinTech, RegTech and the Reconceptualization of Financial Regulation*,³ in which its authors suggest that the transformative potential of technology will only be fully captured by a new digitally-enabled regulatory framework, which equips regulators with the necessary tools required to respond to the increasingly digital nature of global finance.

These tools, driven by the growth of FinTech and the emerging RegTech sector, may provide the means by which we see a drive towards an open and agile regulatory environment. In this sense as the nature of financial services shifts, so too must the ability for regulators to appropriately adopt the technology, tools and processes necessary to safeguard the financial markets.

¹ Citi GPS: Global Perspectives & Solutions, How FinTech is Forcing Banking To a Tipping Point, CITI BANK (Mar. 31, 2016), <https://www.privatebank.citibank.com/home/fresh-insight/citi-gps-digital-disruption.html>.

² Financial Conduct Authority, Call for Input on Supporting the Development and Adopters of RegTech, FEEDBACK STATEMENT 3 (Jul. 2016), <https://www.fca.org.uk/publication/feedback/fs-16-04.pdf>.

³ Douglas W. Arner, et al., *FinTech, RegTech and the Reconceptualization of Financial Regulation*, (forthcoming NW J. OF INT'L LAW & BUS.) (manuscript at 38) (Oct. 2016), <http://www.fsroundtable.org/wp-content/uploads/2017/05/Douglas-W.-Arner-FinTech-RegTech-and-the-Reconceptualization.pdf>.

I. Introduction: America's Complex Financial Regulatory Landscape

The US financial regulatory system is complex and interwoven, especially in comparison to many of its international counterparts. Multiple state and federal regulators are responsible for overseeing financial institutions and maintaining the stability and resilience of the US financial system (see Figure 1 and table, below).

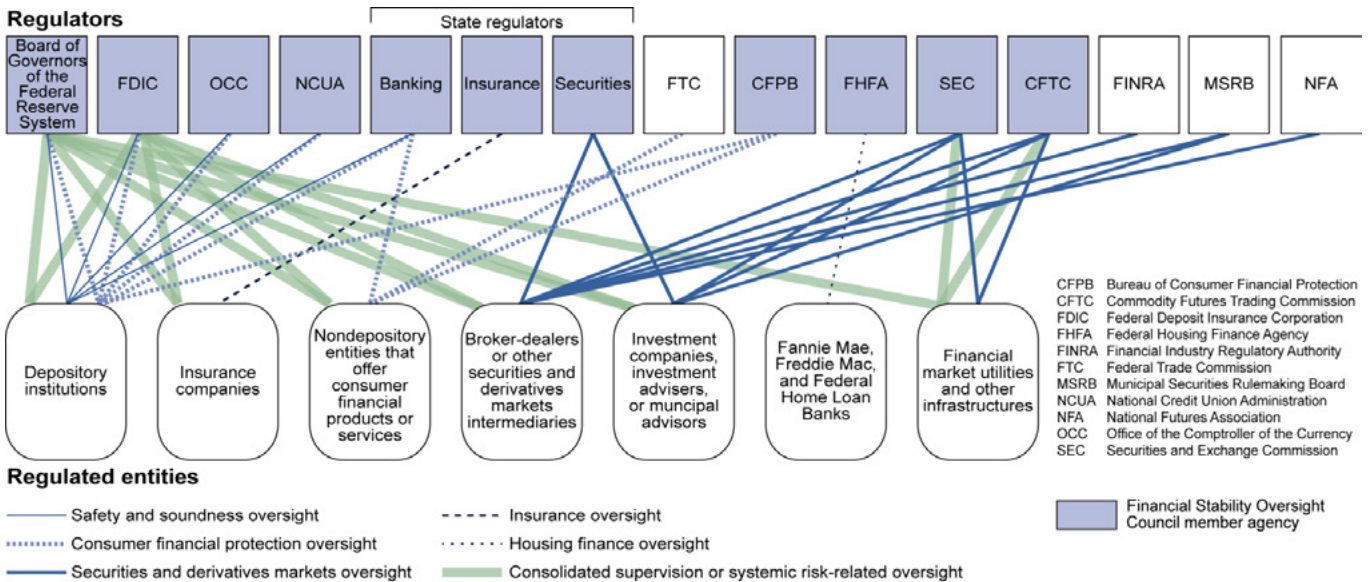
At the federal level, the OCC, CFPB, and CFTC have all announced programs to encourage FinTech companies to enter the market. The Federal Reserve is devoting resources toward modernizing the nation's payment systems. The SEC has signaled an interest in FinTech, but does not currently have a formal program. The FDIC has similarly stated its interest in FinTech, generally, but has not implemented or proposed any programs. The NCUA is responding to the growth of FinTech through some rule changes arguably designed to protect its market share. It remains to be seen whether these efforts will have a demonstrable effect on the growth of FinTech in the US given the lack of coordination among the regulators.

The 50 states, meanwhile, have been much more active in the FinTech space. The growth of the FinTech industry has been a boon to states, as it has placed the states on the cutting edge of financial technology, as

well as provided access to additional fees and assessments from the resulting increase in licensed entities. The states are meant to be laboratories in the United States and the broad arena of FinTech is no exception. In addition to the fact that the FDIC has been reticent since the financial crisis to insure new depository institutions (there have been only five *de novo* bank applications approved by the FDIC between 2009 and 2017), many FinTech companies do not want the increased compliance burden applicable to insured depository institutions. This has left the field open to states' licensing schemes for the provision of nonbank financial services. In fact, the state banking regulators have signaled their unwillingness to share this space by recently filing suit against the OCC alleging that the OCC's proposed FinTech charter (discussed further, herein) is outside the scope of the OCC's authority.

Overall, while the federal regulators have mostly taken a wait and see approach that could leave them behind, the states have been avid participants in the burgeoning FinTech industry and are fostering relationships within the industry in order to better understand the potential opportunities and pitfalls present in the integration of technology into both financial services and regulation.

Figure 1
U.S. Financial Regulatory Structure, 2016



U.S Federal Financial Regulators	Roles, Responsibilities and Governance
The Office of the Comptroller of the Currency (the "OCC") (1863)	The OCC charters, regulates, and supervises national banks and federal savings associations, as well as federal branches and agencies of foreign banks. The OCC is headed by the Comptroller of the Currency. The Comptroller is a political appointee, the only such position in the agency.
The Board of Governors of the Federal Reserve System (the "Federal Reserve Board") (1913)	<p>The Federal Reserve Board is the central bank of the United States. It was created by Congress to provide for a safer, more flexible, and more stable monetary and financial system.</p> <p>The Federal Reserve performs a number of functions. It administers the nation's payment systems and is also in charge of America's monetary policy with the objective to: (i) maximize employment, (ii) stabilize prices, and (iii) moderate long-term interest rates.</p> <p>The Federal Reserve is the "lender of last resort" in times of crisis, providing depository institutions access to the Federal Reserve's Discount Window in the event of liquidity shortages.</p> <p>The Federal Reserve also supervises and regulates bank holding companies and savings and loan holding companies and is the primary federal regulator for state-chartered depository institutions that choose to be members of the Federal Reserve System.</p> <p>The Federal Reserve Board is an independent agency with a seven member Board of Governors. The Governors are political appointees appointed for 14-year staggered terms.</p> <p>In addition to the Federal Reserve Board, the Federal Reserve System is comprised of twelve separately incorporated regional (District) Federal Reserve Banks, each with its own board of directors and president. Banks that are members of the Federal Reserve System hold stock in the Reserve Bank in their District.</p>
The Federal Deposit Insurance Corporation (the "FDIC") (1933)	<p>The FDIC was created by Congress following the Great Depression for the purpose of maintaining stability and public confidence in the US financial system. It insures deposits up to \$250,000 per depositor, per insured institution, through the Deposit Insurance Fund. The FDIC is also the primary federal regulator of state-chartered depository institutions that are not members of the Federal Reserve System.</p> <p>The FDIC is an independent agency that is headed by a Chairman, who is a political appointee. The FDIC's Board of Directors includes the FDIC Chairman, its Vice-Chairman, the Comptroller of the Currency, and the Director of the CFPB.</p>
The National Credit Union Administration (the "NCUA") (1970)	The NCUA charters, regulates, and supervises federal credit unions. It also operates and manages the National Credit Union Share Insurance Fund, which provides deposit insurance for all federal credit unions and most state-chartered credit unions. The NCUA has a bi-partisan three member board, headed by a Chairman.
The Consumer Financial Protection Bureau (the "CFPB") (2011)	<p>The CFPB was created by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 in response to the abuses showcased in the financial crisis. The CFPB implements the federal consumer financial laws. It also directly supervises depository institutions with more than \$10 billion in total assets with regard to compliance with the federal consumer financial laws. The CFPB also directly supervises certain non-depository providers of consumer financial services for compliance with these laws.</p> <p>The CFPB was created as an independent agency within, and funded by, the Federal Reserve. The CFPB is headed by a Director.</p>
The Securities and Exchange Commission (the "SEC") (est. 1934)	<p>The SEC oversees the nation's capital markets. Its mission is threefold: (i) protect investors, (ii) maintain fair, orderly, and efficient markets, and (iii) facilitate capital formation.</p> <p>The SEC supervises and regulates publicly traded companies, and has some disclosure obligations for non-public companies. It has a bi-partisan commission consisting of five members, headed by a Chairman.</p>
The Commodity Futures Trading Commission (the "CFTC") (1975)	<p>The CFTC regulates the futures and options markets, and the derivatives thereof. The CFTC's mission is "to foster open, transparent, competitive, and financially sound markets, to avoid systemic risk, and to protect market users, their funds, consumers and the public from fraud, manipulation, and abusive practices."</p> <p>The CFTC has a bipartisan five-member commission, headed by a Chairman.</p>
US State Financial Regulators	<p>Each of the 50 states has the authority to charter depository institutions that can be insured by the FDIC, which the appropriate state banking agency then regulates and supervises along with the FDIC or the Federal Reserve as a primary federal regulator.</p> <p>The individual states also regulate and license providers of non-bank financial services, such as lending, loan servicing, debt collection and money transmission.</p>

This paper suggests a framework that would further the development and integration of innovative changes, including RegTech, into the US financial system. While the approaches outlined below are appropriate for any one regulator, Congressional action will likely be required in order to create a truly favorable ecosystem for RegTech.

II. The State of RegTech: Now and in the Future

The field of RegTech has so far largely targeted 'process automation' – i.e. improving inefficiencies within regulatory reporting and using technology to ease the burden of compliance. This is understandable given that approximately \$80 billion is spent globally on governance, risk and compliance, with the market expected to reach \$120 billion in the next five years.⁴ Moreover, this reflects the rising regulatory burden we have seen since the global financial crisis of 2008, whereby developed markets have seen a 492% increase in regulatory changes between 2008-2015, with a particular emphasis on compliance with anti-money laundering (“AML”) and consumer protection rules.⁵

Recent investment data further supports this assertion, highlighting that RegTech companies globally raised \$238 million across 34 deals in the opening quarter of 2017 – representing 102% growth in total funding to the sector from Q1 2016. Moreover, the share of investments in Q1 2017 were broadly spread over companies covering: compliance (59%), anti-fraud (29%), and reporting (12%) which indicates RegTech as a driver for process automation is the primary driver for investment in the space.⁶

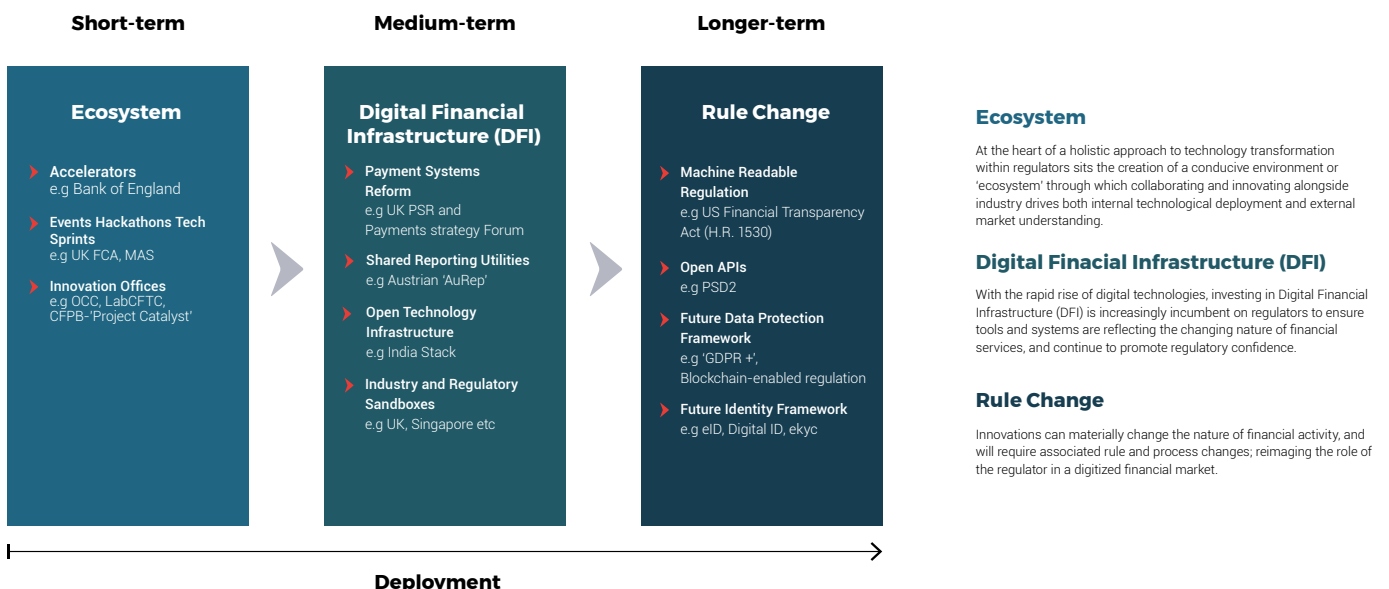
Many of the technologies deployed to improve industry compliance – from predictive analytics, to Application Programming Interfaces

(“API”), blockchain and Cloud-based software – could be similarly applied to assist regulators. Thus, the FCA's definition of RegTech is incomplete, as it does not contemplate the other side of the RegTech coin: integrating technological innovation into both industry and regulators to increase efficiency and effectiveness. While RegTech is certainly a means to address process automation, it also represents a broader promise to encourage a 'systems evolution' or redesigning of the regulatory architecture including DFI, which may include anything from payment systems to shared reporting utilities. Furthermore, augmenting the role of regulators with a technology-friendly approach to regulation might help to reduce complexity, improve oversight, and allow for regulators to better monitor systemic and local risk in an increasingly data-driven world.

RegTech Framework

This paper seeks to outline what a broader approach to technology transformation within regulators could encompass. As such, a framework has been created for regulators seeking to assess their drive towards becoming leaders of digital change by looking at how they develop their **Ecosystem, Digital Financial Infrastructure (DFI)**, and help to promulgate **Rule and Process Change**.

A holistic Approach to a Technology-led Regulator: Global Examples



⁴ Elena Mesropyan, RegTech Companies in the US Driving Down Compliance Costs to Enable Innovation, LET'S TALK PAYMENTS (Feb. 25, 2017), <https://letstalkpayments.com/regtech-companies-in-US-driving-down-compliance-costs-innovation>.

⁵ Kabir Kumar, The Real Promise of Regulatory Technology, TECH CRUNCH (May 9, 2017), <https://techcrunch.com/2017/05/09/the-real-promise-of-regulatory-technology/>

⁶ FinTech Global, RegTech Investments in Q1 More Than Doubled YoY, as Interest in Compliance Software Picks Up, FINTECH GLOBAL (May 22, 2017), <http://fintech.global/regtech-investments-in-q1-more-than-doubled-yoy-as-interest-in-compliance-software-picks-up/>.

III.

The Ecosystem Approach

At the heart of a holistic approach to financial regulatory technological innovation and transformation within regulators sits the creation of an environment or “ecosystem” conducive to innovation and collaboration with industry. This ecosystem drives both internal technological deployment and external market understanding. Examples of tools to foster the ecosystem include regulators sponsoring and experimenting through ‘Hackathons’, Proofs of Concept (“POC”), ‘Techsprints’, accelerators and other events - building relationships directly with financial incumbents, FinTechs, and academia. Nurturing a healthy ecosystem in turn enables a free flow of ideas, technology and talent, which is central to the role of a forward-thinking financial regulator.

a. International Ecosystem approaches

i. Singapore

The Monetary Authority of Singapore’s (“MAS”) work in regulatory and financial innovation provides an illustration of an ecosystem-led approach. The financial services sector is a key driver of economic growth in Singapore. According to the Department of Statistics Singapore, the finance and insurance sector contributes 13.1% of the economy in terms of nominal - value add to GDP,⁷ and represents one of the biggest growth drivers; contributing 25-30% of the GDP growth in the past 4-5 years.⁸

Set against this backdrop is the increasingly activist role played by its central bank, the MAS. As part of its vision for a ‘Smart Financial Centre’, MAS has focused on the importance of “an ecosystem where people can connect and collaborate.”⁹ In doing so, the Singaporean regulator started by directing efforts within its own four walls:

- It formed a new ‘FinTech and Innovation Group’ (“**FTIG**”), under a Chief FinTech Officer, working with the financial industry, as well as FinTechs to help foster innovation in financial services.
- Launched the Financial Sector Technology & Innovation (“**FSTI**”) Scheme, committing S\$225 million over five years - providing investments, grants and rebates to help support a vibrant FinTech ecosystem; and
- In 2016, together with the National Research Foundation (“**NRF**”) set up a FinTech Office to provide a single point of access for all FinTech matters.

Importantly, creating the bedrock for an innovation ecosystem is a shared endeavor, with the Monetary Authority of Singapore playing the role of a “facilitator”.⁵ This is made clear through the multifaceted approach MAS has taken in embedding itself with the most forward-thinking companies. And includes opening a purpose-built innovation lab called “Looking Glass @MAS” - promoting collaboration with industry, and running Hackathons to tackle industry-wide problems from: secure digital authentication, to stream-lined AML processes, and a consolidation of Know-Your-Customer (“**KYC**”) information.

ii. United Kingdom

The Bank of England (“BoE”) equally illustrates the importance of an ecosystem-led approach to regulatory innovation. The BoE has a somewhat different remit to MAS. The BoE, is a prudential regulator, the world’s oldest central bank, and plays a systemic role in global monetary flows. Yet, this historic institution has also accepted the need to engage with innovators, to test and deploy new technologies and approaches. This ambition is neatly summed up by Andy Haldane, the BoE’s Chief Economist:

“I have a dream. It is futuristic, but realistic. It involves a Star Trek chair and a bank of monitors. It would involve tracking the global flow of funds in close to real time, in much the same way as happens with global weather systems and global internet traffic. Its centerpiece would be a global map of financial flows, charting spillovers and correlations.”¹⁰

In part, this vision is being realized through the establishment of the Bank of England’s *FinTech Accelerator* (the “**Accelerator**”). The Accelerator enables the BoE to work in partnership with firms, utilizing new technologies to explore how innovations could be used in central banking. Moreover, the BoE has also created a community of FinTech-related organizations including Innovate Finance, with the aim of sharing developments, trends and insights so that firms across the sector can learn from each other. In developing this ecosystem, the BoE not only improves its own intelligence gathering, but through POCs, is working tangibly with the industry on a number of priority areas to support the BoE’s activity.¹¹

Some of the latest POC trials to emerge from the Accelerator include:

- A Real Time Gross Settlement (“**RTGS**”) Payments pilot with Ripple. This engagement seeks to demonstrate the

⁷ DEPT. OF STATISTICS SINGAPORE, SHARE OF NOMINAL GROSS VALUE ADDED, BY INDUSTRY (SSIC 2015) ANNUAL, available at <http://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=12378> (last updated Jan. 3, 2017).

⁸ Straits Times, Singapore’s Financial Services Sector Resilient Amid New Challenges, STRAITS TIMES (Mar. 16, 2016, 5:00 AM), <http://www.straitstimes.com/bUSINESS/banking/picture-of-resilience-amid-new-challenges>

⁹ Ravi Menon, Managing Dir. Monetary Auth. of Sing., Speech at Singapore FinTech Festival (Nov. 16, 2016) (transcript available at <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2016/Singapore-FinTech-Journey.aspx>).

¹⁰ Andy Haldane, Chief Economist, Bank of Eng., Speech at the Maxwell Fry Annual Global Finance Lecture 10 (Oct. 29, 2014) (transcript available at <http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech772.pdf>).

¹¹ Bank of England, FinTech Accelerator, BANK OF ENG., <http://www.bankofengland.co.uk/Pages/fintech/default.aspx> (last visited Jun. 16, 2017).

synchronized movement of two different currencies across two different real-time gross settlement systems. It comes as the BofE works towards a 2020 timeframe for the overhaul of the country's current settlement system.

- Reforming regulatory data input with MindBridge. This effort brings together MindBridges 'AI auditor' which detects anomalies in financial transactions and reports, which the BofE then uses alongside the benefits of machine learning to analyse the quality of data input. The Accelerator demonstrates that an ecosystem-led approach to innovation may naturally lead to investment in DFI and so provides a crucial building block from which more tailored, technology-enabled change might take hold.

b. United States Ecosystems

The US federal financial regulators are currently struggling to catch up, both to their international counterparts and to the 50 individual states, in terms of pursuing an ecosystem approach. The federal prudential regulators are cautious by nature, as their purpose is to ensure the safety and soundness of the institutions they supervise, as well as the US financial system, as a whole. This means that potentially transformative technology is rightly treated with skepticism and calls for more information, rather than open arms. The federal regulators are becoming more comfortable with the new products and services and the industry shift to focus on technology. However, there is a current lack of coordinated effort in large part due to the differing regulatory missions and authorities. Congressional action likely will be required to facilitate an integrated ecosystem.

i. OCC Office of Innovation

The OCC has taken the lead among federal financial regulators through its creation of Offices of Innovation in Washington, New York, and San Francisco. The Offices of Innovation are meant to be used as a type of "office hours" for the FinTech industry and the OCC to share information. The OCC coined the phrase "responsible innovation," which is now being used throughout the industry to signal the desire to encourage and adopt new technology while ensuring compliance with the financial laws and protecting the safety and soundness of the financial system. The Office of Innovation has a broad mandate and is not limited to reviewing FinTech proposals. The OCC is hoping to remain engaged with all types of innovative ideas for the future of the financial system, including RegTech solutions.

The most exciting "responsible innovation" is the OCC's proposed special purpose national bank charter for FinTech companies, which was announced in December 2016.¹² In its white paper detailing the proposal, the OCC stated that FinTech companies engaged in the

"business of banking" would be eligible for a special purpose national bank charter, which would provide federal preemption and the increased clout that comes with being a bank, while also imposing regulatory requirements commensurate with that status.¹³ The "business of banking" includes (i) taking deposits, (ii) cashing checks, and (iii) making loans.¹⁴ If the FinTech company engages in any one of those activities, which are broadly defined, it may apply for the charter.¹⁵ The charter would come with initial and ongoing regulatory requirements commensurate with the activity, including adequate capital, liquidity, and "financial inclusion," which is the OCC's term for Community Reinvestment Act of 1978, (the "CRA") – type requirements which are currently required for all insured depository institutions.¹⁶

ii. LabCFTC

The CFTC and the derivatives and commodities trading industry have consistently integrated new technological solutions. In addition, the CFTC has designated bitcoin a commodity, which has allowed its staff to become very familiar with blockchain and virtual currency, which puts it ahead of many other regulators.

The CFTC recently announced LabCFTC, which is part of its "efforts to promote responsible FinTech innovation and fair competition for the benefit of the American public."¹⁷ Similar to the OCC's Offices of Innovation, the hope is that LabCFTC will enable easier communication between the burgeoning industry and the regulators, to their mutual benefit. The CFTC is hoping that LabCFTC will "accelerate [its] engagement with FinTech and RegTech solutions that may enable the CFTC to carry out its mission responsibilities more effectively and efficiently."¹⁸ The CFTC is a relatively small regulator, working in a very technical space. Unilateral action by the CFTC is unlikely to dramatically change the market, but LabCFTC will ensure that the CFTC has a good window in the current trends and issues in the relevant FinTech and RegTech markets, which should enable it to be an early adopter of some technical solutions and to be a leading force in revising federal regulatory infrastructure and encouraging relevant rulemaking.

One of the stated goals of LabCFTC is to usher in CFTC 2.0, which is a program aimed at reviewing and initiating the adoption of new technology by the CFTC in order to better regulate its industry.¹⁹ This initiative is discussed below, in the DFI section. Similar to the Federal Reserve, the CFTC is expressing its excitement about the potential of technological innovations to create efficiencies and revolutionize both regulation and the industry, while

¹² OFFICE OF THE COMPTROLLER OF THE CURRENCY, EXPLORING SPECIAL PURPOSE NATIONAL BANK CHARTERS FOR FINTECH COMPANIES (2016), available at <https://www.occ.gov/topics/responsible-innovation/comments/special-purpose-national-bank-charters-for-fintech.pdf>

¹³ Id.

¹⁴ Id.

¹⁵ Id.

¹⁶ Id.

¹⁷ Id.

¹⁸ Press Release, US Commodity Futures Trading Commission, CFTC Launches LabCFTC as Major FinTech Initiative (May 17, 2017), available at <http://www.cftc.gov/PressRoom/PressReleases/pr7558-17>.

¹⁹ Id.

acknowledging that many of the proposed solutions, including distributed ledger technology, hold great promise but are not ready for widespread adoption and integration yet. LabCFTC, especially the CFTC 2.0 initiative, should provide the agency with a front row seat to the evolution and be able to time its adoption of new technologies to ensure they “are subject to appropriate controls and safeguards, satisfy resiliency and other relevant standards, and meet industry needs.”²⁰

iii. CFPB Project Catalyst

The CFPB is likely the most data-driven federal financial regulator and has a robust online presence, most likely because it did not have the existing infrastructure that weighs down older regulators. Perhaps as a result, it has been more open to FinTech and RegTech.

Due to its authority over a broad range of consumer financial products and services, the CFPB has worked to actively engage the FinTech community. Project Catalyst, the CFPB’s initiative whose “mission is to encourage consumer-friendly innovation in markets for consumer financial products and services” has been marginally successful.²¹

One of its major “outreach” efforts is a no-action letter policy, which encourages FinTech companies to reach out to the CFPB and provide information regarding their product or service and their understanding of the compliance requirements.²² The CFPB can provide a no-action letter, indicating the staff finds the product or service, as well as the company’s compliance program with regard to that product or service, compliant with regulatory requirements. This means the CFPB will not pursue an enforcement action against the company for that product or service as long as it makes no material changes to the program provided to the CFPB. While this type of policy is relatively friendly to industry and encourages cooperation between the CFPB and company seeking to offer the product or service, no-action letters are “subject to modification or revocation at any time at the discretion of the staff for any reason.”²³ In addition, no-action letters are not binding on other financial regulators. Regulating by no-action letter is much less desirable than actually going through the Administrative Procedure Act-mandated rulemaking process, though it may be more expedient.

iv. FINRA

The Financial Industry Regulatory Authority (“FINRA”) is a self-regulatory organization (“SRO”) of the securities industry, rather than an US government regulator, but it is powerful and important to the industry. Due to its status as a SRO, FINRA has more freedom to experiment than the SEC, but the SEC certainly pays attention to FINRA’s efforts. On June 13, 2017, FINRA announced it had established an Innovation Outreach Initiative.²⁴ The aim of the Initiative is “to foster an ongoing dialogue with the securities industry that will help FINRA better understanding [fintech] innovations and their impact on the industry.”²⁵

Similar to the OCC, CFTC, and CFPB, FINRA is attempting to create a better ecosystem to encourage innovation, both in the industry and in the regulation thereof.

v. States

State financial regulators have been active in the FinTech space. Due to the fact that nonbank lenders, loan servicers, debt collectors, and money transmitters are generally regulated at the state level, state regulators have been engaged relatively early in this new era of financial sector technological expansion and growth. Most consumer-facing FinTech companies fit into one of the consumer financial regulatory schemes regulated by the states. In addition, many FinTech companies seeking to partner with insured depository institutions have found state-chartered depository institutions more willing to engage them than those with federal charters.

Why is Pursuing the Development of an Ecosystem Beneficial to Driving Regulatory Innovation?

As this paper has suggested, at the heart of a holistic approach to technology transformation within regulators sits the creation of a conducive environment or ‘ecosystem’.

In the United States, we are seeing this approach gradually take hold at a number of federal financial and state regulators. The next section of this paper will look at how some of the technologies and approaches already proliferating within the RegTech space, might be applied to overhaul legacy infrastructure, enabling regulators to keep pace with the changing demand of consumers, and the evolving nature of financial services.

²⁰ Id.

²¹ CFPB, Project Catalyst report: Promoting consumer-friendly innovation (Oct. 2016), available at https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/102016_cfpb_Project_Catalyst_Report.pdf

²² CFPB, Final Policy Statement, Policy on No-Action Letters; information collection (Feb. 2, 2016).

²³ Id.

²⁴ News Release, FINRA, FINRA Launches Innovation Outreach Initiative (Jun. 13, 2017), available at http://www.finra.org/newsroom/2017/finra-launches-innovation-outreach-initiative.

²⁵ Id.

IV

The Digital Financial Infrastructure Approach

The DFI tool or approach can be advantageous to the financial regulator in terms of general FinTech initiatives, as well RegTech initiatives. With respect to RegTech, reporting obligations are only a piece of overarching regulatory compliance, but certainly an important one. While financial institutions have extensive regulatory compliance requirements, including certain reporting obligations, for which they hire compliance teams and outside counsel, a much larger subset of companies simply have reporting obligations. In the U.S., for example, any public company, no matter the industry, must provide reports to the SEC. Streamlining that process, moving from a form-driven system to a more data driven system, has the potential to significantly simplify reporting obligations for all and could help streamline general compliance obligations for other regulated financial entities.

While creating RegTech solutions for reporting obligations certainly does not capture the incredible potential RegTech offers to regulated entities, especially in financial services, it does provide a relatively simple first step toward streamlining and digitizing regulatory compliance.

Accordingly, this section of the paper will focus on how governments, regulators and technologists have sought to modernize core infrastructure or processes, from access to payment systems to shared utilities addressing regulatory concerns. Taken together, investment in DFI highlights an important phase in the drive towards a RegTech-enabled approach to regulation.

a. International Digital Financial Approaches

i. Austria

One example of a country re-imagining what the nature of regulation could look like, using DFI, is Austria. Austria's Central Bank, Oesterreichische Nationalbank ("OeNB") together with country's banking community have created a common software platform - using proprietary technology from the solution provider BearingPoint - in an effort to implement a new regulatory reporting model. The initiative is based on the greater integration of data within banks, as well as bridging the IT systems of the supervisory authority and the banking industry.²⁶

This new "informational value chain" is housed in a separate entity called the Austrian Reporting Services GmbH ("AuRep"). The shared service company, jointly-owned by the seven largest

Austrian banking groups (representing 87% of the market), allows for cost-sharing of compliance, as well as standardization in data collection,²⁷ and is considered Europe's largest regulatory reporting utility.

AuRep runs on BearingPoint's ABACUS, a common platform, which provides a central interface between the OeNB and banks. The system has an innovative approach to regulatory reporting, which moves away from the static "template-based reporting" (which limits the ability to effectively cross-reference and analyze data), to an "input-based approach." In its simplest terms, this allows Austrian banks to deliver micro-data in the form of single contracts, loans or deposits to ABACUS in a standardized format, known as "basic cubes." These can then be enriched with additional attributes, enabling supervisors to aggregate and analyze data without increasing the administrative burden on the data providers, such as banks.²⁸

The Austrian approach has, in some ways, provided a step-change in the nature of regulatory reporting, underpinned by an appreciation of the importance DFI can play in promoting innovation. It marks a shift away from the retrograde system of form-filling, towards a future that better accounts for the growing demands of regulatory supervision.²⁹ The strategic advantage of this approach facilitates the reusability of data, improving the efficiency within which data is remitted to the OeNB, in turn fuelling better insights, and reducing the cost of regulatory reporting in Austria by upwards of 30%.³⁰

ii. United Kingdom

Payment systems are an integral part of the plumbing which sits beneath the financial services industry, facilitating the exchange of monetary value between a variety of end-users, from individuals, to businesses, and government.

While the UK payments landscape and infrastructure is often cited as a market leader, it has evolved to include an increasingly complex set of players including Payment Systems Operators ("PSO"), infrastructure providers and Payment Service Providers ("PSP"). This complex structure sits contrary to the changing consumptive trends we see today; from the rise in electronic payments and digitization, towards more real-time consumer transactions. As the demands from payment systems evolve, so too must the underlying infrastructure in order to support future needs.

²⁶ Bearingpoint Institute, Reforming Regulatory Reporting: Are we Headed Toward Real-time?, BEARINGPOINT INSTITUTE, <https://www.bearingpoint.com/en-us/our-success/thought-leadership/reforming-regulatory-reporting-are-we-headed-toward-real-time-1-1/> (last visited Jun. 16, 2017).

²⁷ Id.

²⁸ <http://www.bobsguide.com/guide/news/2015/Sep/14/the-austrian-approach-largest-european-reporting-utility-and-innovative-approach-for-data-input/>

²⁹ Bearingpoint Institute, supra note 37.

³⁰ Bearingpoint Institute, Regulatory Utilities: Addressing the Complexities of the Regulatory Environment, BEARINGPOINT INSTITUTE, <https://reg.tech/en/expertise/regulatory-topics/input-approach/> (last visited Jun. 16, 2017).

To drive this necessary systemic change, the UK Payment Systems Regulator - the world's first dedicated regulator solely for payment systems - established the Payments Strategy Forum, which seeks to develop collaborative solutions for improving payment systems, and in doing so has put forward a strategy for the fundamental re-design of the UK's payments infrastructure.

The Forum's "Payments Strategy for the 21st Century", is based on a vision to simplify and modernize UK payment systems. At the heart of this strategy lies the creation of a New Payments Architecture (NPA) for the UK's three retail interbank payment systems (BACS, Cheques and Faster Payments). The NPA seeks to encompass: a single set of standards and rules, a thin central infrastructure (ensuring end-to-end interoperability using APIs and a common messaging standard), and a simplified framework for processing and clearing functions.³¹

The benefits of such an approach include improved resilience, flexibility and access with respect to payment systems, while drastically simplifying the complex legacy infrastructure which currently typifies the UK payments landscape. In this sense, while the Forum's payments strategy marks the beginning of a detailed implementation phase to follow, it is an example of how financial regulators are seeking to place DFI at the heart of an enabling environment for regulatory innovation. Moreover, addressing infrastructural change by remaining agnostic to specific technologies (some of which may still be in their infancy), highlights the potential importance of adopting a technology-neutral approach within one's own regulatory remit.

iii. India

Financial regulatory innovation is not solely a creature of more advanced financial markets. India provides a compelling example of a developing nation taking a holistic approach to the integration of technology into its infrastructure, not only in financial services, but for all government and private needs.

With a population of 1.3 billion people, together with one-fifth of the world's "unbanked" population,³² and a demographically young nation witnessing a rapid rise in digital penetration, India presents both an exciting but equally fast growing market for FinTech.

Accordingly, government and regulatory bodies have realized that an activist approach to supporting the digitization of financial services has become increasingly important. To do so, the Indian government has sought to invest in strong digital infrastructure as a means to improve inclusion and enablement, as well as to simplify regulatory red tape.

At the heart of this transformation lies "Aadhaar," India's national digital identity program. Aadhaar is the world's largest biometric identity project, and is the fastest digital platform of its kind to have crossed 1 billion registrations, doing so in just five and half years.³³ The platform rests on assigning a unique 12-digit identification number to every resident of India, and requires each individual to provide the government with documents verifying their name, gender, age, and address.³⁴ Residents also provide biometric information in the form of fingerprints and iris scans. The scale and success of this project can be summed up by reports suggesting that:

"Every quarter, Aadhaar was registering the equivalent of New Zealand's population. And it had to be accurate at this scale...even 99.5% accuracy would have been like Singapore getting it wrong for its entire population."³⁵

Alone, this central identification database is revolutionizing the ability for India to provide financial services to the masses. However, the truly transformative digital future being sought is the building of an open technology infrastructure, which leverages residents' digital identity, to create a plethora of new possibilities. This is what is commonly referred to as the "India Stack."

Building 'layers' on top of the Aadhaar system, all of which are digital and open to the creation of new services, the Indian government has sought to create an entire digital world underpinned by a uniquely identifiable individual.³⁶

The Stack itself is comprised of a set of public APIs, around four layers, which include:

1. "The Presence-less Layer:" this eliminates the requirement for individuals to be physically present when conducting their affairs.³⁷ For example, residents no longer have to present an identification card. Instead, upon enrollment to the Aadhaar program, an organization can verify one's identity against the centralized government database.
2. "The Paperless Layer:" the aim is to reduce the amount of paperwork, reducing fraud, easing administrative burdens, and ultimately allowing users to access their digital documents without needing to carry them. This is facilitated through a 'digital locker' which is linked to documents associated with a resident's Aadhaar number. The individual can then choose to share these with third parties requesting access. To ensure security and authenticity, these documents include an ID and digital signature.³⁸

³¹ Payments Strategy Forum, A Payments Strategy for the 21st Century: Putting Needs of Users First, Payments Strategy Forum 12 (2016), available at https://paymentsforum.uk/sites/default/files/documents/A%20Payments%20Strategy%20for%20the%2021st%20Cent%20-%20Putting%20the%20needs%20of%20users%20first_0.pdf.

³² T. Ramachandran, India Accounts About a Fifth of the Global Population Without Bank Accounts, THE HINDU (Apr. 22, 2015), <http://www.thehindu.com/opinion/blogs/blog-datadelve/article7130386.ece>.

³³ N.S. Ramnath, Aadhaar 2.0: Creating India's Digital Infrastructure, LIVEMINT (Jun. 28, 2016), <http://www.livemint.com/Politics/afjuy0dHgS4beFggSTVddP/Aadhaar-20-Creating-Indias-digital-infrastructure.html>

³⁴ Sasi Desai & Nipun Jasuja, The Bedrock of a Digital India: An Overview of the India Stack and Its Disruptive Potential, WHARTON FINTECH (Oct. 27, 2016), <https://medium.com/wharton-fintech/the-bedrock-of-a-digital-india-3e96240b3718>.

³⁵ Ramnath, supra note 36.

³⁶ Desai, supra note 37.

³⁷ Tech2 News Staff, India Stack is the Key Technology Platform that Could Transform India into a Cashless Economy, TECH 2 (Dec. 12, 2016), <http://tech.firstpost.com/news-analysis/india-stack-is-the-key-technology-platform-that-could-transform-india-into-a-cashless-economy-352250.html>.

One of the more common requests is for 'proof of address', which is now provided under the government banner of e-KYC. Leveraging the data collected by Aadhaar to facilitate electronic customer verification can not only reduce costs of transactions by between 50-80%,³⁹ but also has positive spillover effects for monitoring fraud, and improving regulatory oversight. Given that the prevailing practices within the Indian banking industry tend to be manual, paper-based, and over-compliant with respect to KYC processes, its digitization has been broadly welcomed by both banks and regulators, including the RBI (India's Central Bank), SEBI (securities), IRDA (insurance) and TRAI (telecom).⁴⁰

3. "The Cashless Layer:" this aims to ease the process of digital financial transactions, and is facilitated by the Government's creation of the Unified Payments Interface ("UPI"). This modern payments infrastructure, supported by the RBI, is based on a set of open APIs that allow phone-to-phone payment transfers directly from bank accounts.⁴¹ This may have a considerable impact on the Indian financial services sector; enabling over 1 billion mobile phones to act as financial access points for P2P transfers, remittances and payments,⁴² while providing a sanitized store of one's transactional history, in turn enabling an improved assessment of one's credit worthiness.
4. "The Consent Layer:" presently being worked upon, this seeks to make the Aadhaar holder as the ultimate gatekeeper for access to his or her personal data. The aim is to allow individuals to provide registered organizations specific access to their data, limited by time and supported by biometric identification.⁴³

The merits of this unprecedented approach to open digital infrastructure, based on the simple yet powerful notion of a unique identifiable individual has resulted in: (i) reduced regulatory red tape; (ii) more than 200 million bank accounts opened in just one year; (iii) 300 million new debit and credit cards issued in the last 4 years; and (iv) the rise of real-time digital services for over 1 billion people.⁴⁴

While there continue to be challenges to the successful adoption of Aadhaar-based services, the Indian government has been quick to see the potentially transformative role that such digital infrastructure can play. From providing positive spillovers for monitoring fraud, to creating a more inclusive financial services sector - the India Stack shows that investment in digital infrastructure can enable a step change in financial sector development. Importantly however, this also elucidates the need for regulators to ensure their own tools and systems better reflect the changing financial environment.

b. United States Digital Financial Infrastructure

While fundamental infrastructural changes have become partisan tools, the United States has dedicated time and energy to addressing certain of

the outmoded infrastructure underpinnings of the US financial system. For example, the National Mortgage Licensing System and Registry ("NMLS"), which was mandated by the Secure and Fair Enforcement for Mortgage Licensing Act of 2008⁴⁵ (the "SAFE Act"), is a centralized system through which entities can apply for certain state licenses. The Federal Reserve Board has created the Faster Payments Taskforce, which is reviewing the US payment system to determine the tools and processes necessary to ensure faster payment settlement. It has also issued a report regarding the use of blockchain and distributed ledger technology ("DLT"), discussing the potential impact of integrating that technology into the US financial system. As discussed above, the CFTC has recently announced a far-reaching initiative that includes infrastructural changes. The SEC has revised its reporting requirements to integrate a more data-friendly approach. Finally, in the most ambitious, but most amorphous effort, President Trump has created, via Presidential Memorandum, the Office of American Innovation, which is headed by his son-in-law and senior adviser, Jared Kushner.⁴⁶

i. The NMLS

The NMLS is an excellent example of federal-state collaboration. The SAFE Act is a federal law that mandated state's participation. All 50 states, plus the District of Columbia, Puerto Rico, the Virgin Islands, and Guam, participate in the NMLS to some extent. The original purpose was to centralize the mortgage licensing system, to both facilitate the application and reporting processes for those entities requiring licensure and to allow easier tracking and accountability to regulators and consumers. In the ensuing years, the states have added tools to the NMLS and now the majority of states allow entities to apply for other financial services licenses, including money transmitter licenses, debt collection licenses and nonmortgage lender licenses, among others.

ii. Federal Reserve Initiatives

The Federal Reserve has acknowledged the need to update the nation's payment system, which is slow and cumbersome. In order to evaluate the needs, the options, and the desired outcome, it has created the Faster Payments Task Force. The Faster Payments Task Force has released the first part of its final report, which provides an overview of the project and describes the benefits to updating the payment systems, as well as giving an overview of the current payments landscape in the US.⁴⁷

Distributed ledger technology/blockchain has also been of particular interest to the Federal Reserve. In December 2016,

³⁸ Desai, *supra* note 37.

³⁹ SWISSNEX INDIA, FINTECH IN INDIA 21 (2016), available at <http://www.swissnexindia.org/wp-content/uploads/sites/5/2016/10/Fintech-Report-2016.pdf>.

⁴⁰ *Id.*; See also Puneet Chopra, et al., e-KYC and the India Stack- A Transformative Blueprint for Emerging Markets, MICROSAVE (Mar. 2016), <http://blog.microsave.net/e-kyc-and-the-india-stack-a-transformative-blueprint-for-emerging-markets/>.

⁴¹ SWISSNEX INDIA, *supra* note 42 at 21.

⁴² NATHAN ASSOCS. INDIA, FINTECH IN INDIA: AN ANALYSIS OF THE MARKET, AND OF THE UK'S ROLE IN SUPPORTING ITS DEVELOPMENT 23 (2017), available at <http://www.nathaninc.com/sites/default/files/Fintech%20in%20India.pdf>.

⁴³ Tech2 News Staff, *supra* note 40.

⁴⁴ Abhijit Bose, India's FinTech Revolution is Primed to Put Banks Out of Business, TECH CRUNCH (Jun. 14, 2016), <https://techcrunch.com/2016/06/14/indias-fintech-revolution-is-primed-to-put-banks-out-of-business/>.

⁴⁵ See 12 U.S.C. Sec. 5101-5116, Title V of the Housing and Economic Recovery Act of 2008 (Pub. L. 110-289, 122 Stat. 2654, 12 U.S.C. 5101 et seq.) as amended by Title X of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) (Pub. L. No. 111-203, 124 Stat. 1376).

⁴⁶ Press Release, The White House, Office of the Press Secretary, Presidential Memorandum on the White House Office of Am. Innovation, available at <https://www.whitehouse.gov/the-press-office/2017/03/27/presidential-memorandum-white-hoUse-office-american-innovation>.

the Federal Reserve released its report "Distributed ledger technology in payments, clearing, and settlement,"⁴⁸ which discusses the potential utility of integrating distributed ledger technology into these systems. The report generally concludes that distributed ledger technology has the potential to "reduce or even eliminate operational and financial inefficiencies" but that is likely still several years away.⁴⁹

While the reports are indicative of the Federal Reserve's interest in updating the payments infrastructure and integrating DLT, it likely cannot implement the report recommendations easily or quickly. Revising infrastructure requires substantial capital, as evidenced by President Trump's initial proposal to spend \$1 trillion on infrastructure, generally (he often mentioned airports and highways, but digital infrastructure is now usually recognized as almost equally important). Though a \$1 trillion overhaul is not necessarily required in order to modernize and digitize the financial regulatory system, any real change would have to be large scale, which likely would require Congressional action.

iii. CFTC 2.0

As briefly discussed above, the CFTC's new initiative, LabCFTC is meant to both foster an innovative ecosystem and provide guidance, ideas, and the opportunity to engage industry players in further conversation about changes would create a better, more efficient CFTC. In its press release regarding the creation of LabCFTC and the plan for CFTC 2.0, the agency states, "New technologies hold the promise to change the way the CFTC fulfills its mission. For example, FinTech innovation could reshape the way the CFTC conducts market oversight to enhance market and risk surveillance vital to market integrity. FinTech innovation may also provide new ways for the CFTC to gather and disseminate market data to improve transparency."⁵⁰ These are the goals and possibilities that RegTech integration offers and the fact that the CFTC is openly embracing the options and opportunities is incredibly encouraging.

The CFTC, as a market regulator and not a prudential regulator, is more able to take risks and be innovative than the prudential regulators. CFTC 2.0 and LabCFTC provide a friendly ecosystem, which will hopefully lead to meaningful infrastructure changes. As the creation was so recent,⁵¹ its impact remains to be seen.

iv. SEC Reporting Obligations

While all financial regulators have certain reporting obligations, the SEC provides the best use case for integrating RegTech into reporting obligations. The SEC has worked to adopt more technology friendly disclosure options. Its EDGAR system now has

more searchable and interactive data to allow the SEC, the industry, and investors to more easily review public company disclosures. As with the payment systems, blockchain and DLT have the potential to significantly increase market efficiencies.

Though the SEC has worked to bring EDGAR into the future and provide a better platform for both industry and consumers, it does not have an innovation-focused initiative and its work on EDGAR perhaps presents a slightly cautionary tale of infrastructure change. In 2009, the SEC issued the final rule requiring interactive data reporting from its reporting entities.⁵² Now, there is a bill in Congress that would require a complete overhaul of the system that has only recently been fully implemented and understood by the industry.⁵³ Due to the financial and manpower resources that have gone into ensuring the appropriate implementation of XBRL, the new bill, the Financial Transparency Act of 2017 (described below), may receive pushback simply because both the industry players and the regulators may not want to learn and integrate a new system.

v. Office of American Innovation

The Office of American Innovation has the vague and broad mandate to "bring together the best ideas from Government, the private sector, and other thought leaders to ensure that America is ready to solve today's most intractable problems, and is positioned to meet tomorrow's challenges and opportunities. The office generally will focus on implementing policies and scaling proven private-sector models to spur job creation and innovation."⁵⁴ While this new Office does not specifically address infrastructure changes, updating the nation's infrastructure was one of President Trump's main campaign promises.⁵⁵ Integrating the latest technology into the nation's infrastructure is an essential piece of that – through faster payment rails, automated signals for trains, airport information systems, and/or an overhaul of the government's cybersecurity defense systems.

Furthermore, while not directly related to the Office of American Innovation, all federal financial regulators were recently required to submit reports to the Secretary of the Treasury so that he could evaluate the current regulatory environment in the context of President Trump's stated "core principles" of US financial regulation.⁵⁶ The Department of the Treasury recently released its report of the findings, "A Financial System That Creates Economic Opportunities: Banks and Credit Unions," which could provide grist for general financial regulatory reform, but also the opportunity to integrate RegTech infrastructure into the federal regulators.⁵⁷

⁴⁷ Faster Payments Task Force, Board of Governors of the Federal Reserve System, The U.S. Path to Faster Payments: Final Report One: The Faster Payments Task Force Approach (Jan. 2017), available at <https://www.federalreserve.gov/newsevents/press/other/US-path-to-faster-payments-pt1-201701.pdf>.

⁴⁸ Mills, David, Kathy Wang, Brendan Malone, Anjana Ravi, Jeff Marquardt, Clinton Chen, Anton Badev, Timothy Brezinski, Linda Fahy, Kimberley Liao, Vanessa Kargenian, Max Ellithorpe, Wendy Ng, and Maria Baird (2016). "Distributed ledger technology in payments, clearing, and settlement," Finance and Economics Discussion Series 2016-095. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2016.095>.

⁴⁹ Id.

⁵⁰ US Commodity Futures Trading Commission, CFTC 2.0, CFTC, http://www.cftc.gov/LabCFTC/CFTC2_0/index.htm (last visited Jun. 16, 2017).

⁵¹ Id. The initiative was announced on May 17, 2017.

⁵² Final Rule, Interactive Data to Improve Financial Reporting (Jan. 2009).

⁵³ H.R. 1530

⁵⁴ Press Release, *supra* note 54.

⁵⁵ See e.g. Fact Sheet, The White House, 2018 Budget: Infrastructure Initiative, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/fact_sheets/2018%20Budget%20Fact%20Sheet_Infrastructure%20Initiative.pdf.

⁵⁶ Press Release, The White House, Office of the Press Secretary, Presidential Executive Order on Core Principles for Regulating the United States Financial System, available at <https://www.whitehouse.gov/the-press-office/2017/02/03/presidential-executive-order-core-principles-regulating-united-states>.

⁵⁷ U.S. Department of the Treasury, A Financial System That Creates Economic Opportunities: Banks and Credit Unions (June 2017), available at <https://www.treasury.gov/press-center/press-releases/Documents/A%20Financial%20System.pdf>.

V

The Rule and Process Change Approach

Regulators are the governmental agencies responsible for implementing policy mandates. These mandates can vary from being highly prescriptive to providing regulators great freedom to determine how to implement a policy. Innovations and technology can materially change the nature of financial activity. They may require associated rule and process changes; reimagining the role of the regulator in a digitized financial market.

Given the digital paradigm shift taking place in financial services, it becomes essential for regulators to adopt rules and process changes in order to deliver on their policy objectives. How, for instance, can data protection regulation comply within a blockchain based financial infrastructure? Similarly, how can a regulator ensure algorithms are compliant and non-discriminatory, without altering the current regulatory framework? In this section, we explore several rulemaking challenges and opportunities for the regulator of tomorrow that the digitization of financial services will create. Moreover, we will touch upon some of the efforts being made to adapt to this increasingly digital financial marketplace.

a. International Rule and Process Change Approaches

i. United Kingdom

In the UK, the FCA issued a RegTech consultation in November 2015 and noted that adoption of RegTech would be boosted by defining new regulations in a machine readable format, ensuring greater consistency and compatibility of regulations internationally, and establishing a common global regulatory taxonomy.

The journey to a computational regulator is one part of a much broader shift in rule and process change for financial regulators. As we have seen, technology can shape regulatory processes but it can also influence the execution of a policy mandate, through both internal technology deployment and encouraging the development of market-led solutions.

The growth of the API economy in financial services and beyond, has shaped new rules and tools for regulators in order to deliver policy mandates, such as competition. Indeed, this is evident in the UK, where in August 2016, the antitrust regulator – the Competition and Markets Authority (“CMA”) – set out a package of remedies aimed at increasing innovation and improving competition. This included a requirement for the nine largest current account providers in the UK to make customer data available to authorised third parties through an open API framework.

In this case, the regulatory authorities have encouraged the use of specific tech tools to deliver a policy mandate.

However, regulators should also acknowledge the role new technologies may play in driving change, provided they are subject to compliance with relevant reliability and security standards.

ii. European Union

There will be times, however, when rules may lead to obsolescence within the regulatory architecture, by either mandating a certain tech or not being flexible enough to adapt to more radical technological change. A good example of this is the emergence of blockchain or DLT.

In Europe, the legislation that most governs the protection of personal data is the General Data Protection Regulation “GDPR”. Although the GDPR is said to have been designed to be technologically neutral and adapted to processing personal data in different contexts, structures and manners, in the case of blockchain technology, many questions are raised, nonetheless. For example, blockchains are decentralized and distributed – this making it extremely difficult to identify the entity responsible for what is happening on the blockchain and for the processing of personal data. Moreover, in a distributed financial services environment, who is the controller of personal data on a blockchain? And how might one realize the right to be forgotten? This, therefore, leads us to question whether the existing European data protection framework is by design blockchain-compatible.

Looking at blockchain technology through the prism of data protection laws is one of a number of examples of where rule-making in an increasingly digitized world will require regulatory flexibility.⁵⁸

b. United States Rulemaking

The rule and process change approach is clearly an essential piece of bringing US regulators into the new technology era. However, the federal financial regulators are slightly hampered by statutory limitations. While recent initiatives, like those of the OCC and CFTC, show that the regulators have some flexibility to determine their engagement with the industry, generally, and with FinTech, more specifically, that is not without controversy. For example, the OCC is currently being sued by the Conference of State Bank Supervisors (“CSBS”), an organization representing the state financial regulators, to enjoin the OCC from offering a special purpose national bank charter for FinTech companies. CSBS has alleged that such a charter is outside the scope of the OCC’s authority. CSBS is seeking to defend the territory staked out by the 50 states when the federal regulators were conducting research and inquiries into the emerging FinTech industry.

⁵⁸ Coindesk, available at <http://www.coindesk.com/blockchains-personal-data-protectio>

If the federal regulators are going to become more active in ecosystem, infrastructure, and rulemaking, an act of Congress likely is required. The majority of the federal financial regulators were created a long time ago, when the current technologically-driven financial services industry could not have been imagined. While the CFPB is a recent addition, it has been the subject of partisan rancor since its inception and is often subject to allegations of “mission creep.” If Congress delegated more authority to review and revise the rules and regulations under each regulators’ purview, the regulators could more easily revise and update regulations, allowing the financial regulators to more quickly address the evolving industry.

i. Financial Transparency Act

For financial regulators, the Financial Transparency Act (H.R. 1530), if enacted, would be the “nation’s first RegTech law.”⁵⁹ The bill would modernize the US financial regulatory reporting process from unstructured documents into fully searchable, standardized, and machine-readable data.⁶⁰ The bipartisan proposal directs the eight major US financial regulators to adopt consistent data fields and formats for the information already being collected from the private sector under existing securities, commodities, and banking laws.⁶¹ Under this bill, regulators would eliminate document-based financial filings and adopt open, structured data formats for all filings.⁶²

The US Department of the Treasury’s white paper on marketplace lending entitled “Opportunities and Challenges in Online Marketplace Lending” also recommends, more generally, the release of government data in formats that can be easily processed by third-party software, for smart disclosure.⁶³

ii. FINRA Request for Comment

FINRA recently issued a fulsome report of the potential of integrating distributed ledger technology into the US capital markets⁶⁴. FINRA has requested comment from industry participants and will likely issue another report detailing its findings.⁶⁵ To date, although by proxy, the FINRA report and the comments thereto have been the best opportunity to comment on and outline the potential for DLT to the SEC.

iii. State Laws/ Initiatives

As discussed above, the states are meant to act as laboratories for exciting ideas. In the FinTech space, this has certainly been true. Through a variety of sources, including certain state governments and the Uniform Law Commission, states have actively pursued regulatory and statutory changes to provide structure and opportunities for the FinTech industry. The New

York Department of Financial Services, for example, began a potentially nationwide trend by enacting its BitLicense scheme, which specifically addresses virtual currency businesses.⁶⁶

While some states followed on their own, the Uniform Law Commission, which is made up of legal experts who draft legislation to be enacted by state legislatures and provide relative uniformity across the nation, has also drafted a Regulation of Virtual Currency Businesses Act.⁶⁷ States are also reviewing blockchain legislation⁶⁸ and contemplating the integration of DLT into governmental programs⁶⁹. States legislatures and state regulators tend to be smaller and more nimble than their federal counterparts, which allows them to adopt the rule and process change approach more quickly and easily.

⁵⁹ H.R. 1530

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

⁶³ US DEP’T OF THE TREASURY, OPPORTUNITIES & CHALLENGES IN ONLINE MARKETPLACE LENDING (2016), available at https://www.treasury.gov/connect/blog/Documents/Opportunities_and_Challenges_in_Online_Marketplace_Lending_white_paper.pdf.

⁶⁴ See FINRA, DISTRIBUTED LEDGER TECHNOLOGY: IMPLICATIONS OF BLOCKCHAIN FOR THE SECURITIES INDUSTRY 1-22 (2017), available at https://www.finra.org/sites/default/files/FINRA_Blockchain_Report.pdf

⁶⁵ See, e.g. Chamber of Digital Commerce and Structured Finance Investment Group, Comment Letter (Mar. 31, 2017), available at <http://www.finra.org/sites/default/files/Blockchain-SFIG-Comment.pdf>.

⁶⁶ See NY FIN. SERVS. LAW §§ 200 (2017), available at <http://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf>

⁶⁷ NAT’L CONF. OF COMM’RS. ON UNIFORM STATE LAWS, UNIFORM REGULATION OF VIRTUAL BUSINESS ACT (2017), available at http://www.uniformlaws.org/shared/docs/regulation%20of%20virtual%20currencies/2017AM_VirtualCurrencyBus_Draft.pdf

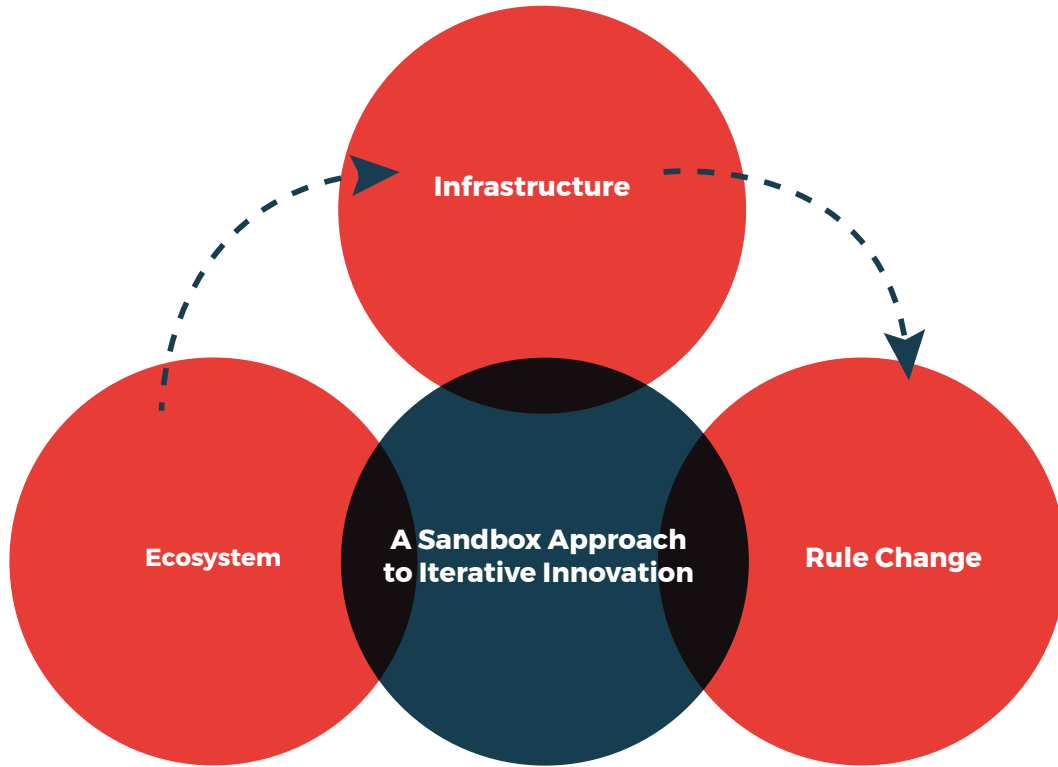
⁶⁸ State of Arizona, H.B. 2417.

⁶⁹ Karen A. Yarbrough, Cook County Recorder of Deeds, Blockchain Pilot Program Final Report (May 30, 2017), available at cookrecorder.com/blockchain.

VI

Sandboxes

The uses of sandboxes, industry or regulatory, do not necessarily require rule change (although some jurisdictions have passed new legislation in order to set up a regulatory sandbox). They do however represent a mechanism which may enable regulators to better identify where appropriate rules might need to be adapted, or where regulatory processes may require amendment. As such, the Sandbox approach to Iterative innovation shares elements of the Ecosystem, Infrastructure and Rule Change framework.



a. Regulatory Sandboxes

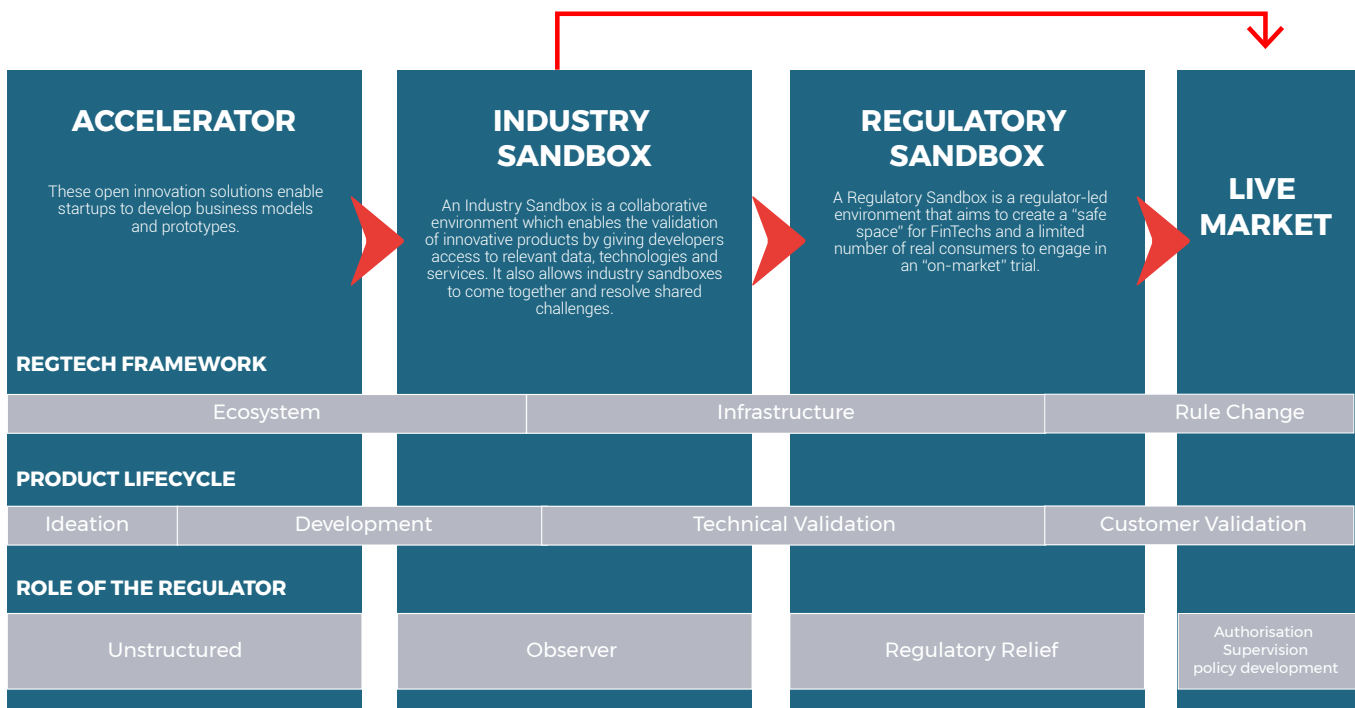
Regulatory Sandboxes are increasingly being deployed as a means to support the growth of emerging sectors such as FinTech, thereby furthering regulators' own internal understanding and providing a mechanism for limited regulatory relief to innovative solutions.

A Regulatory Sandbox can broadly be described as a unit, which typically sits within a country's conduct regulator, and evaluates the need for FinTechs to conduct controlled market tests under less stringent regulatory requirements. The solution borrows inspiration from the pharmaceutical industry and the tiered process for testing new drugs.

Regulatory Sandboxes sit on the border between an ecosystem approach and infrastructural change in regulatory innovation. On the one hand, Regulatory Sandboxes allow regulators to engage entrepreneurs more quickly and at a lower compliance cost, in a controlled setting. On the other hand, Regulatory Sandboxes constitute a process / infrastructural change, on the path towards reforming the authorization procedure.

There are 19 such Regulatory Sandboxes in various forms of development globally, with those in the UK and Singapore are considered the most advanced.⁷⁰ Although these sandboxes vary in scope and maturity, most have the objective to assess the consumer impact of a solution, and to evaluate if the regulatory framework needs to adapt to allow it full market access. The end goal is to create further choice and competition in financial services, balancing the twin aims of promoting innovation while ensuring continued consumer protection.

⁷⁰ Industry Sandbox, Comparing the Industry and Regulatory Sandbox, INDUSTRY SANDBOX <http://industrysandbox.org/regulatory-sandboxes/> (last visited Jun. 16, 2017).



b. Industry Sandboxes

Sandboxes, however, extend beyond a purely regulatory-focused endeavor. In the UK, Innovate Finance (invited by the FCA) sought to further research into this area by chairing a consultation into so-called "Industry Sandboxes." These are collaborative digital platforms that would make it easier for firms testing a product, and those providing an asset (e.g. data, APIs, off-the-shelf technology solutions, etc.) to work alongside one another in order to prove the viability of an innovative solution.

Industry Sandboxes, therefore, provide a different solution to their regulatory counterparts. They are typically operated by industry players and would be used for testing in an off-market environment. Furthermore, any regulated solution would still need to secure the appropriate regulatory permissions to go to market, which in turn may involve going through a Regulatory Sandbox.

Responses to the consultation also strongly indicate that there is a demand for regulators to play a part in an Industry Sandbox. Five broad areas of participation highlighted by respondents, included:

1. Engaging in curated dialogue with Sandbox participants where there is uncertainty around the regulatory approach to an innovative solution.
2. Reviewing Industry Sandbox tests in applications to Regulatory Sandboxes, authorization or supervisory decisions.
3. Leveraging an Industry Sandbox to test RegTech solutions for regulatory use.

4. Considering Industry Sandbox output towards rule change / policy development.
5. Providing a forum for international regulators and developers of innovative solutions to discuss divergences in regulatory approaches and the potential for alignment.

As a result, the consultation recommended that regulators participate as observers in Industry Sandboxes via dedicated "Observer Forums." Such engagement should add to the ongoing global regulatory initiatives at an ecosystem or infrastructure level.

For more information on the Industry Sandbox Consultation visit www.industrysandbox.org and contact sandbox@innovatefinance.com

VII.

Conclusion

In conclusion, the framework put forward in this paper is not prescriptive but an attempt to highlight a path that can help US regulators adapt to technological change. Moreover, we argue this approach may facilitate improved regulatory supervision through technology, while helping US federal financial regulators better deliver on policy mandates.

What this paper has attempted to show is that by adopting a holistic approach to technology transformation, which includes (but is not limited to) ecosystem development, investment in digital financial infrastructure, rule and process change and the broader use of sandboxes, regulators might better be able to respond and remain open to continuous adaptation in the face of ever-evolving technology.

The first wave of RegTech has focused on market driven process automation in the face of ever increasing costs of compliance for financial institutions. The second wave of systems evolution should also fundamentally reduce the cost and burden of regulation and will require a radical rethink of regulatory processes.

We are already starting to see the development of this approach amongst US financial regulators, though, to date, it has been relatively piecemeal. While we appreciate that a central coordinated approach to digital change is impractical given the federal structure of the US regulatory environment, we do suggest that an adoption of these guiding principles may bridge disparate regulatory efforts, both on a state and federal level, towards digitization.

As this regulatory change begins to become more prevalent, what we may begin to see is the nature of regulation itself shifting. Reporting, in this sense, may move from being an ex-post to an ex-ante activity, or in other words, as we make the transition towards a more technology-enabled regulator, this may lead to more proactive policy-making. As some commentators have suggested, at this point regulatory reporting may just become a hygiene factor underlying markets, such that intelligence supported through machine learning and AI may uncover systemic regulatory risk and weaknesses pre-emptively.

While this future is some years from becoming reality, only by pursuing a holistic approach to technology-enabled regulation will regulators move beyond adapting and automating existing practices and start to reimagine rules and process fit for a digital age.

INNOVATE / FINANCE

Innovate Finance is an independent membership association that represents the UK's global FinTech community. Founded in 2014 with the support of the City of London and Canary Wharf Group, Innovate Finance is a not-for-profit with over 250+ members that aims to accelerate the country's leading position in the global financial services sector by directly supporting the next era of technology-led financial services innovators, whether they be a young startup or an established industry player. This is achieved through curated programmes based on member requirements, policy working groups and promotion through global press and social media.

The goal is to create a single point of access across the sectors to help foster enabling policies, regulation, talent development, business growth opportunities and investment in the UK – and, most importantly, to create a global finance sector that offers services that are more sustainable, more inclusive and better for everyone.



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