UNSGSA

Early Lessons on Regulatory Innovations to Enable Inclusive FinTech:

Innovation Offices, Regulatory Sandboxes, and RegTech

Report Summary

Monetary Authority of Singapore

Cambridge Centre for Alternative Finance
University of Cambridge Judge Business School

The report summarized here is from the FinTech Working Group of the United Nations Secretary-General's Special Advocate for Inclusive Finance for Development (UNSGSA) and Cambridge Centre for Alternative Finance (CCAF) at the University of Cambridge Judge Business School. It would not have been possible without the support of the Monetary Authority of Singapore (MAS) and the supervision and coordination of the Office of the UNSGSA.

The report is available at: www.unsgsa.org/resources/publications

The reference citation for the report is as follows:

UNSGSA FinTech Working Group and CCAF. (2019). Early Lessons on Regulatory Innovations to Enable Inclusive FinTech: Innovation Offices, Regulatory Sandboxes, and RegTech. Office of the UNSGSA and CCAF: New York, NY and Cambridge, UK.

Introduction

Technology-enabled innovation in financial services (FinTech[1]) has grown rapidly in the past decade. New technology-enabled financial services include mobile payments, peer-to-peer (P2P) lending, alternative credit scoring, and new forms of savings and insurance. If properly regulated, FinTech can extend the benefits of financial inclusion to millions of unbanked and underbanked people around the world.

The rise of FinTech presents many regulatory challenges—for emerging and developing economies in particular. Regulators with limited expertise in technology may find it difficult to understand FinTech and assess its implications for regulation. Regulators in emerging and developing economies typically have limited resources, and technology-led innovation adds additional pressure. Without an appropriate regulatory environment, inclusive financial innovation may be stifled and *financial exclusion* exacerbated.

A number of regulators in advanced, emerging, and developing economies have responded to such challenges by innovating on their own. These innovative regulatory initiatives include innovation offices, regulatory sandboxes, and RegTech (regulatory technology) for regulators.

A priority of the UNSGSA, H.M. Queen Máxima of the Netherlands, is to encourage good regulatory practices for FinTech that enables financial inclusion. To ensure that FinTech is inclusive, safe, and responsible, it is vital that regulators have access to reputable advice when assessing, selecting, and implementing regulatory options.

This report examines the potential impact of regulatory innovation on inclusive FinTech and distils early lessons learned. It also proposes implementation considerations for authorities seeking to enable inclusive FinTech through innovative regulatory initiatives of their own. The report builds on previous work in the field, including the G20 High-Level Principles (G20 HLP) for Digital Financial Inclusion.[2]

The research team conducted semi-structured interviews with over 40 regulatory authorities and other subject matter experts in more than 20 advanced, emerging, and developing economies form the basis of this report. The methodology and a list of interviewees are set out in Annex 1 of the report.

1 For the purposes of this report, "FinTech" is defined as technology-enabled innovation in financial services. This is in accordance with the definition used by the UNSGSA FinTech Working Group and by the Financial Stability Board's FinTech Issues Group. The terms "FinTech," "technology-enabled financial innovation," and "financial innovation" are used interchangeably throughout. Similarly, the terms "inclusive FinTech," "inclusive innovation," and "inclusive financial innovation" are used interchangeably.

2 G20 (Group of 20). 2016. "High Level Principles for Digital Financial Inclusion." https://www.gpfi.org/sites/default/files/documents/G20%20High%20Level%20Principles%20for%20Digital%20Financial%20Inclusion%20-%20Full%20version-.pdf

Part 1: Financial Innovation, Financial Inclusion, and Regulatory Innovation

By providing access to and enabling active usage of affordable financial services, financial inclusion can generate significant benefits for the unbanked and underbanked. It may also become an engine for economic growth. This section reviews some of these new business models and products through the lens of four main financial areas: (1) payments, (2) lending, (3) savings, and (4) insurance.

Digital payments and mobile money – Digital payments and mobile money have grown exponentially over the past few years and demonstrate significant benefits through lower fees, time savings, and reductions in travel costs. Mobile money has also demonstrated that it can help lift people out of poverty.[3] While digital payments provide significant benefits for the unbanked and underbanked, key risks and challenges need to be considered, such as potential fraud by mobile money agents and data security risks.

Digital lending – Digital lending, or the ability to offer loans in an automated and almost instantaneous way through digital channels, is an important enabler of financial inclusion. The most immediate and obvious benefit is improved access to loans that were previously not available or were too expensive. By accessing loans through digital lending platforms, the poor, marginalized, and MSMEs (micro, small, and medium enterprises) can effectively build a credit history, which may enable them to get loan offers from traditional banks in the future. However, the spread of digital credit has raised concerns about the risk of excessive borrowing and over-indebtedness, with high delinquency and default rates among the poor.

Digital savings – The mobile phone has become a powerful enabler in providing the poor with access to savings. The main benefits of using digital tools for savings over traditional and informal methods[4] are higher transparency, lower costs, increased liquidity, and lower risk of theft and/or asset depreciation. A key constraint on digital savings is a lack of financial literacy among the poor in emerging and developing economies, with understanding of products and services a key barrier to uptake.

Digital insurance – Microinsurance provides an opportunity for the poor and marginalized to access affordable insurance products to protect against unexpected emergencies and shocks. By using mobile phone infrastructure the process becomes more efficient, thereby lowering costs and reducing turnaround times for enrollment, claims processing, and premiums collection. There are increased risks related to flaws in the functioning of big data tools. Consumers may have limited ability to correct information errors, to challenge the use of data/decision-making processes, or to seek clarifications.

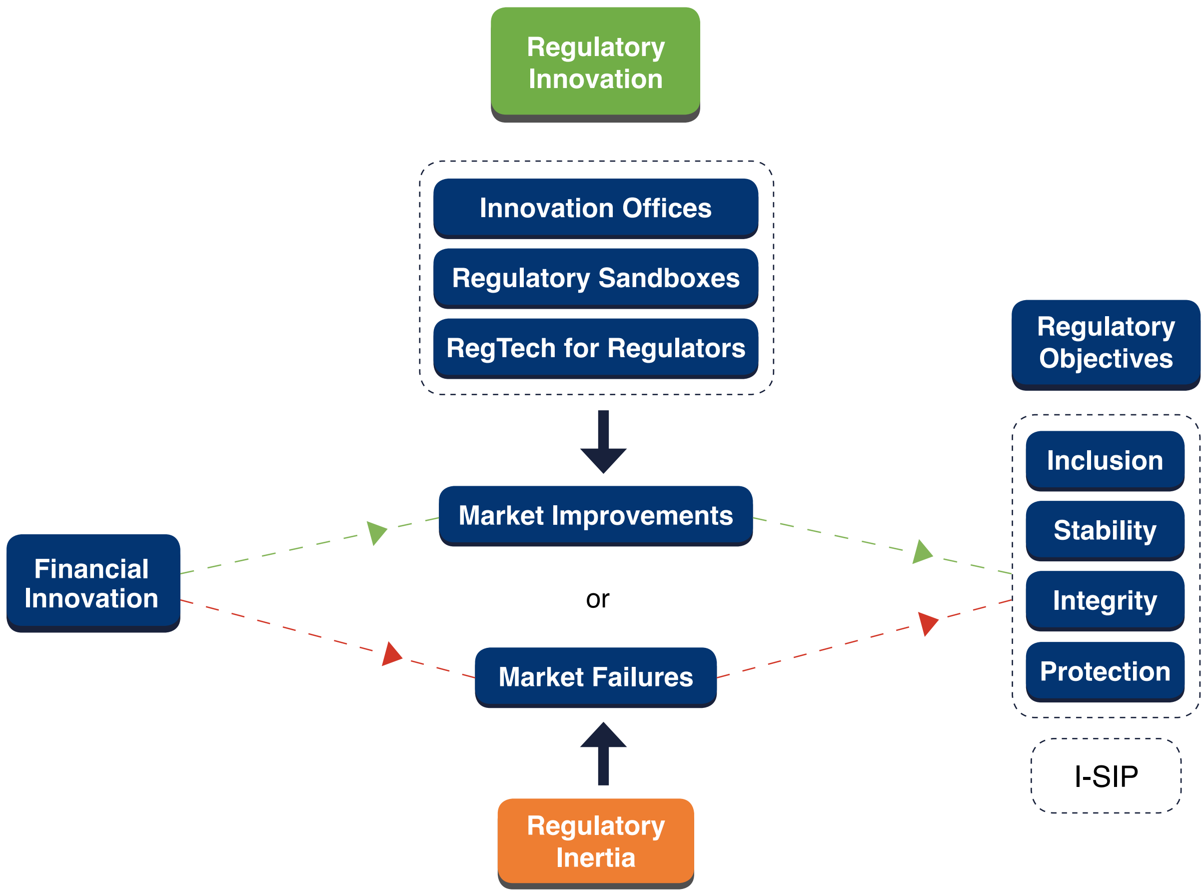
3 Suri, T. & Jack, W. 2016. "The long-run poverty and gender impacts of mobile money." Science, 354(6317). http://science.sciencemag.org/content/354/6317/1288

4 Traditional methods refer mainly to savings accounts at banks and other financial institutions. Informal methods may include rotating savings and credit associations (ROSCAs), savings clubs, and stashing away small amounts of money or other resources.

1.1 FINANCIAL INNOVATION, FINANCIAL INCLUSION, AND REGULATORY OBJECTIVES

Financial regulators need to consider how financial innovation interacts with regulatory objectives such as financial inclusion (I), financial stability (S), financial integrity (I), and consumer protection (P).[5] Figure 1 captures these dynamics in an analytic framework.

Figure.1: A Framework for Financial Innovation, Regulatory Innovation, and Regulatory Objectives



Source: UNSGSA FinTech Working Group and CCAF (2019)

5 CGAP (Consultative Group to Assist the Poor). 2012. "Financial Inclusion - Linkages to Stability, Integrity and Protection." Washington, D.C.: CGAP. http://www.cgap.org/research/publication/financial-inclusion-linkages-stability-integrity-and-protection

Part 2: Innovative Regulatory Initiatives Around the World

Innovative regulatory initiatives have become increasingly common around the world over the last five years. Figure 2 below illustrates countries that have developed such initiatives. Annex 2 of the report provides the name of each initiative, its host operator, and other details.

This section outlines common initiatives undertaken by regulators looking to promote inclusive financial innovation in advanced, emerging, and developing economies. It describes the initiatives and distils lessons learned from implementation.

Figure.2: Examples of Innovative Regulatory Initiatives Around the World

Source: UNSGSA FinTech Working Group and CCAF (2019)

2.1 INNOVATION OFFICES

Some jurisdictions have established innovation offices as a first step in the regulatory innovation journey. An innovation office is a dedicated function within a regulator which engages with, and provides regulatory clarification to, financial services providers that seek to offer innovative products and services. Annex 6 of the report describes the example of how Innovate at the UK Financial Conduct Authority (FCA) helps innovative firms understand and navigate the UK's regulatory framework.

Innovation offices are a particularly compelling initial option for capacity-constrained regulators in emerging and developing economies. They require no protracted changes to legislation or regulation, or related resource implications.

2.1.1 INNOVATION OFFICES AND FINANCIAL INCLUSION

As the number of innovation offices continues to grow, there are several channels through which they may promote financial inclusion. Three of the approximate 32 innovation offices around the world explicitly mandate a policy of financial inclusion: Bank Negara Malaysia's Financial Technology Enabler Group (FTEG), OJK Infinity in Indonesia, and the FinTech Unit of the Central Bank of Bahrain.

Innovation offices reduce regulatory uncertainty by acting as a channel that enables innovators to engage with regulators to better understand regulatory frameworks and their requirements.

Decreasing regulatory barriers to entry by reducing regulatory uncertainty can promote the entry, capitalization, and growth of new firms. Innovation offices also help facilitate better informed policymaking, thus significantly benefitting financial inclusion.

2.1.2 INNOVATION OFFICES – LESSONS LEARNED

While innovation offices exist in numerous global jurisdictions, the majority can be found in advanced economies or emerging economies nearing advanced economy status. Lessons learned, such as the following, are likely to be of particular interest to regulators in emerging and developing economies:

1. **Innovation offices facilitate mutually beneficial dialogue.** For example, the UK FCA observes that, "[The] transfer of ideas and innovation breaks down barriers to entry, giving firms more freedom and flexibility to innovate".[6]

2. **Innovation offices facilitate international regulatory knowledge exchange on financial innovation.** Authorities in Bahrain, for example, sought lessons learned by other jurisdictions at the outset of their initiatives, with a strong focus on regional and international collaboration.

3. **Innovation offices deliver the most impact when integrated within the regulatory ecosystem.** Providing innovation offices with a financial inclusion remit may promote an integrated regulatory approach to inclusive financial innovation, and has been adopted by authorities in Bahrain, Indonesia, and Malaysia.

4. **Innovation offices are only as good as their resources.** Innovators in one jurisdiction, for example, observed that the regulator did not have a strong enough understanding of underlying technologies to provide useful advice and support.

5. **Innovation offices are a catalyst for a pro-innovation culture.** The importance of a strong internal mindset and culture that supports regulatory innovation was universally recognized by the 40 regulators interviewed for this report.

6 Financial Conduct Authority. 2017. "Innovating for the Future: the next phase of Project Innovate." https://www.fca.org.uk/news/speeches/innovating-future-next-phase-project-innovate

6. **Leadership and institutional engagement are critical enablers of innovation offices.** Executive leadership and institutional support can bolster the development of a pro-innovation culture, the development of new skills, and sufficient resources.

7. **Innovation offices function well in coordination with one another.** In the Netherlands, for example, the financial services regulator (Autoriteit Financiële Markten) and the central bank (De Nederlandsche Bank) have formed a joint Innovation Hub.

2.2 REGULATORY SANDBOXES

Regulatory sandboxes are formal regulatory programs that allow market participants to test new financial services or models with live customers, subject to certain safeguards and oversight. Global interest in sandboxes is strong, with regulatory sandboxes now live or planned in over 50 jurisdictions. To date, at least two discernible models have emerged:

Product Testing Sandboxes that use the sandbox process as a safe zone to allow innovators to live test new products prior to applying for full authorization.

Policy Testing Sandboxes that use the sandbox to evaluate regulations or policies that may impede beneficial new technologies or business models.

2.2.1 REGULATORY SANDBOXES AND FINANCIAL INCLUSION

Several jurisdictions have launched sandboxes with the explicit purpose of encouraging financial inclusion (e.g. Bahrain, Malaysia, and Sierra Leone), while others are in various stages of planning. They are often linked to broader financial inclusion policies such as a national financial inclusion strategy (NFIS)[7] or statutory mandates[8] that allow the sponsoring regulator to pursue market development activities which promote inclusion.

Sandboxes provide a tool for regulators to collaboratively engage in marketplace innovation, probe the risks and benefits of emerging technology, and develop long-term policy from a more informed position.

Several jurisdictions have begun to explore thematic sandboxes focused on products or enabling technologies with particular salience to inclusive financial ecosystems, including electronic know your customer (eKYC), quick response (QR) codes, and small business finance.

Around a dozen regulators have used, or are planning to use, sandboxes to identify and remove potential friction caused by existing rules or regulations that may inadvertently inhibit inclusive financial innovation. Sandboxes can give innovators the opportunity to understand the expectations of playing on a bounded field and reduce the time, costs, and uncertainty of launching a new product into the regulated financial sector.

2.2.2 REGULATORY SANDBOXES – LESSONS LEARNED

Although it is still too soon to quantify their impact on financial inclusion, regulatory sandboxes have yielded a number of lessons for current and aspiring sandbox sponsors:

1. **Sandboxes are neither necessary nor sufficient for promoting financial inclusion.** Many regulatory questions raised in connection with sandbox tests can be effectively resolved without a live testing environment. A FinTech market landscaping study in Kenya revealed that an innovation office or "hotline" would go a long way in resolving regulatory questions of start-ups.[9]

---

7 Uganda is a good example of a country which has linked the development of a regulatory sandbox to its National Financial Inclusion Strategy.

8 Mexico is a good example of a country which has linked the development of a regulatory sandbox to a financial inclusion mandate through its FinTech Law.

9 FSD Kenya. 2018. "Ground-breaking New Policy and Regulatory Initiatives may spur more FinTech Innovation in Kenya." http://fsdkenya.org/blog/groundbreaking-new-policy-and-regulatory-initiatives-may-spur-more-FinTech-innovation-in-kenya/

2. **Sandbox processes can be streamlined to reduce review and processing time.** Singapore, for example, has recently introduced the Sandbox Express, which is the creation of pre-defined sandboxes to speed up approvals for low-risk experiments.[10]

3. **Thematic sandboxes are emerging as tools to support financial inclusion.** For example, the Bank of Sierra Leone's regulatory sandbox explicitly promotes financial inclusion, and is linked to the country's National Financial Inclusion Strategy.

4. **Regulatory coordination is essential, particularly in multi-peak jurisdictions.** The three financial regulators in Hong Kong have linked up their three, previously separate, regulatory sandboxes, with positive effect.

5. **The importance of senior leadership and institutional engagement are critical to sandbox initiatives.** The Bank of Sierra Leone's regulatory sandboxes benefited from deep institutional engagement from the outset, beginning with the Office of the Governor.

2.3 REGTECH

RegTech is an increasingly important tool for regulators to consider as they innovate and promote financial inclusion. This report focuses on the usefulness of *RegTech for regulators*: for any objective they might have and with any technology that might help them better regulate and supervise a rapidly digitizing financial marketplace. Around the world, pioneering RegTech models employ technologies such as digital ID, application programming interfaces (APIs), artificial intelligence (AI), machine learning (ML), cloud computing, big data, and distributed ledger technology (DLT). One model that has emerged to help regulators in emerging and developing economies improve their effectiveness through technology is the RegTech for Regulators Accelerator (R2A), established in 2016 by the Gates Foundation, Omidyar Network, and the U.S. Agency for International Development (USAID). This program helps regulators experiment with RegTech through a structured process.

Meanwhile, several regulators have demonstrated how RegTech can improve effectiveness and lead to positive financial inclusion outcomes by utilizing technology for industry compliance alongside improving their own effectiveness.

2.3.1 REGTECH AND FINANCIAL INCLUSION

RegTech can help ensure that innovative financial services are delivered in a responsible way, thereby directly impacting on financial inclusion. Regulators can use RegTech to more effectively ensure compliance among existing and new institutions.

RegTech can help regulators improve their ability to monitor the wider marketplace. Improved data collection and analysis generates insights that lead to refinements of rules and guidelines that contribute to financial inclusion.

Regulators can also use RegTech to more directly engage with consumers to ensure they are properly protected. Technology is becoming an increasingly essential consumer protection tool as broader segments of society enter the financial sector.

2.3.2 REGTECH – LESSONS LEARNED

While RegTech is still in its early stages, lessons are already emerging from those regulators and governments that have begun to adopt new technology:

1. **Executive sponsorship matters.** The Bangko Sentral ng Pilipinas provides a good example of executive sponsorship, with the governor and other senior executives actively engaged both publicly and internally.

10 Monetary Authority of Singapore. 2018. "MAS Proposes New Regulatory Sandbox with Fast-Track Approvals." http://www.mas.gov.sg/News-and-Publications/Media-Releases/2018/MAS-Proposes-New-Regulatory-Sandbox-with-FastTrack-Approvals.aspx

2. **Broad-based stakeholder buy-in can pay dividends.** The Aadhaar digital identity program in India was positioned to solve a number of problems felt across government, including social security fraud.

3. **Match solutions to problems.** The RegTech for Regulators Accelerator (R2A) works closely with regulators to diagnose regulatory "pain points", followed by identification and crafting of potential solutions.

4. **The benefits of multi-disciplinary teams.** The U.S. Digital Service seeks to recruit a wide variety of experts and skillsets as part of its digital transformation projects.

5. **Success can bring about further success.** The Bank of England demonstrated how small experiments can lead to larger transformations when it began experimenting to learn more about RegTech.

6. **Crowdsourcing solutions can surface novel ideas.** There are many novel ways for regulators to engage with innovators on RegTech, such as through hackathons or developing Proofs of Concept.

7. **Culture and procedural challenges must also be addressed.** Digital transformation teams from countries such as Italy and the U.S. have taken steps to remove process barriers to the adoption of new technology.

Part 3: Implementation Considerations

Many innovative regulatory initiatives described above are still in the early stages of development. Empirical data is limited, including on their impacts on financial inclusion. However, it is clear that no single initiative is a "silver bullet" for the effective regulation of inclusive financial innovation.

Regulators should first consider their wider role in the preconditions for inclusive FinTech. One useful resource is the G20 HLP for Digital Financial Inclusion. The FinTech Working Group of the UNSGSA has also identified key prerequisites, including data privacy, cybersecurity, digital identification, connectivity, interoperability, financial and digital literacy, fair competition, and physical infrastructure such as agent networks.[11]

The following 10 Implementation Considerations are designed for regulators who have carefully considered the preconditions noted above and plan to develop their own initiatives. Regulators should consider their own specific market and circumstances prior to adoption.

IMPLEMENTATION CONSIDERATIONS

1. **Conduct a feasibility assessment that focuses on capacity and objectives**
   Regulatory authorities in Kenya adopted such an approach when mobile money emerged in the country. This ensured the proportionate use of resources, and further monitoring and assessment resulted in more detailed regulation at a later stage.

2. **Engage with a wide range of relevant stakeholders; consult to identify challenges and crowdsource solutions**
   The Bangko Sentral ng Pilipinas found that engaging with new types of technology providers supported the development of RegTech, which in turn helped to identify barriers to inclusive financial innovation.

3. **Ensure executive buy-in and institutional support, focusing on mindset and culture**
   Authorities such as the Central Bank of Bahrain have given their innovation offices a direct reporting line to the governor or equivalent organization head, in order to promote executive buy-in and institutional support.

4. **Sequence and combine a variety of approaches for regulatory innovation**
   Following the creation of an innovation office, the Monetary Authority of Singapore launched other initiatives such as a sandbox, the Global FinTech Hackcelerator, exploration and development of RegTech, and an activity-based Payment Services Bill.

5. **Start small, experiment often, and gain quick wins**
   In Mexico, the Comisión Nacional Bancaria y de Valores undertook small, quick experiments on RegTech to generate momentum and enable the authority to better understand technology and gather valuable learnings along the way.

6. **Be adaptable, flexible, and open to refining the approach**
   The Hong Kong Monetary Authority moved quickly to improve upon the first generation of its regulatory sandbox, following stakeholder engagement. This resulted in higher uptake of the second-generation sandbox.

7. **Facilitate inter-agency coordination and collaboration**
   Regulators in France and the Netherlands offer joint innovation offices to provide innovators with a single voice. Provincial

11 UNSGSA (United Nations Secretary-General's Special Advocate for Inclusive Finance for Development). 2017. "Annual Report to the Secretary-General." https://www.unsgsa.org/files/5015/0595/4381/UNSGSA_report_2017-final.pdf

securities regulators across Canada also offer a single regulatory sandbox through the Canadian Securities Administrators.

8. **Develop a theory of impact and metrics of success**
   The RegTech for Regulators Accelerator (R2A) has developed a theory of change comprised of core inputs, outcomes and overarching goals, including supporting financial inclusion. R2A supported the development of an anti-money laundering tool in Mexico, which can support financial inclusion through the implementation of the risk-based approach.

9. **Ensure proportionality**
   Bank Negara Malaysia tested the proportionality of electronic Know Your Customer solutions, before amending regulation to allow customer identity verification via electronic identifiers.

10. **Utilize regulatory innovation to support capacity building**
   Innovation offices and regulatory sandboxes can promote a pro-innovation mindset and lead to new ways of doing things internally. RegTech can enable the development of the infrastructure necessary to regulate financial services in the digital age, such as in India and Singapore.