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DIGITAL FINANCIAL SERVICES
(DFS) WORKING GROUP

INNOVATIVE REGULATORY APPROACHES TOOLKIT

TOOLKIT

CONTENTS

ACKNOWLEDGMENTS

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This Toolkit is a product of the Digital Financial Services Working Group (DFSWG) and its members.

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1. OBJECTIVES AND FRAMEWORK

Countries and economies around the world are seeking ways to foster their digital finance and financial technology ('FinTech') ecosystems to better support financial inclusion and sustainable development. At the core of such efforts are supporting the development of new products and services, bringing more competition and consumer choice into their financial systems and increasing savings and investment to support both individual and community development.

At the same time, the potential of innovation must also be balanced against potential risks, in particular financial stability, consumer protection and market integrity concerns. In order to support these objectives, regulators are developing new regulatory approaches, including innovation hubs and regulatory sandboxes (which we collectively term, 'innovation facilities') as well as new policy frameworks and the use of technology for regulatory and supervisory purposes ('RegTech' and 'SupTech').

Innovation facilities are created to offer direct and indirect support to novel digital finance and fintech initiatives in a controlled environment. They are underpinned by foundational infrastructure, including mobile and other communications systems especially internet access, digital identification systems (in particular sovereign systems), frameworks to encourage simplified and widespread opening of financial and mobile money accounts, and interoperable electronic payment systems. All of the above enable a range of e-government services as well as an environment for wider commercial development, supporting financial inclusion and progress towards the UN Sustainable Development Goals (AFI 2018).

Such foundational infrastructure works best in the context of appropriate balanced and proportional regulatory approaches to innovation, digital finance and FinTech. This includes the general efficiency of the legal system, human capital development, support for research and development, access to information, and availability of financing. More narrowly, it also depends on the use of technology by regulators and supervisors themselves (RegTech and SupTech) in order to better achieve regulatory objectives, enhance competition and efficiency (AFI 2020a).

This Toolkit provides a structured approach to the implementation considerations of innovative regulatory approaches including innovation facilities for authorities with jurisdiction over financial products and services (which we term 'Regulators'). It aggregates a variety of resources and case studies to provide guidance for Regulators seeking to answer the following questions:

1. What are innovation facilities?
2. What are the pre-requisites for effective innovation facilities?
3. When should Regulators consider implementing an innovation facility?
4. How to implement an innovation hub?
5. How to implement a regulatory sandbox?
6. How to steer efforts towards regional cooperation in innovation facilities?

This Toolkit aims to complement existing guidance on innovative facilities by AFI and other stakeholders through providing additional practical evaluation tools. In using this Toolkit, regulators from the AFI network and beyond are invited to employ the attached workbook, which provides self-assessments and exercises to help guide their decision-making process.

2. INTRODUCTION: FINTECH AND INNOVATION FACILITIES

Since the global financial crisis of 2008 there has been rapid and extensive growth in the application of technology to financial services: financial technology or 'FinTech'. Generally, these are financial products, services or systems that rely on the internet and other information technologies.

FinTech has quickly brought a gamut of transformational opportunities: mobile banking, e-government services, new payment options and robo-advisory to name just a few among many. The transformative benefits of embracing these new systems are myriad, especially for promoting financial inclusion and supporting the achievement of the UN SDGs. However, this paradigm shift comes with challenges that extend to financial stability, fragmentation, consumer protection, rent-seeking practices, and the risk of financial exclusion.

Regulators may struggle with understanding and assessing the risks of new products and services. This can increase risk-averse behavior by Regulators, which may well limit their capacity to capture the benefits of FinTech.

To achieve a balance between these benefits and challenges, Regulators have taken a variety of approaches to FinTech. They can adopt a passive, 'wait and see' approach to developments in the market, responding only when the need arises. They can also address issues on a case by case basis either by providing additional oversight of new entrants, or making incremental changes to their regulatory frameworks as needs dictate. Alternatively, Regulators can be proactive and seek to steer FinTech at a specific pace or towards a specific goal. Using a simplified framework, a 'single window' of regulation can be created to help firms that meet qualifying criteria to access input from the Regulator and go to the market. Or a growing FinTech market may require a structured experimental approach that allows Regulators to carefully monitor the testing of FinTech products and services under a defined framework.

2.1 INNOVATION FACILITIES AND REGULATORY OBJECTIVES

Policy makers worldwide have been rapidly implementing innovation facilities to promote innovation in the financial sector. Innovation hubs and regulatory sandboxes are the two principal types of innovation facilities.[1] These facilities can be marvellous educational tools for Regulators, supporting their learning about the latest market developments and thus their capacity to make more informed policy decisions, while also protecting consumers. At the same time, they provide an important feedback channel that helps market players better understand and align with Regulator intentions and policy.

2.2 THE BENEFITS AND RISKS OF INNOVATION FACILITIES

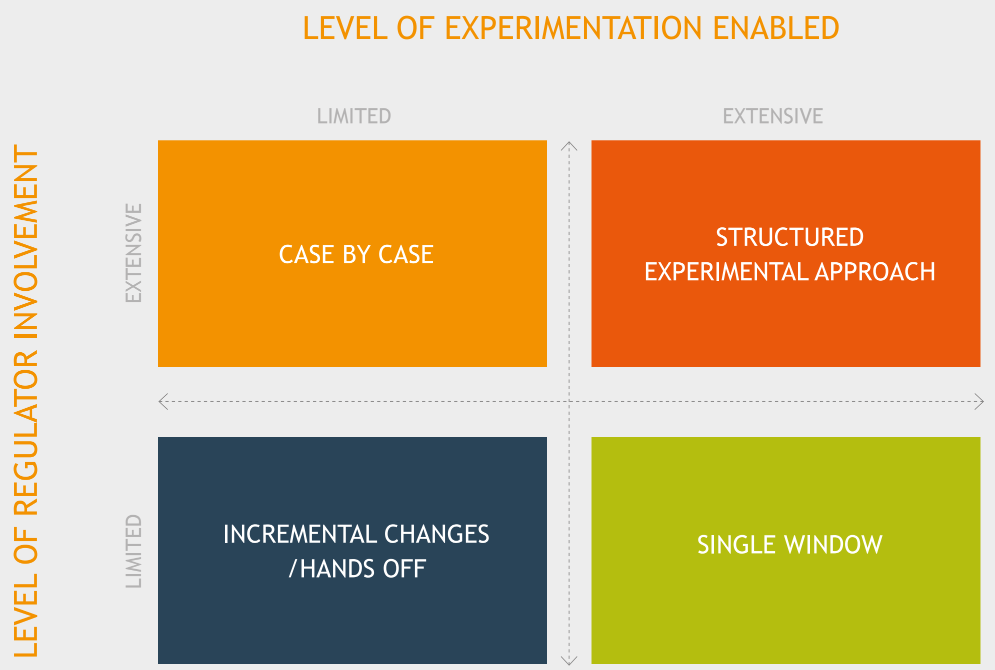
Regulators may want to establish innovation facilities for several reasons. First, they can promote regulatory understanding of FinTech developments and provide more control over related risks, allowing for more rapid and effective activation of mitigating measures. With a greater number of channels for insight into the market, such facilities enable regulators to better review current regulation for fitness of purpose and their consequences for market innovation. Firms benefit from innovation facilities by benefiting from the guidance of the Regulator, which can fill knowledge gaps and save resources, which is especially important for early-stage firms. Incumbent firms may also gain greater insight into future policy directions, allowing them to mobilize larger investments and reduce time to market. A major, aggregate benefit is a general reduction in regulatory uncertainty, through better mutual understanding. Such facilities can also allow regulators to better calibrate regulatory reforms.[2] Lastly, establishing any kind of innovation facility sends a strong signal to the market that a jurisdiction welcomes novel enterprise, and that the regulator is flexible and responsive.[3] Interestingly, it seems that regulatory sandboxes send this message more clearly than other forms of innovation facilities. For some reason, the term regulatory sandbox tends to cut through and be heard.

1 RegTech / regulatory accelerators are another, less used innovation facility, as are wider uses of RegTech / SupTech which are becoming increasingly common.

2 FCA: Financial Conduct Authority (2015, November 5). Regulatory Sandbox. https://www.fca.org.uk/firms/regulatory-sandbox; CMA (2017) Stakeholders Consultative Paper on Policy Framework for Implementation of a Regulatory Sandbox to Support Financial Technology (Fintech) Innovation in the Capital Markets in Kenya, available at https://bit.ly/2wivqsp ; ' Mueller, J., Murphy, D. & Piwowar, M. (2018). Response to the Global Financial Innovation Network (GFIN) Consultation Document, available at https://bit.ly/2RZnZQj

3 Zetzsche, D., Buckley, R., Arner D. W. & Barberis, J. (2017). Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation, Fordham Journal of Corporate and Financial Law, 23 (31), 64.

FIGURE 1: APPROACHES TO REGULATING FINTECH



Source: World Bank (2018)

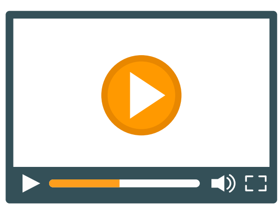
FIGURE 2: THE FINTECH REGULATORY CONTINUUM

REGULATOR ACTIVITY

- General market monitoring and enforcement
- Licensing
- Providing waivers/ exemptions or letters of no objection

INNOVATION HUB

- Informal intelligence gathering
- Non-binding guidance and support
- Bilateral discourse with stakeholders

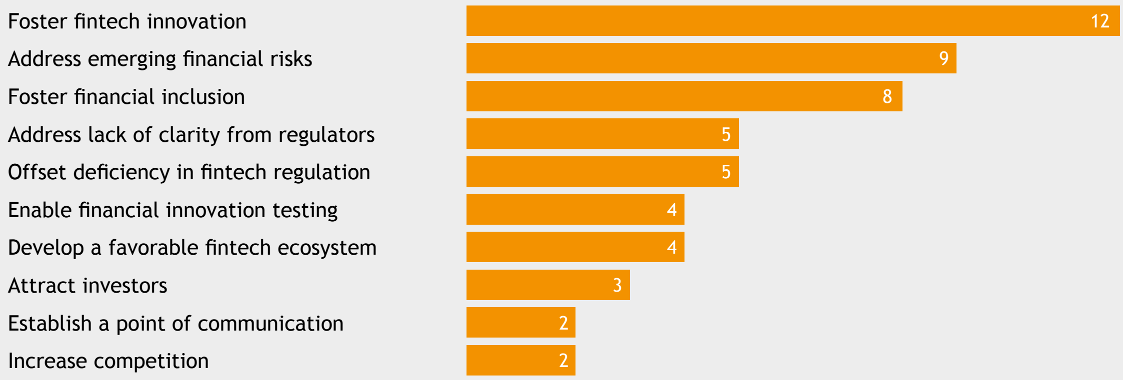


REGULATORY SANDBOX

- Live testing
- Authorization decision for new FinTechs
- Determination of necessary changes to rules or regulation

AFI NETWORK INSIGHTS 1: TOP 10 DRIVERS FOR ESTABLISHING AN INNOVATION FACILITY

46 regulators and financial service authorities within the AFI network were asked about the main drivers for them to choose a Regulatory Sandbox, an Innovation Hub or a combination of both.



*The rate indicates the number of times the items were mentioned as main drivers by the respondents.

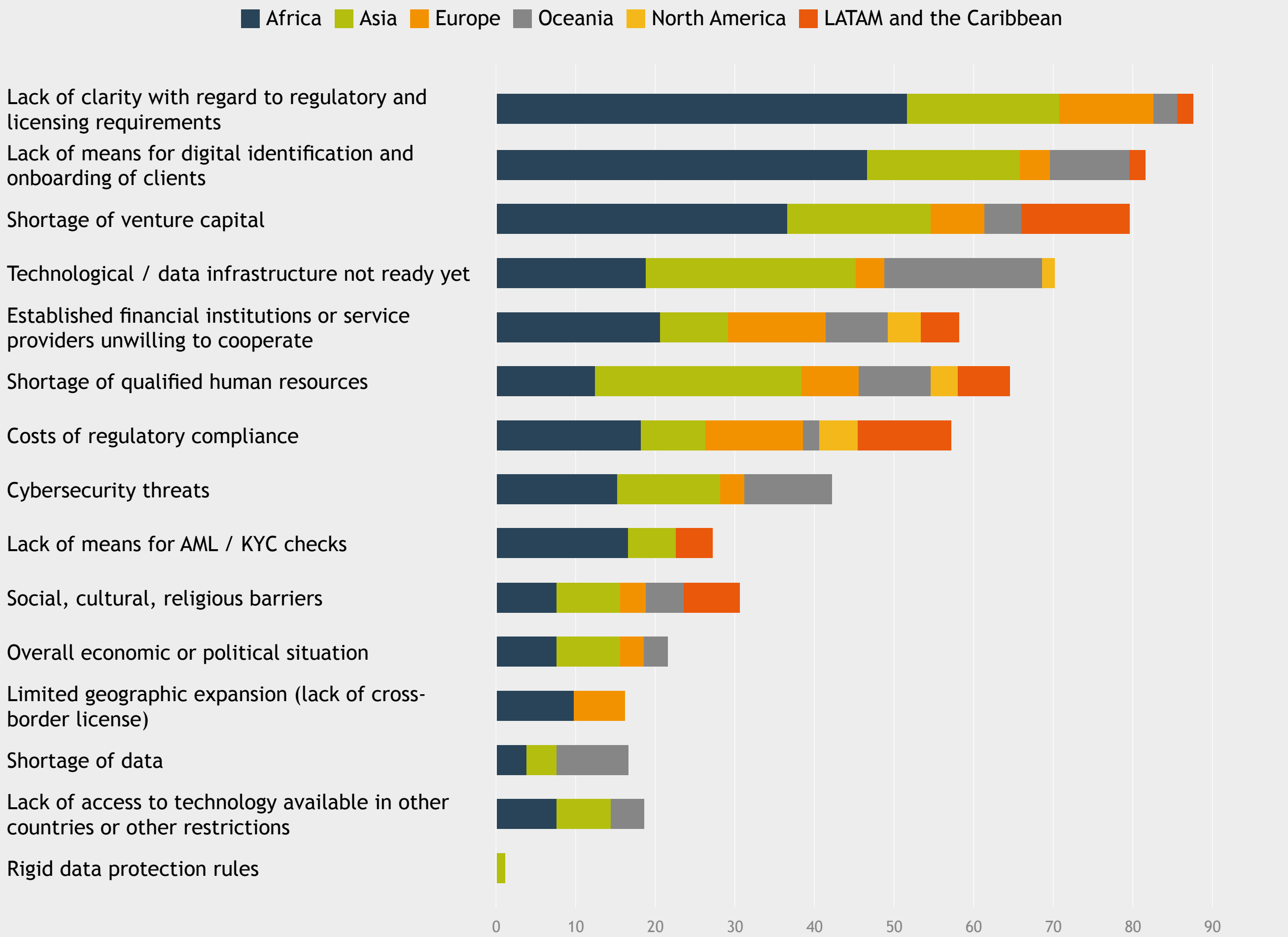
AFI NETWORK INSIGHTS 2: MOST PRESSING FINTECH CHALLENGES

Respondents were asked to rate 1 or more of the 15 FinTech related challenges listed below on a scale of 1 to 5, with 1 the "least pressing challenge" and 5 the "most pressing challenge". The chart below shows the "aggregated" ratings per "FinTech challenge". As the Top 3 FinTech challenges AFI network respondents identified:

> Lack of clarity with regard to regulatory and licensing requirements

> Lack of means for digital identification and onboarding of clients

> Shortage of venture capital.



Though the different types of innovation facilities can be complementary, the schemes bring different benefits and risks to the table.[4]

This Toolkit aims to help policymakers better navigate the different benefits and risks that different types of innovation facilities can produce. It takes into account the core challenges identified by policy makers, including uncertainty about regulatory requirements, lack of appropriate digital infrastructure, and shortage of R&D funding and other forms of financing, including venture capital. This Toolkit also lists the factors that might be helpful to consider when establishing innovation facilities, and shows how they can be implemented using different levels of digital infrastructure and investment activity. Innovation hubs or regulatory sandboxes may provide the positive feedback loop necessary to mobilize further infrastructure development and market activity.

2.2.1 INNOVATION HUBS

Innovation hubs (also known as 'innovation offices,' 'innovation labs,' 'FinTech labs,' 'task forces,' or 'contact points') are portals or other mechanisms which enable firms to engage with competent authorities on FinTech-related regulatory issues and seek guidance on the conformity of innovative financial products and services with regulatory requirements. Though the exact structures of innovation hubs differ across jurisdictions, common to most such initiatives are their roles in supporting, advising, and guiding regulated or unregulated innovative firms through the regulatory framework. Generally, the advice and guidance offered by innovation hubs is non-binding, but this is not always the case, and hubs can provide waivers, exemptions, or letters of no objection. At a practical level, many regulators, through an innovation hub, engage in a variety of proactive outreach events.[5]

4 World Bank. (2020). How Regulators Respond to FinTech: Evaluating the Different Approaches - Sandboxes and Beyond. Fintech Note; No. 4. World Bank. https://openknowledge.worldbank.org/handle/10986/33698

5 See for example, the UK FCA's Techsprint or the ASEAN Codeathon. FCA, 2016. "Consumer AccessTechSprint" 18 April 2016 https://www.fca.org.uk/events/techsprints/consumer-access-techsprint Accessed 6/11/19; AUSTRAC, 2018. "Register now for the ASEAN-Australia Codeathon." https://www.austrac.gov.au/register-now-asean-australia-codeathon Accessed 6/11/19

THE FINTECH INNOVATION CYCLE

Country-specific FinTech related challenges may be addressed by establishing innovation facilities. These can contribute to foster FinTech innovation as reported by the national regulators and ultimately develop a FinTech ecosystem. Continuous FinTech innovation generates further challenges (regulatory FinTech challenges among others). FinTech innovation facilities coupled to an iterative regulatory development and learning process are required to keep up with FinTech innovation.

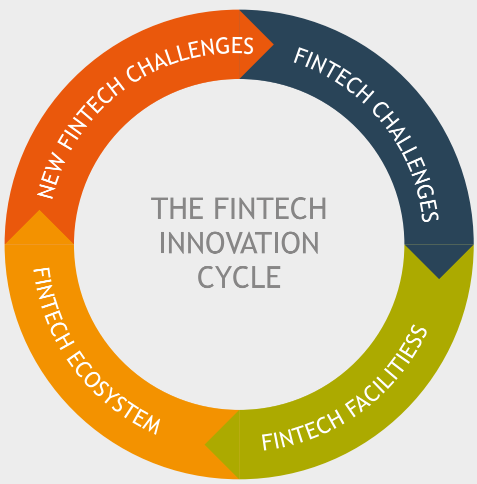


FIGURE 3: INNOVATION HUB OUTREACH ACTIVITIES

PUBLIC OUTREACH
- Interdisciplinary training
- Open Days
- Public-private dialogue

PRIVATE OUTREACH
- Networking events
- Tech fairs
- Forming a FinTech Council / Advisory Group

MIXED OUTREACH
- Hackathons
- Co-working space support
- Workshops

Innovation hubs typically engage early in the regulatory continuum, being particularly relevant to early-stage unauthorized firms, or authorized incumbents in the planning stages of new products or services.

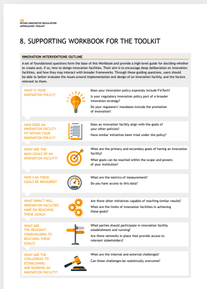
Innovation hubs are particularly effective in doing the ‘heavy lifting’ of guiding innovative FinTech initiatives through the regulatory maze. They generally receive many enquiries (significantly more than regulatory sandboxes) and from a much broader range of firms.[6] Innovation hubs are thus capable of promoting the establishment of a new FinTech-friendly culture, which can be especially beneficial to emerging markets countries. The uniquely malleable nature of innovation hubs offers other important benefits to Regulators. By generally engaging in non-binding activity, innovation hubs are more able to respond to changing circumstances. Regulators can adjust the activities of the hub to meet new priorities and market demand. However, market stakeholders are discerning in their engagements with hubs, and early regulatory failures can have the opposite of the intended effect. For example, if information disseminated by a hub is found untrustworthy, the private sector may quickly lose interest in engaging with it.[7] To secure their reputation, innovation hubs require regulators to be accurate and consistent. This requires more forward planning of FinTech policy and calls for well qualified staff in the hub.[8]

2.2.2 REGULATORY SANDBOXES

Regulatory sandboxes are formal regulatory initiatives through which firms can experiment with new products, services, or business models in a live environment with safeguards, under the supervision of the Regulator. The safeguards generally take the form of limitations in time, scope, scale and clients. Unlike innovation hubs, sandboxes always enforce screening procedures to prioritize participants. Sandboxes are employed to provide relief from the rigor of full regulation for novel products or services of a kind the regulator would like to promote. Regulatory sandboxes are typically utilized towards the final stage of the regulatory continuum, catering to firms that have already developed products or services and are ready to test their viability in the market.

Regulatory sandboxes promote far more regulatory understanding of particular FinTech products, services, and business models through a live-testing function. By lowering the costs of establishing proof of concept, and streamlining the license process, regulators can decrease obstacles to the quick and safe deployment of innovative products and services.[9] Through the policy settings for the sandbox, such as promoting financial inclusion as in the regulatory approaches of Sierra Leone, Malaysia, Bahrain and Jordan, the sandbox can also be a tool to advance certain objectives.[10] Nonetheless, the benefits of regulatory sandboxes are linked to the capacity of Regulators to manage complex innovations, as well as the maturity and readiness of FinTech market participants to make use of such initiatives.

As with innovation hubs, vacant or mismanaged ‘copycat’ sandboxes will send detrimental signals to market stakeholders. The risks of regulatory sandboxes are thus closely tied with their proper management. Sandboxes can make the playing field uneven, especially if they favor incumbents. Regulators may face a variety of liability issues or miss the exit signals of a live test and thereby harm consumers.



Proceed to the **Innovation Interventions Outline** in the Workbook

> Page 29

6 Sharmista Appaya and Ivo Jenik, “Running a Sandbox May Cost Over $1M, Survey Shows”, 1 August, 2019, CGAP, accessed 2 March, 2020.

7 Wechsler, Michael and Perlman, Leon and Gurung, Nora, The State of Regulatory Sandboxes in Developing Countries (November 16, 2018). Available at SSRN: https://ssrn.com/abstract=3285938 or http://dx.doi.org/10.2139/ssrn.3285938

8 Buckley, R. P., Arner, D. W., Veidt, R., & Zetzsche, D. A., (2019). Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond, Washington University Journal of Law and Policy, 61. https://ssrn.com/abstract=3455872

9 Mueller, J. (2017). FinTech: Considerations on How to Enable a 21st Century Financial Services Ecosystem. Available at https://bit.ly/2NMbKDS; Crane, J., Meyer, L. & Fife, E. (2018). Thinking Inside the Sandbox: An Analysis of Regulatory Efforts to Facilitate Financial Innovation, RegTechLab. https://bit.ly/2oD1ZwS

10 Wechsler, M., Perlman, L. and Gurung, N., (2018). The State of Regulatory Sandboxes in Developing Countries. Available at SSRN: https://ssrn.com/abstract=3285938 ; Crane, J., Meyer, L. & Fife, E. (2018). Thinking Inside the Sandbox: An Analysis of Regulatory Efforts to Facilitate Financial Innovation, RegTechLab. https://bit.ly/2oD1ZwS

THE SOUTH AFRICAN EXPERIENCE - PUTTING LEARNING FIRST

In 2016, a group of South Africa's financial sector regulators established the Intergovernmental Fintech Working Group (IFWG) to coordinate and develop a unified response to fintech developments and regulation in South Africa.

The group has grown to consist of South Africa's financial sector regulators:

- the Financial Sector Conduct Authority (FSCA),
- the National Credit Regulator,
- the South African Reserve Bank (SARB),
- the Financial Intelligence Centre,
- the South African Revenue Service, and
- the National Treasury.

The IFWG has set out several core objectives, including advancing an understanding of FinTech developments and their regulatory implications for the South African financial sector, and helping foster FinTech innovation while protecting the markets and consumers, and ensuring financial stability.[11]

To develop insight into the needs of public and market stakeholders, IFWG held multiple yearly outreach events with a broad range of participants, in the form of conferences, thematic workshops, one-on-one meetings, and others. These efforts informed the IFWG about the opportunities for better cooperation, and the working group began work on the parameters of a potential innovation facility. It was decided that the best fit for the market would be a facility that serves FinTechs, traditional banks, and other incumbents in the banks, equally - without a thematic focus.

In 2020, the SARB and FSCA established an innovation hub[12] consisting of three innovation structures: The Regulatory Guidance Unit, a regulatory sandbox, and an innovation accelerator. The Regulatory Guidance Unit provides regulatory relief by answering enquiries about regulatory concerns. It provides a web platform for any inquiry related to the FinTech space. Submissions must identify a sending organization, with a description of their innovative products or services.

The regulatory sandbox provides regulatory relief measures within the existing legislative framework, allowing new products to be tested in a controlled, live environment. The innovation accelerator explores innovation that can improve and transform the regulatory environment and advance financial services by working collaboratively with a variety of stakeholders. The overarching aim of the units is to bring regulatory clarity and bring innovative financial products and services under an appropriate regulatory framework.[13]

The South African innovation hub follows a hub and spoke model. FSCA and SARB contribute FinTech teams that compose the core of the innovation structure. The RGU provides a 'first responder network' with appropriate subject matter experts across the IFWG who are called upon to provide responses to Regulatory Guidance Unit questions. This format provides an effective spread of resource burden across the various participants of the IFWG, while ensuring permanent contact points and, importantly, the sustained dissemination of insights across the network of regulators.[14]

11 Genesis Analytics ("Genesis"). (2019, October). Fintech Scoping in South Africa [PowerPoint slides]. www.treasury.gov.za/comm_media/press/2020/WB081_Fintech Scoping in SA_20191127_final (002).pdf

12 Intergovernmental Fintech Working Group. (2020). Intergovernmental Fintech Working Group. https://www.ifwg.co.za/

13 Intergovernmental Fintech Working Group. (2020, 7 April). Media Statement on the Launch of the Intergovernmental Fintech Working Group (IFWG) Innovation Hub [Press release]. Retrieved from https://www.ifwg.co.za/wp-content/uploads/Press_Release_Innovation_Hub_Launch.pdf

14 Intergovernmental Fintech Working Group. (2020, 7 April). Media Statement on the Launch of the Intergovernmental Fintech Working Group (IFWG) Innovation Hub [Press release]. Retrieved from https://www.ifwg.co.za/wp-content/uploads/Press_Release_Innovation_Hub_Launch.pdf

3. FOUNDATIONS AND INFRASTRUCTURE

The value of innovation hubs and regulatory sandboxes is linked to their placement within a broader innovation and digital financial transformation strategy, encompassing the development of digital financial infrastructure, regulation, and the broader FinTech ecosystem.

3.1 DIGITAL FINANCIAL INFRASTRUCTURE

Digital financial infrastructure is built on the widespread availability of mobile communication devices - ideally smartphones supported by broadband internet although this is by no means necessary. Rather, the key is widespread mobile penetration, with mobile phones undeniably having emerged as one of the most powerful technological innovations in history, particularly from the standpoint of financial inclusion and sustainable development in the context of the SDGs.

On the basis of mobile communications, as highlighted in AFI's FinTech for Financial Inclusion Strategy and adopted by its members in 2018, there are four core pillars of digital financial infrastructure that are now seen as central to digital financial transformation that support financial inclusion and the SDGs, particularly in the wake of COVID-19.[15]

First, sovereign digital identity systems provide formal identity and identification that many in developing countries lack, preventing their access not only to finance but to the formal economy and even basic government services. Such systems are foundational in transformation. When combined with networked access to 'golden source' government data, sovereign digital ID can underpin paperless identification that can be easily verified by third parties without requiring the presence of its holder. Second, interoperable digital payment systems support increasingly interconnected and robust digital financial networks. These are the veins of the economy, through which its life-blood of money flows. Robust money flows and payments systems are a foundational public good for economies and societies in general. Third, simplified account opening rules appropriate to the majority of the population support financial inclusion, enabling people to make and receive payments as well as save and even invest.

Fourth, digital finance infrastructure supports the electronic provision of government services and transfer payments, which have proven crucial in the context of COVID-19 as well as in enhancing effectiveness and efficiency of government programs more generally in supporting financial inclusion and the SDGs.

The digitalization of government services and payments also incentivizes individuals to familiarize themselves with the digital environment and reduces the 'leakages' of government payments common in paper-based systems, especially in populations with low literacy rates. Taken together, these four pillars can reduce the costs of market entry and customer acquisition, making viable a virtually infinite range of new businesses and products - the true potential of the Next Billion. Unequal access to such infrastructure can likewise limit the impact of such businesses.

3.2 REGULATORY FRAMEWORKS

Prior to building innovation facilities, policymakers and regulators should take stock of their current FinTech framework and institutional capacity to assess the fit and potential benefit of new initiatives.[16] Organizational infrastructure such as appointment policies, payments systems, cybersecurity and data analytics must be robust enough to support new FinTech enterprises. Regulators should have the capacity to engage in evaluation and testing of new technology, and to consult widely to promote regulator learning in the market. The target market or sector should be well defined and analyzed to realistically gauge the potential for positive outcomes from innovation facilitation. Concurrently, capacity building initiatives should include programs for regulatory staff, industry workforce, and consumers.

The efficiency of a digital financial infrastructure is directly related to its regulatory framework. Regulatory frameworks can be prohibitive or opaque regarding the approval of new products and services for both regulators and stakeholders, thus discouraging their development. An appropriately designed regulatory framework is critical to ensuring space for development

15 See AFI / Arner, Buckley, Zetzsche & Mohammad, FinTech for Financial Inclusion: A Framework for Digital Financial Transformation - A Report to the Alliance for Financial Inclusion (Sept 2018), available at https://www.afi-global.org/publications/2844/FinTech-for-Financial-Inclusion-A-Framework-for-Digital-Financial-Transformation

16 AFI. (2020). Creating Enabling FinTech Ecosystems: The Role of Regulators. https://www.afi-global.org/publications/3181/Creating-Enabling-Fintech-Ecosystems-The-Role-of-Regulators

FIGURE 4: PRINCIPLES OF SMART REGULATION

ACTIVITY-BASED REGULATION

Regulation should reflect the activities and functions performed instead of the type of organization performing them.

GRADUATED PROPORTIONAL REGULATION

Regulation should be proportional to the size of the subject entity and the risks generated, graduated into tiers reflecting differences in risks, and take into account capacity disparities between small FinTech start-ups, major financial institutions and large technology companies.

GLOBAL FUNDAMENTALS

Regulation should be constructed on and remain consistent with shared international standards, especially in the areas of financial stability, transparency and efficiency, and market integrity / AML/CFT. Regulator's mandates may need to be broadened to encompass the promotion of market development and financial inclusion including innovation and competition to allow regulatory flexibility.

TOWARDS LOWER ENTRY BARRIERS

Regulation should promote competition in financial markets by facilitating entry into the markets for new, smaller players.

TECHNOLOGY-NEUTRAL REGULATION

Regulation should be focused on the activity and processes enabled by technology, instead of the technological innovations themselves. It is rarely a good idea to seek to regulate technologies as such.

and providing appropriate safeguards that balance financial inclusion, financial stability, market integrity, and consumer protection goals. There are four stages to a well-designed regulatory framework:

1. **IDENTIFY AND MODERNIZE UNSUITABLE REGULATION**
   Regulators should identify and adjust prohibitive regulation that disallows the use of new technologies in processes and business models, such as biometric identification for payments or alternative data scoring.

2. **IMPLEMENT GRADUATED, PROPORTIONAL REGULATION, IN TIERS**
   Rules on activities should be tailored to the risks related to those activities, and the size of the subject performing the activity.

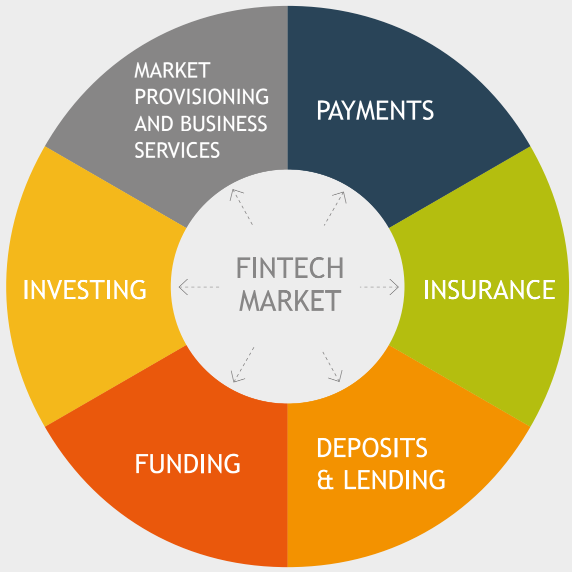
3. **UPGRADE SUPERVISORY DATA SYSTEMS AND REGULATORY TECHNOLOGIES**
   With appropriate funding, rules should enable regulators to use novel regulatory and supervisory technologies to better manage the growing data streams in FinTech markets. Digital financial transformation and FinTech demand the use of RegTech and SupTech.

4. **TESTING AND PILOTING ENVIRONMENT**
   Rules should allow for regulatory flexibility such as engaging in experimental frameworks, waiver programs, restricted licenses, and innovation facilities.

3.3 THE DIGITAL FINANCE AND FINTECH ECOSYSTEM

Updated regulatory frameworks and digital financial infrastructure are foundational to enabling inclusive, innovative activity. These, and an active, incentivizing FinTech ecosystem, strongly support the growth of innovative firms and wider progress toward the UN SDGs. Such a FinTech ecosystem consists of four interconnected factors.

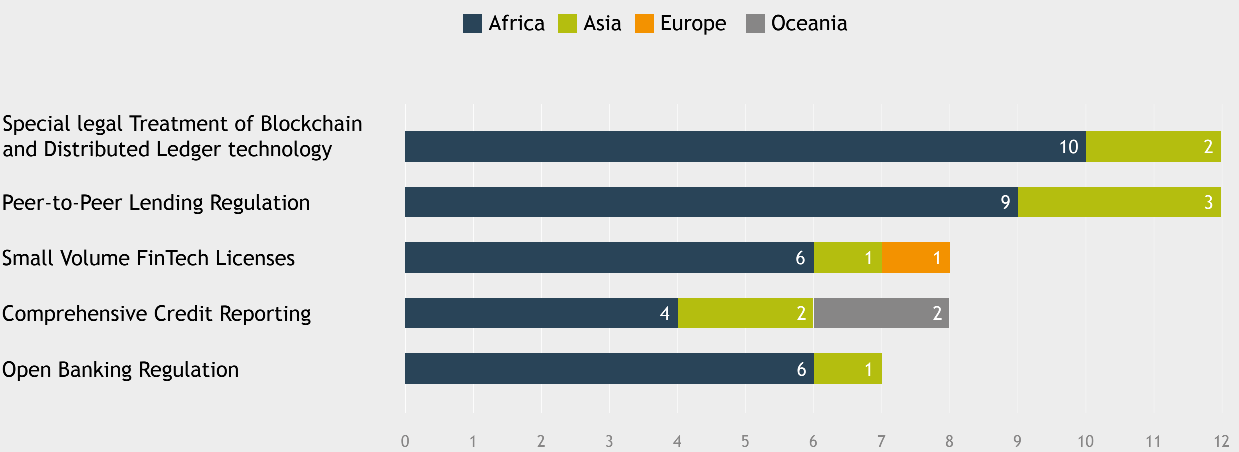
FIGURE 5. FINTECH MARKET SUBSECTORS



Source: World Economic Forum

AFI NETWORK INSIGHTS 3: FINTECH REGULATIONS PLANNED TO BE ESTABLISHED PER REGION

Out of 46 survey participants within the AFI network, 60% provided information on one or more FinTech regulation projects to be adopted in their jurisdiction. Data labels indicate the number of times a regulation was selected.



First, there must be a demand for digital finance and FinTech. Urbanization, mobile and internet penetration, and ease of use are major factors in creating a market of technologically literate individuals. The advent of digital lending processes and alternative funding and investment options are increasing expectations of once underserved small and medium enterprises (SMEs). Financial institutions can seek new efficiencies across their value chain, and governments may want to take advantage of digital identity authentication for e-KYC. Sustained demand is critical for engaging other stakeholders as greater participation will help to grow and evolve the ecosystem.

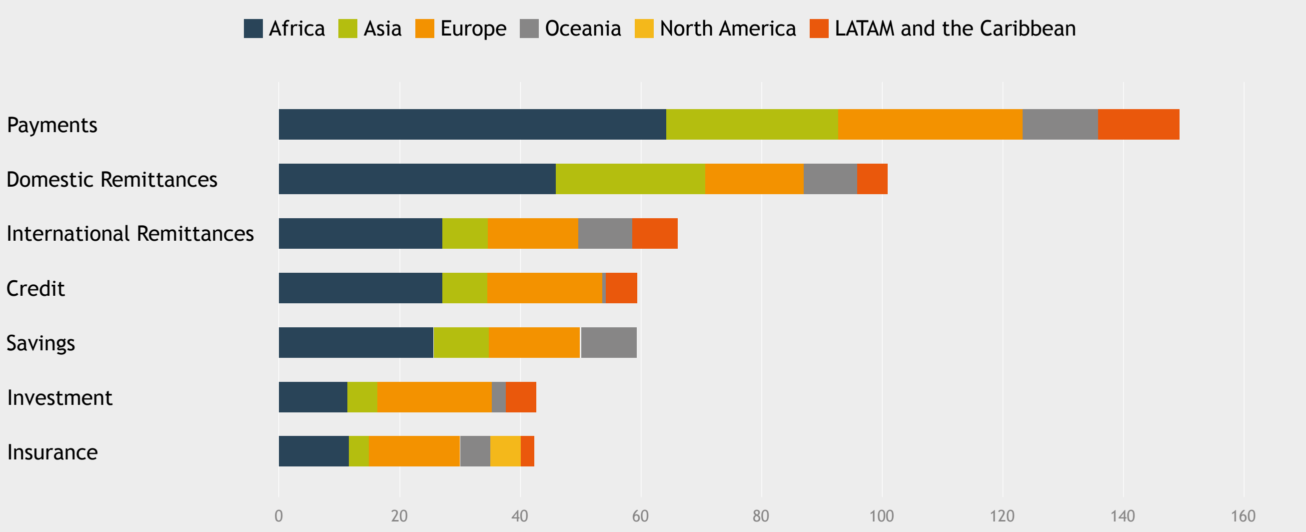
Second, this demand must be catalyzed by the capital invested in the FinTech market. Access to R&D funding and risk capital from angel funds, government funds and other sources is important to allow researchers, innovators and entrepreneurs to engage in developing and building new FinTech. Growth capital from venture capital, financial institutions and governments and other public sector organizations (such as multilateral development banks) provides important funding for early-stage firms. Strategic capital can further direct FinTech subsector development toward specific directions to meet demand. Support for R&D - both public and private - is central to providing the inputs (financial, intellectual and human) necessary to support the emergence and sustainability of a wider innovation and FinTech ecosystem.

Third, a FinTech ecosystem must be capable of generating or attracting the required talent to nurture innovation. Talent can be created through investments in FinTech-related upskilling programs and by funding of research and development. Talent can be attracted from beyond a country through ease of mobility and visa policies. Talent must not only be secured but also retained by creating an environment conducive to the new workforce.

To this end, the national business environment should create advantages to working in the country or region, especially through easing access to markets and encouraging clustering and integration of novel FinTech. Regionally consistent approaches to FinTech regulation have a real role to play here - investing in six or eight smaller countries that have consistent FinTech regulations is a very different economic proposition to investing in the same countries if they had diverse rules and regulatory approaches. Furthermore, traditional national support such as intellectual property protection, tax relief, and otherwise removing obstacles to the FinTech innovation pipeline will also be helpful.

AFI NETWORK INSIGHTS 4: MOST COMMON FINTECH SERVICES PER REGION

Out of 46 survey participants within the AFI network, 80% ranked one or more “fintech service/products” in their jurisdiction on a scale of 1 to 5, with 5 meaning “most common” and 1 the “least common”. The graph below indicates the number of times a fintech product/service was selected.

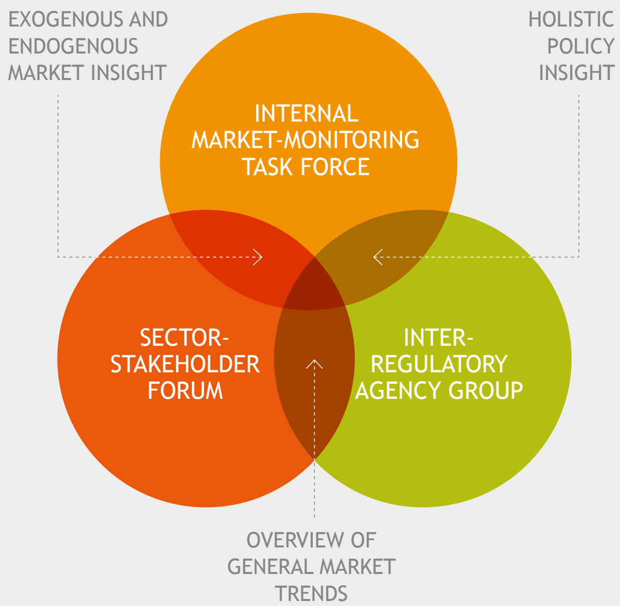


4. ENABLING REGULATORS

Regulators are at the center of their respective FinTech ecosystems and are generally the locus of innovation facilities. However, before embarking on the creation of an innovation facility, it is important to assess the current organizational frameworks and capacities related to regulatory innovation.

AFI's work on the role of regulators in creating enabling FinTech systems provides five key criteria regulators should address to better foster their FinTech ecosystems: regulator-embedded networks, organizational structure, capacity and skill building, engagement and outreach, and regulatory frameworks and incentives.[17]

FIGURE 6: REGULATOR NETWORK SYNERGIES



4.1 REGULATOR-EMBEDDED NETWORKS

Strong foundational networks help Regulators to build innovative regulatory capacity in FinTech by enabling them to gather more information than they can on their own, and to extend or fine tune policies. Though the forms of these networks differ across countries, global best practice identifies three important interconnected pillars upon which Regulators typically depend for information.

1. AN INTERNAL MARKET MONITORING TASK FORCE.

Regulators should constantly observe and assess their relevant FinTech market and have the capacity to refocus attention and other resources as needed. Such a task force should be proprietary to the Regulator, and capable of drawing on the expertise of different departments as the need arises. For example, emerging payment FinTech could require more monitoring by the payment systems and IT departments, while new forms of digital credit could require attention from the credit and legal departments. The capacity of such a task force to oversee and understand FinTech developments may also indicate expertise gaps which may need to be filled.

2. AN INTER-REGULATORY AGENCIES GROUP.

Policy and regulation of financial markets is generally shared among central banks, ministries of finance, and consumer protection agencies. FinTech invariably traverses various domains; thus to gain a holistic understanding of its development, all relevant groups should regularly exchange information. This will help in the understanding of a FinTech ecosystem and the appropriate regulatory approaches to it. It also hastens the decision-making process when an executive authority is part of the group.

3. A SECTOR-STAKEHOLDER FORUM.

Regulators need a constant link to their stakeholders in the market to stay in touch with emerging FinTech trends. Depending on the local market, a stakeholder forum should consist of representatives of the Regulators, other relevant agencies, incumbent financial institutions, FinTech companies, and other important local players. Such fora should be constructed to encourage candid feedback on new services, products and business model innovations, as well as on policy objectives and regulatory provisions.

These three units should provide highly valuable and useful insights into the FinTech ecosystem by providing information streams on FinTech markets that can be cross-referenced, and the interaction among market players and with regulators. The Regulator should ensure the interoperation of the three pillars is vibrant and consistent so that feedback channels remain relevant and comprehensive.

17 AFI (2020, January). Creating Enabling FinTech Ecosystems: The Role of Regulators. https://www.afi-global.org/publications/3181/Creating-Enabling-Fintech-Ecosystems-The-Role-of-Regulators

In addition, Regulators should seek to enhance knowledge exchange and inter-regional cooperation with authorities of foreign jurisdictions to allow innovative firms to capitalize on economies of scale allowed by platform- and data-driven business models. There is potential to learn from foreign authorities and save time in dealing with risks of particular business models.

Further, regional knowledge exchange can beneficially lead to harmonization of requirements, allowing for mutual recognition or even regional, rather than national, Regulatory Sandboxes.

4.2 ORGANIZATIONAL STRUCTURE AND CAPACITY BUILDING

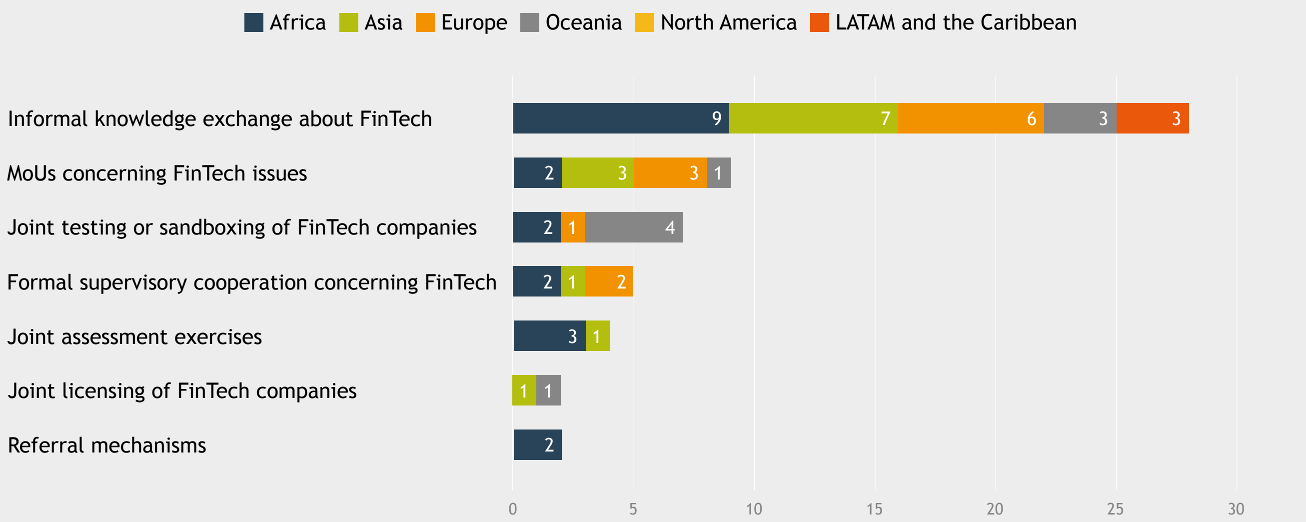
A Regulator will generally interact with the market as part of its usual duties, and this may already include working on FinTech innovation matters. Though the organizational structure of innovation units differ between centralized, singular, specialized units and decentralized hub and spokes models, regulators should be able to secure resources for the following core functions and cohesively perform them in order to engage with market innovations:

- Liaison between financial services and product providers and relevant departments in regulatory entities
- Analysis of new innovations and activities that are beyond the current regulatory scope
- Implementation of programs and policy measures to aid FinTech innovation
- Operation of testing and piloting initiatives

The organizational structure of the unit should allow these functions to be conducted together and seamlessly, allowing for rapid information sharing and the securing of necessary approvals for initiatives. Though a decentralized model may save resources in the short-term, a centralized unit with its own capacity can reduce administrative burden in the longer term, especially by ensuring consistency in external knowledge-collection and in its internal analysis and dissemination.

AFI NETWORK INSIGHTS 5: MECHANISMS WITH FOREIGN AUTHORITIES

Among 46 survey participants within the AFI network, 90% responded to the question on communication with foreign authorities. While half of the respondents engaged in “informal knowledge exchange about FinTech” with foreign authorities in their region and beyond, 40% are part of a council/committee/working group for FinTech at this level. The graph indicates the number of times the items listed were selected.



The set-up of the unit should be proportional to the envisioned needs and focus of the Regulator. Depending on the types of FinTech initiatives expected, more resources can be given to departments handling, for example, payments infrastructure or cybersecurity.

The organizational structure must also set up a robust base for Regulators to develop the necessary capacity to engage with novelties and keep up with market developments. Beyond acquiring the necessary resources for technical capacity, this involves adopting an organizational mindset that suits the evolving nature of the FinTech market. Such a mindset should encourage flexibility both internally and externally. Training and exercises should be regularly provided to civil servants, and conducted by private-sector market participants as well as peers in other jurisdictions, academia, and international institutions. This will build a stimulating and agile environment for Regulators.

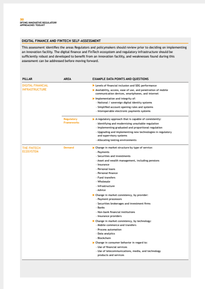
To better fulfill their mandates, Regulators should also ensure that the advances in their capacity and skill benefit consumers through market-oriented policy (which provides consumers greater choice) and digital financial literacy campaigns (which equip consumers to make informed choices). This includes increasing consumer awareness of cybersecurity and fraud risks, which will ultimately help maintain consumer protection and financial stability. FinTech ecosystems are becoming increasingly interconnected with a growing network of stakeholders. Regulators should consistently be trying to map, identify and coordinate with stakeholders to create information feedback channels. Connecting with incubators, accelerators, and other initiatives and aligning them with local regulatory counterparts can help reinforce networks, stimulate trust in the national regime, and encourage FinTech investment and innovation.

Harmonizing and aligning the variety of services under a single FinTech umbrella can also help Regulators bolster networks with their counterpart authorities, strengthening embedded regulator networks. A proactive approach to regulating FinTech can decrease the friction and uncertainty for FinTech innovators that plan to invest resources and test new products and services. Regulatory frameworks should be advanced holistically to ensure that national legislation on consumer protection, data protection, and market competition do not slow down specific FinTech initiatives, or vice versa. Government incentives such as visa programs, funding assistance, accelerators or other incentives for investors and start-ups are additional ways to build innovation capacity.

AFI NETWORK INSIGHTS 6

46 respondents from the AFI network selected the following topics about which they wish to learn jointly, enter into exchanges, engage in testing, or cooperate more closely (co-licensing) with foreign authorities:

- Regulatory Sandboxes and Innovation Hubs
- Crypto assets
- Artificial Intelligence
- Distributed Ledger Technology
- Open Banking
- Cybersecurity
- E-KYC
- RegTech and SupTech



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5. ESTABLISHING AN INNOVATION HUB

A decision to establish an innovation hub requires careful assessment of the needs of the local market and capacity of the Regulator. The regulatory foundations should be sound and the Regulator sufficiently competent so that the innovation hub does not pose fundamental challenges to its technical or administrative capacity. If these foundations and capacities are lacking, then resources may be better invested elsewhere instead of being spread too thinly on an innovation hub.

The modalities of innovation hubs can differ significantly, and the need for establishing them can be similarly diverse. However, certain conditions may signal that real benefits can be derived from an innovation hub:

> The existence of a growing FinTech industry or digitally enabled financial sector or economy
> Current forms of interacting with stakeholders are insufficient to glean market insights for effective regulation
> The existence of an adaptable regulatory framework and approach supportive of FinTechs, but the Regulator lacks the capacity to communicate this to potential investors and service providers

Similarly, the following signals from market participants may point toward the need for an innovation hub:

> Difficulty navigating the regulatory system, especially for early stage businesses
> A lack of certainty and clarity in the law applying to business activities
> Uncertainty over the regulation of new technologies
> Difficulty accessing, understanding and interacting with the regulatory regime

The below are some areas that may particularly benefit from the ability of innovation hubs to address specific questions on regulation:[18]

1) Regulated mobile and digital payments activities
2) Regulated products and services such as savings, credit, insurance, and investment undergoing digitalization
3) New technologies, such as digital identification or e-KYC tools
4) Online FinTech products and services, such as crowdfunding and P2P transfers
5) Cloud services, big data analysis, and smart contracts

Innovation hubs can be utilized passively or actively by the Regulator to signal support for FinTech or developments in other segments of the market. The hub may function as a positive feedback loop for policy makers and market participants. In this regard, it is important for the Regulator to grasp the size of the market and the characteristics of its different sectors to ensure that an innovation hub is fit for purpose.

5.1 CONCEPTUALIZING AN INNOVATION HUB

Innovation hubs generally serve as an intermediary between the Regulator and the market, and function as a central point of contact for market participants, receiving and providing answers to their queries. Innovation hubs can give a variety of indirect and direct support to market participants in the form of advice, guidance, or other material aid. Certain innovation hubs also facilitate legally binding regulatory activity, such as granting exemptions and waivers or issuing letters of no objection.

5.2 INSTITUTIONAL STRUCTURE AND OBJECTIVES

The structure of an innovation hub is invariably tied to its objectives, and must be considered together. A hub's primary and direct objective is to facilitate engagement and mutual learning between regulators and innovators, and foster a financial ecosystem that is friendly to innovation.[19] As innovation hubs are typically formed under the existing mandates of regulatory authorities, many innovation hubs assume at least one of the objectives of promoting stability, protecting consumers and/or fostering development, innovation and/or competition. Consumer protection has become a typical core objective, especially in markets dealing with many new retail-facing businesses.[20]

18 European Supervisory Authorities. (2018). Fintech: Regulatory Sandboxes and Innovation Hubs. https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdfs

19 UNSGSA, FinTech Working Group and CCAF (2019). Early Lessons on Regulatory Innovations to Enable Inclusive FinTech: Innovation Offices, Regulatory Sandboxes, and RegTech. https://www.unsgsa.org/files/2915/5016/4448/Early_Lessons_on_Regulatory_Innovations_to_Enable_Inclusive_FinTech.pdf

20 World Bank. (2019). Prudential Regulatory and Supervisory Practices for Fintech. https://doi.org/10.1596/33221.

However, the secondary objectives of an innovation hub are linked to the priorities of the Regulator and can evolve over time. Innovation hubs, like regulatory sandboxes, can - and increasingly should - promote objectives including financial inclusion, sustainability and the SDGs. They can have a focus on next-generation FinTech, or a market sector focus, among others. These objectives should also correspond to the types of entities (unlicensed entities, regulated entities, or technology providers) that can apply for support.

As innovation hubs typically merely facilitate the general practice of regulatory authorities in responding to questions, new legal structures are uncommon.[21] Instead, competent authorities tend to establish hubs as a division, extension, or agency. As a base rule, the hub should be built to expand on the existing approach to regulating FinTech, unless the Regulator aims to signify a departure from current practice. The internal market monitoring team - typically the most informed and FinTech focused group - offers an effective base from which to expand.

5.2.1 INTERNAL STRUCTURE

Depending on the current regulatory structure and the needs of the Regulator, the innovation hub can take the shape of a hub and spoke model, or a centralized unit. The former allows the Regulator to assign a small core unit responsible for coordinating innovation hub activity and delegate other departments and agencies as needed. Such a model can initially leave the total number of personnel unchanged, assigning new capacities as resources allow. The centralized unit model requires greater investment but ensures that the innovation hub is more self-sustaining.

Such a hub requires enough experts to cover the FinTech areas in which enquiries are expected. Headcounts in such divisions range from one to 30, depending on the size of the Regulator and market to be covered. Of course, many members of the hub team may well have been transferred from other parts of the Regulator.

It is also important to examine whether the scope of the received enquiries warrants stronger cooperation between certain authorities.

5.2.2 EXTERNAL STRUCTURE

The minimal outwards-facing structure of an innovation hub should be a simplified means of contacting it. This can range from a hotline or a website with chat capacity, to open office hours, depending on the most effective local practice. Innovation hubs are probably best served by preparing forms with instructions and screening criteria which need to be completed and submitted before contact is made.

5.3 OPERATIONALIZING AN INNOVATION HUB

Innovation hubs can vary significantly in operational capacity. However, there are generally four functions most innovation hubs will perform: engaging the FinTech market, receiving queries from stakeholders, responding to stakeholders, and conducting internal and external follow-up.

20 World Bank. (2019). Prudential Regulatory and Supervisory Practices for Fintech. https://doi.org/10.1596/33221.

21 European Supervisory Authorities. (2018). Fintech: Regulatory Sandboxes and Innovation Hubs. https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf

FIGURE 7: EXAMPLES AND PURPOSES OF ENGAGEMENT ACTIVITIES OF AN INNOVATION HUB

ENGAGEMENT ACTIVITY	PURPOSE
CALLS FOR INPUT	Collect problem statements from industry participants.
CONFERENCES	Enable a variety of industry stakeholders to participate and discuss a range of issues and themes.
ROUNDTABLES	Collect industry feedback on particular issues or regulator operations.
THEMATIC WORKSHOPS	Discuss emerging developments and trends in particular sectors, drawing on industry expertise and exchanging perspectives.
SHOWCASES	Allow firms to present and discuss new solutions to problems.
CONSULTATIONS	Invite industry participants to bilateral discussions for candid exchanges of insight and experience.
INNOVATION SPRINTS	Bring together various stakeholders to collectively solve a specific problem.
ACCELERATORS	Provide or facilitate mentoring, networking and other resources to early-stage initiatives.

Source: CCAF (2018), UNSGSA FinTech Working Group, CCAF (2019)

5.3.1 ENGAGEMENT

Innovation hubs represent a proactive approach to digital finance and FinTech, and Regulators should strive to maximize useful interactions with stakeholders. Regulators should lead activities that further the goals of their innovation hubs. These will involve a variety of regulator-organized activities for exchanging insights and facilitating increased interaction with the innovation hub. Secondarily, Regulators should participate in industry and stakeholder-organized events.

5.3.2 ENQUIRY RECEIPT

Enquiry receipt denotes the initial interaction between the hub and subject firms through a dedicated channel of communication.[22] The hub may require a screening submission to ensure that the entrant meets eligibility criteria. The criteria can vary depending on the role of the innovation hub and can be changed as needs evolve. Genuine innovation, consumer benefit, and a need for support are typical criteria, among others. The nature of the firm as an authorized or unauthorized entity can also be a criterion. The criteria should be publicly available, transparent, and equitable.

Enquiries can also include digital items (programming code, data, images), and Regulators should expressly highlight the formats available and prepare the internal capacity to analyze them.

5.3.3 QUERY ASSIGNMENT

Following receipt and screening, the internal recipient of the enquiry 'pre-screens' and passes it to the relevant internal party to formulate a response and identify future resources that may need to be mobilized. This can involve assigning parts of an enquiry to different authorities and the establishment of cross-department/authority teams. Good practice involves stipulating a time frame for accepting and evaluating queries.

Regulators should ensure that the queries are classified and collected, to ensure data analysis and review capacity.

22 The channel can take a variety of forms, aggregating telephone or digital interfaces, online or face-to-face meetings.

FIGURE 8: APPROACHES TO INNOVATION HUB ELIGIBILITY CRITERIA

ELIGIBILITY CRITERIA	DESCRIPTION	COUNTRIES UTILIZING CRITERIA
GENUINE INNOVATION	The FinTech product or service is truly innovative and/or groundbreaking. In other words, it is significantly different from those currently available.	Australia (ASIC), Bahrain (CBB), Canada (OSC), Cyprus (CySEC), Estonia (EFSA), Hong Kong (SFC), Netherlands (AMF & DNB), Singapore (MAS), UK (FCA), US (CFTC)
CONSUMER BENEFIT	The FinTech product or service has the potential to provide a better outcome for investors and consumers. Note that this may implicitly include financial inclusion benefits.	Australia (ASIC), Bahrain (CBB), Canada (OSC), Estonia (EFSA), Hong Kong (SFC), Netherlands (AMF & DNB) Singapore (MAS), UK (FCA), US (CFPB), US (OCC)
FINANCIAL INCLUSION	The FinTech product or service has the potential to promote financial inclusion.	Bahrain (CBB), Indonesia (OJK), Malaysia (BNM)
NEED FOR SUPPORT	The FinTech product or service should have a genuine need for support.	Malaysia (BNM), Singapore (MAS), UK (FCA)
BACKGROUND RESEARCH	The provider has sought to understand the regulatory framework before approaching the innovation office.	Canada (OSC), Netherlands (AMF & DNB), Singapore (MAS), UK (FCA)
SERVE DOMESTIC MARKET	The provider intends to offer the proposed product or service to the domestic market.	Bahrain (CBB), Malaysia (BNM)
RISK MITIGATION	The provider has ensured that potential risks arising from the proposed product or service are assessed and mitigated, including to consumers and the market.	Bahrain (CBB), Cyprus (CySEC), Estonia (EFSA), Hong Kong (HKMA), Malaysia (BNM), Singapore (MAS), US (CFPB)

Source: UNSGSA FinTech Working Group, CCAF (2019)

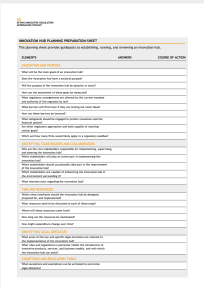
5.3.4 RESPONSE

After the query is collected, a response is provided to the enquirer, through a previously defined communication channel. The response should expressly be classified as non-binding or binding and be expressed in a manner understandable to the recipient.

Responses should, if possible, finalize the matter by satisfying the enquiry or set the agenda for further support, moving beyond preliminary guidance. The Regulator may choose to make certain responses public or collect and publish groups of responses, to better inform stakeholders of their practices.

5.3.5 FOLLOW UP

Internal follow up after a response should result in data collection and subsequent review to update market insight. This information should be shared in embedded Regulator networks. Upon the identification of market tendencies, the innovation hub can be adapted appropriately.



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6. ESTABLISHING A REGULATORY SANDBOX

A regulatory sandbox is a sophisticated formal initiative that extends the usual activities of the Regulator. It should only be established after extensive and careful analysis finds a likelihood of real benefit. Regulators should assess five major factors when deciding whether to establish a regulatory sandbox.[23]

1) MARKET CONSIDERATIONS.

The digital finance or FinTech market should be sufficiently mature to benefit from a live testing environment, particularly in terms of the quality, quantity, and types of service providers. The level of competition, quality of innovation, and state of financial infrastructure should also be considered.

2) LEGAL AND REGULATORY FRAMEWORK.

The Regulator should assess the limitations imposed by law on forming and running a regulatory sandbox. For example, the Regulator's mandate may not directly align with the aims of the sandbox, there may be obstacles to using discretion in exemption actions, or there may be other vehicles or approaches already available that provide many of the same outcomes as a regulatory sandbox.

3) CAPACITY AND RESOURCES.

The Regulator needs to ensure there are sufficient resources for a sandbox, which may require many staff and consume the time of other authorities. This includes ensuring sufficient management buy-in to ensure the feasibility of the sandbox for at least a few cycles of operation.

4) POLICY PRIORITIES.

National policy priorities should inform the design of a regulatory sandbox. For example, if a priority is to deepen regulatory understanding, Regulators should evaluate whether a regulatory sandbox is the best tool to help reach that goal, and it should be designed with a focus on new firms. Regulators should

23 Jenik, I. & Lauer, K. (2017, October). Regulatory Sandboxes and Financial Inclusion, CGAP. https://bit.ly/2yDDGU0

not be afraid to use other instruments that may be more efficient for such priorities, such as innovation hubs, or extensions of already existing initiatives.

5) DEMAND.

Regulators should carefully assess who is signalling demand for a regulatory sandbox. Establishing a regulatory sandbox based on signals from a small group of firms may not result in enough participants to outweigh its costs. Regulators should also be careful to not create their own internal demand for a sandbox initiative from a desire to be seen to be competitive with other jurisdictions. While there is no minimum or maximum number of participants to set the threshold for a decision to establish a regulatory sandbox, the expected size and number of participants should be proportional to the resources invested, and purpose of the regulatory sandbox.

6.1 CONCEPTUALIZING A REGULATORY SANDBOX

Conceptually, sandboxes are pre-defined testing environments that relieve firms from certain regulatory requirements.[24] Regulators create them to help meet certain objectives: they may want to better understand new FinTech, and/or foster the development of new innovation in a safe environment.

Sandboxes provide specialized rules for two types of firms: enterprises which are yet unauthorized to conduct a potential activity, and authorized firms which aim to test new FinTech solutions. For unauthorized firms, sandboxes allow testing a solution under calibrated restrictions, which generally apply consumer protection rules, and require the firm to provide proof of relevant capital to cover losses to customers. For already authorized firms, exemptions such as letters of no enforcement or waivers can be provided for activities that go beyond the ambit of their current authorization. In case the authority foresees a conflict with existing rules, testing plans can be customized.

Once a test is begun, Regulators can closely observe how the new activity impacts the firm engaged in testing, its customers, and the market generally. This provides Regulators with an in-depth understanding of the technology and makes them better equipped to commit to any changes that may be needed to licensing regimes or broader legal frameworks. Upon completion of the test, Regulators can greenlight the activity completely upon the meeting of certain conditions (such as successfully applying for a license or altering the product) or deny the continuation of the activity.

AFI NETWORK INSIGHTS 7

FSAs were asked if they agreed with the following definition of a Regulatory Sandbox:

“A Regulatory Sandbox is a tightly defined safe space which automatically grants relief from some regulatory requirements for those entities that meet the entry tests.”

More than 40% of respondents had issues with this definition and proposed alternative views/definitions. Below, we report some of their comments:

“The relief is on a case-by-case rather than automatic basis depending on the risk profile and intended innovation. Also, it is usually for a limited time period.”

“A Regulatory Sandbox is a formal process for firms to conduct live tests of new, innovative products, services, delivery channels, or business models in a controlled environment, with regulatory oversight, subject to appropriate conditions and safeguards.”

“A regulatory sandbox refers to the guideline adopted by a regulator allowing tech startups and innovators to work together in a limited space or environment in order to experiment and conduct testing on the new innovative products and services prior to entering the formal market under the control and supervision of the regulator.”

“Regulatory sandbox is a live, contained environment in which participants may test their product, service or solution subject to the requirements under the governing regulation.”

“A sandbox can be simple as a group of individual relief instruments (tightly defined) to, say, access to data or APIs, even broad-based testing facilitation only limited to, say, use of one technology.”

“A regulatory sandbox can be a space, in which entities can test product or services before registering them, without any regulatory requirements being relief.”

“It is not clear what does it mean ‘safe’. Also, it does not automatically grant relief from regulatory requirements. According to our framework, the used tools are active consultation and application of the principle of proportionality; and no enforcement measures unless necessary.”

24 The FCA, November 2015, Regulatory Sandbox, p.14, https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf

AFI NETWORK INSIGHTS 7 ***CONTINUED***

"The Regulatory Sandbox is a virtual, constructed well-defined space, within which applicants can experiment with innovative FinTech solutions in a live and relaxed regulatory environment and with the support of national regulators for a limited period of time and under a well-defined parameter where challenges and risks to the financial system and ordinary FinTech consumers have been strictly contained."

6.1.1 INSTITUTIONAL STRUCTURE AND OBJECTIVES

The institutional structure, resources, and processes of the sandbox depend on the Regulator's existing legal framework. A sandbox may be an individual entity under the umbrella of a Regulator that assigns case officers to each sandbox participant, or an interdepartmental effort that divides labor among a variety of public servants.[25] The decision on the structure should also be linked to the extent that a sandbox covers a market sector - a holistic approach may require the expertise of a variety of governmental agencies. The range of themes covered, on the other hand, should be informed by the objectives of the sandbox, which are commonly to:

1. Enhance firms' understanding of regulatory expectations, and applicability of regulatory frameworks, to innovative products, services and business models;
2. Increase the knowledge and understanding of authorities about financial innovations, the risks and opportunities presented, and inform regulatory approaches through direct testing; and,
3. Foster innovative products, services, and business models and thereby increase competition in the financial services sector, ideally extended to supporting financial inclusion and wider sustainable development.

While general purpose sandboxes may be simpler to launch, a more nuanced thematic sandbox can decrease resource use in the long run and help develop insights in priority areas. However, the priority must first be framed, and objectives clearly outlined, as it may materially impact the type of sandbox applications received. For example, a 'Next-Generation' regulatory sandbox may focus on FinTech companies that bring novel technological solutions to the market, while a financial inclusion sandbox may be neutral as to applicants, or even lean in favor of incumbents.

25 Regulatory sandbox lessons learned report, October 2017, Financial Conduct Authority, accessed 2 March, 2020.

FIGURE 9: SANDBOX THEMES

THEME	EXAMPLES	SCOPE AND OBJECTIVE
GENERAL SANDBOX	The Financial Conduct Authority of the United Kingdom	General FinTech innovation
FINANCIAL INCLUSION SANDBOXES	Bank of Sierra Leone and Bank Negara Malaysia	Limited to products and models designated to foster financial inclusion
NEXT-GENERATION REGULATORY SANDBOXES	Bank of Thailand and Financial Services Agency of Japan	For developing guidance and standards for technologies relevant to digital financial services market development.
PROVIDER-SPECIFIC SANDBOXES	Abu Dhabi Global Markets RegLab and Monetary Authority of Singapore's Sandbox Express	Focused on particular market sectors and major operators within them.
CROSS-BORDER SANDBOXES	API Exchange and GFIN	Focused on harmonizing testing in multiple jurisdictions at once.
REGIONAL SANDBOXES	PIRI (Pacific Islands Regional Initiative)	Focused on harmonizing testing in multiple nearby jurisdictions, and allowing simultaneous testing and learning

Source: CGAP (2019)

The differences between national legal frameworks are likely to require individually tailored approaches to adapting legislation for sandboxes; however, global practice presents a few general common directions. For example, if the current framework does not allow for the formation of a sandbox under the mandate of the competent authority, it is not uncommon for a 'sandboxing' law or amendment to be introduced. The law should set out the basic requirements and rules of the sandbox, its aims, and highlight the areas where the relevant authority has discretion.

A Regulator can also establish sandboxes internally under its own mandate, but this may require cooperation with other relevant authorities, such as consumer protection or telecommunications authorities, for example.

6.1.2 TEAM CAPACITY AND RESOURCES

The required team and resource capacity for a regulatory sandbox depends on its model and intensity of operation. Surveyed regulators have revealed that sandboxes can be run with anywhere from one to 25 full-time employees and an initial investment of between USD 25,000 and USD 1 million.[26] As most respondents highlighted, these expenses were typically covered by their own core budgets.[27] The framework of administration should thus be designed to address the identified barriers to innovation, or other objectives of the sandbox – with a plan for expansion if necessary. As a minimum requirement, Regulators should ensure they can mobilize departments with capacities in digital financial infrastructures (such as payments), cybersecurity, data analytics, legal, and general financial integrity.

6.1.3 COLLABORATORS AND ENGAGEMENT

Collaborators will be important to Regulators during the establishment and operation of the regulatory sandbox. As with innovation hubs, it is important that Regulators engage the market to collect insights to better inform the sandbox process. This involves identifying relevant stakeholders and organizing and participating in a variety of engagement activities designed to understand the latest tendencies and problems. This knowledge can then be put to use when structuring the sandbox, as well as in deciding on its objectives.

Regulatory sandboxes function in a limited, but live testing environment. Depending on the mandate of the Regulator, it may also need to organize specific arrangements across banking, insurance, and securities and markets authorities. During tests, FinTechs are bound to generate some data protection and consumer protection risks among others. Regulators should secure the cooperation of relevant authorities as collaborators in the range of tests for activities they aim to allow prior to calling for participants, to understand the full extent of risks and impacted entities, and ensure smooth coordination going forward.

6.1.4 PROCESS AND STRUCTURE

Some sandboxes have fixed entry requirements. Generally, these requirements are safeguards to protect consumers and market integrity. Common safeguards are fit and proper person tests for management, disclosure requirements, limits on the number of customers, limits on the amount of funds per customer or in total, and the establishment of a complaints handling mechanism. Other safeguards may include minimum capital requirements, bespoke compensation schemes, and enhanced AML-CFT rules.[28]

To foster the participation of more innovative FinTech enterprises in sandboxes, the parameters of the sandbox tests may be altered on a case-by-case basis. The parameters of the trial depend on the number and type of safeguards Regulators wish to apply. While the safeguards may seem necessary, each one brings added expense or restrictions and may dissuade potential participants, so Regulators should take a balanced approach.

Decisions on safeguards must be made with consideration for the participation structure. Sandbox entry can be done in cohorts or on a rolling basis, and there are generally limitations on the number of participants at any one time. The regulator must decide on its capacity to oversee such operations and balance it against maximizing fair access to its services over time for potential participants.[29]

26 Sharmista Appaya and Ivo Jenik, "Running a Sandbox May Cost Over $1M, Survey Shows", 1 August, 2019, CGAP, accessed 2 March, 2020. While the response rate on this question was too low to be restated here, we were able to confirm that range through our own survey within the AFI Network.

27 Sharmista Appaya and Ivo Jenik, "Running a Sandbox May Cost Over $1M, Survey Shows", 1 August, 2019, CGAP, accessed 2 March, 2020.

28 Sharmista Appaya and Ivo Jenik, "Running a Sandbox May Cost Over $1M, Survey Shows", 1 August, 2019, CGAP, accessed 2 March, 2020.

29 An objection regarding favoritism towards newcomers at the expense of incumbents in the name of innovation was raised during the drafting process of the regulatory sandbox provisions in India. See, Reserve Bank of India, Report of the Working Group on FinTech and Digital Banking (2018) <https://rbi.org.in/scripts/PublicationReportDetails.aspx?ID=892#4> and Draft Enabling Framework for Regulatory Sandbox: Reserve Bank of India (n 33). See also United States Department of the Treasury, A Financial System that Creates Economic Opportunities: Nonbank Financials, Fintech and Innovation (2018) 171 <https://home.treasury.gov/sites/default/files/2018-07/A-Financial-System-that-Creates-Economic-Opportunities--Nonbank-Financi....pdf>

AFI NETWORK INSIGHTS 8

Out of the 46 respondents within the AFI Network, with a 100% response rate, 21 respondents stated they have a Regulatory Sandbox in place or plan to implement one, while 61% of the respondents have developed formal procedures related to a Regulatory Sandbox's operating features (e.g., the application process and participation).

Fifteen out 19 respondents with an active or in-progress Regulatory Sandbox have no fixed starting dates (cohorts) for their Regulatory Sandboxes.

6.1.5 ELIGIBILITY CRITERIA AND TIMEFRAME

The criteria for selecting participants can range from general requirements of 'genuine innovation' and 'benefit to consumers' which leave a relatively wide discretion to the regulator, to the narrower criteria of innovation on the basis of no existing comparable offerings. Other common eligibility criteria include:

> The product under consideration contributes to a particular policy objective
> The firm cannot reasonably overcome certain policy or legal barriers, but can demonstrate that it meets the underlying aims of such policies
> The incorporation of tangible processes to protect the interests of customers and other stakeholders using the product, service, or business solution.
> A demonstrable need to participate in the regulatory sandbox
> A readiness to test solutions by other relevant authorities and third parties

Regulators must also decide whether they wish to prefer incumbents or new market entrants or whether entry should be equally available to all. Such concerns largely depend on the objectives of the sandbox and the number of applicants envisaged.

The timeframe for a test depends on the nature of the test, the goals of the Regulator, and the necessary administrative procedures. Regulators should ensure that any exemptions stipulate a specific expiry date (a maximum permissible number of months or years) or require the creation of a time limit (potentially in conjunction with partners).

6.1.6 TOOLS AND ENFORCEMENT

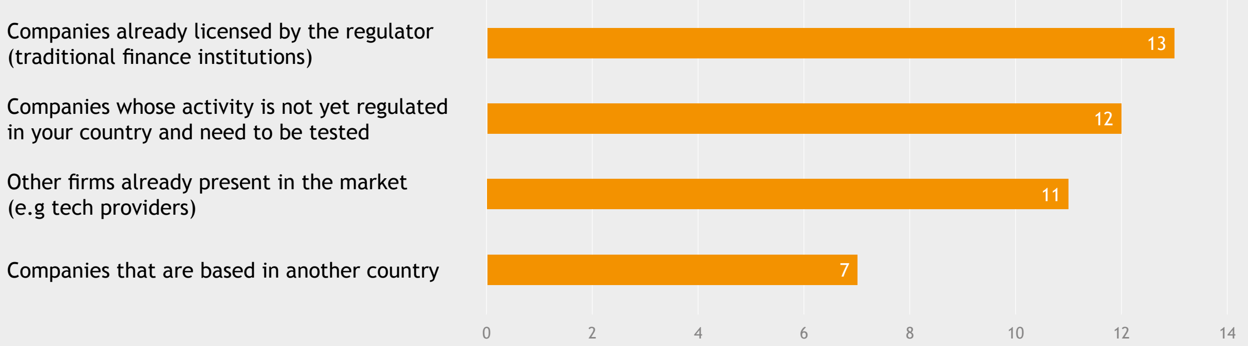
Regulators must evaluate the types of exemption tools available in their regulatory framework. Generally, there are four types of exemption clauses that provide a way to circumvent rules:

> **Exemption from a prohibition**
Authorities may deviate from generally stipulated rules and regulations
> **Exemptions from required authorization**
Rules may relieve a party from obtaining a necessary authorization, reducing red tape
> **Dispensing with a requirement to provide documentation or use certain equipment**
Rules may relieve a party of the need to provide mandatory documentation for an activity or use certain equipment

30 See, for example, the approach of the Arizona regulatory sandbox. AZ Rev Stat § 41-5601 (2018), para 4 <https://law.justia.com/codes/arizona/2018/title-41/section-41-5601>

AFI NETWORK INSIGHTS 9: COMPANIES ALLOWED IN THE RS

The 21 respondents with an active or in-progress Regulatory Sandbox were asked which firms are or will be admitted to the Regulatory Sandbox. Based on an 80% response rate, the graph indicates the number of times the items listed were selected.



- **Catch-all exemption**
  Rules may relieve of all other rules related to a certain activity

Regulators should ensure that the exemption clauses available to them cover the rules required for testing and, if not, new legislation may be necessary. A breach of any of the arrangements can result in termination of the test and enforcement under applicable national laws.

6.2 OPERATIONALIZING A REGULATORY SANDBOX

Sandbox operation generally divides into four phases: application, preparation, testing, and evaluation.[31] During the application phase, a subject submits an application to participate in the regulatory sandbox that complies with publicly available criteria, and a decision is made by the Regulator. If an applicant is successful, testing parameters including applications for necessary licenses and limitations imposed by the testing plan are set. During the testing phase the firm operates its product or service in the provided environment under the supervision of the monitoring entity. At the end of the test, results are reviewed and decisions are taken on the removal of imposed restrictions or a withdrawal of the license to proceed.

6.2.1 APPLICATION

Firms will generally apply to participate in the sandbox through the Regulator's web portal, though other forms of communication can also be used. The applicant is then assessed on publicly available selection criteria. These criteria will generally encompass thematic eligibility information, as well as information on whether the firm has:

- A developed business plan
- Identified potential customers or customer categories for the test
- Has staff with appropriate expertise and skill to operate the innovative technology
- Obtained appropriate technical hardware and software to operate the innovative technology
- Put in place necessary risk governance and systems control processes
- Proven capable of operationalizing its innovative proposal so it is fit for use in practice

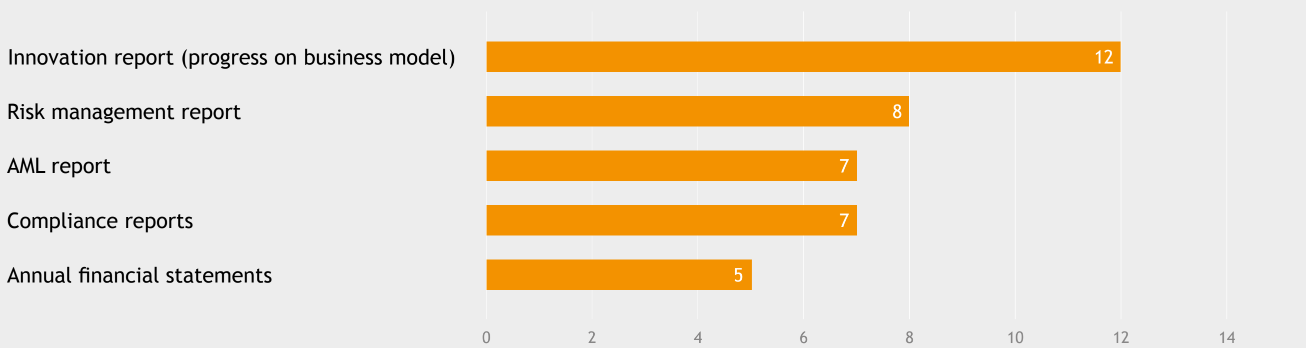
6.2.2 PREPARATION

If the applicant is successful, Regulators and the firm will define and agree bespoke testing parameters for each test, and determine if any operational requirements are needed, what the reporting requirements are, what safeguards are in place, and what the client restrictions are. Testing plans should be expanded or shrunk on a case by case basis, depending on information the Regulator may consider important. Additional areas of interest may be the volume of clients, restrictions on types of clients, requests for disclosure, representative appointment, etc.

31 European Supervisory Authorities. (2018). Fintech: Regulatory Sandboxes and Innovation Hubs. https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf

AFI NETWORK INSIGHTS 10: MOST COMMON REPORTING REQUIREMENTS

The 21 respondents with an active or in-progress Regulatory Sandbox were asked which reporting requirements apply to firms admitted to the Regulatory Sandbox. At a 60% response rate, the graph indicates the number of times the items listed were selected.



The preparation phase should also include creating an extensive plan of engagement between the participant and Regulator during testing, including:

- The format of engagements
- The necessary information to be shared by the participant (including reporting requirements)
- The requirements for disclosure to other authorities and clients, especially to highlight that potential participation in a test does not imply the Regulator's endorsement of the firm or its product or service
- The framework for assessing the success of the test
- An exit plan
- A plan for restoring damages to the consumers in case they suffer detriment.

6.2.3 TESTING

As the testing phase begins, the Regulator may increase monitoring in line with the extent of the agreed plan, changing parameters if necessary. The Regulator offers ongoing feedback and guidance on the process. The Regulator may want to expend additional resources, such as introducing firms to internal experts and relevant teams to better understand the processes underlying the tested service or product.

Testing can be terminated at any point if the firm fails to comply with the testing parameters, if it is necessary to mitigate damages to consumers, or if the proposition fails to function. Firms provide a final report outlining the key lessons and outcomes of the testing process according to the parameters set by the Regulator.

6.2.4 EVALUATION

Evaluation takes place in two stages. First, the Regulator assesses the success of the firm in the test, taking into account the report of the firm, as well as any of its own investigations. If found viable under the current regulatory framework, the successful firm can decide whether to proceed to full authorization or abandon the innovation. If the test was a success for the firm, but the Regulator finds that the framework must be changed, appropriate steps are taken. Depending on the framework, the firm can continue the operation, with an agreed removal of restrictions, and in accordance with any necessary enhancements to any processes undertaken by the firm. If it is found that the activity of the firm is eligible under an existing (or now changed) licensing framework, it must apply and satisfy the regular requirements of that license.

The second stage concerns reviewing internal lessons about the test, extrapolating new insight on a particular FinTech product, service, or business solution, as well as how it interacted with the market, and what kind of changes it may require from the Regulator and other entities as it evolves.

6.2.5 POST-IMPLEMENTATION OF A REGULATORY SANDBOX

After completing a regulatory sandbox operation cycle, the Regulator should build upon the gathered data in three ways. First, the results of the analysis should be shared and internalized in the Regulator network and encourage the taking of next steps or improvements based on the learnings that have been identified. This may in some cases include making changes to the sandbox regime.

Second, the data should be shared, to the extent possible, during engagements with external FinTech market stakeholders, including academic institutions and industry associations.

Third, the experience gained should be used to further the relationship with firms that have already conducted testing. This can be done by collecting feedback on their experiences and by tracking their progress, thus adding to the value of the initially collected insights.

THE EGYPTIAN EXPERIENCE - FOCUSING ON SMEs

The Central Bank of Egypt (CBE) established a regulatory sandbox framework in 2019 as a part of a FinTech strategy built upon an assessment of the national ecosystem and local challenges. These assessments shaped the parameters of the sandbox and its focus. For example, the assessment highlighted that the vast majority of ventures in Egypt are SMEs, and solutions targeting them are a priority.[32]

Consequently, the sandbox was established with a cohort-based business model allowing thematic specialization. Only FinTech companies and startups that specialize in the subjects selected for each cohort are accepted in the selection process. The number of companies selected depends on the resources and capacity of the Regulator, which provides flexibility and seeks to ensure adequate supervision and guidance. The first cohort in 2019, for example, took in three participants specializing in e-KYC solutions, which could be applied to SME ventures.

The sandbox extends six eligibility criteria for participants. The innovation must:

1	Be within the scope of FinTech services.
2	Be genuinely innovative with clear potential to improve accessibility to financial services and their efficiency.
3	Offer a good prospect of identifiable benefit to customers.
4	Be in need of regulatory relief due to tension with existing rules, or the lack them.
5	Be ready for experimentation with a realistic business plan, which can be deployed on a commercial scale.
6	Support financial inclusion and digital transformation.

A team within the CBE is responsible for coordinating the sandbox according to a defined process. First, applicants are requested to submit detailed testing plans, including associated risks, range of possible clients, and value of transactions. Second, the CBE team evaluates the submissions and selects participants. Third, the CBE team works with the participants to prepare a list of customers for their product or service. These customers will then be made aware of the risks incurred by their use of the product under formalized consumer protection terms. In the next stage, experimentation begins in the sandbox. FinTechs can operate their product freely for a period of six months, with a possible extension of up to 12 months.

The participants are required to fulfill certain reporting requirements, primarily encompassing a monthly review of key performance indicators and optional operational incidents, audits, or customer satisfaction reports. The Regulator aims to collect statistically relevant parameters to gauge the impact of the solution in the sandbox and assess its growth.

Finally, the participant exits the sandbox and the CBE decides whether the solution can continue in the market, and what kind of license (if any) may be necessary for it. If a license is necessary, the participant goes through the standard licensing process, after which the solution goes live in the market.

32 Author interviews.

7. ESTABLISHING A REGIONAL SANDBOX

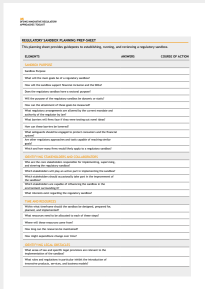
The majority of sandboxes are established by a single regulator and are aimed at promoting and understanding developments in that jurisdiction. However, especially with smaller national markets, innovation will likely be supported by regulations and regulatory approaches that are consonant with one another, such that FinTechs can simultaneously roll out products across multiple jurisdictions. This allows FinTech innovators to enjoy economies of scale.

One of the benefits of such regulatory cooperation can be seen in the establishment of a regional sandbox.

Several examples of multi-jurisdictional sandboxes exist. The Global Financial Innovation Network (GFIN) facilitates knowledge transfer and learning among its stakeholders on shared issues ranging from RegTech, to product trials and sandbox initiatives. It has even called for the extension of the concept of regional regulatory sandboxes on a global scale.[33] The API Exchange launched by the ASEAN Financial Innovation Network provides an API-enabled platform that allows FinTech firms to connect with one another and test solutions in a virtual cloud-based architecture using consistent APIs across markets.[34] FinConecta, which is sponsored by the Inter-American Development Bank, provides a similar platform for Latin American and Caribbean FinTechs to collectively conduct testing of new products.[35]

The Pacific Regional Regulatory Initiative (PIRI) sandbox represents several countries, and establishes harmonized mechanisms for Regulators of member countries to review prospective applicants, easing the process for potential participants and allowing successful applicants to simultaneously test their products across multiple jurisdictions.[36] Applications are examined individually, and a regional steering committee comprised of representatives of each country then informs the applicant on the next steps. While qualifying criteria for sandbox participation can differ among countries, the PIRI sandbox can ease market entry.

Shared virtual testing environments and information exchanges are practical steps toward cooperative approaches to learning about new innovation techniques, but they narrow the scope of the regional sandbox to only the initiatives that can exploit such infrastructure. On the other hand, a unified entry process requires a level of harmonization between jurisdictions beyond one operational phase of the sandbox, and this harmonization, as stated, will decrease costs and time to market for FinTech innovators. Such harmonization will be an easier process among countries that are already part of a regional framework, or at least have similar legal frameworks on which to base their sandboxes – which can then be constructed cooperatively with regionalization in mind.



Proceed to the **Regulatory Sandbox Planning Prep-Sheet** in the Workbook

> Page 35

33 Global Financial Innovation Network (2020), "Cross-Border Testing Lessons Learned", available at https://static1.squarespace.com/static/5db7cdf53d173c0e010e8f68/t/5e1ef8c3c7a87d3abb5c7bc6/1579088083585/GFIN+CBT+Pilot+lessons+Learned+publication+09012020+-+FINAL.pdf. See also, Mueller, J & Murphy, D & Piwowar, M (2018) Response to the Global Financial Innovation Network (GFIN) Consultation Document, available at https://bit.ly/2RZnZQ

34 https://apixplatform.com/aboutapix

35 https://finconecta.com/finnova-latam-the-new-digital-transformation

36 AFI. (2020) Pacific Regional Regulatory Sandbox Guidelines. Alliance for Financial Inclusion. https://www.afi-global.org/sites/default/files/publications/2020-03/PIRI_Regulatory_Guideline_digital.pdf

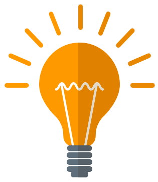
37 AFI. (2020) Pacific Regional Regulatory Sandbox Guidelines. Alliance for Financial Inclusion. https://www.afi-global.org/sites/default/files/publications/2020-03/PIRI_Regulatory_Guideline_digital.pdf

8. SUPPORTING WORKBOOK FOR THE TOOLKIT

INNOVATION INTERVENTIONS OUTLINE

A set of foundational questions form the base of this Workbook and provide a high-level guide for deciding whether to create and, if so, how to design innovation facilities. Their aim is to encourage deep deliberation on innovation facilities, and how they may interact with broader frameworks. Through these guiding questions, users should be able to better evaluate the issues around implementation and design of an innovation facility, and the factors relevant to them.

WHAT IS YOUR INNOVATION POLICY?



Does your innovation policy expressly include FinTech?

Is your regulatory innovation policy part of a broader innovation strategy?

Do your regulators' mandates include the promotion of innovation?

HOW DOES AN INNOVATION FACILITY FIT WITHIN YOUR INNOVATION POLICY?

Does an innovation facility align with the goals of your other policies?

Have similar initiatives been tried under the policy?

WHAT ARE THE MAIN GOALS OF AN INNOVATION FACILITY?

What are the primary and secondary goals of having an innovation facility?

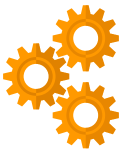
What goals can be reached within the scope and powers of your institution?

HOW CAN THESE GOALS BE MEASURED?

What are the metrics of measurement?

Do you have access to this data?

WHAT IMPACT WILL INNOVATION FACILITIES HAVE ON REACHING THESE GOALS?



Are there other initiatives capable of reaching similar results?

What are the limits of innovation facilities in achieving these goals?

WHAT ARE THE RELEVANT STAKEHOLDERS TO REACHING THESE GOALS?

What parties should participate in innovation facility establishment and running?

Are there networks in place that provide access to relevant stakeholders?

WHAT ARE THE CHALLENGES TO ESTABLISHING AND RUNNING AN INNOVATION FACILITY?

What are the internal and external challenges?

Can these challenges be realistically overcome?

DIGITAL FINANCE AND FINTECH SELF-ASSESSMENT

This assessment identifies the areas Regulators and policymakers should review prior to deciding on implementing an innovation facility. The digital finance and FinTech ecosystem and regulatory infrastructure should be sufficiently robust and developed to benefit from an innovation facility, and weaknesses found during this assessment can be addressed before moving forward.

PILLAR	AREA	EXAMPLE DATA POINTS AND QUESTIONS
DIGITAL FINANCIAL INFRASTRUCTURE		> Levels of financial inclusion and SDG performance > Availability, access, ease of use, and penetration of mobile communication devices, smartphones, and internet > Implementation and integrity of: - National / sovereign digital identity systems - Simplified account opening rules and systems - Interoperable electronic payments systems
	Regulatory Frameworks	> A regulatory approach that is capable of consistently: - Identifying and modernizing unsuitable regulation - Implementing graduated and proportional regulation - Upgrading and implementing new technologies in regulatory and supervisory systems - Allocating testing environments
THE FINTECH ECOSYSTEM	Demand	> Change in market structure by type of service: - Payments - Securities and investments - Asset and wealth management, including pensions - Insurance - Personal loans - Personal finance - Fund transfers - Wholesale - Infrastructure - Advice > Change in market consistency, by provider: - Payment processors - Securities brokerages and investment firms - Banks - Non-bank financial institutions - Insurance providers > Change in market consistency, by technology: - Mobile commerce and transfers - Process automation - Data analytics - Blockchain > Change in consumer behavior in regard to: - Use of financial services - Use of telecommunications, media, and technology products and services

PILLAR	AREA	EXAMPLE DATA POINTS AND QUESTIONS
THE FINTECH ECOSYSTEM *CONTINUED*	Talent	> Change in flows of specialists > Ease of mobility programs > Immigration policies > FinTech-oriented education development > Financial literacy > Linguistic characteristics > Last mile group aspects > Gender support > Inequality considerations > Education, research and development support and initiatives
	Business environment	> FinTech-friendly policy > Clustering and FinTech integration policy > Advantages in core business pillars: - Establishing a business - Opening bank accounts - Intellectual property - Tax regime > Public and private sector interactivity
	Capital	> Research and development funding > Change in funding entity behavior toward FinTech firms > Access to risk capital > Access to growth capital > Access to strategic capital
	Market Composition	> Maturity of FinTech market > Competitiveness in the market > Number of excluded/underserved populations / entities > Division of the market in terms of company size > Variety and number of financial, telecommunications, tech, and other type of FinTech-adopting companies > Change in proportion of incumbent to new firms, and their relationship to each other
REGULATOR CAPACITY	Institutional Capacity	> Robustness and relevance to FinTech of capacities in: - Policymaking - Payments infrastructure - Cybersecurity - Data collection, storage and analytics
	Embedded Networks	> Internal market monitoring > Inter-regulatory agency cooperation > Sectoral stakeholder forums
	Organizational Structure	> Ability and capacity to: - Liaise between stakeholders - Analyze novel innovation - Implement FinTech oriented policy measures and programs - Run testing and piloting initiatives

PILLAR	AREA	EXAMPLE DATA POINTS AND QUESTIONS
REGULATOR CAPACITY *CONTINUED*	Capacity and Skill Building	> Technical capacity > Organizational mindset and culture > Training, exercises, and skill building > Education campaigns internally and externally
	Engagement and Outreach	> Partnerships with industry > Consumers > Startup ecosystems > Industry associations > Public-private interfacing > Academia > International cooperation
LEGAL FRAMEWORK	Mandate and capacity	> How is financial supervision organized and does it sufficiently involve technology regulators? > What powers are afforded to the regulator under its mandate? > Does your institutional mandate allow implementing testing and piloting frameworks? > Do legal and regulatory frameworks allow flexibility in selecting the type of experimental mechanism used? > What changes to the framework may be required to enable the necessary approach?
	Supervision and Oversight Capacity	> Are you currently in a position to monitor and manage risks in the financial sector and to consumers in regard to: > Financial and human resources - Depositor and investor risks — Ensuring disclosure and transp0arency — Ensuring sufficient monitoring - Ensuring protection and verification of customer information > Fraud and other market abuse risks, including AML/CFT and monitoring cryptocurrencies > Cybersecurity risks

INNOVATION HUB PLANNING PREPARATION-SHEET

This planning sheet provides guideposts to establishing, running, and reviewing an innovation hub.

ELEMENTS	ANSWERS	COURSE OF ACTION
INNOVATION HUB PURPOSE		
What will be the main goals of an innovation hub?		
Does the innovation hub have a sectoral purpose?		
Will the purpose of the innovation hub be dynamic or static?		
How can the attainment of these goals be measured?		
What regulatory arrangements are allowed by the current mandate and authority of the regulator by law?		
What barriers will firms face if they are testing out novel ideas?		
How can these barriers be lowered?		
What safeguards should be engaged to protect consumers and the financial system?		
Are other regulatory approaches and tools capable of reaching similar goals?		
Which and how many firms would likely apply to a regulatory sandbox?		
IDENTIFYING STAKEHOLDERS AND COLLABORATORS		
Who are the core stakeholders responsible for implementing, supervising, and steering the innovation hub?		
Which stakeholders will play an active part in implementing the innovation hub?		
Which stakeholders should occasionally take part in the improvement of the innovation hub?		
Which stakeholders are capable of influencing the innovation hub in the environment surrounding it?		
What interests exist regarding the innovation hub?		
TIME AND RESOURCES		
Within what timeframe should the innovation hub be designed, prepared for, and implemented?		
What resources need to be allocated to each of these steps?		
Where will these resources come from?		
How long can the resources be maintained?		
How might expenditure change over time?		
IDENTIFYING LEGAL OBSTACLES		
What areas of the law and specific legal provisions are relevant to the implementation of the innovation hub?		
What rules and regulations in particular inhibit the introduction of innovative products, services, and business models, and with which the innovation hub can assist?		
EXEMPTIONS AND REGULATORY TOOLS		
What exceptions and exemptions can be activated to overcome legal obstacles?		

ELEMENTS	ANSWERS	COURSE OF ACTION
EXEMPTIONS AND REGULATORY TOOLS *CONTINUED*		
Are there any regulatory tools that allow exemptions, exceptions, or waivers?		
What preconditions must be met to issue such exemptions, exceptions or waivers?		
Which authority is responsible for issuing the exemption, exception or waiver?		
Are there examples and experience with applying such rules?		
Have any authorities issued exemptions, exceptions or waivers?		
RISKS AND LIABILITIES		
What risks may be triggered by an innovation hub?		
What damage would such risks cause to test participants, observers, or third parties?		
How can these risks be insured?		
INNOVATION HUB DESIGN		
What are the main objectives of the innovation hub?		
How will the innovation hub support financial inclusion and the SDGs?		
How long will likely be needed to attain the goals of the innovation hub?		
What are the daily tasks of the innovation hub?		
What kind of supervision and steering does the innovation hub require and by whom?		
Who will evaluate the activity of the innovation hub?		
What indicators are suitable metrics for the attainment of the innovation hub goals?		
How can these indicators help partners and stakeholders be more informed about the innovation hub?		
What data is already available for use?		
What data will be collected for evaluation?		
What reporting must be done to the stakeholders of the innovation hub?		
What are appropriate methods of data collection and evaluation?		
INNOVATION HUB ELIGIBILITY CRITERIA		
Do national policy priorities promote any particular eligibility criteria? Does it align with envisioned innovation hub goals?		
Does the eligibility criteria reflect policy goals?		
Is the eligibility criteria clearly understandable?		
Is the eligibility criteria biased in favor of certain parties?		
INNOVATION HUB REVIEW		
How are innovation evaluation findings used?		
How is legislator and regulatory learning ensured?		

REGULATORY SANDBOX PLANNING PREP-SHEET

This planning sheet provides guideposts to establishing, running, and reviewing a regulatory sandbox.

ELEMENTS	ANSWERS	COURSE OF ACTION
SANDBOX PURPOSE		
Sandbox Purpose		
What will the main goals be of a regulatory sandbox?		
How will the sandbox support financial inclusion and the SDGs?		
Does the regulatory sandbox have a sectoral purpose?		
Will the purpose of the regulatory sandbox be dynamic or static?		
How can the attainment of these goals be measured?		
What regulatory arrangements are allowed by the current mandate and authority of the regulator by law?		
What barriers will firms face if they were testing out novel ideas?		
How can these barriers be lowered?		
What safeguards should be engaged to protect consumers and the financial system?		
Are other regulatory approaches and tools capable of reaching similar goals?		
Which and how many firms would likely apply to a regulatory sandbox?		
IDENTIFYING STAKEHOLDERS AND COLLABORATORS		
Who are the core stakeholders responsible for implementing, supervising, and steering the regulatory sandbox?		
Which stakeholders will play an active part in implementing the sandbox?		
Which stakeholders should occasionally take part in the improvement of the sandbox?		
Which stakeholders are capable of influencing the sandbox in the environment surrounding it?		
What interests exist regarding the regulatory sandbox?		
TIME AND RESOURCES		
Within what timeframe should the sandbox be designed, prepared for, planned, and implemented?		
What resources need to be allocated to each of these steps?		
Where will these resources come from?		
How long can the resources be maintained?		
How might expenditure change over time?		
IDENTIFYING LEGAL OBSTACLES		
What areas of law and specific legal provisions are relevant to the implementation of the sandbox?		
What rules and regulations in particular inhibit the introduction of innovative products, services, and business models?		

ELEMENTS	ANSWERS	COURSE OF ACTION
EXEMPTIONS AND REGULATORY TOOLS		
What exceptions and exemptions can be activated to overcome legal obstacles?		
Are there any regulatory tools that allow exemptions, exceptions, or waivers?		
What preconditions must be met to issue such exemptions, exceptions or waivers?		
Which authority is responsible for issuing the exemption, exception or waiver?		
Are there examples and experience with applying such rules?		
Have any authorities issued exemptions, exceptions or waivers?		
RISKS AND LIABILITIES		
What risks may be triggered by a regulatory sandbox?		
What damage would such risks cause to test participants, observers, or third parties?		
How can these risks be insured?		
REGULATORY SANDBOX DESIGN		
What is the geographic range of the sandbox?		
How long will likely be needed to attain the goals of the regulatory sandbox?		
What kind of supervision and steering does the regulatory sandbox require and by whom?		
Who will evaluate the activity of the sandbox?		
What are crisis developments and what is the response procedure?		
What indicators are suitable metrics for the attainment of the sandbox goals?		
How can these indicators help partners and stakeholders be more informed about the sandbox?		
What data is already available for use?		
What data will be collected for evaluation?		
What reporting must be done to the stakeholders of the sandbox?		
What are appropriate methods of data collection and evaluation?		
SANDBOX ELIGIBILITY CRITERIA		
Do national policy priorities promote particular eligibility criteria? Do they align with envisioned sandbox goals?		
Do the eligibility criteria reflect policy goals?		
Are the eligibility criteria clearly understandable?		
Are the eligibility criteria biased in favor of certain parties?		
SANDBOX REVIEW		
How will sandbox evaluation findings be used?		
How will legislator and regulator learning be ensured?		

9. RESOURCES

DIGITAL FINANCE AND FINTECH

The following literature provides a framework for digital finance / FinTech and analyses its various components, and then proceeds to a more focused discussion of individual market segments such as digital ID, payment systems, and electronic know-your-client systems.

DIGITAL FINANCE AND FINTECH INFRASTRUCTURE

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REGULATORY SANDBOXES AND INNOVATION HUBS

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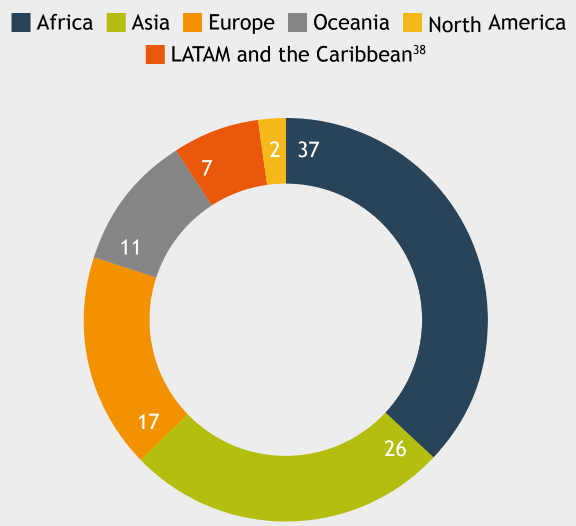
10. ANNEX AFI NETWORK INSIGHTS - METHODOLOGY

“AFI Insights” are based on empirical data collected through a survey addressed to Financial Supervisory Authorities (FSAs) within the AFI Network and beyond. The survey aimed to map the most recent regulatory frameworks adopted or proposed by national authorities as well as legal challenges, FinTech initiatives and innovative regulatory proposals. The survey included five sections and more than 80 questions.

After being pre-tested, the survey was distributed to approximately 100 FSAs and answers from 46 respondents were collected and stored in a spreadsheet-based database. A first data cleaning was performed on the raw data. Coded queries were used to extract the data, which were then analysed to provide key findings on the status and effectiveness of regulatory approaches to FinTech innovation.

Answers analyzed cover six geographical areas(%):



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38 The percent represents total number of participants per continent on the total number of participants.

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