BRINGING
SMART
POLICIES
TO LIFE

CREATING ENABLING FINTECH ECOSYSTEMS: THE ROLE OF REGULATORS

SPECIAL REPORT

CONTENTS

ACKNOWLEDGMENTS

This report was commissioned by the Alliance for Financial Inclusion (AFI). Tunyathon (Tayo) Koonprasert from the Harvard Kennedy School and currently with the Bank of Thailand and AFI's Ali Ghiyazuddin Mohammad, are the lead authors of the report.

AFI would also like to thank members of the AFI network as well as other regulators who participated in this report. Countries who participated in this report include – Egypt, Estonia, Ghana, Indonesia, Luxembourg, Malaysia, Mexico, Nigeria, Thailand and United Kingdom. The report also benefitted from the inputs received at the "Global Dialogue on Regulatory Approaches for Inclusive FinTech" which took place at Prague in September 2019. The event was partly funded with UK aid from the UK government.

The digital financial services workstream is supported by AFI's Funding Partners.

INTRODUCTION

FINTECH IN THE AFI NETWORK

FinTech is a new term for a long-standing phenomenon: the application of technology in finance.[1] Short for financial technology, FinTech has the potential to reach underserved individuals and communities through a range of products and services, including mobile money and e-wallets, person-to-person (P2P) lending, equity crowdfunding, alternative credit scoring, cross-border remittances, digital KYC processes and regulatory technology (RegTech).

FinTech encompasses not only the technological transformation of finance through digital financial services, but also the digitization and datafication of global financial markets, the emergence of new FinTech start-ups around the world and, most recently, the emergence of giant technology platforms ("BigTechs") engaging in finance, such as Facebook, Apple, Amazon and Alibaba.[2]

FinTech is not a passing phenomenon. It has the potential to transform markets, leading to increased contestability and competition. As a key commitment under the Maya Declaration[A] and the Sochi Accord, AFI member institutions are dedicated to embracing the promise of FinTech and harnessing its potential to advance financial inclusion.

At the same time, there is growing awareness of the importance of regulatory capabilities for the development of FinTech ecosystems. For example, to regulate innovative market deployments, many AFI member countries, such as Kenya, Tanzania and the Philippines, are implementing proportionate regulatory approaches and adopting a "test and learn" methodology. These approaches may be precursors of the "regulatory sandbox" for FinTech that more than 30 jurisdictions globally have now implemented.[3]

THE POTENTIAL OF FINTECH FOR FINANCIAL INCLUSION

Financial inclusion is vital to improving the livelihoods of the poor and disadvantaged. Providing people with access to financial services, such as payments, savings, insurance and credit, helps them to manage their financial obligations and build better futures for their families, while also supporting broad economic growth, development and poverty reduction.[4] For this reason, the Digital Financial Services (DFS) Working Group at AFI has been engaged in the FinTech for Financial Inclusion workstream, which recognizes that when coupled with enabling regulation and policy, FinTech has great potential to promote financial inclusion globally.[5]

The AFI network is exploring a variety of applications of FinTech technologies with the potential to advance financial inclusion, including:[6]

> Making payments more transparent and efficient and transactions more secure through various technologies;
> Innovative credit scoring and greater product segmentation and development through the use of big data;
> Making customer on-boarding processes and transaction verification faster and more efficient through digital identity solutions;
> Strengthening compliance with global standards for financial stability and integrity and increasing the efficiency of domestic supervision through RegTech; and
> Making operations more efficient through the adoption of cloud computing technology in the financial sector.

The rapid pace of innovation in financial services combined with a commitment to financial inclusion in an unprecedented number of leading policymaking institutions in developing and emerging countries, is a unique opportunity to resolve some of the most intractable challenges for financial inclusion and reach "last-mile" consumers with high-quality financial services.

However, the rise of digital financial services and FinTech products also present new risks and threats, such as those stemming from opaque data privacy practices or systemic vulnerabilities from cybersecurity threats. Regulators can neither control nor predict what innovation will look like in the future but given the speed and disruptive nature of financial innovation, developments will need to be continuously monitored and regulatory frameworks and supervisory practices adapted to safeguard the stability of the financial system.

A The Maya Declaration is the first global and measurable set of commitments to unlock the economic and social potential of the world's 2.5 billion poorest through greater financial inclusion. More than 80 AFI member institutions from developing and emerging countries have made commitments under the Maya Declaration.

STUDY OBJECTIVES AND FRAMEWORK

Worldwide, countries are placing greater emphasis on the digital transformation of financial services, some to advance financial inclusion, others to respond to growing public demand for more diverse financial services and better user experiences.

Members of the AFI network are watching the global trends redefining the financial services landscape and highlighting the role of regulators to begin developing local and regional FinTech ecosystems in their respective countries.

> "The emergence of new innovations in providing financial services a few years ago led the authorities to focus on what was going on in Mexico and the rest of the world with regards to the new technologies."
>
> **Rocío Robles,** General Director of the FinTech Supervision Department, Comisión Nacional Bancaria y de Valores (CNBV).

Conversations with regulators, FinTech associations and accelerators/incubators at the forefront of the FinTech landscapes in the AFI network and beyond (see Appendix 1), revealed four key focus areas where regulators can contribute to a well-functioning FinTech ecosystem:

1 organizational structure;
2 capacity building and upskilling;
3 engagement and outreach; and
4 regulatory framework and incentives.

Each of these focus areas are discussed in more detail in the following section.

OUR STUDY THEREFORE SEEKS TO ANSWER THE FOLLOWING QUESTIONS:

1 What are the characteristics of existing FinTech ecosystems across the globe?

2 Who are the key stakeholders in a FinTech ecosystem? What roles do they play?

3 In which areas can regulators contribute to the development of a FinTech ecosystem? What are some best practices that have been taken so far?

4 How is the regulatory framework aligned with national policies on financial inclusion, if such a goal is in place?

5 How is the provision of FinTech aligned with other factors affecting the livelihoods, entitlements, information, capacity building and literacy of both the general population and specific segments, such as women, youth and forcibly displaced persons?

FOCUS AREAS FOR THE DESIGN AND IMPLEMENTATION OF ENABLING FINTECH ECOSYSTEMS

FOCUS AREA 1
ORGANIZATIONAL STRUCTURE

FOCUS AREA 2
CAPACITY AND SKILL BUILDING

FOCUS AREA 3
ENGAGEMENT AND OUTREACH

FOCUS AREA 4
REGULATORY FRAMEWORK AND INCENTIVES

FOCUS AREA 1: ORGANIZATIONAL STRUCTURE

In adapting to financial and technological innovation, it is advisable to evaluate existing organizational structures to assess whether current structures can sufficiently support regulating FinTech developments. Some regulators and supervisory authorities have begun modifying their organizational structures to better conform to the rapidly evolving financial services landscape by adding FinTech or innovation units.

However, establishing specialized units may not be a priority in countries where the FinTech industry is still nascent, as this demands financial investment, technical expertise and familiarity with business models, all of which take time to accumulate. In such cases, regulators and supervisory authorities are advised to promote cross-functional coordination across existing organizational structures and build technical capacity.

ESTABLISHMENT OF FINTECH OR INNOVATION UNITS

Regulators in emerging FinTech hubs have begun setting up dedicated FinTech or innovation units within their respective entities to take on FinTech developments with a more focused team. These units are staffed with experts who have a deep understanding of FinTech business and service models and the underlying technologies enabling their solutions, as well as a thorough understanding of national and international regulatory and supervisory frameworks.[7]

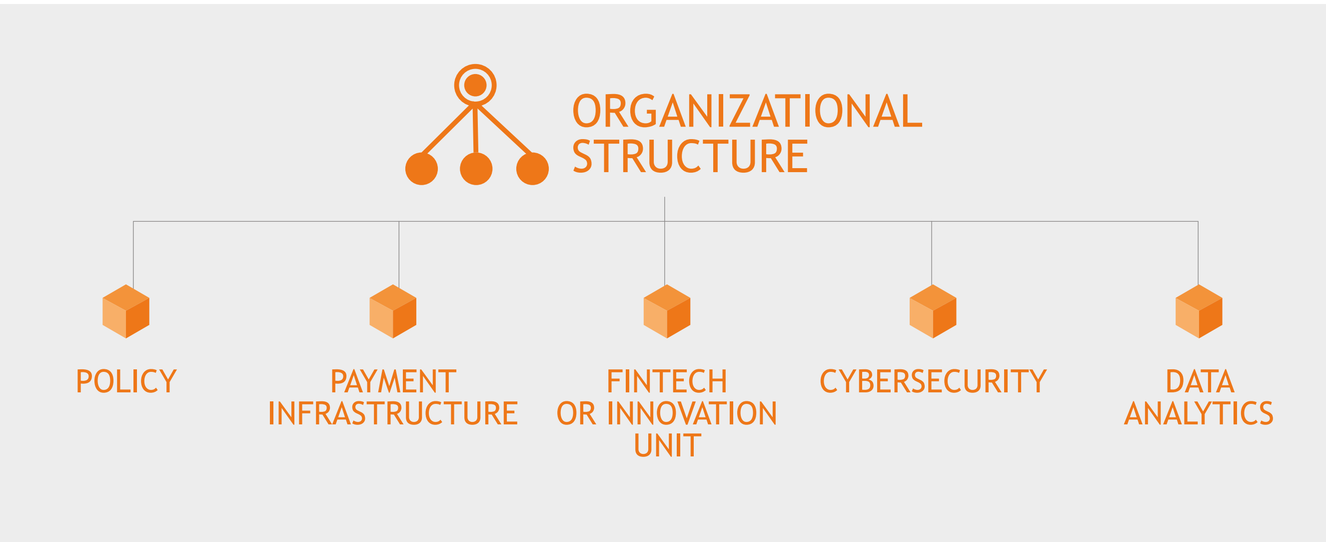
The units are often responsible for:

- acting as liaison between financial services providers and relevant departments within the regulatory entity;
- running regulatory sandboxes and innovation hubs;
- analyzing new innovations and activities that fall outside existing regulatory scopes; and
- implementing programs and policy measures to encourage FinTech innovation.

SPOTLIGHT 1: EVOLUTION OF THE FINANCIAL CONDUCT AUTHORITY'S INNOVATE DEPARTMENT

In 2014, the Financial Conduct Authority FCA) of the United Kingdom launched Project Innovate, creating an area within the FCA responsible for monitoring and identifying emerging trends in FinTech and to support innovative businesses in launching new products.

The Innovate Department started off as a small project under the FCA's Strategy and Competition Division. Today, it has evolved into the Innovation Division with three departments working on different aspects of FinTech, including cryptoassets, RegTech and advanced analytics, data strategy and a regulatory sandbox. The role of the Innovate Department is to learn and understand new business models in the FinTech industry to advise on policy, liaise with the rest of the FCA on FinTech matters and continue outreach with the sandbox, advice unit and direct support services.



SPOTLIGHT 2: THE BANK OF THAILAND'S FINTECH DEPARTMENT AND SQUAD TEAMS

Thailand's central bank, the Bank of Thailand (BOT), has established a separate Financial Technology Department adjacent to the Payment Systems Policy Department to oversee the BOT's regulatory sandbox, which was set up to help shorten time-to-market for banks and non-banks wanting to provide innovative digital financial services. The sandbox allows providers to test services within a limited scope and be monitored by the BOT before scaling up their services to the general public (once they have met necessary criteria).

The FinTech Department includes a mix of both IT and policy experts. The Department works closely with both industry players and other relevant departments in the BOT, such as the Payments System Policy Department, Bank Supervision Department and Technology Risk Supervision Department. Financial services providers that apply to the regulatory sandbox are still subjected to the regulations of relevant departments, therefore the FinTech Department collaborates closely with each one to determine how existing regulations and risk management rules would apply to the new provider. The FinTech Department then aggregates this information and identifies key success indicators to gauge whether the sandbox project will fail or pass the sandbox and be scaled up for the public.

The BOT has also set up multiple cross-functional "squad" teams comprised of representatives from various departments who respond to new FinTech technologies by sharing different perspectives based on their expertise and learning from one another. Together, they analyze how the new product or technology will impact consumer behavior, the banking landscape, monetary policy, foreign exchange controls, and other areas. One squad team currently in place is studying the potential issuance of central bank digital currencies.

EMERGENCE OF SPECIALIZED UNITS

In most emerging economies, the current scale of FinTech markets is still too small to disrupt banking systems, but cyberattacks, data privacy and security breaches have become growing challenges. As FinTechs scale up, consumer protection risks, money laundering, regulation of nonbanks and IT risks will demand greater attention from regulators and a growing need for stronger cybersecurity units.

At the same time, increasing platform interconnectivity and digitization of information provide an opportunity for regulators to use data analytics to understand the economy and financial system in more depth than ever before. The ability to harness and process this vast amount of data will require regulatory bodies to be proficient with data analytics tools.

As markets become more dynamic, there will be a growing need to examine existing organizational structures and evaluate whether establishing specialized units, such as cybersecurity and data analytics, is appropriate.

SPOTLIGHT 3: MONETARY AUTHORITY OF SINGAPORE EMBRACES NEW FINTECH DEVELOPMENTS

The Monetary Authority of Singapore (MAS) was one of the first regulators in the world to embrace FinTech and has made several changes to its organizational structure to respond to the development of FinTech and its importance to Singapore's economy.

In 2015, MAS established a dedicated FinTech and Innovation Group (FTIG) responsible for regulatory policies and developing strategies for technology and innovation, to better manage risks, enhance efficiency and strengthen competitiveness in the financial sector.[8]

In 2017, MAS formed a Data Analytics Group to lead efforts in using data analytics to unlock insights, enhance the supervision of financial institutions, make regulatory compliance more efficient and improve work efficiency across the organization.[9]

FTIG and DAG are each made up of three units that perform the following roles:

FINTECH AND INNOVATION GROUP (FTIG)

Payments FinTech Office	Formulates regulatory policies and develops strategies for simple, swift and secure payments and other technology solutions for financial services.
FinTech Infrastructure Office	Responsible for regulatory policies and strategies for developing safe and efficient technology-enabled infrastructure for the financial sector in areas such as cloud computing, big data and distributed ledgers.
FinTech Ecosystem Office	Tracks emerging cutting-edge technologies with potential application to the financial industry. Works with the industry and relevant parties to test innovative new solutions.

SPOTLIGHT 3: *continued*

DATA ANALYTICS GROUP (DAG)

Data Governance & Architecture Office	Formulates data management policies, manages data collection and quality, maintains the MAS data catalog and publishes official statistics.
Specialist Analytics & Visualization Office	Conducts data analysis in partnership with MAS departments. Helps departments improve their data capabilities through reusable tools and code libraries. Works with the MAS Academy to provide data analytics training programs.
Supervisory Technology Office	Conducts data analysis on supervisory and financial sector data in partnership with MAS departments. Works with FTIG to promote data analytics capabilities in the financial industry and foster innovations to make regulatory compliance more efficient and effective.

MAS also has a Technology and Cyber Risk Supervision Department (TCRD) that formulates technology risk management and cybersecurity strategy and performs cybersurveillance to maintain situational awareness over cyber threats. The department supervises other financial institutions' technology risk management and business continuity management practices to ensure the reliability, security and resilience of systems and services. It is also responsible for reviewing MAS' internal cybersecurity risk management measures.[10]

KEY SUGGESTIONS
FOCUS AREA 1: ORGANIZATIONAL STRUCTURE

- Before a FinTech or innovation unit is established, look at existing resources and the organizational structure to assess whether there is sufficient support or need for such a unit. If not, consider adding resources to existing departments, for example, assigning small team of two to three employees within the Payment Department to monitor FinTech developments.
- Consider establishing separate, specialized cybersecurity or data analytics units, if adequate resources are available. If not, ensure cross-functional coordination across relevant departments (Information Technology, Statistics, Supervision) to monitor developments.

FOCUS AREA 2: CAPACITY AND SKILL BUILDING

CAPACITY BUILDING FOR REGULATORS

PROMOTE AN INNOVATIVE ORGANIZATIONAL MINDSET AND NURTURE IN-HOUSE TALENT.

To keep up with rapidly changing FinTech trends, innovation must be instilled from within and beyond to ensure regulators can carry out their primary mandate of financial stability, integrity and consumer protection. These are also key features of the Sochi Accord[B] endorsed by the AFI network. Regulators should anticipate that a developing market will require a corresponding evolution of industry engagement and regulation.

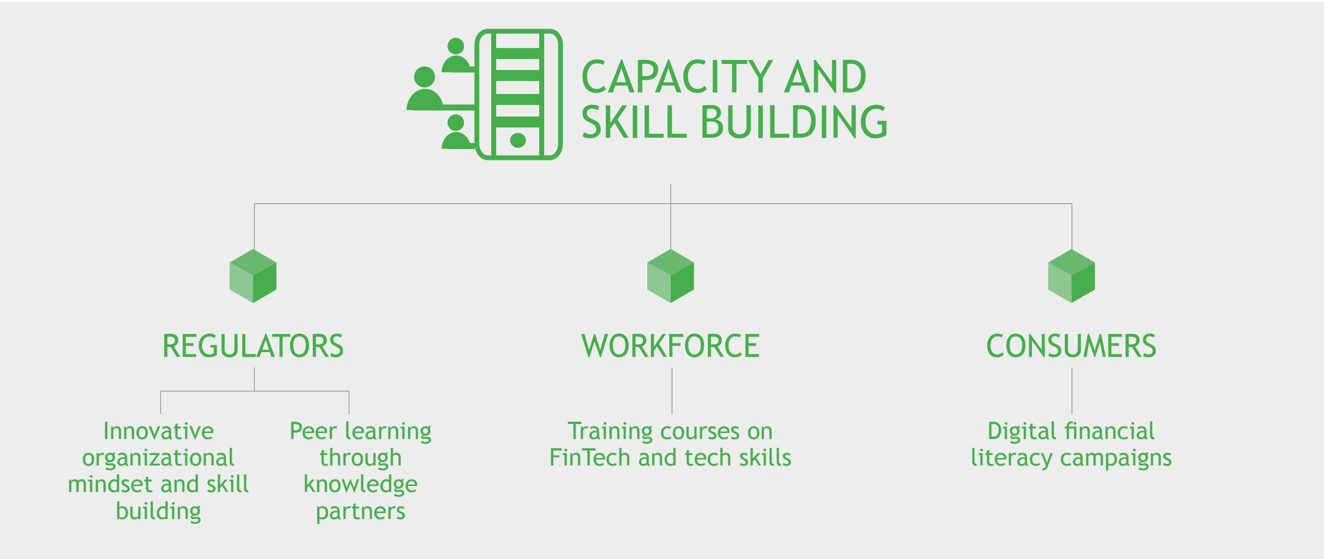
The rapid growth of technology-driven financial services has heightened the need to develop new skills and build capacity and an organizational culture that embraces and nurtures innovation among regulators. By continuously building their technical skills, regulators and government officials can keep up with new FinTech business models and regulate them properly. Regulators should also be up to date on recommendations and guidance set forth by the global standard-setting bodies (SSBs) on new developments like virtual assets. This task will require regulators and industry experts to work together over the coming years to train large numbers of people in the workforce.

> "Technology moves very fast and regulators are always one step behind - we need to close this gap. We try to engage as much as possible with stakeholders to understand their innovative mindsets and the technology behind their services. We also continuously try to improve our own IT skillsets, by taking online courses and bringing in industry experts."
>
> **Naphongthawat Phothikit**, Director of Financial Technology Department, Bank of Thailand

CONNECT WITH KNOWLEDGE PARTNERS FOR KNOWLEDGE SHARING AND PEER LEARNING OPPORTUNITIES.

Peer learning and knowledge sharing between champions and pioneers in the regulatory space can lead to better policy. The FinTech learning curve is steep, and there is much value to be gained from learning about approaches that have effectively balanced financial innovation with regulatory mandates of financial stability and financial inclusion. This dialogue should also include investors, policymakers and FinTechs, and should take place between countries as well.

Other knowledge partners, such as the International Monetary Fund, the World Bank Group, and regional development banks and universities, also offer capacity building activities for staff of regulatory bodies and practical exposure to FinTech innovations and relevant topics, such as cybersecurity and AML/CFT issues. The Financial Stability Board (FSB) has set up six regional consultative groups (RCGs) to discuss the formulation and implementation of policies, some around the use of FinTech to promote financial inclusion.



B At the 2018 AFI Global Policy Forum, AFI members endorsed the Sochi Accord on FinTech for Financial Inclusion. The Sochi Accord provides a framework for AFI members to leverage new and innovative technology-based financial services to advance financial inclusion and strengthen market conduct and consumer protection.

SPOTLIGHT 4: AFI'S CAPACITY BUILDING EVENTS ON DIGITAL FINANCIAL SERVICES

DIGITAL FINANCIAL SERVICES (DFS) WORKING GROUP

Recognizing the importance of peer learning and knowledge sharing, AFI has continuously supported its members with a variety of peer learning programs, public-private dialogue sessions, member training and peer advisory services.

For example, in 2017, Visa co-hosted an interactive training in Ghana where participants looked into how government payments could catalyze financial inclusion, produce long-term, sustainable impacts and benefits, and the policy and product design choices involved.

In 2018, with the support of Banco Central de Timor-Leste and the University of New South Wales, a training event examined innovative approaches to financial regulation for financial inclusion and dove into the definition, purpose, key approaches and guidelines for designing a regulatory sandbox.

In 2019, AFI held a peer advisory service program co-hosted by Bank Negara Malaysia to help members develop action plans for designing and delivering FinTech initiatives in their own jurisdictions. The training drew on Malaysia's expertise and recent experience in developing enabling polices for FinTech-focused financial inclusion.

Table 1 below lists AFI's capacity building events with a digital financial services component over the past three years,[C] including the number of participants and participating countries.

TABLE 1: AFI'S CAPACITY BUILDING EVENTS ON DFS

YEAR	CO-HOST INSTITUTION	CO-HOST country	EVENT NAME	NUMBER OF PARTICIPANTS	COUNTRIES REPRESENTED
2017	Bangladesh Bank	Bangladesh	BB-AFI Joint Learning Programmme on Digital Financial Services	28	20
	MasterCard	Brazik	AFI-MC FILAC Capacity Building Training on Digital Financial Services	31	12
	VISA	Ghana	AFI-VISA Training on Catalyzing Financial Inclusion with Government Payments	45	31
	MasterCard	Mozambique	AFI-MC AMPI Training on Approaches to Enhancing Financial Inclusion through Digital Financial Services	49	23
2018	Bank of Ghana	Ghana	BoG-AFI Joint Learning Programme on Measuring Financial Inclusion: Way forward in the Digital Age	29	22
	MasterCard	Guinea	AFI-MC Regulatory Training on Digital Financial Services	40	20
	VISA	Jordan	AFI-VISA PPD A Digitally Connected World to Advance Financial Inclusion	72	42
	Bank Negara Malaysia	Malaysia	AFI-BNM Peer Advisory Services Training on FinTech: Boosting Financial Inclusion	23	13
	MasterCard	Mexico	AFI-MC Training on Digital Financial Services: Role of Data and Approaches to Enhancing Data Privacy and Protection	64	40
	Bank of Morocco	Morocco	BAM-AFI Member Training on Innovations in Digital Financial Inclusion	19	14
	VISA	Samoa	AFI-VISA PPD on Accelerating Digital Payments in the Pacific	22	8
	Bank Central do Timor Leste	Timor Leste	BCTL-AFI Regional Training on FinTech for Financial Inclusion	20	8
2019	MasterCard	Argentina	AFI-C Training on Approaches to Enhancing Financial Inclusion through Digital Financial Services	26	11
	Central Bank of Argentina	Argentina	BCRA-AFI Regional Training on Innovating Digital Financial Services Policies and Regulations for Financial Inclusion	26	11
	MasterCard	Belarus	AFI-MC Training on Approaches to Enhancing Financial Inclusion through DFS	18	7
	MasterCard	Cote D'Ivoire	AFI-MC Training on Approaches to Enhancing Financial Inclusion through DFS	42	25
	VISA	Malaysia	AFI-VISA Training on The Future of Commerce:A training Program for AFI Members	50	35
	Bank Negara Malaysia	Malaysia	BNM-AFI Member Training on Platform Economy and its Promise for Financial Inclusion	50	55
	VISA	Solomon Islands	AFI-VISA Training on Accelerating Digital Payments in the Pacific	55	15

C From January 2017 to July 2019

Think tanks like the Digital Finance Institute also organize workshops on leading industry topics, such as financial innovation, digital finance policy and regulation, financial inclusion and women in financial technology. The Toronto Centre offers webinars and podcasts exploring issues related to the regulation and supervision of financial innovation.

CAPACITY BUILDING FOR STAFF

PROVIDE TRAINING COURSES ON FINTECH TOPICS AND RELATED TECHNICAL SKILLS.

While the FinTech industry may seem exciting and attractive from the outside, it is difficult for newcomers to match their skills to the roles. For example, in a survey conducted by EY on FinTech start-ups across Southeast Asia, 60 percent of those surveyed agreed there is a shortage of required talent in their respective countries.[12] Sought-after skills tend to be coding and software development, user experience, product design, product management, data science and blockchain.[13] Attracting and retaining high-quality technical talent is a challenge seen worldwide, not just in Southeast Asia.

To address the shortage of local talent, governments have begun partnering with universities to offer FinTech training programs and degrees.

SPOTLIGHT 5: FINTECH HUBS IN ASIA PARTNERING WITH UNIVERSITIES TO NURTURE LOCAL TALENT

Hong Kong: The Hong Kong Government supports two publicly funded degrees in FinTech: a Bachelor of Engineering in Financial Technology at The Chinese University of Hong Kong and a Bachelor of Science in Financial Technology at Hong Kong Polytechnic University. The Hong Kong Monetary Authority (HKMA) has also partnered with the Hong Kong Applied Science and Technology Research Institute (ASTRI) on a FinTech Career Accelerator Scheme to connect university students with internship opportunities in the FinTech industry.

Singapore: Under the umbrella of the Singapore FinTech Association, the FinTech Academy (FTA) offers talent development programs ranging from financial literacy awareness to FinTech engineering courses, working closely with universities and polytechnics in Singapore, such as the Nanyang Technological University, National University of Singapore and the Singapore Stock Exchange. Courses offered by the FTA cover a wide range of FinTech topics, from design thinking in financial services to cybersecurity, cloud computing, digital currencies, blockchain and IoT. The FTA seeks to support not only FinTech entrepreneurs, but also bankers and banking technologists who want to reinvent themselves and future-proof their jobs.

CAPACITY BUILDING FOR CONSUMERS

SUPPORT AND SPREAD DIGITAL FINANCIAL LITERACY.

Digital financial literacy refers to knowledge, acquired skills and necessary habits to use digital devices for financial transactions effectively.[D] This includes basic literacy as well as the ability to use technology and understand financial services. Together, digital and financial literacy are core competencies for using FinTech products safely and for achieving economic mobility and financial inclusion.

Many consumers, unbanked or otherwise, do not understand the heightened cybersecurity risks of digital financial services and are vulnerable to hacking and fraud if targeted. This highlights the need for governments to include digital financial education in their national financial inclusion strategies (NFIS) and/or national FinTech agendas. Individuals who become concerned about privacy and security may avoid using digital financial services completely, resulting in financial exclusion.

Digital financial literacy campaigns should therefore focus on building trust through the dissemination of accurate and unbiased information on different types of FinTech products and services, including their benefits and risks. Campaigns should use both traditional and digital channels to reach consumers. Traditional channels can include the integration of financial education courses in school curricula, focused workshops and trainings, conferences and hackathons. Banking agents can also be a valuable resource for authorities to communicate with residents of rural and/or poorer areas. Digital channels include social media platforms, which reach younger populations who tend to be tech savvy and early adopters of new technology.

D Finextra, 26 February 2017, Digital Financial Literacy: Key enabler for a less-cash India, available at: https://www.finextra.com/blogposting/13750/digital-financial-literacy---key-enabler-for-a-less-cash-india

E Common Service Centers (CSCs) are facilities that deliver essential public utility services, social welfare schemes, healthcare, financial, education and agriculture services, and B2C services to citizens in rural and remote areas of the country where computers and internet access are not available.

SPOTLIGHT 6: INDIA'S COMMON SERVICE CENTERS BUILD DIGITAL FINANCIAL LITERACY AND EXPAND FINANCIAL INCLUSION

With a population of 1.2 billion, India faces a nationwide challenge of raising awareness of digital financial literacy, especially among rural and semi-urban populations. To address this problem, the Indian Government has launched the project, Digital Finance for Rural India: Creating Awareness and Access (DFIAA),[14] which mandate Common Service Centers (CSCs)[E] to host digital financial literacy awareness sessions on government policies and digital finance options available to residents of rural and remote areas. Due to the reach and availability of CSCs, they have also been given the mandate to expand financial inclusion through services such as opening bank accounts, banking facilitation and disbursing social security payments.

Through the DFIAA project, the government aims to make CSCs Digital Financial Education Hubs. The project targets 10 million rural residents through 200,000 CSCs, each of which reaches about 40 households. The target group includes India's poorest and most vulnerable communities with a focus on women, farmers, hawkers, small traders, artisans and other groups.

SPOTLIGHT 7: PORTUGAL'S HASHTAG-PROPELLED DIGITAL FINANCIAL EDUCATION CAMPAIGN

Banco de Portugal launched a digital financial education campaign to raise awareness among school-age children of precautions to take when using digital channels to access banking products and services. According to Banco de Portugal, youth are the population segment with the greatest capacity and ease in using new technologies. They tend to be more confident, which could lead them to overlook security when using digital channels.[15]

The campaign made use of the hashtag #toptip, through which cybersecurity tips are shared via Banco de Portugal's Bank Customer Website and Instagram page on five themes over a period of five weeks. The campaign materials are also compiled in a brochure designed and distributed to secondary schools across Portugal. Five themes are covered:

> Cyber risks and prevention methods
> Smartphone, network and app usage
> Social media sharing and privacy settings
> Online shopping and secure payment methods
> Online fraud and protection methods.

KEY SUGGESTIONS
FOCUS AREA 2: CAPACITY AND SKILL BUILDING

> Promote and encourage an organizational mindset that is innovative, flexible and conducive to fostering innovation.
> Encourage capacity and skill building for regulatory staff. For example, invite industry experts to lead workshops and give talks, or connect with international knowledge partners for training programs, knowledge sharing and peer learning opportunities.
> Advocate for the academic community to provide courses on FinTech and related technical skills to build the skills of employees and other local talent.
> Conduct digital financial literacy campaigns targeting the general population to disseminate accurate and unbiased information on the different types of FinTech products and services, including their benefits and risks.

FOCUS AREA 3: ENGAGEMENT AND OUTREACH

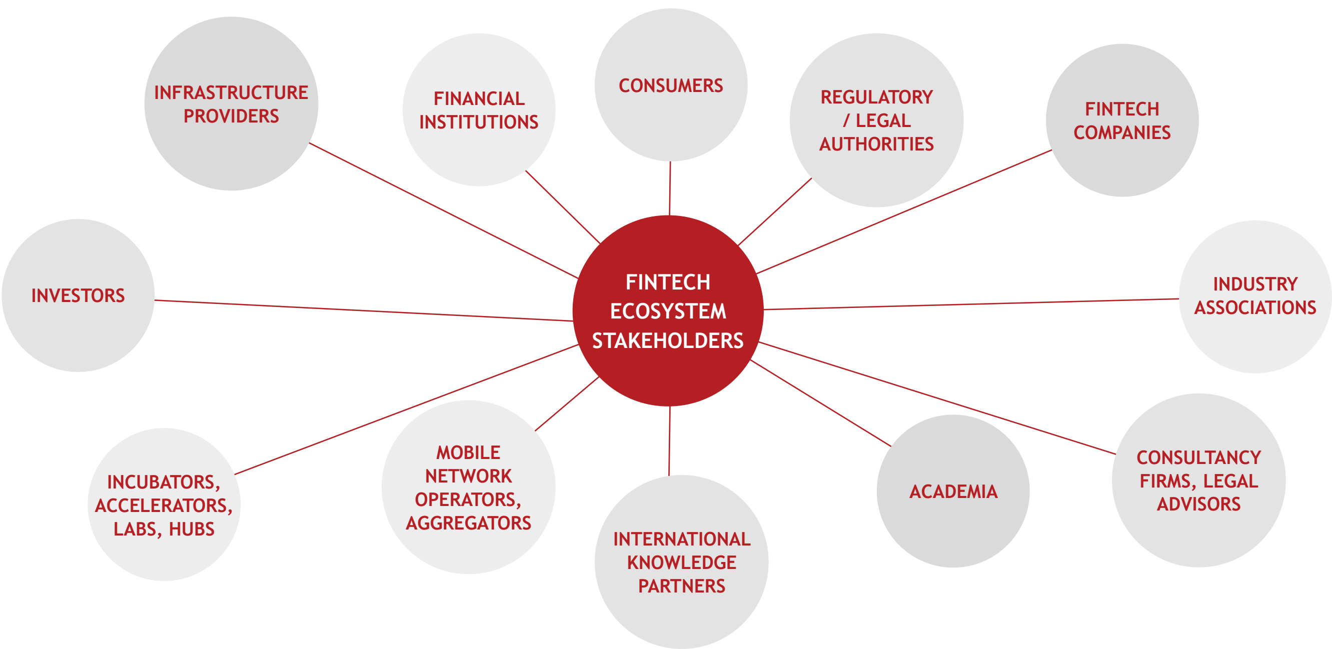
In advanced FinTech ecosystems, regulators tend to be proactive in responding to innovation and engaging with stakeholders to gauge the likely impact of emerging products on consumers and the regulatory framework.

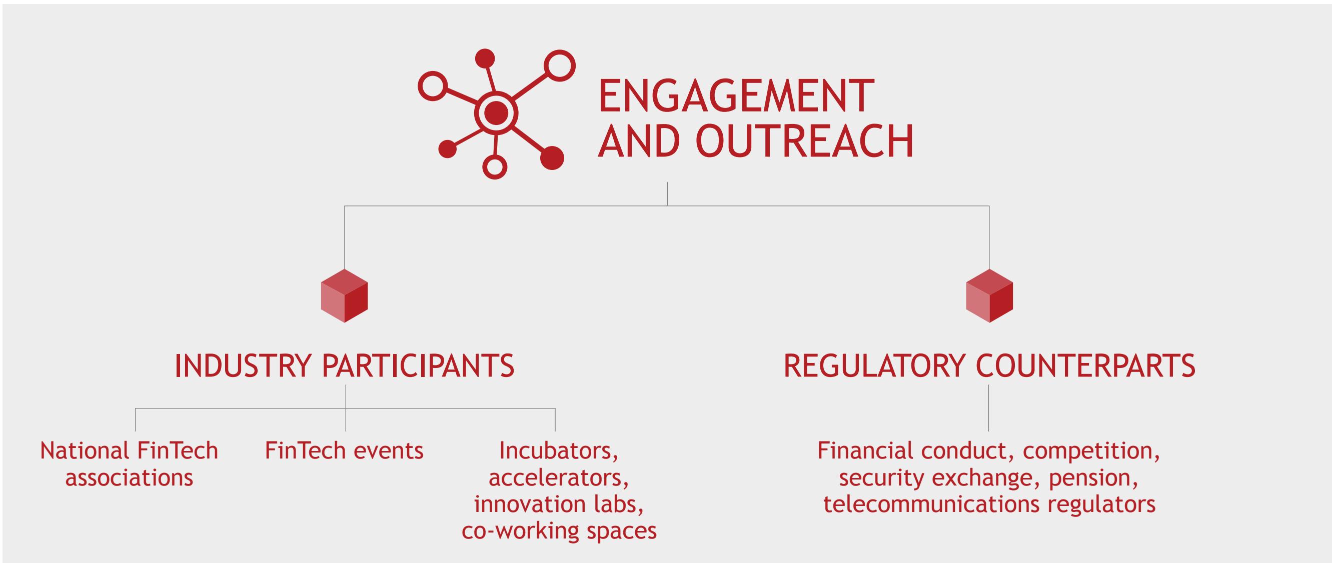
Regulators often engage actively in outreach efforts with the FinTech industry and with their regulatory counterparts and peers.

To begin this process, it may be helpful to map out the stakeholders that influence the FinTech ecosystem, both directly or indirectly, to identify industry focal points for coordination and points of contact with entrepreneurs, and to evaluate how risks can be spread across stakeholders. Stakeholders in a FinTech ecosystem often include, but are not limited to, those in Figure 2 below.

On the public front, the role of regulatory and legal authorities is to assess identified risks, issue rules and perform the oversight necessary for the healthy development of the ecosystem.

FIGURE 2: FINTECH ECOSYSTEM STAKEHOLDERS





The role of FinTech companies is to explore innovative business models that will bring benefits to consumers. The role of all other actors is to support the development of the ecosystem by providing funding (financial institutions and venture capital firms), guidance and advice (incubators/accelerators, legal advisors and consultancy firms), research (academia) and regulatory guidance (international knowledge partners).

INDUSTRY OUTREACH INITIATIVES

One of the core mandates of any FinTech or innovation unit within a regulatory body should be industry engagement. Enhancing public-private dialogue (PPD) between regulators and industry participants can enhance mutual understanding of FinTech innovation and risk profiles, their role in financial inclusion, and help to strengthen compliance with international standards (e.g. de-risking). When formulating policies, stakeholder consultations should involve many industry players to produce the best regulatory outcomes.

> "As part of the preparation for the effective oversight of FinTechs, regular workshops and seminars will be held for industry players to bring them up to date on regulatory concerns as well as the expectations of the regulator, since this is a new area for both the regulator and the regulated. These training sessions will be facilitated by technical experts where necessary."
>
> **Clarissa Kudowor,** Assistant Director, Bank of Ghana and Chair of the AFI DFS Working Group

NATIONAL FINTECH ASSOCIATIONS

One industry participant that regulators should be in close contact with is national FinTech associations. Such associations are typically formed by a coalition of stakeholders in the FinTech ecosystem, such as financial institutions, start-ups and venture capitalists, to promote cross-industry cooperation. They also work to form cross-border strategies and regional integration. Several regions have established FinTech networks to provide national FinTech associations with a platform to connect, collaborate and network with investors, tech players, industry participants and regulators in the region.

Regulators should encourage national FinTech associations, which are particularly important in the absence of regulation as they can represent industry interests, act as self-regulatory organizations, establish codes of conduct and help eliminate "fly-by-night" operators.

SPOTLIGHT 8: INDONESIA'S FINTECH ASSOCIATION A PLATFORM FOR POLICY ADVOCACY AND DIGITAL FINANCIAL AWARENESS

There are two primary regulators in Indonesia's FinTech environment: Bank Indonesia (BI) and the Indonesia Financial Services Authority (OJK). BI oversees all monetary and financial stability matters as well as any payment-related activities, while OJK oversees financial services beyond payments, such as P2P lending, crowdfunding, digital banking and InsurTech.

The Indonesian FinTech Association (AFTECH) was established in 2016 as a separate entity to support BI and OJK in creating business-friendly regulations for the FinTech industry and driving Indonesia's FinTech national financial inclusion strategy (NFIS) by supporting the FinTech ecosystem. Today, AFTECH has a strong member base of nearly 250 FinTech companies, 24 financial institutions and 10 knowledge partners.

Among national FinTech associations, AFTECH is quite unique as it focuses on policy advocacy and driving policy change in the industry. It has laid out a roadmap with three policy tracks:

1. Financial Inclusion Track - raising awareness of financial privacy and identity; leveraging FinTech agent network channels; exploring public-private partnerships and technology for G2P welfare distribution; providing tax incentives to scale financial inclusion
2. BI Track - creating a level playing field through interoperability; encouraging shared fraud detection for collective risk management; understanding industry needs for Open APIs
3. OJK Track - designing new financial products to address the credit gap; helping FinTechs understand licensing requirements for equity crowdfunding; supporting new business innovations for better coordination with OJK's regulatory sandbox

AFTECH is currently heading 10 cross-industry working groups on various themes, such as financial privacy and identity; agent networks, government-to-people (G2P) services, open marketplaces and digital financial services innovation. It also hosts four to five talks every month, some of which are open to the public, with the goal of providing education on the latest FinTech trends. Past talks have included the importance of consumer protection and how agent networks can provide better services to consumers. AFTECH also works closely with the media to ensure that journalists are regularly updated and informed on FinTech topics.

INCUBATOR PROGRAMS, ACCELERATORS, INNOVATION LABS AND CO-WORKING SPACES

Globally there has been a proliferation of accelerators and incubator programs — centers that provide mentoring, funding, training, networking, marketing and public relations guidance and opportunities for start-ups. In short, these centers help entrepreneurs gain access to networks, business advice and financing. Some are the result of government initiatives that enable FinTechs to interact with the regulator, seek their advice and request waivers or adjustments of licensing conditions, while others are the result of private sector alliances.

SPOTLIGHT 9: LUXEMBOURG HOUSE OF FINANCIAL TECHNOLOGY A GATEWAY TO EUROPEAN FINTECH MARKETS

The Luxembourg House of Financial Technology (LHoFT) is a foundation established in 2017 by the Ministry of Finance and 13 private partners, with the aim to drive innovation in Luxembourg's financial industry. The LHoFT works closely with regulators, banks, lawyers, insurance companies, asset managers, public institutions and research centers. It has become a unique and innovative platform where all industry participants, even competitors, can come together to converse and build innovative projects. The LHoFT also provides training programs on innovation for international regulators and actively supports education programs to prepare the younger generation on the future of finance.

The 10-person LHoFT team hosts 60 FinTech companies in its incubator program, bringing together more than 150 FinTech members from around the world. The team provides FinTechs with vast networking opportunities in Europe, access to mentorships and partnerships and even co-working spaces. The LHoFT also works closely with Luxembourg's financial sector regulator, the Commission de Surveillance du Secteur Financier (CSSF), the Association for Insurance (ACA) and the Association of the Fund Industry (ALFI).

Luxembourg has recently become a hub for FinTechs seeking to launch in Europe, due to a thriving financial ecosystem and a trusted regulator. FinTechs are encouraged to have their first meeting with the CSSF to explain their business model and business plans — a meeting that may seem daunting for FinTechs in other countries. The CSSF has a dedicated Innovation Team that provides the start-ups with valuable feedback and connects them to the relevant licensing parties within the institution. The regulator is therefore open to dialogue and embracing innovation, a position that makes it possible to work closely with the FinTech industry.

SPOTLIGHT 10: MDEC DRIVING MALAYSIA'S DIGITAL ECONOMY

The Malaysia Digital Economy Corporation (MDEC) was established in 1996 by the Malaysian Government as part of a national initiative to drive the country's digital economy. Implementing efforts centered around attracting investments, building local tech champions and catalyzing digital innovation ecosystems.[i]

The MDEC works closely with Bank Negara Malaysia (BNM) and the Securities Commission Malaysia (SC), aligning itself with regulators' financial inclusion goals of leveraging technology to target the underbanked, empowering the B40[1] and bringing Malaysia's shadow economy into the light. The MDEC also plays a strong policy advocacy role, helping to advise regulators on policy changes, voice industry feedback and advocate for non-bank actors to play a role in bringing financial services to the underbanked. The MDEC works to align the interests of three key stakeholders: regulators, the industry (financial institutions) and the community (start-ups, corporates).

The MDEC also operates The Orbit, a co-working space for FinTech start-ups and a hub for partners, such as Visa, MerchantTrade, United Nations Capital Development Fund (UNCDF) and Chaintope, among others. The Orbit is a nexus for many FinTech-related trainings and workshops, including its quarterly "regulator boot camp" in which BNM and SC meet with FinTech start-ups to discuss various trends. The most recent boot camps have been on digital assets and cloud computing.

To catalyze digital financial inclusion, the MDEC, in partnership with the UNCDF, Bank Negara Malaysia and the Financial Innovation Lab hosted at The Orbit, aims to accelerate innovation in digital financial services with new or improved solutions that help improve the daily lives of low and moderate-income people.

The MDEC also runs a FinTech Academy that collaborates with secondary schools to develop students' technical skills and with universities to deliver modules on FinTech topic. The Academy also holds design thinking workshops for banking professionals.

In addition to incubators/accelerators, co-working spaces can provide a forum for entrepreneurial development, providing opportunities for new companies to cohabitate or join a virtual network to exchange ideas, access vital business support services and test drive their ideas.[16] According to EY, 73 percent of FinTech companies feel that co-working spaces are beneficial as it is difficult to set up a standalone office in early stages.[17] Co-working space culture is most popular with FinTechs that have raised less than USD 500,000 in funding, while companies that have raised more than $5 million have moved on to rent their own office space.

While co-working spaces have largely been operated by the private sector, several local governments are beginning to offer state-owned co-working spaces or teaming up with private companies to set them up. Government and national institutions are in the best position to meet this demand as they are more likely to have affordable space available. The establishment of co-working spaces is considered a new form of economic development in the 21st century.

NATIONAL AND REGIONAL FINTECH EVENTS

National FinTech festivals tend to showcase the latest innovations and hottest FinTechs in the market. They are also a conglomeration of stakeholders, bringing together industry players to lead dialogue and collaboration on FinTech. Regulators should actively participate in both national and regional FinTech events to stay abreast of trends and industry developments.

Singapore's annual week-long FinTech Festival, organized by the Monetary Authority of Singapore, has become the world's largest event on financial technology. In 2018, it brought together over 45,000 participants from more than 130 countries.[18] Participants included key executives and decision makers from global financial institutions and corporations, innovators, technologists, investors and academia.

In the same region, regulators in Malaysia and Thailand have also begun hosting flagship FinTech events. In June 2019, Bank Negara Malaysia hosted the first MyFinTech Week to promote growth and diversity in the FinTech ecosystem, spur the digital transformation of financial institutions, drive responsible innovation in FinTech and increase public acceptance of FinTech. The Securities Commission (SC) of Malaysia holds an annual conference called SCxSC (Synergistic Collaborations by the SC), an interactive platform for discussions and exploration of new and evolving digital trends. In July 2019, Bank of Thailand hosted the first Bangkok FinTech Fair. Promoting FinTech is an important policy of the BOT, which is seeking to improve productivity, lower operating costs and facilitate financial connectivity in the ASEAN region.

COLLABORATE WITH REGULATORY COUNTERPARTS

HARMONIZE AND ALIGN REGULATORY REGIMES ACROSS LOCAL REGULATORY COUNTERPARTS

The FinTech umbrella covers digital financial services ranging from mobile money to crowdfunding, cross-border remittances and digital KYC processes. FinTech activities therefore tend to fall under multiple purviews within and across regulatory bodies, making it difficult for any entity to bear sole responsibility for supervision or authorization. Regulators should encourage cross-functional collaboration in their organizations among relevant departments, divisions or teams.

SPOTLIGHT 11: UK'S CRYPTOASSETS TASKFORCE COLLABORATING TO REGULATE NEW INNOVATION

In March 2018, three financial regulatory bodies in the United Kingdom — HM Treasury, Financial Conduct Authority and Bank of England — united to form the Cryptoassets Taskforce. The Taskforce made several commitments aimed at providing regulatory clarity on current cryptoasset activities and distributed ledger technologies (DLT). It also explored whether unregulated activities in these areas should be captured by regulation in the future. Together, the three authorities are developing a framework to regulate cryptoassets and DLT that:

> maintains the UK's international reputation as a safe and transparent place to do business in financial services;

> ensures high regulatory standards in financial markets;

> protects consumers;

> guards against threats to financial stability that could emerge in the future; and

> allows innovators in the financial sector that play by the rules to thrive.

The Taskforce has taken a holistic approach to the challenges of cryptoassets and DLT, incorporating views from across the public sector, including government, regulators and the central bank. It has also met with more than 60 firms and stakeholders across various sectors to ensure it heard different perspectives. This extensive engagement helped inform the Taskforce's recommendations in its final report released in October 2018.

COLLABORATE WITH INTERNATIONAL REGULATORY PEERS TO PROMOTE REGIONAL INTEGRATION

As domestic markets mature, FinTechs will increasingly want to expand regionally or internationally. However, when entering new markets, FinTechs can struggle to adapt to new sets of government regulations and different market dynamics. To help FinTechs navigate these challenges, some regulators have begun collaborating with regional peers to promote connections and financial integration, leveraging each other's existing financial infrastructure to optimize operational and cost efficiencies.

In several regions, establishing working groups and councils has proven to be effective in strengthening stakeholder communication and networks and ensuring smooth on-boarding to regional schemes and systems.[19] Working together with regulatory peers to increase regional interoperability can lead to uniform data standards and greater transparency and transaction visibility, ultimately making the region more accessible to FinTechs from other markets.

SPOTLIGHT 12: ASEAN CENTRAL BANKS ADVANCING PAYMENT AND SERVICE CONNECTIVITY

Central banks in the Association of Southeast Asian Nations (ASEAN) have been making strong headway in regional financial integration and collaboration. A Working Committee on Payment and Settlement Systems (WC-PSS) was established to promote regional, real-time retail payments that are safe and efficient, which led to the development of the ASEAN Payments Policy Framework for a more competitive economic bloc. Thailand and Singapore have already linked their national payment systems Promptpay (Thailand) and PayNow (Singapore), and live operations are expected by the first half of 2020.

WC-PSS is also exploring the feasibility of interoperable QR codes to promote the use of innovative retail payment instruments across the region. This would lower the cost of services and encourage the use of local currencies in the settlement of cross-border transactions. This is particularly relevant for CLMV[F] migrant workers who are currently charged remittance service fees of up to 10 percent.[20]

The Working Committee on Financial Inclusion (WC-FINC) is moving towards greater financial inclusion in the region and enabling regulation and infrastructure. Guidance Notes on Digital Financial Services (DFS) and Financial Education and Consumer Protection (FCEP) published in 2019 recognize that technology is a strategic enabler of financial inclusion and should be implemented with the consideration of consumer protection. The WC-FINC has continued to work on knowledge sharing and capacity building on e-payments and FinTech, while building close ties with the private sector to facilitate effective and innovative financial technology solutions that can support meaningful financial inclusion. Guidance Notes on Monitoring Financial Inclusion Framework are underway.

KEY SUGGESTIONS
FOCUS AREA 3: ENGAGEMENT AND OUTREACH

- Create a stakeholder map to identify focal points for coordination across the industry.
- Engage in continuous dialogue with national FinTech associations, as they represent industry interests. If an association does not yet exist, advocate for one to be established.
- Connect with incubator programs, accelerators, innovation labs and co-working spaces to bring in FinTech start-ups.
- Actively participate in national and regional FinTech events to stay abreast of latest trends and industry developments.
- Harmonize and align regulatory regimes across local regulatory counterparts by creating working groups or taskforces to regulate new innovations.
- Collaborate with regulatory peers from other regions to promote regional integration through regional working groups.

F CLMV refers to Cambodia, Laos, Myanmar and Vietnam.

FOCUS AREA 4: REGULATORY FRAMEWORK AND INCENTIVES

In the process of regulating innovation, regulators are often faced with the task of balancing conflicting priorities such as market growth and competition with the integrity, safety and stability of the financial system. Striking that balance will involve defining how nontraditional financial service providers fit within existing regulatory structures, gauging whether there is a need to alter them, and creating agencies, licenses, or rules to oversee innovation. With the establishment of appropriate regulatory frameworks, FinTech can contribute positively to the betterment of financial markets, including to the economic well-being of the consumers.

FINTECH REGULATIONS

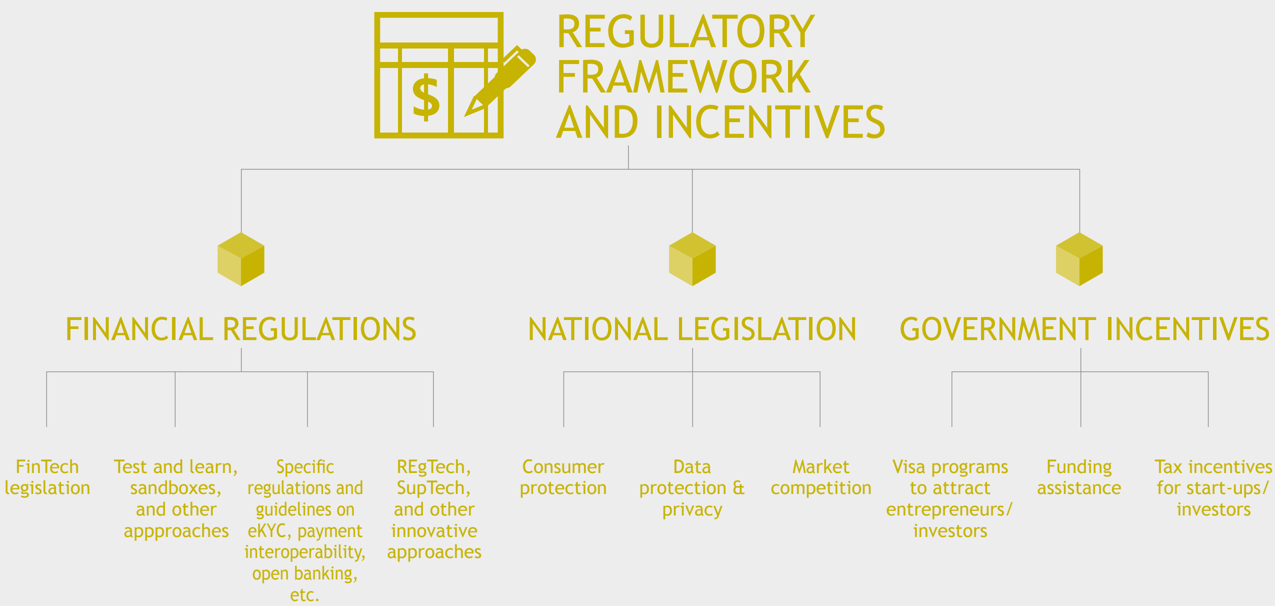
ADOPT AND IMPLEMENT FINTECH LEGISLATION IN A TIMELY MANNER

In many emerging economies, legislation is often necessary to define and regulate FinTech, such as e-money and crowdfunding, and to establish procedures and rules for other digital financial services operations. The legislation should give supervisory power to regulators to monitor innovation while balancing their core mandate of stability and integrity. In turn, this greater regulatory clarity will attract FinTech providers and stimulate innovation. Many countries have either begun consultations on FinTech laws or are undergoing discussion and approval processes. Authorities in economies with rapidly growing FinTech markets should prioritize this legislation, including a wide variety of stakeholders in the discussion process and using other countries' experiences to inform the debate and drafting of regulations.

SPOTLIGHT 13: MEXICO CHARTING THE PATH FOR FINTECH REGULATION IN LATIN AMERICA

Mexico is the first country in Latin America to introduce a framework covering a wide scope of FinTech activities in one piece of legislation. Authorities enacted the FinTech Law in March 2018 with the aim to bring new financial business models, such as crowdfunding and e-money activities, within the regulatory perimeter. The Law was prompted by the rapid growth of these activities in recent years, for example, the alternative finance industry in Mexico (including balance-sheet lending and crowdfunding models) increased 730 percent from 2015 to 2016, and P2P consumer lending market volumes expanded by 90 percent in 2017.[21]

With the establishment of a legal and regulatory framework for FinTech, Mexican authorities expect to see broader financial inclusion, increased competition, improvements in operational performance and changes in consumer behaviour. The FinTech Law is expected to usher in a new wave of innovation in digital financial services in a country where financial services have been primarily dominated by banks.



SPOTLIGHT 13: *continued*

The Law now provides more opportunities for non-banks to enter the sector with more legal clarity, encouraging new products and links between banks, telcos and FinTech providers.

The Law supports innovative FinTech activities by:

a) Giving legal recognition to and setting supervisory frameworks for financial technology institutions (FTIs), which can perform the following activities: crowdfunding (debt, equity, co-ownership or royalties) and e-money (including e-wallets). The Law also mandates that entities currently offering crowdfunding or e-money services must request authorization by September 2019.

b) Allowing FTIs and banks to make transactions using cryptocurrencies, subject to special authorization and rules issued by the central bank.

c) Creating an obligation for financial services providers to share financial data with other providers and third parties specializing in technology through standard APIs (Open Banking).

d) Introducing a regulatory sandbox for both non-regulated and regulated entities. For the former, the Law allows financial authorities to grant legal and regulatory exemptions to test products or services before becoming a regulated entity. For the latter, exemptions to the secondary regulation are granted to test innovative models. In both cases, eligibility criteria for testing apply.

Based on the FinTech Law, the Comisión Nacional Bancaria y de Valores (CNBV), an agency of the Ministry of Finance and Public Credit, issued the General Provisions Applicable to Financial Technology Institutions (September 2018) and the General Provisions Applicable to Innovative Models (March 2019).

The FinTech Law gives the CNBV and other financial authorities the power to supervise FTIs and innovative model institutions. New organizational structures within the CNBV have also been established to support the supervision of the new sector. The CNBV now houses a FinTech Supervision Department to oversee crowdfunding and e-money, and a Sandbox Team that works with both regulated and non-regulated entities seeking to test new innovations.

The enactment of the FinTech Law set in motion efforts to create a vision of the healthy development of a FinTech ecosystem in Mexico. These efforts included the recruitment of international research experience, ongoing close contact with model FinTech companies globally and active participation in FinTech events and forums in Mexico and abroad.

SPOTLIGHT 14: GHANA'S JOURNEY TO REGULATE DIGITAL FINANCIAL SERVICES

In 2008, the Bank of Ghana (BOG) issued Guidelines for Branchless Banking that marked the beginning of a journey in transforming the payments landscape in Ghana. Since then, regulatory frameworks for FinTechs have been put in place through continuous dialogue with industry.

In 2019, the BOG passed a new Payment Systems and Services Act that covers the operations of FinTechs within the payments landscape. Previously, FinTechs could only collaborate with regulated financial institutions under the 2015 Guidelines for Electronic Money Issuers and Agent Guidelines, but the new Act does not prohibit any FinTech activity. Under the new Act, FinTechs can directly approach the regulator to seek a valid operating license for their business. Licensing requirements are currently being drafted in line with the Act to enable the BOG to license and regulate entities not previously under their jurisdiction. Other guidelines and regulations (e.g. a regulatory sandbox) are also being drafted to support a safe and innovative FinTech sector.

There are also plans to launch a payment systems strategy soon, in line with the Bali FinTech Agenda,[G] to promote the digitization of payments. The Ministry of Finance is also developing a national DFS policy with support from its development partners. The draft policy contains a component that will eventually form the basis for a national FinTech strategy.

Throughout Ghana's journey in regulating financial innovation, the BOG has made deliberate efforts to involve the media and develop subject experts/digital champions who can help move the conversation forward. These experts and champions have collaborated with the BOG to understand and develop the ecosystem as it develops the right regulatory frameworks.

LINK TO NATIONAL FINANCIAL INCLUSION STRATEGY (NFIS)

According to a 2019 IMF survey of its member countries, over 60 percent of jurisdictions reported incorporating FinTech in an NFIS, primarily in middle-income countries. These national strategies tend to focus on fostering the adoption of FinTech (41 percent of survey respondents), encouraging digitization of government processes (41 percent) and establishing a forum for public-private dialogue (33 percent).

G The Bali FinTech Agenda, launched by the IMF and World Bank, outlines 12 elements that governments should keep in mind when designing policies and regulations to maximize the benefits of FinTech while also keeping their financial systems sound.

SPOTLIGHT 15: NIGERIA AND INDIA LEVERAGING FINTECH ECOSYSTEMS TO ADVANCE FINANCIAL INCLUSION

Nigeria: Nigeria's revised National Financial Inclusion Strategy (NFIS) focuses on using innovations like FinTech to address financial inclusion gaps among five disproportionately excluded groups: women, youth (18 to 25 years), rural dwellers, North-West and North-East Nigeria and MSMEs. The Central Bank of Nigeria (CBN) has set a financial inclusion target of 80 percent by 2020, and intends to reach this target by:

- Implementing policy that would provide a level playing ground for all participants; and
- Allowing actors to participate in their areas of core strength (comparative advantage).

Nigeria is currently home to over 200 FinTech companies, 60 percent of which operate in the digital retail payments and lending areas.[22] The key drivers of growth in Nigeria's FinTech industry have been increased smartphone penetration, a surge in e-commerce activity, government-sponsored innovation hubs and the recent introduction of the Payment Services Initiative.

To expand access to financial products and services in unbanked and underserved parts of the country, the CBN has introduced a new license category: Payment Service Banks (PSBs). The license will allow non-bank institutions, such as telecos, retail chains, mobile money operators, courier companies and other similar stakeholders, to offer basic financial services, such as accepting deposits, payments and remittances; operating e-wallets; issuing debit and prepaid cards and other services. The main objective of PSBs is enabling high-volume, low-value transactions in remittance, microsaving and withdrawal services in a secure, technology-driven environment. The guidelines require PSBs to have at least 25 percent of their physical access points in rural centers and unbanked locations.

India: The concept of Payment Banks was first introduced in 2013 in India as an intervention by the Reserve Bank of India (RBI) to reduce the number of Indian citizens without a bank account. A committee on Comprehensive Financial Services for Small Businesses and Low Income Households was formed, and the committee recommended a new bank category called Payments Banks. Unlike traditional banks that reach customers with full-fledged branches, payments banks have focused on establishing access points with retail outlets and small merchants. For example, Airtel Payments Bank, backed by the largest telecom service provider in India, has established over 250,000 access points — equivalent to the network of some of India's largest banks.[23]

The combination of a rapid pace of innovation in financial services technology and a commitment to financial inclusion in an unprecedented number of developing and emerging countries provides a unique opportunity to resolve some of the most intractable challenges for financial inclusion and reach "last-mile" consumers with high-quality financial services.

REGULATORY SANDBOXES AND INNOVATION HUBS/LABS

An increasingly popular approach to regulating innovation has been allowing financial services providers to conduct experiments in a modified regulatory framework known as a regulatory sandbox. A regulatory sandbox is a structured "safe space"[24] that provides an environment for businesses to test products without having to meet the full spectrum of regulations. In return, regulators require applicants to incorporate appropriate safeguards. This is cost-effective for participants as they incur fewer costs associated with compliance fees, and an effective use of resources for regulators who are able to review and adapt regulations based on feedback from innovators.

One of the most important roles of a sandbox is the continuous dialogue between the market and the regulators.[25] Establishing a sandbox signals to FinTech industry participants that the regulator is open to innovation. Moreover, it provides an important learning opportunity for regulators and can change traditional dynamics as the industry comes to see the regulator as an entity they can approach for assistance with regulatory challenges.

> "One of our most important strategy initiatives is the Regulatory Sandbox, which balances innovation, financial stability and consumer protection. It provides regulatory guidance to FinTech start-ups so that they can test their solutions in a safe and controlled cohort-based environment."
>
> **Ms. Hala Eldarwish**, FinTech & Innovation Unit Research Specialist, Central Bank of Egypt

Another important point of contact between regulators and FinTechs is an innovation hub or lab. When housed within a regulator, innovation hubs can facilitate interactive two-way knowledge exchange — vital for keeping regulators on the cutting edge of developments in the field. Unlike regulatory sandboxes, innovation hubs do not provide FinTechs with a structured testing place for their products and services, but are rather dedicated points of contact for FinTechs. They enable FinTechs to receive information from authorities on regulations and licensing requirements, and guidance on whether their proposed business models conform

SPOTLIGHT 16: FROM THE WORLD'S FIRST REGULATORY SANDBOX TO THE FIRST GLOBAL REGULATORY SANDBOX: THE EXPERIENCE OF THE FCA

The Financial Conduct Authority (FCA) of the United Kingdom launched the world's first regulatory sandbox in 2015, which has seen five cohorts to date. The sandbox has attracted a large number of applications every year, with the last cohort receiving over 90 applications, 29 of which were accepted for further testing. Once a FinTech is accepted into the sandbox, the FCA assigns a case officer as its point person. The case officer works with the company to understand the business model and provide support on existing regulations, where appropriate. The case officer also consults with colleagues at the FCA when additional expertise is required.

To join the FCA Sandbox, companies are asked five questions:

> In scope: Are you looking to deliver innovation that is either regulated business or supports regulated business in the UK financial services market?

> Genuine innovation: Is your innovation a new or significantly different offering in the marketplace?

> Consumer benefit: Does the innovation offer a good prospect of identifiable benefit to consumers (either directly or via heightened competition)?

> Need for a sandbox: Do you have a genuine need to test the innovation in our sandbox? (This depends on the nature of the innovation and can be waived.)

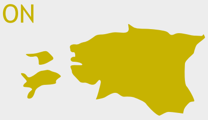
> Ready for testing: Are you ready to test the innovation in the real market with real consumers?

As of April 2019, around 80 percent of the FinTechs that have completed sandbox testing are now authorized and operating in the market. Innovate has received over 1,500 requests for support — nearly one application a day — and almost 700 firms have received some form of assistance. This reach has been achieved through a combination of firms contacting Innovate and the Department's active engagement outreach program with industry and regulators.

The FCA, together with an international group of financial regulators, recently established the Global Financial Innovation Network (GFIN) to provide a global regulatory sandbox in which FinTech companies can apply to test out cross-border solutions. Today, GFIN has 38 members and serves as a network for regulators to collaborate and share experiences with regulating innovation in their respective markets. They cover emerging technologies and business models and provide a contact point for firms seeking to bring their innovations to new markets. GFIN has recently accepted its first cohort of eight firms for cross-border testing in the sandbox.

with existing regulations. Innovation hubs are also often open to financial institutions adopting innovative products, services or business models.

SPOTLIGHT 17: ESTONIA'S INNOVATION HUB SIMPLIFIES, CENTRALIZES AND SUGGESTS IMPROVEMENTS TO THE COUNTRY'S FINTECH ECOSYSTEM



To enhance financial innovation in Estonia, Finantsinspektsioon (the Estonian Financial Supervision Authority – EFSA) established an in-house FinTech working group of various specialists from the EFSA and Estonian Central Bank in 2016. This working group serves as an Innovation Hub.

The Innovation Hub functions as a partner for FinTechs, helping them overcome preliminary obstacles posed by a complex legal framework, while also serving as an in-house FinTech knowledge aggregator for the EFSA. The Hub is open to any entity whose business model involves financial innovation.

The broad aim of the Innovation Hub is to:

> Establish permanent and effective contact and information exchange with FinTechs and other relevant institutions in Estonia and abroad;

> Gather and analyze information on the development of innovative financial technology and respective legal barriers; and

> Develop carefully considered proposals to enhance innovation or remove the barrier hindering it, which involves establishing, changing or repealing legal rules, publishing statements or guidelines, or introducing, changing or halting specific supervisory practices.

FinTechs are provided with direct contact with relevant specialists, as well as initial guidance on the regulatory framework and assistance in qualifying the product/service to proceed to licensing. The Innovation Hub also provides general guidance through publications on the legal aspects of FinTech "hot topics", which have so far covered crowdfunding, initial coin offerings (ICOs) and virtual currencies.

THE "TEST AND LEARN" APPROACH

Although sandboxes have proliferated in the past years, there are many successful cases of countries fostering FinTech ecosystems without one. Sandboxes build on traditional "test and learn" approaches that countries such as the Philippines, Kenya and Tanzania have used to promote mobile financial services and innovation in retail electronic payment systems, by allowing telecommunication operators to launch mobile money services.[26] This experimental approach also enables isolated and risk-neutral pilot testing of regulatory responses to FinTech innovations.

SPOTLIGHT 18: TANZANIA'S "TEST AND LEARN" APPROACH TO MOBILE FINANCIAL SERVICES AND MORE COMPREHENSIVE REGULATIONS

Tanzania has seen unprecedented uptake of mobile financial services in just five years, largely due to the Bank of Tanzania's (BOT) "test and learn" approach to mobile financial services: letting regulation follow innovation while managing risks.

When Vodacom and Zantel approached the BOT in 2008, regulators had to determine how to regulate these proposed payments services. Tanzania lacked broad legislation for payment systems and the Electronic Payment Scheme Guidelines of 2007 only covered risk management for financial institutions. However, the BOT recognized that mobile money had the potential to drive financial inclusion. It decided to follow the Central Bank of Kenya's example in responding to Vodafone (M-Pesa), advising MNOs to partner with a commercial bank. The BOT then issued "letters of no objection" to the partner bank, which were already under the purview of the BOT, granting the MNOs the legitimacy to implement mobile money services.[27]

By 2010, Tanzania's payment landscape had markedlytransformed. The market had four providers and more than 10 million registered mobile money customers.[28] In response to this rapid development, the BOT needed a new regulatory approach. In 2010, they visited the Philippines to learn how Bangko Sentral ng Pilipinas created regulation for banks and non-banks to implement mobile money deployments. The visit led to the BOT's first draft of regulations, which ensured that non-banks (such as MNOs) could continue to receive no-objection letters to act as mobile payments service providers. The draft also received peer reviews in 2012 with the help of AFI and other members in the network. Tanzania's Electronic Money Issuer (EMI) Guidelines were ultimately adopted as regulations when the new National Payment Systems (NPS) Act was passed by Parliament in 2015. It is also worth noting that digital finance forms a key component of Tanzania's National Financial Inclusion Strategy.

Both regulatory sandboxes and the "test and learn" approach have the potential to help regulators and financial services providers engage in more open and active dialogue. Regardless of the channel, regulators should aim to:

> Establish direct dialogue with service providers to share concerns, explain objectives, and identify cost-effective ways to implement monitoring and reporting processes;
> Discuss the lessons of implementing deployments and regulatory oversight activity with providers; and
> Seek feedback and peer reviews from both service providers and outside consultation on regulation drafts.

It is this type of ongoing conversation that helps regulators learn about the specific risks of new technologies and products — critical for the development of proportional and risk-based regulations.

REGTECH, SUPTECH AND OTHER INNOVATIVE APPROACHES

RegTech is any application or platform that makes regulatory compliance more efficient through automated processes and at lower costs.[37] Supervisory technology (SupTech) is the use of innovative technology to support supervision, helping supervisory agencies digitize reporting and regulatory processes, resulting in more efficient and proactive monitoring of risk and compliance.[38] RegTech and SupTech both have the potential to facilitate regulators and supervisors through enhanced identity management, real-time monitoring, modelling/scenario analysis/forecasting, risk management and vulnerability identification.

Worldwide, there are many RegTech and SupTech applications for regulators, such as the use of big data analytics, artificial intelligence and distributed ledger technology (DLT). For example, DLT opens a vast array of applications for central banks, including the development of central bank digital currencies (CBDC), interbank securities settlement, payment systems resiliency and contingency, among others. The Bank for International Settlements (BIS) estimates that 40 central banks globally are conducting research projects and pilots with blockchain technology that aim to address such issues as financial inclusion, payments efficiency and cybersecurity[39]

OTHER GUIDELINES

As part of developing a regulatory framework to support FinTechs, certain jurisdictions have come up with specific guidelines on digital identity verification (eKYC), payment system interoperability and open banking, to enhance operational efficiencies and promote greater use of technology across the financial sector.

DIGITAL IDENTIFY VERIFICATION (eKYC)

Digital Know Your Customer, eKYC, or automated KYC is the process of digitizing the verification process of customers' identities with the goal of preventing fraud and, in some areas of the world, complying with AML/CFT laws.

The ability of institutions to verify the identity of prospective customers is a necessary condition for financial inclusion. Moreover, as outlined in the ***AFI Special Report on KYC Innovations, Financial Inclusion and Integrity in Selected AFI Member Countries***, innovation through the application of certain technologies and risk-based supervisory approaches, has the potential to lower the KYC barrier for formal financial inclusion.[29]

PAYMENT INFRASTRUCTURE INTEROPERABILITY

Interoperability is the ability of systems and applications to communicate and share data in a seamless manner, without an effort from the end user.[30] Instead of building end-to-end solutions, innovators can create enhancements or connect new functionality to existing technology, thereby leveraging systems that are already in place to produce something new and better.[31]

Interoperability across financial services reduces barriers to entry for new business models, products and services; improves the customer experience by driving competition, market contestability and innovation; and represents further opportunities to enhance intra-regional trade and connections.

OPEN BANKING APIs

Open banking is a system that provides a user with a network of financial institution data through application programming interfaces (APIs).[32] Open APIs allow third parties to access customer data, leverage sector knowledge or infrastructure and design new customized/personalized products at much lower costs. This democratization of access to information and infrastructure has the power to revolutionize financial services by fostering partnerships and investments between banks and FinTechs, and will be a key driver of the FinTech industry in coming years.

SPOTLIGHT 19-1: eKYC INNOVATIONS IN JORDAN ADDRESSING FINANCIAL EXCLUSION OF FORCIBLY DISPLACED PERSONS

Numerous digital identity innovations are currently being piloted or conceived in Jordan. One of the most promising is the Ministry of the Interior biometric identification card (MoI card), led by the United Nations High Commission for Refugees (UNHCR). MoI cards are for UNHCR-registered Syrian refugees living in Jordan and serve as "nationally recognized, consistent and secure government issued identity cards" that recognize refugees as both legitimate residents of Jordan and beneficiaries of its services.[33]

MoI cards equip refugees with biometric digital identities that open access to financial services, allowing refugees to access aid through iris-scanning ATMs rather than through cards or PIN codes. In the Middle East, iris technology has successfully and effortlessly been used to enroll over 2.3 million vulnerable Syrian refugees displaced throughout countries such as Jordan, Lebanon, Iraq, Egypt and Syria.[34] MoI cards also enable refugees to access Jordan's national mobile payments platform, JoMoPay.

SPOTLIGHT 19-2: THAILAND'S PROMPTPAY AND STANDARDIZED QR CODES REACH HALF THE NATION'S POPULATION

In 2016, PromptPay was launched as an e-payment initiative to move the country towards a cashless society. PromptPay enables real-time fund transfers using only the recipient's mobile number or national identity number.

The impact of PromptPay since launch has been significant. Over half of Thailand's population has now registered for PromptPay: 43 million registered IDs with over 450 million transactions worth THB 2.2 trillion THB (USD 71.6 billion).[35] PromptPay's success and rapid uptake have been primarily due to two key factors: interoperability across banks and the digitization of government payments. Fifteen commercial banks and four non-bank service providers have joined the PromptPay system, supporting an open payment infrastructure and interoperable ecosystem. Furthermore, the Thai government launched extensive campaigns to encourage citizens to register for the service in early 2017, with the goal of using PromptPay to push out social benefits and tax returns more efficiently.

In addition, the BOT, in partnership with banks in Thailand, has developed a standardized QR code that has provided SMEs and micro-merchants with a safe and secure way to get paid for their services or goods. It has eliminated transaction fees on what are often low-value purchases — especially valuable for low-income users.[36] Roughly five million merchant acceptance points across the country now use QR codes.

SPOTLIGHT 19-3: MEXICO DRIVING OPEN BANKING APIS ACROSS FINANCIAL SECTOR

The Law to Regulate Financial Technology Institutions of 2018 enacted by the Mexican Federal Government has set forth open banking plans for Mexico's entire financial sector. The FinTech Law lays the groundwork for an open finance standard by requiring financial institutions to establish open APIs, with the aim to make financial data accessible while respecting privacy and commercial confidentiality.

In drafting the open finance standards, which are to be published in March 2020, CNBV has found allies in the British Embassy in Mexico and the Digital Strategy Coordination Office of the President's Office. Together, the British Embassy and Digital Strategy Coordination Office sponsored a joint learning pilot program and hackathon for the CNBV to learn from the UK's open banking standards framework.

Mexico plans to mandate all financial services providers (banks, operatives, microfinance, FinTechs, money transfer agents, insurance companies, credit registries, etc.) to comply. This represents over 2,300 companies in total. Recognizing that it will be difficult to get all stakeholders to establish open APIs at once, the financial authorities intend to implement the standards over several phases.

SPOTLIGHT 20: SOUTH AFRICA'S PROJECT KHOKHA UTILIZING DISTRIBUTED LEDGER TECHNOLOGY

Central banks are looking into innovative ways to make interbank payment systems more resilient while maintaining or reducing the overall cost of those systems. With this goal in mind, the South African Reserve Bank (SARB) embarked on a project to build a proof-of-concept (PoC) wholesale payment system for interbank settlement using a tokenized South African rand on distributed ledger technology (DLT).

Project Khokha commenced in January 2018. It was the first project initiated by the SARB's FinTech Unit[H], established in 2017 to explore the implications of FinTech innovation for the SARB and financial services in South Africa.

The project ran for 14 weeks with SARB working with seven commercial banks in four iterative phases: 1) Education; 2) Creating the ecosystem; 3) Development of contracts/solutions; and 4) Performance testing.

Project Khokha successfully created a blockchain-based interbank system that was able to replicate the typical daily volume of interbank clearing and settlements in a record time of two hours. Security systems were also tested, with all transaction details remaining fully confidential. In other words, banks were unable to see each other's transactions, while SARB retained visibility. Project Khokha was recognized by the Central Bank Publication as the "Best Distributed Ledger Initiative" of 2018.[40]

According to SARB, another important outcome of Project Khoka are the benefits realized from collaboration across the industry, and even more so when global communities work together.[41] Many participants in the Project have remarked how well the collaborative approach has worked in resolving issues quickly and supporting other participants to make quick progress. This bodes well both for future initiatives stemming from Project Khokha and collaborative innovation in other areas.

NATIONAL LEGISLATION

To design and develop a viable FinTech ecosystem, financial regulators should adopt an advocacy role and engage with relevant agencies to recognize the emergence and benefits of FinTech. In some countries, national legislation on consumer protection, data protection/privacy and market competition — all of which are relevant to FinTech — are already in place. In such cases, central banks should look into how existing national legislations could be applied to the regulation of FinTech activity. If national legislation does not exist, central banks should seek to establish appropriate guidelines to address these types of issues.

CONSUMER PROTECTION

The rise of digital financial services and FinTech products have introduced new risks and threats, some of which may not be immediately obvious to the average consumer, such as those stemming from unfair lending practices or increased systemic vulnerabilities due to cybersecurity threats. An AFI Digital Financial Services (DFS) Working Group Guideline Note on Technology Risks emphasizes technology-related risks such as cybersecurity, DFS agent fraud and issues around data privacy and consumer protection, particularly digitally delivered credit. Regulators should therefore strive to thoroughly understand innovation and new business models, and not accept unproven claims about benefits to consumers.

SPOTLIGHT 21: INDONESIA'S CONSUMER PROTECTION MEASURES ADDRESSING BALLOONING P2P LENDING MARKET

In Indonesia, peer-to-peer (P2P) lending has taken off more than in other Asian nations, with P2P lending accounting for 30 percent of all licensed FinTech companies in Indonesia.[42] In response to this rapidly growing market, the Indonesia Financial Services Authority (OJK) has released Regulation No. 77/2016 for P2P lenders. In addition, the P2P Lending Working Group, an offshoot of the Indonesian FinTech Association (AFTECH), has matured to become a self-regulatory organization — the Indonesian FinTech Lenders Association (AFPI). AFPI provides public education campaigns, risk management certifications and a compulsory code of conduct for P2P lending. AFPI houses an online list of registered lenders and a consumer complaint center through which complaints can be sent via email or a toll-free hotline. AFPI also monitors credit growth and interest rates from online lending to prevent overindebtedness for its borrowers. Any misconduct is reported to OJK.

OJK has also launched an Investment Alert Task Force to crack down on unlicensed P2P providers in Indonesia, as it has been recently discovered that single firms can develop multiple illegal lending platforms. OJK has set up a partnership with the Ministry of Communications and Informational Technology and Google to block unlicensed P2P lenders and report them to the National Police Criminal Investigation Department for further investigation.[43]

H In 2017, the SARB established a dedicated FinTech Unit to assist with reviewing policies and regulatory regimes that may have an impact on FinTech. Of importance is determining whether frameworks remain appropriate and conducive to the emerging changes. The FinTech Unit has also been instrumental in co-creating collaborative structures internally within SARB, as well as with other policymaking and regulatory agencies.

DATA PROTECTION AND PRIVACY

The integration of FinTech companies' software with traditional banking systems will raise concerns about data protection and privacy, given that FinTechs rely heavily on customers' financial data. A growing share of FinTech firms are also beginning to harvest alternative data, such as online spending behavior and social media patterns to trace consumers' digital footprint.[44]

The following are concerns that policymakers should hold FinTech companies accountable for, particularly start-ups without robust compliance regimes or deep experience:[45] how customer data is collected and used; whether customers gave consent and whether they can withdraw their consent at any time; to whom the data is disclosed and/or sold; and whether the data results in unequal treatment of different groups.

It is important to remember that different data protection regimes can have an impact on the ability of new players to enter markets and the potential for companies to expand internationally.[46] For regulators, varying data protection regimes make them unable to supervise foreign firms operating in their jurisdiction. This could be mitigated if data protection frameworks offered a mechanism that ensures third-country authorities have access to the personal data needed to conduct their supervisory and enforcement activities, such as the European Union General Data Protection Regulation (GDPR).

MARKET COMPETITION

Over the past decade, FinTech trends have shown that technology has the capacity to "unbundle" many services that have traditionally been offered by banks and reduce barriers to entry for new players. However, the recent entry of large technology platforms ("BigTechs") like Facebook and Google in the FinTech space could significantly alter the competition dynamics in financial services, affecting both traditional financial institutions and FinTechs. BigTechs often enjoy competitive advantages over incumbents and FinTechs - they are well capitalized, have large customer bases, well-established networks, proprietary customer data from their non-financial service operations and have cutting edge technologies to process vast amounts of data.

Authorities should therefore strive to protect and stimulate industry competitiveness by ensuring that new and smaller entrants will have room to participate and innovate. Ensuring contestability and a level playing field is an explicit policy objective, and the literature suggests assessing the application of antitrust tools, such as merger controls, alongside regulation to ensure financial stability.[47] A particularly salient example of regulation aimed at promoting competition is open banking policies, as discussed in the previous section.

GOVERNMENT INCENTIVES

VISA PROGRAMS TO ATTRACT ENTREPRENEURS AND INVESTORS

Given that developing the technical skills of local talent is a multi-year process, some countries have implemented special visa programs to attract technical talent and investors from overseas. Many developed countries have already begun offering conditional residence permits called Tech Visas or Start-up Visas.

For example, France offers the French Tech Visa program, which allows three categories of tech talent (start-up founders, employees, and investors) to live and work in France.[48] The UK's Tech Nation Visa aims to attract global tech talent to work in the UK's digital technology sector.[49] The Canadian Government offers the Global Skills Strategy program to promote global investment in Canada and facilitate faster entry into Canada for top international talent.[50]

Among developing countries, Chile stands out. The Start-up Chile accelerator programs provide a one-year work visa as well as a free workspace. Equity money of up to USD 80,000 is also available depending on the program, one of which is specifically for start-ups founded by women.[51]

FUNDING ASSISTANCE

Most FinTech companies, especially start-ups, tend to go through multiple funding stages as they grow before they can become established businesses. Access to capital tends to be limited in emerging markets and depends on a variety of factors, including stage of product maturity, background of founders and target customer segment. Some governments have stepped in to help ease the burden of accessing capital by establishing FinTech funds, typically alongside the private sector.

A few countries have also established financing schemes for the promotion of advances in the financial sector. One example is the Monetary Authority of Singapore's SGD 27 million SGD Artificial Intelligence and Data Analytics Grant (AIDA), which offers 50 to 70 percent reimbursement to financial institutions and research firms on projects that leverage artificial intelligence and data analytics techniques to generate insights, formulate strategy and assist in decision making. These techniques may include machine learning, natural language processing or text analytics, deep learning or neural networks and predictive and prescriptive analytics.

TAX INCENTIVES FOR INVESTORS AND BUSINESSES

To encourage entrepreneurship and alleviate the capital hurdle of getting businesses off the ground, many governments around the world have begun offering capital gains tax relief for tech start-ups incorporated in their countries or provide tax breaks to investors that invest in start-ups and small businesses.

SPOTLIGHT 22: EGYPT'S INNOVATION FUND FOCUSES ON FINTECH INVESTMENTS

As part of the Innovation & FinTech Strategy formulated and adopted by the Central Bank of Egypt (CBE), the CBE is championing a new Investment Platform in collaboration with a number of local and international institutional partners to mobilize funding for venture capital (VC) funds, incubators and accelerators focusing on tech and FinTech start-ups.

The new investment platform, Innovation Fund, will fund start-ups both directly through co-investments and indirectly through selected VC funds and other vehicles. The funding to be mobilized by the new platform is expected to start at USD 50 to 100 million at launch, reaching USD 300 to 400 million over five years.[52] The CBE has committed up to EGP 1 billion EGP (USD 60.5 million) to the Innovation Fund together with major institutions focusing on FinTech investments.[53]

The Innovation Fund will be managed independently under the supervision of its Board of Directors and will engage in ongoing collaboration with Egypt's new FinTech Hub and regulators to address regulatory uncertainties facing the ecosystem and promote new developments.

SPOTLIGHT 23: TUNISIA'S START-UP ACT OFFERS TAX INCENTIVES AND MORE

The Tunisian Government launched the Tunisia Start-up Act to create an enabling business environment for start-ups. The law itself is not limited to tech start-ups, but provides that all new businesses seeking to benefit from it must be innovative and use technology prominently.[55] It has specific criteria for what constitutes a start-up: the company must be under eight years old; have fewer than 100 employees; have more than two-thirds of its shareholders as founders, angel or hedge fund investors; have an innovative and preferably technology-based business model; and its activities must contribute significantly to economic growth.

The Act provides a corporate tax exemption of up to eight years. To protect the interest of investors and make investments more attractive, it also provides exemption from capital gains tax on investments in start-ups. The Tunisian Government will also pay a steady salary for up to three founders within the start-up so that they can focus on long-term goals and experiment with new products and models. For private and public employees still nuturing a business idea, the Act guarantees job security of up to a year leave to pursue those ideas. Lastly, the Act makes provisions for government funding programs for start-ups through funds and grants.

For example, in 2016, Australia passed two incentive schemes to encourage early-stage investment in Australian start-ups: the Tax Incentive for Early Stage Investors and the New Arrangements for Venture Capital Limited Partnerships. The incentives include a 20 percent non-refundable tax offset for qualifying investments, which is capped annually at AUD 200,000 per investor per year.[54] Investment can be made in innovation companies[J] or innovation funds. Similarly, many US states have instituted Angel Investor Tax Credit schemes, with varying criteria.

KEY SUGGESTIONS
FOCUS AREA 4: REGULATORY FRAMEWORK AND INCENTIVES

- Review existing regulatory framework and gauge whether it is appropriate to supervise the current FinTech landscape. For nascent industries, consider adoption of a test-and-learn approach by letting regulation follow innovation while carefully monitoring risks. Consider modifying existing regulations or issuance of guidelines. For later-stage industries, consider timely adoption and implementation of FinTech legislation. Also consider establishing a regulatory sandbox to allow FinTechs to test products and services.
- Examine how FinTech can be linked to an NFIS, if such a goal is in place.
- Review national legislation on consumer protection, data privacy/protection and market competition and how they can be applied to the supervision of FinTechs. If such legislation is not already in place, consider issuing guidelines.
- Where possible, review and advocate for incentives for investors/start-ups and funding of FinTechs.
- Seek feedback and peer reviews from both service providers and outside consultation on regulation drafts.
- Establish direct dialogue with service providers to share concerns, explain objectives and identify cost-effective ways to implement monitoring and reporting processes. Discuss the lessons of implementing deployments and regulatory oversight activity with providers
- Consider using RegTech, SupTech or other innovative approaches to make regulatory compliance more efficient.

J According to the Australian Government, eligible innovation companies must meet the following criteria: incorporated in Australia during the last three income years; had assessable income of AUD 200,000 or less in the prior income year; had expenditure of AUD 1 million or less in the previous income year; and is not an entity listed on any stock exchange.

CONCLUDING RECOMMENDATIONS

Through conversations with key stakeholders at the forefront of FinTech ecosystems in the AFI network and beyond, such as regulators, FinTech associations and accelerators/ incubators, we have identified four key focus areas where regulators can contribute to building a well-functioning FinTech ecosystem:

1) organizational structure;

2) capacity and skill building;

3) engagement and outreach; and

4) regulatory frameworks and incentives.

To keep up with the rapidly evolving financial landscape, regulators are advised to begin by evaluating existing organizational structures to see if there is a need for additional support units, such as FinTech, cybersecurity or data analytics, or how departments can work together in a cross-functional way to regulate FinTech developments.

Second, continuous capacity building of regulators, staff and consumers is essential for staying on top of technological developments. Capacity and skill building can be done with the help of knowledge partners, the academic community and via peer learning with other regulators. To protect consumers, spreading digital financial literacy will also need to be a priority.

In addition, active engagement and outreach initiatives with industry participants and participation in industry events will help regulators stay up to date on the latest FinTech trends. Aligning regulatory regimes across local regulatory counterparties and collaborating with international regulatory peers can also help pave the way for smoother regional integration in the future.

Finally, any FinTech ecosystem cannot flourish without a clearly defined regulatory framework. While the adoption and implementation of FinTech legislation may be difficult for smaller emerging economies where the FinTech industry is still nascent, regulators can issue specific guidelines or amend existing laws to allow for the proper supervision of FinTech developments if they are transparent, disclosed and conducive to the desired environment.

The four focus areas outlined in this paper provide regulators with a holistic approach to creating FinTech ecosystems and examples of best practices of ecosystems globally.

By building cross-functional organizational structures, continuous capacity and skill building, active industry engagement and outreach, and supportive regulatory frameworks and incentives, the development of FinTech ecosystems is critical for supporting financial and technological innovation for emerging economies around the world.

APPENDIX 1: LIST OF ORGANIZATIONS INTERVIEWED FOR THE PROJECT

COUNTRY	ORGANIZATION	NAME	POSITION
Egypt	Central Bank of Egypt	Hala Eldarwish	Research Specialist, FinTech & Innovation Unit
Estonia	Finantsinspektsioon (Estonian Financial Supervision Authority)	Triina-Liis Makson	Coordinator of International Cooperation
		Triin Muuk	Lawyer, Market Supervision and Enforcement Division
Ghana	Bank of Ghana	Clarissa Kudowor	Assistant Director
Indonesia	Indonesia FinTech Association	Richa Valeccha	Senior Policy Manager
Luxembourg	Luxembourg House of Financial Technology	Alex Panican	Head of Partnerships and Ecosystem Development
Malaysia	Malaysia Digital Economy Corporation	Tang Man Wai	Head of FinTech
		Ng Jun Wen	Head of Orbit
Mexico	Comisión Nacional Bancaria y de Valores (CNBV)	Rocío Robles	General Director, FinTech Supervision Department
		Mariana Velázquez	Alternate General Director, Regulatory Sandbox Unit
		Marco Del Rio Chivardi	Alternate General Director, Access to Financial Services Unit
Nigeria	Central Bank of Nigeria	Stephen Ambore	Head, Digital Financial Services Unit
Thailand	Bank of Thailand	Naphongthawat Phothikit	Director, Financial Technology Department
United Kingdom	Financial Conduct Authority	Paul Worthington	International Lead, FCA Innovate

ENDNOTES

1. D.W. Arner, J. Barberis and R. P. Buckley (2016), "The Evolution of FinTech: A New Post-Crisis Paradigm?", 47(4) Georgetown Journal of International Law, 1271.

2. See AFI (2018), "FinTech for Financial Inclusion: A Framework for Digital Financial Transformation".

3. See AFI (2018), "FinTech for Financial Inclusion", available at https://www.afi-global.org/FinTech-financial-inclusion.

4. Center for Financial Inclusion, "About Financial Inclusion 2020". In particular, providing financial services to the unbanked helps them to better deal with financial shocks, manage liquidity needs, make investments and ultimately move out of poverty.

5. AFI (2018), "FinTech for Financial Inclusion: A Framework for Digital Financial Transformation".

6. See AFI (2018), "FinTech for Financial Inclusion", available at https://www.afi-global.org/FinTech-financial-inclusion.

7. See MFSA (2019), "Malta FinTech Strategy", available at https://www.mfsa.com.mt/wp-content/uploads/2019/01/MFSA-FinTech-Strategy-visual.pdf.

8. See MAS, "FinTech and Innovation Group", available at https://www.mas.gov.sg/who-we-are/Organisation-Structure/FinTech-and-Innovation.

9. See MAS (14 February 2017), "MAS Sets up Data Analytics Group", available at https://www.mas.gov.sg/news/media-releases/2017/mas-sets-up-data-analytics-group.

10. See MAS, "Technology Group", available at https://www.mas.gov.sg/who-we-are/Organisation-Structure/technology.

11. See Finextra (23 April 2019), "Tackling the FinTech talent deficit", available at https://www.finextra.com/newsarticle/33714/tackling-the-FinTech-talent-deficit.

12. See EY (2018), "Asean FinTech Census", available at https://www.ey.com/Publication/vwLUAssets/EY-asean-FinTech-census-2018/$FILE/EY-asean-FinTech-census-2018.pdf.

13. See TheCityUK (2019), "Fueling FinTech: Attracting the UK's Future Tech Talent into Financial Services", available at http://www.eifr.eu/document/file/download/1978/fuelling-FinTech-attracting-the-uks-future-tech-talent-into-financial-services-pdf.

14. For more information, see Overview of DFIAA, available at http://digitaljagriti.in/overview.html.

15. See Banco de Portugal (3 September 2018), "Banco de Portugal launches the #toptip campaign to promote the security of young people on digital channels", available at https://clientebancario.bportugal.pt/en/noticias/banco-de-portugal-launches-toptip-campaign-promote-security-young-people-digital-channels

16. See DC.gov, "Incubators, Accelerators and Co-Working Spaces", available at https://dmped.dc.gov/page/incubators-accelerators-and-co-working-spaces.

17. See EY (2018), "Asean FinTech Census", available at https://www.ey.com/Publication/vwLUAssets/EY-asean-FinTech-census-2018/$FILE/EY-asean-FinTech-census-2018.pdf.

18. See Singapore FinTech Festival, available at https://www.FinTechfestival.sg.

19. See SWIFT, "Speeding up Financial Integration in ASEAN and beyond".

20. See Bangkok Post (5 February 2019), "BoT signs QR pact with Cambodia", available at https://www.bangkokpost.com/business/1623746/bot-signs-qr-pact-with-cambodia.

21. See IDB (December 2018), "Reaching New Heights: The 3rd Americas Alternative Finance Industry Report".

22. See EFInA (December 2018), "Overview and Lessons Learnt from Global FinTech Landscape and Nigerian FinTech Landscape".

23. See KPMG (December 2018), "Payment Service Banks: the "Challenger" Banks in Nigeria", available at https://assets.kpmg/content/dam/kpmg/ng/pdf/advisory/Payment-Service-banks.pdf.

24. For instance, the government of the Australian state of New South Wales has proposed, as part of its innovation strategy, a regulatory sandbox applying to all provincial rules and regulations, including those on data privacy and other potential barriers to innovation. See NSW Government, "Brining Big Ideas to Life: NSW Innovation Strategy", available at https://www.innovation.nsw.gov.au/sites/default/files/NSW_Government_Innovation_Strategy_Document.pdf.

25. See IMF (27 June 2019), "FinTech: The Experience So Far", IMF Policy Paper No. 19/024, available at https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/06/27/FinTech-The-Experience-So-Far-47056.

26. See BFA (23 January 2018), Going beyond regulatory sandboxes to enable FinTech innovation in emerging markets", available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3059309.

27. See GSMA (2014), "Enabling mobile money policies in Tanzania: A 'test and learn' approach to enabling market-led digital financial services", available at https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/03/Tanzania-Enabling-Mobile-Money-Policies.pdf.

28. See GSMA (2014), "Enabling mobile money policies in Tanzania: A 'test and learn' approach to enabling market-led digital financial services", available at https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/03/Tanzania-Enabling-Mobile-Money-Policies.pdf.

29. See AFI (March 2019), "KYC Innovations, Financial Inclusion and Integrity in Selected AFI Member Countries".

30. See IMF (May 2019), "Paving the Way for FinTech", available at https://www.imf.org/en/News/Articles/2019/05/09/sp050919-paving-the-way-for-FinTech.

31. Matthew Leavenworth (15 May 2018), "Why is interoperability important?", available at https://www.paymentsjournal.com/why-is-interoperability-important/.

32. See Investopedia (5 April 2019), "Open Banking", available at https://www.investopedia.com/terms/o/open-banking.asp.

33. See AFI (March 2019), "KYC Innovations, Financial Inclusion and Integrity in Selected AFI Member Countries".

34. See AFI (2 April 2018), "Policy Forum in Jordan: FinTech as a key catalyst for financial inclusion", available at https://www.afi-global.org/news/2018/04/policy-forum-jordan-FinTech-key-catalyst-financial-inclusion.

35. As of year-end 2018, according to Bank of Thailand in Bangkok Post (15 February 2019), "Digital payments on the rise", available at https://www.bangkokpost.com/business/1629311/digital-payments-on-the-rise.

36. See Mastercard (30 April 2018), "How Real-Time Payments Is Empowering Thailand's Small Businesses And Entrepreneurs", available at https://newsroom.mastercard.com/2018/04/30/how-real-time-payments-is-empowering-thailands-small-businesses-and-entrepreneurs/.

37. See SHCP & CNBV (June 2018), "RegTech and SupTech: Where do we see the frontier?", available at http://pubdocs.worldbank.org/en/841991528990787287/04062018-RegTech-y-SupTech-Foro-Bernardo-Gonzalez.pdf.

38. See FSI Insights on policy implementation No 9 (July 2018), "Innovative technology in financial supervision (suptech) – the experience of early users", available at https://www.bis.org/fsi/publ/insights9.pdf.

39. See Bank for International Settlements Papers No 101 (January 2019), "Proceeding with caution – a survey on central bank digital currency", available at https://www.bis.org/publ/bppdf/bispap101.pdf.

40. See Central Banking (6 September 2018), "Best Distributed Ledger Initiative: South African Reserve Bank", available at https://www.centralbanking.com/technology/3711041/best-distributed-ledger-initiative-south-african-reserve-bank.

41. South African Reserve Bank (2018), "Project Khokha: Exploring the use of distributed ledger technology for interbank payments settlement in South Africa", available at https://www.resbank.co.za/Lists/News percent20and percent20Publications/Attachments/8491/SARB_ProjectKhokha percent2020180605.pdf.

42. See The Jakarta Post (14 March 2019), "FinTech association to help grow P2P lending", available at https://www.thejakartapost.com/news/2019/03/14/FinTech-association-to-help-grow-p2p-lending.html.

43. See The Jakarta Post (13 December 2018), "FinTech stakeholders declare war on illegal P2P lenders", available at https://www.thejakartapost.com/news/2018/12/13/FinTech-stakeholders-declare-war-on-illegal-p2p-lenders.html.

44. Government Innovators Network (22 February 2018), "Regulating FinTech: Addressing Challenges in Cybersecurity and Data Privacy", available at https://www.innovations.harvard.edu/blog/regulating-FinTech-addressing-challenges-cybersecurity-and-data-privacy.

45. National Consumer Law Center (March 2019), "FinTech and Consumer Protection: A Snapshot", available at https://www.nclc.org/images/pdf/cons-protection/rpt-FinTech-and-consumer-protection-a-snapshot-march2019.pdf.

46. See Financial Stability Board (14 February 2019), "FinTech and market structure in financial services: Market developments and potential financial stability implications", available at https://www.fsb.org/wp-content/uploads/P140219.pdf.

47. See Financial Stability Board (14 February 2019), "FinTech and market structure in financial services: Market developments and potential financial stability implications", available at https://www.fsb.org/wp-content/uploads/P140219.pdf.

48. See La French Tech, "What is the French Tech Visa?", available at https://visa.lafrenchtech.com/.

49. See Tech Nation, "What is the Tech Nation Visa?", available at https://technation.io/visa/.

50. See Norton Rose Fulbright (June 2017), "Canada launches new Global Skills Strategy", available at https://www.nortonrosefulbright.com/en/knowledge/publications/15227e13/canada-launches-new-global-skills-strategy.

51. See Start-up Chile, available at http://www.start-upchile.org/.

52. According to CBE, the expected scale of funds mobilized is based on assumptions relating to other co-investors with CBE, capacity of recipient venture capital funds and vehicles as well as market conditions. The potential funding shall not be constructed as an obligation or commitment of CBE. For further information, see Central Bank of Egypt (2019), "FinTech Fund", available at https://FinTech-egypt.com/fund/.

53. An approximate number by CBE officials according to current exchange rates.

54. See Australian Government (February 2016), Policy Discussion Paper "Tax incentives for early stage investors," available at https://treasury.gov.au/sites/default/files/2019-03/C2016-005_tax_incentives_early_stage_investors.pdf.

55. See Techpoint.africa (6 November 2018), "The Tunisian Start-up Act: Showing us how to support Nigerian start-ups", available at https://techpoint.africa/2018/11/06/tunisian-start-up-act-overview/.


156 +3.58%
397 +2.14%
992 +6.39%
102 +7.51%
183 +5.10%
56 +1.13%
397 +2.14%
992 +6.39%
183 +5.10%
206 +4.07%

Alliance for Financial Inclusion
AFI, Sasana Kijang, 2, Jalan Dato' Onn, 50480 Kuala Lumpur, Malaysia
t +60 3 2776 9000 **e** info@afi-global.org **www.afi-global.org**
Alliance for Financial Inclusion AFI.History @NewsAFI @afinetwork