

**GPFI/AFI REGULATORY TOOLKIT FOR ENHANCED DIGITAL FINANCIAL INCLUSION OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)**

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## 1. Objectives and Purpose

### The Importance of financial system access for MSMEs

Micro, small, and medium enterprises (MSMEs) account for over 90% of businesses and contribute more than 50% of employment worldwide.<sup>1</sup> However, MSMEs' growth is often constrained by a lack of access to finance, a key enabler for MSMEs to allow them to make productive investments while contributing to economic growth.<sup>2</sup> As a result, MSMEs often have to rely more on internal funds or cash from informal sources (families, friends, moneylenders, etc.) as they are less likely to be able to obtain bank loans than large firms.

A 2017 report from the International Finance Corporation (IFC) and SME Finance Forum found that 65 million firms, or 40% of formal MSMEs in developing countries, have a combined unmet financing need of US\$ 5.2 trillion every year, and that about 50% of formal SMEs do not have access to formal credit.<sup>3</sup> Moreover, the financing gap is larger by another US\$ 2.9 trillion per year when micro and informal enterprises are considered. As MSMEs account for a significant proportion of the global economy, their lack of access to formal financial services constrains the growth of individual MSMEs and, by extension, the overall economy's growth potential.

### Digital Financial Services - Potential for a Leap Forward

Digital financial services (DFS) have been an important lever for: improving the efficiency of financial markets; broadening access to financial services; and increasing competition in the financial sector. Innovative technologies hold potential to improve MSMEs' access to finance, one of the main challenges constraining their growth. The relatively low level of external funding indicates that there is a need to strengthen and expand alternative finance mechanisms for MSMEs. Digital finance through mechanisms such as crowdfunding, P2P lending and Initial Coin Offerings (ICOs) are among the types of alternative finance mechanism which can complement the existing MSME financial landscape and help to bridge the MSME financing gap (GPMI, 2020). By leveraging big data sets and techniques, some traditional challenges such as information asymmetry can be mitigated using alternative credit scoring.

MSMEs have been slower to adopt DFS due to a variety of factors, including low levels of connectivity. Many MSMEs have also resisted formal financial services due to "a deep-seated trust deficit in providers - especially DFS providers."<sup>4</sup> During COVID-19, central banks and other financial regulatory and supervisory authorities implemented new initiatives to promote the use of DFS, including mobile

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<sup>1</sup> World Bank (2022), "Small and Medium Enterprises (SMEs) Finance". Available at: <https://www.worldbank.org/en/topic/sme/finance>

<sup>2</sup> Inzinerine Ekonomika-Engineering Economics (2022) Access to Finance: Challenges Faced by Micro, Small, and Medium Enterprises in India, <https://inzeko.ktu.lt/index.php/EE/article/view/27998/15269#:~:text=All%20the%20life%20cycle%20stages,Demircuc%2DKunt%2C%202006>

<sup>3</sup> International Finance Corporation, "MSME finance gap - Assessment of the shortfalls and opportunities in financing micro, small and medium enterprises in emerging markets", 2017

<sup>4</sup> Swati Sawhney, Sai Krishna Kumaraswamy, Nisha Singh, Elizabeth Kiamba, and Alexander Sotiriou, "No Small Business: A Segmented Approach to Better Finance for Micro and Small Enterprises," [Focus Note] (Washington, D.C.: Consultative Group to Assist the Poor [CGAP], July 2022), 5.

money. A notable portion of these initiatives have included, or specifically targeted, MSMEs to support their adoption of DFS. For example, in our survey of financial regulators, almost half of the respondents mentioned that they had implemented specific provisions for DFS and other financial enablers across businesses, including MSMEs. This ongoing digital transformation can potentially increase the operating productivity of MSMEs and their access to finance.

The ecosystem of financial players has also changed, with the entry of technology players and notable partnerships between innovative FinTech firms and traditional lenders, which can considerably simplify and enhance the various critical aspects of the MSME lending process. For example, GXS Bank, backed by Grab (a listed technology firm) and Singtel (a mobile network operator), has received a full banking license in Singapore to offer MSME loans through its platform. Similarly, the Amazon Pay ecosystem in India has reached over 8.5 million offline small business owners and entrepreneurs, previously reliant on cash transactions, with its digital payments infrastructure.<sup>5</sup>

### Addressing the MSME financing gap

Regulatory interventions to address MSME finance gaps should be informed by analysis and quantification of the MSME financing gap, defined as an under-provision of capital to MSME companies based on their performance and level of risk. While the existence of an MSME financing gap across both G20 and non-G20 economies is well established, quantifying and monitoring it at the country level is important to be able to assess the progress made by regulatory and other interventions.

AFI's previous survey on alternative finance for MSMEs revealed that no MSME Finance working group member had produced an estimate of the funding gap, "pointing to the lack of information about the extent to which MSMEs' funding needs are not met."<sup>6</sup> Whilst there is no single widely accepted analytical method of determining the existence and extent of a financing gap, policymakers are advised to make a rigorous attempt to quantify it before proceeding with interventions, and to institute a consistent monitoring and evaluation ("M&E") framework.<sup>7</sup>

### Purpose of the regulatory toolkit

AFI's SME Finance Working Group (SMEFWG) was tasked with developing this Regulatory Toolkit in cooperation with Indonesia's G20 2022 Presidency, and members and implementing partners of the Global Partnership for Financial Inclusion (GPII), to serve as a resource for financial regulators from both G20 and non-G20 countries. The Toolkit therefore contains a broad range of potential regulatory tools suitable for jurisdictions at all levels of development.

The Toolkit's development began with an extensive review of the current regulatory and academic resources on the intersection of MSMEs and digital finance, supplemented by detailed comments and scope review from SMEFWG and G20 member institutions. These comments and the proposed areas of inquiry informed a technical survey completed by 92 respondents representing 41 countries. Following

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<sup>5</sup> Livemint, "Amazon Pay reaches to over 85 lakh SMBs in India", Livemint (June 2022). Available at: <https://www.livemint.com/technology/amazon-pay-reaches-to-over-85-lakh-smbs-in-india-11654769790073.html>

<sup>6</sup> AFI, "Survey Report: Alternative Finance for MSMEs," 28.

<sup>7</sup> We suggest as useful references along with the ESRI publication cited above: Government of Canada, "Gaps in SME Financing: An Analytical Framework," (Ottawa: Small Business Policy Branch, Industry Canada, February 2002); and Helmut Kraemer-Eis and Frank Lang, "Guidelines for SME Access to Finance Market Assessments (GAFMA)," [EIF Working Paper 2014/22] (Luxembourg: European Investment Fund, July 2014).

this, structured key informant interviews were conducted with financial regulatory institutions from 12 AFI and GPFI members, in addition to a selection of financial institutions active in MSME finance in member countries.<sup>8</sup>

The toolkit leverages on a significant body of existing research and policy recommendations. AFI SMEFWG members have already produced substantial research on MSME access to DFS towards fully implementing the principles of the Maputo Accord and its call for expansion of equitable access to MSME finance and leveraging peer learning across the AFI network by sharing experiences to produce practical regulatory content that guides policy development and implementation.<sup>9</sup> A previous survey report on Alternative Finance for MSMEs<sup>10</sup> revealed three major challenges for MSME alternative financing: (i) lack of market awareness, (ii) lack of trust, and (iii) consequently low take-up of these products. The Network’s recently adopted MSME Finance Policy Model provides high-level guidance on regulatory strategies for addressing access to finance constraints.<sup>11</sup> The toolkit also builds on country implementation cases, as well as the previous work of the GPFI and international organizations in this area and is designed consistent with relevant global standards.<sup>12</sup>

### Using the Regulatory Toolkit

This Regulatory Toolkit is intended to provide a range of clear, relevant, and step-by-step practical policy tools which can be introduced by regulators in different stages of their policy implementation process to enhance the regulatory environment for MSMEs to access innovative digital financial services. Financial regulators should not be seen as the sole stakeholder responsible for addressing the challenges of MSME digital finance but rather a collaborator acting in concert with other public and public sector agencies as part of overall MSME development and digital transformation strategies. However, it is critical to acknowledge the need for regulators to *lead* the coordination and collaboration with other public and private sector stakeholders to address the opportunity for enhancing MSMEs’ digital financial inclusion comprehensively.

The toolkit is non-prescriptive in its recommendations and provides a detailed menu of policy options for country level consideration. The choice of which policy options to prioritize, and the effective sequencing of them, should be informed by further country-level diagnosis including, but not necessarily limited to: supply and demand side data collection (e.g. through surveys of MSMEs, focus groups and analysis of lending data reported by supervised entities) to understand the nature of the MSME market; analysis of the financing challenges faced by MSMEs and potential regulatory impediments; analysis of products and services currently provided by the bank and non-bank sectors to the MSME segment; analysis of factors driving risk aversion of financial institutions towards the MSME sector; and quantitative estimates of the scale of the MSME financing gap, and its distribution across MSME sub-sectors as well as estimates of the gap for underserved groups such as women-owned

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<sup>8</sup> We thank all of those who generously gave of their valuable time and expertise in completing the survey, sitting for interviews, and contributing to the editing of drafts of this toolkit.

<sup>9</sup> Alliance for Financial Inclusion, “Maputo Accord: SME Finance: Path to Greater Financial Inclusion,” (Kuala Lumpur: Alliance for Financial Inclusion, September 2021).

<sup>10</sup> Alliance for Financial Inclusion, “Survey Report: Alternative Finance for MSMEs,” (Kuala Lumpur: Alliance for Financial Inclusion, 2020).

<sup>11</sup> Alliance for Financial Inclusion. “MSME Finance Policy Model”, ,” (Kuala Lumpur: Alliance for Financial Inclusion, 2021).

<sup>12</sup> G20 High-Level Policy Guidelines on Digital Financial Inclusion for Youth, Women, and SMEs. 2021.

[saudiG20\\_youth\\_women\\_SME.pdf \(gpfi.org\)](#); Group of Twenty Countries [G20], and Organisation for Economic Co-operation and Development [OECD], “G20/OECD High-level Principles on SME Financing,” (Antalya, Turkey: OECD, November 2015).

MSMEs and youth entrepreneurs. The toolkit can therefore serve as a guide to frame and inform further detailed research and policy formulation at the national level.

## 2. Regulatory Aims and Principles

The regulatory tools and solutions presented in Section 3 of this Toolkit are based on the following three main regulatory aims and four underlying principles. The aims and principles presented below are mutually reinforcing with the overarching goal of improving MSME digital financial inclusion.

### Three Main Regulatory Aims

Policymakers and regulators should consider the following policy aims and outcomes when introducing initiatives aimed at improving MSME access to digital finance.

- 1. System stability and integrity:** Initiatives introduced should seek to maintain the systemic integrity and stability of the financial sector. For instance, given MSMEs loans may be viewed as riskier due to their limited credit information and lack of collateral, it is important to ensure that new regulatory tools to promote MSME financing do not increase the overall systemic risk in the financial system and that sufficient prudential standards and safeguards are present when lending to MSMEs.
- 2. Economic growth and innovation:** Initiatives introduced should seek to promote MSME growth and innovation given their importance to the economy. For instance, regulations that promote digital tools such as digital financial services (DFS) can help improve MSME productivity and introduce opportunities for them to grow and expand their business. In contrast, policy initiatives that provide direct assistance to MSMEs could help level the playing field between MSMEs and larger businesses with more resources.
- 3. Consumer trust and protection:** Initiatives introduced should ensure that trust and consumer protection are maintained. For instance, while it may be useful to introduce regulatory initiatives to encourage DFS uptake by MSMEs and consumers, regulators and policymakers should also ensure that users are protected and able to better manage any potential digital risks and benefits arising from the adoption of DFS. Similarly, initiatives involving collecting personal financial data should also include requirements that ensure such information is protected and secured to foster user trust.

### Four Underlying Principles

Presented below are four core principles that have guided the design of this Toolkit. Policymakers and regulators should consider aligning with these when designing regulations or initiatives to improve MSME access to digital finance.

- 1. Secure & Inclusive:** Regulatory approaches, frameworks, and initiatives should prioritize security at its core, as without trust, it is challenging to ensure sustained adoption of digital services and achieve meaningful digital transformation. Data, consumer protection, and cybersecurity need to be robust by design, not an afterthought. Regulators and policymakers should also ensure that regulatory approaches are fair and inclusive, with a level playing field for all businesses and consumers. This could include the consideration for a robust competition policy that is digital-first



(see next point), as well as targeted and sustained support for digital and financial literacy to ensure access to and the relevant skills to capitalize on digital opportunities, e.g., through standards and certification.

2. **Digital-first & Interoperable:** Regulatory approaches, frameworks, and initiatives should be consciously designed for the digital (and not analog) era. This is to (i) ensure the applicability of policymakers' regulatory guidance and actions considering ongoing developments, and (ii) build sustainability of approach for future advancements, to allow regulatory guidance to be incrementally introduced, keeping up with the progress of digital transformation, as opposed to drastic reactive shifts in regulatory directions. For example, policymakers could look to focus on regulating activities instead of technologies, with the latter approach running a higher risk of outdated policies. Regulatory guidance and actions should also prioritize promoting interoperability to encourage inclusiveness and efficiency, facilitate domestic and cross-border market expansion, and reduce redundancy of policies, systems, and solutions. For example, a digital-first policy roadmap that supports investment in critical digital public infrastructure (such as digital identities) to drive digital transformation and digital economy growth should have interoperability in mind. Regulators should also encourage open access, interoperability of systems, data ownership and portability rights for clients, and unbundling of services to ensure a fair and inclusive market.
3. **Legal Clarity & Proportionality:** Regulatory approaches, frameworks, and initiatives should have clear aims and objectives so that policymakers understand how these regulatory tools should be viewed and utilized. Clear language on the aims and objectives also facilitates understanding among other private sector and civil society stakeholders, increasing chances of collaboration and support. This clarity should also be carried through into the implementation aspect of regulatory frameworks and initiatives, reducing regulatory complexity and compliance costs. Critically, the regulatory requirements imposed should be commensurate to the potential risk involved with introducing the regulatory approach, framework, or initiative.
4. **Domestically Coherent & Internationally Harmonized:** Regulatory approaches, frameworks, and initiatives should be coherent across ministries and government agencies, ensuring that there are no overlaps in regulatory mandate and authority, both on policy development and implementation. This does not mean that ministries and government agencies should work in silos; Instead, they should (i) be clear in their mandate and authority, (ii) ensure that this clarity is translated into regulatory frameworks and initiatives, and (iii) have a coordination mechanism that facilitates cross-sectoral alignment of frameworks and initiatives. This will reduce costs and increase the efficiencies of government agencies and private sector stakeholders. These domestic frameworks and initiatives should also be aligned with international best practices to facilitate market access and ensure easy scalability of initiatives, driving significant cross-border growth and benefits.

### 3. Regulatory toolkit for enhanced digital financial inclusion of MSMEs

#### Pillar I: MSME Access to Digital Financial Services

- Payment Systems and Transfers
  - Step 1: Systemic oversight
  - Step 2: Clear legal framework
  - Step 3: Finality and speed
  - Step 4: Openness
  - Step 5: Digital public infrastructure
  - Step 6: Interoperability
- Digital Finance and Trade
  - Step 1: Promote digitization of information, documents and workflows
  - Step 2: Enabling digital non-bank financial institutions (NBFIs) to offer trade financing
- Sandboxes and other Innovation Enablers for MSME Finance
  - Step 1: Defined objectives
  - Step 2: Define eligible participants
  - Step 3: Set limits
  - Step 4: Leverage cross-border and cross-regulator efforts
  - Step 5: Education
- Crowdfunding and other alternative financing Sources for MSMEs
  - Step 1: Develop a regulatory framework for crowdfunding and peer to peer lending
  - Step 2: Ensure that policies are developed to mitigate any potential and emerging risks of crowdfunding
  - Step 3: Ensure appropriate regulation for market stability and consumer protection
  - Step 4: Consider specific sandbox and innovation hub challenges for crowdfunding and P2P issues to facilitate regulator-innovator engagement and learning
  - Step 5: Provide tax and registration incentives for funds targeting MSME investment

#### Pillar II: Digitalized Credit Infrastructure

- Optimizing MSME Credit Information through digitalisation
  - Step 1: Promote proper usage of alternative data
  - Step 2: API access
  - Step 3: Supervision and oversight of credit data usage
- Alternative Data
  - Step 1: Ensure data security
  - Step 2: Protect privacy
  - Step 3: Safety and soundness
  - Step 4: Monitor for algorithmic bias
  - Step 5: Establish open standards
- Credit Guarantees and Digital Financial Services
  - Step 1: Inclusive design of guarantee programs
  - Step 2: Ensure credit guarantees substitute for collateral
- DFS Credit Providers and Access to Collateral
  - Step 1: Institute a registry for collateral
  - Step 2: Universal and digital accessibility
  - Step 3: Easy notice registration
  - Step 4: Open to all

### Pillar III: Market Efficiency

- National roadmaps for digital transformation
- Programs to support MSMEs in adopting digital tools
- Programs to strengthen the capacity of MSMEs for digital transformation
- Collaborative frameworks or partnerships with digital platforms
  - Step 1: Review the national landscape and develop a digital economy roadmap
  - Step 2a: Identify the challenges faced by MSMEs
  - Step 2b: Identify potential partners to implement MSME support programs
  - Step 3: Create robust feedback mechanisms
- Promote online business registration
  - Step 1: Online business registration
  - Step 2: Biometric and digital ID eases ownership authentication
  - Step 3: Interoperability
- Digital Financial Literacy and Education for MSMEs
- Capacity building for financial institutions to enhance knowledge of MSME sector
  - Step 1: Measure digital financial literacy
  - Step 2: Tailor financial education to specific populations
  - Step 3: Integrate digital financial services concepts into financial literacy programs
  - Step 4: Consider providing digital tools and calculators
  - Step 5: Use survey results to guide regulation and disclosure
  - Step 6: Establish dedicated funding

### Pillar IV: Special Consideration for Underserved Populations

- Regulatory interventions for all underserved populations
  - Step 1: Data collection
  - Step 2: Tiered licensing regimes
  - Step 3: Tiered and risk-based KYC
- Women owned MSMEs
  - Step 1: Make special efforts to promote women entrepreneurs in gaining equal access to digital technology
  - Step 2: Support women entrepreneurs to enhance their digital and financial skills
  - Step 3: Promote deeper data collection and evidence about women micro-entrepreneurs
  - Step 4: Champion issuance of national ID documentation to women
  - Step 5: Make special efforts to promote women registration of women-owned businesses
  - Step 6: As part of the licensing process, monitor how business models and/or products will serve women-owned MSMEs
  - Step 7: Review and address impediments in credit guarantee scheme requirements
- Youth Entrepreneurs
  - Step 1: Assess legal barriers
  - Step 2: Promote the use of alternative scoring data
  - Step 3: Ensure that licensing regimes permit (and have achievable requirements for) micro-leasing companies.
- Migrants and Forcibly Displaced Persons (FDPs)
  - Step 1: Promote fast and early documentation of FDPs and migrants
  - Step 2: Issue specific guidance on tiered KYC

- Step 3: Coordinate with other public sector agencies
- Rural, nomadic and agricultural populations
  - Step 1: Ensure access to both traditional banking and DFS via agency banking
  - Step 2: Partner with local officials and cooperative associations for identification of rural people who lack formal ID
  - Step 3: Use special rural banking, payment services provider, and leasing licenses with lower capital and operating requirements for rural areas

## Pillar I: MSME Access to Digital Financial Services

### A. Payment Systems and Transfers

Digital payments, transfers of value that are made via electronic devices and transmission channels, are not new. In fact, they are foundational to the global economy. Digital channels can enhance payment efficiency and security, as well as user experience, thereby delivering significant opportunities allowing MSMEs to optimize their business operations. However, the rise of mass connectivity and pervasive encryption techniques, coupled with the reduced cost of running transfer platforms has led to an explosion in digital payments, for both online and offline goods and services.

Every MSME entrepreneur is involved in payments, both outgoing to suppliers and incoming from customers. The switch to acceptance of digital payments, including debit and credit cards, bank transfers, QR code payments, transfers of digital currencies, and any number of other app- and platform-intermediated payment methods, was slower to reach MSMEs than other larger corporates, but the prevalence of digital payments in other areas of the economy as a reflection of consumer preferences has meant that they have made substantial inroads into MSMEs, even the very smallest informal enterprises in rural areas.

The COVID-19 pandemic accelerated this transition given the desire for touchless payments and remote delivery of many previous in-person products. Although use of cash may rebound somewhat as the pandemic recedes, McKinsey research shows that the change in behavior is fairly durable, estimating that “...roughly two-thirds of the decrease [in cash usage] is permanent.”<sup>13</sup>

Greater adoption of digital payments took place simultaneously in the consumer and MSME segments, meaning that businesses were not forced to make investments and then encourage take-up among their customers. The necessity of maintaining daily life overcame to a large extent the consumer trust barrier which was a major hurdle for digital payment adoption previously.<sup>14</sup> As the experience of the pandemic illustrated, MSMEs can significantly benefit from enhanced payment systems efficiency.

Increased adoption of digital payments has also improved digitization of MSME processes in general, which can be expected to improve overall productivity and returns on capital. Use of digital payments makes possible additional business automation and customer analysis, including loyalty programs and better marketing and retention.

### Regulatory Interventions

**Step 1: Systemic Oversight.** The payment system is a clearly systemic function, even when spread across a number of entities (or entirely distributed, as in the case of P2P payments). The regulatory imperative here is to ensure safety and soundness of transactions, underlying personal and account data, and the integrity of the system itself. Here regulators should be particularly mindful to work in cooperation, as payment systems are frequently under the control of a systemic rather than a microprudential regulator where those functions are split. In the case of multiple financial institution regulators (banks, NBFIs, securities, insurance, pensions) as well as other involved industry regulators

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<sup>13</sup> Alessio Botta, Philip Bruno, and Jeff Galvin, “The 2021 McKinsey Global Payments Report,” (Chicago: McKinsey & Co, October 2021), 7.

<sup>14</sup> Nancy Goel and Vikas Nath, “An Exploratory Study on Digital Payment Systems and its Impact on Trust and Continuance Intention in Newly Remonetized and Digitized Era,” Proceedings of the International Conference on Innovative Computing & Communications (ICICC) 2020, March 28, 2020, 2.

(e.g., telecom), all have an interest in a properly functioning digital payment ecosystem, and therefore should move in concert.

#### BOX 1: CLOSE COORDINATION BETWEEN THE CENTRAL BANK OF ESWATINI AND OTHER FINANCIAL REGULATORS

The Central Bank of Eswatini (CBE) clearly sets forth its authority to exercise regulatory and oversight powers over the national payments system. However, it does this in close cooperation with the Communications Regulator, the Financial Services Regulator (which supervises NBFIs), and the Financial Intelligence Unit. CBE has chosen to extend its licensing authority to unsupervised financial institutions which conduct digital/mobile money services, requiring application and approval of business plans as well as periodic examinations, although it has not imposed capital requirements.<sup>15</sup>

**Step 2: Clear Legal Framework.** As described above, payments are integral to transactions crossing a wide variety of financial institutions, regulatory jurisdictions, and use cases. Regulators should ensure that the acceptance of digital payments is clear and consistent, with electronic money as trusted as cash by consumers. This requires addressing commercial law, data retention and documentation, Anti Money Laundering (AML) and Know Your Customer (KYC) regulations, setting up a supervisory framework, as well as consumer protection considerations arising from new DFS models.

**Step 3: Finality and Speed.** The maximum systemic advantage of digital payments is attained when the legal and technical frameworks work together to assure settlement finality and speed of network updates, thus, it is important to develop systems that can improve the efficiency of payments.

**Step 4: Openness:** Regulators should promote open access to payments systems by as many participants as possible, consistent with safety and security of the underlying network and protocols. Payment metadata should also be accessible and portable at the option of the transacting parties. Participants which are not licensed entities with prudential capital requirements should be required to post collateral or use guarantors so that any failure will not endanger the settlement of payments.

**Step 5: Digital Public Infrastructure.** The digital payment transition is broad but so far not all-inclusive. A risk is that, as access to cash declines, corresponding access to its digital replacement will not be equitable, with vulnerable population groups facing difficulty to navigate the transition to digital services.<sup>16</sup> MSMEs run by and serving these populations are already more likely to be unbanked and not deemed creditworthy, and this transition could leave them further behind without careful attention by regulators.

#### Box 2: The India Stack

The India Stack approach incorporates biometric digital identification, permissioned e-KYC, universal payment access, and electronic signatures and documents, all accessible through open APIs.<sup>17</sup> This approach can provide a robust framework for broad financial inclusion which can be used both on- and off-line and thus reaches areas with low data coverage and users who may not have their own devices.

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<sup>15</sup> Central Bank of Eswatini, AFI Interview, June 22, 2022; National Payment and Settlement Systems Oversight Policy Framework, February 2019; Practice Note for Mobile Money Service Providers, March 2019.

<sup>16</sup> Committee on Payments and Market Infrastructures & The World Bank Group, “Payment aspects of financial inclusion in the fintech era,” (Washington, D.C.: The World Bank, April 2020), 32.

<sup>17</sup> Yan Carrière-Swallow, Vikram Haksar, and Manasa Patnam, “Stacking Up Financial Inclusion Gains in India,” July 2021. <https://www.imf.org/external/pubs/ft/fandd/2021/07/india-stack-financial-access-and-digital-inclusion.htm>.

The Reserve Bank of India has worked to leverage the growing India Stack platform via supporting regulations and targeted sandboxes.<sup>18</sup>

**Step 6: Interoperability.** Payment processing is a platform-type good with increasing returns to scale. Because it touches so many different parts of the financial industry, and is fundamentally systemic, regulators should consider options for achieving effective interoperability with a broad participation by different financial institutions, businesses, and consumers and standards for quality, risk, security, and data protection.

### BOX 3: INDIA'S UNIFIED PAYMENTS INTERFACE

In 2016, India introduced the Unified Payments Interface (UPI), an instant retail payment system that facilitates interbank persons-to-persons and persons-to-merchant, aiming to advance financial inclusion efforts. The system allows individuals and businesses of all sizes, including street vendors and small traders, to make and receive payments for goods and services through a virtual payment address (VPA) or even mobile number without the need to enter the account details. Users can also make payments by scanning QR codes. Being a fully interoperable payment rail, UPI's superior end user experience has further encouraged participation in the system.

UPI is part of the India Stack, a moniker for a set of open APIs and digital public goods that aim to unlock the economic opportunities of identity, data, and payments at scale. The two other 'layers' of the India Stack are the development and launch of a national biometric digital identity system, Aadhaar, and the ongoing work of establishing a new model for data governance in India, including creating a secured consent-base data sharing framework to accelerate financial inclusion.<sup>19</sup>

## B. Digital Trade Finance

Trade finance is an important source of finance for MSMEs. A World Bank study found that 59% of firms in sub-Saharan Africa use material foreign inputs and supplies.<sup>20</sup> The African Development Bank (AfDB) likewise found that 75% of MSMEs in Kenya and Tanzania participate in international trade as importers, exporters, or both.<sup>21</sup> Trade credit is also one of the major sources of finance for MSMEs which is not reliant on property collateral, and so particularly important in terms of working capital. Women-owned MSMEs are more likely to be turned down for trade credit lines, more likely to have credit rationed, and more likely to be discouraged from applying for finance in the first place.<sup>22</sup>

There is significant opportunity to improve trade finance with the integration of digital financial tools because of the high documentation requirements and cost of data interchange versus traditional lending. Operating costs of trade transactions are high due to the need to interchange documents with numerous parties, including trade counterparties, shippers, customs bodies, and insurers among others, not just the bilateral relationship between lender and borrower. Coordination costs are thus

<sup>18</sup> Reserve Bank of India, AFI Supplemental Survey Response, September 20, 2022.

<sup>19</sup> <https://indiastack.org/open-networks.html>  
<https://www.forbesindia.com/article/isbinsight/how-credit-cardlinked-upi-is-a-step-toward-better-financial-inclusion/77655/1>  
<https://www.imf.org/external/pubs/ft/fandd/2021/07/india-stack-financial-access-and-digital-inclusion.htm>

<sup>20</sup> World Bank Enterprise Surveys (<http://www.enterprisesurveys.org>).

<sup>21</sup> Eugene Bempong Nyantakyi, Ousman Gajigo, Francis H. Kemeze, and Lamin Modou Drammeh, "Trade Finance Demand and Supply in Africa: Evidence from Kenya and Tanzania," (Abidjan: African Development Bank, May 2022), 11.

<sup>22</sup> Asian Development Bank Institute, "Women and Trade: Gender's Impact on Trade Finance and FinTech", December 2017.

high, and a fixed cost floor for document receipt and review means that smaller transactions may not be economically viable at all.

The use of digital document interchange and retention offers potential to reduce costs and increase transaction speed. In addition, use of automated document inspection and matching and smart contracts offers additional scope for cost reduction and process improvement.

## Regulatory Interventions

**Step 1: Promote digitization of information, documents, and workflows.** Regulators should waive the need for “wet-ink” signatures on loan and other documents in favour of electronic signatures and/or scanned copies wherever possible, and across both industry platforms and government departments. Banks can be advised to accept email certifications in lieu of signed documents, either alone or in conjunction with authenticated SWIFT messages for transactions. Regulators may wish to promote best practices for confirmation of these transactions, such as call-backs. On a longer-term basis regulators can encourage adoption of the United Nations Commission on International Trade Law’s Model Law on Electronic Transferable Records as a comprehensive and interoperable solution to outdated documentation requirements.<sup>23</sup>

Because trade finance is typically a multi-party affair, it is most effective for the regulatory authorities to mandate acceptance of electronic documents by all parties rather than simply permitting them. Other government agencies involved in trade can help by supporting electronic documents and email certifications—for example, the US, EU, India and countries are now accepting electronic phytosanitary certificates and other electronic customs document submissions.

Experience of these measures as temporary COVID-19 pandemic-related workarounds in India,<sup>24</sup> Algeria,<sup>25</sup> and other markets has been positive and has shown that the transition can be managed quickly and effectively.

### BOX 4 SINGAPORE’S USE OF DIGITAL SIGNATURES

In an effort to further enable cross-border trade transactions, Singapore has mobilized a whole-of-Government team (including the Monetary Authority of Singapore, MoF, Ministry of Trade and Industry, Customs, and tax agencies) to create TradeTrust, a public blockchain utility for digitally signed, MLETR-compliant trade documents with legal validity. This effort included amendments to the Electronic Transactions Act (ETA), and consequential and related amendments to the Bills of Lading Act and the Contracts (Rights of Third Parties) Act in order to allow the creation and use of electronic Bills of Lading (eBLs) that are legally equivalent to paper-based Bills of Lading.

TradeTrust provides legal and data standard frameworks and open-source code that can be integrated with other DLT platforms and traditional centralized data systems and invites

<sup>23</sup> [UNCITRAL Model Law on Electronic Transferable Records \(2017\) | United Nations Commission On International Trade Law](#)

<sup>24</sup> The Securities and Exchange Board of India enabled the usage of electronic signatures in April 2020 for KYC purposes. See: Securities and Exchange Board of India, “Clarification on Know Your Client (KYC) Process and Use of Technology for KYC,” [Circular No.: SEBI/HO/MIRSD/DOP/CIR/P/2020/73] April 24, 2020. [https://www.sebi.gov.in/legal/circulars/apr-2020/clarification-on-know-your-client-kyc-process-and-use-of-technology-for-kyc\\_46565.html](https://www.sebi.gov.in/legal/circulars/apr-2020/clarification-on-know-your-client-kyc-process-and-use-of-technology-for-kyc_46565.html), accessed July 11, 2022.

<sup>25</sup> Bank of Algeria allowed all banks to receive documents relating to import and financing transactions by electronic means if supported by a confirmation SWIFT message from the bank sending the documents. These documents received electronically can be used to complete all banking and customs formalities. See: KPMG, “Algeria—Government and institution measures in response to COVID-19,” August 14, 2020.

<https://home.kpmg/xx/en/home/insights/2020/04/algeria-government-and-institution-measures-in-response-to-covid.html>, accessed July 11, 2022.



participation from financial institutions, logistics and shipping providers, and other governments and regulators.

**Step 2: Enabling digital non-bank financial institutions (NBFIs) to offer trade financing.** Offering NBFIs the license to make trade finance and other similar MSME loans not extended on traditional collateral (not funded by regulated deposits) may expand access to capital at MSMEs who are poorly served by traditional banks. These NBFIs include fintech companies, specialized leasing entities, factoring and other supply-chain finance companies, and other monoline financial service providers which are especially driven by the efficiencies and speed of DFS. Regulators may consider offering a low-cost specialized NBFi license for specific cases of digital trade finance (for instance, specifying customer type, economic sector or areas) to finance companies which would seek to offer such services, along the lines of the specialized microfinance institution (MFI) charters extant in many countries.

### C. Sandboxes and other Innovation Enablers for MSME Finance

The fast-moving nature of DFS coupled with the more deliberate pace of legislation, regulation, and prudential standards guidance has led many global regulators to implement so-called “regulatory sandboxes” or other enablers in order to facilitate innovation while maintaining overall regulatory control over the financial system.

Regulatory sandboxes are controlled environments used for testing or piloting of new financial products or models—especially in the DFS realm—on a time-limited basis. Typically these are new activities for which no existing rules exist, or for which existing rules are considered to be outdated or overly restrictive. Allowing limited scale or time-bound trials allow both financial institutions and regulators to learn about and explore these abilities and the market and regulatory implications together, before implementing final rules which might otherwise be premature. Sandboxes are now active in over 60 countries.<sup>26</sup>

In addition to sandboxes, innovation enablers include Innovation Hubs or Offices and Regulatory Accelerators.<sup>27</sup> Innovation Hubs provide a centralized point of contact and outreach for firms which may be considering market entry, in order to demystify the licensing and supervisory process and allow iterative development of business plans in consultation with regulatory staff. Unlike sandboxes, they do not involve waiving or modifying any existing rules or licensing conditions, but are simply a means of providing customized information and feedback to technology firms which may not be experienced with the regulatory environment.

Regulatory Accelerators provide a means for active joint ventures between regulators who have identified a specific deficiency or desired practice in the market, and (traditional or non-traditional) firms which can identify technology-based solutions to address them. In this model the regulator will contribute some analysis of the problem and market, along with a desired use case, and invite providers to work collaboratively with regulatory staff to develop proof-of-concept models and

<sup>26</sup> Ivo Jeník and Schan Duff, “How to Build a Regulatory Sandbox: A Practical Guide for Policy Makers,” [CGAP Technical Guide] (Washington DC: Consultative Group to Assist the Poor, 2020), 2.

<sup>27</sup> World Bank Group, “How Regulators Respond to Fintech: Evaluating the Different Approaches—Sandboxes and Beyond,” [Fintech Note no. 5] (Washington, D.C.: The World Bank, 2020), 14.

products which address the market issue. Any active use of implementation of such products must proceed via the normal licensing channels, or through a sandbox process.

Sandboxes have the potential to reduce the cost of testing innovative products by both fintech players and regulators. This is especially critical in underserved markets such as MSME finance, where the economics tend to be marginal to begin with, as both speed to market and the ability to reduce costs in a high-touch segment, can be critical in deepening engagement with the sector.

## Regulatory Interventions

**Step 1: Defined Objectives.** Regulators seeking to use sandboxes for MSME financial deepening should have a clear view of the purpose and the specific regulatory or innovation barriers to be addressed. If the aim is simply generalized innovation or to keep watch over developments in the marketplace, an innovation hub or one-stop coordination and information office may be a lower-cost way to achieve this goal, while gathering knowledge which can be used to implement a sandbox at a later time.

**Step 2: Define Eligible Participants.** Careful thought should be given to eligibility criteria for participating in each regulatory sandbox—and the criteria may well vary depending on the issue to be addressed. Regulators may wish to consider only opening sandbox programs to entities which are already licensed and regulated by them in the jurisdiction, in order to ensure that appropriate oversight and corrective sanctions, if necessary, can take place. Alternatively, sandboxes in some cases may be open only to new players if the desire is to increase competition, with a possible requirement to become licensed at some point in time if the trial is deemed by both sides to be successful.

**Step 3: Set Limits.** Admission to a sandbox should be accompanied by specific defined criteria and limits. Sandbox testing of a product may result in a further expanded stage of testing, a change in policy or regulation, or the closure of the activity, depending on the results.

**Step 4: Leverage Cross-border and Cross-regulator Efforts.** Regulators should seek where useful to join together in thematic sandboxes in order to share information and experiences, as well as (in smaller countries) to create larger potential markets to attract additional competition. In the MSME domain, we highlight trade finance and import/export supply-chain financing, as well as associated cross-border payments and KYC/AML as areas where sandbox cooperation or joint initiatives can be particularly useful.

**Step 5: Education.** Because sandboxes may suspend or attenuate traditional consumer protection regulations, and because they by definition involve novel products, business models, and/or delivery mechanisms, such trials involve substantial additional risk of financial harm to participating clients. Therefore, great attention should be paid to disclosures made prior to the trial, appropriate educational materials being made available to those considering participation, and to the evaluation during sandbox trials of suitability and appropriateness of DFS given the observed levels of financial literacy of participants.

### Box 5: Malaysia's Digital Finance Innovation Hub and Inclusive Fintech Accelerator

Malaysia views digital innovation as an important enabler to not only reach the remaining underserved population, but also to achieve overall greater impact and higher economic efficiency in financial intermediation, in terms of cost reduction, greater choice, and faster provision of financial services.

The United Nations Capital Development Fund (UNCDF), Bank Negara Malaysia (BNM), and Malaysia Digital Economy Corporation (MDEC) launched the Digital Finance Innovation Hub to further support the financial inclusion of Malaysia's middle and low-income population. The Innovation Hub is intended to enable service providers, including financial institutions and fintech start-ups, to use technology in promoting inclusive finance, including through the introduction of products and services that meet the needs of the underserved in Malaysia. The hub also seeks to build a community of innovative and resourceful developers and collectively work towards Malaysia's financial inclusion goals.

A parallel initiative is the Inclusive Fintech Accelerator Program, which aims to solve specific financial inclusion pain points in Malaysia, surrounding four key areas which are spending, saving, borrowing and financial planning. Fintech start-ups have been invited to share their interest to participate in the upcoming accelerator programs and other activities to be organized via the hub.<sup>28</sup>

#### D. Crowdfunding and other alternative finance sources for MSMEs

Regulatory approaches to addressing the MSME credit gap via DFS tend to focus primarily on financial institutions and lending—for good reason given their outsized importance as financing sources. However, it is useful when devising a complete plan for digital financial inclusion to consider sources of equity for MSMEs such as crowdfunding, SME investment funds, and relaxed exchange listing standards for smaller companies, as well as non-FI intermediated debt sources such as peer-to-peer (P2P) lending.

Crowdfunding is a digitally mediated version of traditional friends-and-family pooled business investment structures, with the added benefit that use of the internet permits greater scale and the involvement of non-local investors including the diaspora community. Crowdfunding typically provides equity, which can be difficult for entrepreneurs to obtain through other channels, and which can then catalyze debt funding. Crowdfunding has been shown to have positive effects on business performance which extend beyond the provision of capital: in East Africa “crowdfunding was shown to increase the outward visibility and transparency of a company, which in turn increases its perceived trustworthiness with customers, investors and partners,” even when the entrepreneur's funding goal was not achieved.<sup>29</sup>

P2P lending is a variant of crowdfunding focused on debt rather than equity. In both cases regulators should carefully consider the needs of MSMEs as well as the need to balance protection for what may be relatively small and unsophisticated investors.

#### Regulatory Interventions

**Step 1: Develop a regulatory framework for crowdfunding and peer-to-peer lending.** Policies and the regulatory regime should allow external fundraising from sources other than FSPs for MSMEs and other businesses. Digital technology and the internet can be used for crowdfunding and P2P lending. Ensure clear and enforceable supervisory and regulatory regimes to prevent crowdfunding platforms or any borrowings from being misused by the providers or MSMEs. Policies supporting stakeholder

<sup>28</sup> Source: <https://www.bnm.gov.my/-/launch-of-the-digital-finance-innovation-hub-and-inclusive-fintech-accelerator>

<sup>29</sup> Samuel Raymond, "Crowdfunding in emerging markets: lessons from East African startups," [infoDev Working Paper no. 103279] (Washington, D.C.: The World Bank, February 2016), 14.

collaborations must enhance the effectiveness and efficiency of crowdfunding and P2P lending in the jurisdiction and encourage potential sourcing of external funding outside the jurisdiction.

**Step 2: Ensure that policies are developed to mitigate any potential and emerging risks of crowdfunding.** Effective risk mitigation measures that deal with potential or emerging risks from crowdfunding and P2P lending will build trust in the market and the sustainability of this alternative credit mechanism. Policies to monitor risk and regulatory gap analysis will enable the market to remain up-to-date with any changes in the risk profiles of new technologies, products, and services.

**Step 3: Ensure appropriate regulation for market stability and consumer protection.** A robust and proportionate regulatory regime for technology-based alternative credit mechanisms (crowdfunding and P2P lending) is important as there is the potential for domestic MSMEs to access international sources of funding. Without appropriate risk measures, this may cause market shocks impairing financial stability and effective market conduct. Policies that encourage domestic and international collaboration among regulators will enhance risk mitigation in this technology-based alternative credit mechanism.

**Step 4: Consider specific sandbox or innovation hub challenges for crowdfunding and P2P issues to facilitate regulator-innovator engagement and learning.** The development of innovation hubs and regulatory sandboxes that test a wide range of technologies and innovations will enhance domestic adoption, implementation and regulation of technology-based alternative credit mechanisms such as crowdfunding and P2P lending. The UK was the first to use this concept to enable crowdfunding.<sup>30</sup>

**Step 5: Provide tax and registration incentives for funds targeting MSME investment.** Where possible, regulators can provide incentives for private equity or lending funds which are dedicated only to investment in and support of MSMEs, via reduced registration and/or capital requirements, exemption from or reduced rates of taxation on gains, and/or matching funds or guarantees.

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<sup>30</sup> infoDev [Trade and Competitiveness Global Practice], "Crowdfunding's Potential in The Caribbean: A Preliminary Assessment," (Washington, D.C.: The World Bank, 2017), 80.

## Pillar II: Digitalized Credit Infrastructure

Credit infrastructure can have a catalytic impact to improve MSME creditworthiness for improved access to finance. Digitalizing these financial enablers by leveraging on alternative data for innovative credit scoring, risk-sharing mechanisms such as credit guarantee schemes (CGS) and the establishment of moveable collateral registries can help to address factors that impede MSME access to finance such as information asymmetry, supply-side risk averse and lack of collateral.

### A. Optimizing MSME Credit Information Through Digitalization

Poor information quality relating to MSMEs is a persistently identified issue which inhibits financial inclusion and access to credit. In the absence of robust credit information, MSMEs will always be at a disadvantage due to their tendency to have less available collateral, lack of audited financial statements, and shorter trading histories, along with typically smaller loan sizes which make the fixed cost of obtaining credit information more expensive. AFI's Alternative Finance for MSMEs (2020) highlighted that some of the key barriers for MSME alternative financing are information asymmetry (47.7% of MSMEs mentioned) and lack of track record (75%).<sup>31</sup> Even where credit information exists, coverage of MSMEs is typically much lower than that of larger corporates: as low as 5.8% coverage in Sub-Saharan Africa, for example.<sup>32</sup> This under provision of credit data and the resulting information asymmetries between MSMEs and prospective lenders is a key cause of the financing gap.<sup>33</sup>

Research shows that improved credit information registries are particularly effective at increasing credit in less-developed countries.<sup>34</sup> For this reason the G20 Action Plan on SME Financing highlights improvement of the credit reporting framework for SMEs as its first priority reform measure.<sup>35</sup> Mandatory reporting of positive and negative data of as many types as possible increases effectiveness and usage.

#### Regulatory Interventions

**Step 1: Promote Proper Usage of Alternative Data.** Data collection and access should be extended to as many alternative sources and channels as possible, including utilities and telecoms, payment systems providers, trade creditors and leasing companies, and the like. These sources of relevant information are frequently excluded from credit information schemes, despite their importance as sources of useful data relating to MSME behaviour. In this light it is worthy of regulatory attention to promote proper usage of alternative data so that creditworthy but underserved MSMEs can attract new investment.

**Step 2: API Access.** Open API access lowers costs of credit scoring and permits faster credit decisions and automated lending channels. Access by verified institutions and lenders to the credit bureau's information system should be made as open and automated as possible, subject to appropriate controls

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<sup>31</sup> [https://www.afi-global.org/wp-content/uploads/2021/01/AFI\\_MSMEs\\_survey-report\\_AW\\_digital\\_0.pdf](https://www.afi-global.org/wp-content/uploads/2021/01/AFI_MSMEs_survey-report_AW_digital_0.pdf)

<sup>32</sup> Michael Turner, "Credit Data Gaps Exist, But They Can be Filled," [SME Finance Forum] <https://www.smefinanceforum.org/post/credit-data-gaps-exist-but-they-can-be-filled>, accessed June 30, 2022.

<sup>33</sup> International Committee on Credit Reporting, "Facilitating SME Financing Through Improved Credit Reporting," (Washington, D.C.: The World Bank, May 2014), 6.

<sup>34</sup> Simeon Djankov, Caralee McLiesh, and Andrei Shleifer, "Private Credit in 129 Countries," [NBER Working paper no. 11078] (Cambridge, MA: National Bureau of Economic Research, June 2006), 6.

<sup>35</sup> Group of Twenty Countries [G20], "G20 Action Plan on SME Financing—Implementation Framework: Credit Infrastructure Country Self-Assessment," (G20, July 2016), 3.

on data security and use of personal information. This will enable real-time checking of credit data and automated scoring, making novel digital financial products such as instant loan approvals possible.

**Step 3: Supervision and Oversight of Credit Data Usage.** Regulators should maintain supervision authority over not only any credit bureau itself, but also over the use of credit data and internal scoring algorithms by financial institutions. However, automated scoring mechanisms can replicate and perpetuate bias due to data set skews or biased algorithm construction. In the case of machine-learning models popular with fintech companies, it may be difficult to spot algorithmic bias ex-ante due to the inability of developers to explain exactly how the scoring model is developed; therefore, close attention must be paid to outcomes and different measures of fairness.

Regulated financial institutions that use internal credit scoring models should be required to periodically validate them not only for efficacy but also for unwarranted bias against underserved populations, as of the periodic regulatory examination process. If necessary, the regulator should have the clear authority to conduct its own inspection of the scoring model and inputs and outputs used in order to determine whether there is algorithmic bias. Supervisors should also ensure that financial intermediaries should be able to explain to their customers the reasons behind possible negative outcomes of screening processes based on alternative data and methodologies.<sup>36</sup>

## B. Alternative Data

Alternative data models use non-traditional sources of data to help make better credit decisions, or to be able to make decisions about new classes of borrowers for whom the traditional data—generally detailed historical financial statements and records of previous borrowings and repayments—are absent or too sparse to make clear assessments. These alternative sources include metadata, raw transaction data, utilities and other payments, social media activity, location logging, and psychographic data. DFS and the sector’s facility with large data sets and machine-learning has been able to take advantage of these new sources of data to underwrite new products and business models not previously sustainable.

Lack of credit information is one of the main barriers for MSME access to finance. Alternative data offers some promise in bridging that gap to credit, or in showing that certain MSMEs are better credit risks than the traditional data would indicate, and thus deserving of lower interest rates. In this light it is worthy of regulatory attention to promote proper usage of alternative data so that creditworthy but underserved MSMEs can attract new investment. However, as with all new business models there are new risks and regulatory concerns, primarily centered around data security and model bias.

## Regulatory Interventions

**Step 1: Ensure Data Security.** The indiscriminate intake and correlation of massive amounts of data on people and companies creates large risk of access breaches which would expose personal and/or proprietary business information. Regulators should require all supervised/licensed institutions which use such data to establish and submit clear protocols for:

- a) encrypting and otherwise securing the data;

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<sup>36</sup> See for instance: <https://www.oecd.org/finance/financial-markets/Artificial-intelligence-machine-learning-big-data-in-finance.pdf>

- b) protecting their systems from intrusions and unauthorized access; and
- c) timely reporting of security breaches.

If an institution's plan for data security is unclear, or if intrusions are recorded despite the measures taken, regulators should consider requiring their institutions to obtain an independent audit or validation of the methodologies and practices before commencing or resuming business.

**Step 2: Protect Privacy.** Although business alternative data is not as sensitive as that of individuals, MSMEs tend to be closely associated with their principals and so in some cases the two overlaps. In addition, MSME data can be proprietary and contain valuable insights which could be used by competitors. Finally, the transaction data of MSMEs will necessarily contain personal information about their customers, employees, and suppliers, who may be individuals requiring additional protection. Regulators should mandate that where possible data sets shared with third parties be obfuscated or anonymized so that personal data is not easily extracted even in the event of data breach.

Where possible, given that big data techniques can also be used by malefactors to correlate and *de-anonymize* data, consideration should be given to requiring or encouraging active differential privacy<sup>37</sup> or other similar measures for data sets.

**Step 3: Safety and Soundness.** For institutions which rely on deposits or which are otherwise systemically-important, the use of big data does not eliminate traditional regulatory concerns around the soundness of credit analysis and its potential impact on loss provisions and, as a derivative, capital adequacy. As with other models important for institutional risk, regulators should require periodic validation and testing of alternative data models used for credit extension.

**Step 4: Monitor for Algorithmic Bias.** Algorithmic models based on data can exhibit bias, even when they are derived purely through machine learning and do not have any human intervention. The availability of data may be different from population to population (women, for example, have a lower rate of access to smartphones, and so any data set consisting of mobile social data will underrepresent them), data may be selected for use in a biased way, data may be labelled in a way which perpetuates stereotypes, and the data sets selected to train the model may be different from the data the model actually encounters in the wild.

Any bias introduced in such a fashion is particularly difficult to detect given the potential lack of human intervention, as well as the low knowledge base of regulators in this area. Our detailed interviews revealed that regulators are at an early stage of inquiry into the issue of algorithmic bias: in Indonesia gender bias in particular is seen as a potential issue, and authorities are now working on disaggregating data so as to be able to test for it.<sup>38</sup>

**Step 5: Establish Open Standards.** Although regulators may focus more on risks, as we have pointed out the potential advantages of alternative data also merit attention. To the extent that regulators can help set standards for interchange, and promote safe use of existing government data, they can aid in an environment where information sufficient to make credit decisions exists for more MSMEs. In China, the Hong Kong Monetary Authority started its Open API Framework in 2018 to promote

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<sup>37</sup> See Alexandra Wood *et al.*, "Differential privacy: A primer for a non-technical audience," *Vanderbilt Journal of Entertainment & Technology Law* 21, no. 1 (2018): 209-275.

<sup>38</sup> Bank Indonesia, AFI Interview, June 15, 2022.

interoperability for sharing of data with a common method of managing customer consent.<sup>39</sup> Elsewhere, the Central Bank of Armenia is looking at incorporating alternative data on MSMEs into the existing credit bureau, such as tax and utility payments.<sup>40</sup>

### C. Credit Guarantees and Digital Financial Services

Credit guarantee schemes (CGS) for SMEs tend to be bank-based and intermediated, thereby excluding non-traditional types of institutions such as fintech lenders and supply-chain finance providers, which tend to be NBFIs, MFIs, or even unlicensed lenders. This emphasis can limit the potential of guarantee schemes for women, youth, persons with disabilities, and migrant communities, amongst other disadvantaged groups, which tend to have less access to banking relationships.

It also mitigates against the effective use of credit guarantees in DFS, given that the processes are laborious and traditionally paper-based as well as processed via banks. This has led to credit guarantees going disproportionately to the largest SMEs, to SMEs with collateral, and to SMEs which are already recipients of bank loans.<sup>41</sup> Digitization and automated scoring of CGS can aid not only in speeding approvals (and thus enhancing the counter-cyclicality of guarantee schemes during downturns) but can broaden access to DFS providers who seek a completely digital underwriting process.

Although there is limited empirical evidence from trials of CGS digitization throughout a full credit cycle, a number of COVID-era schemes have embraced fast-track processes and reduced documentation requirements, including in some cases automated underwriting.<sup>42</sup>

### Regulatory Interventions

**Step 1: Inclusive design of guarantee programs.** Guarantee programs should be open to all lenders, both banks and NBFIs/fintechs, which serve the MSME community and can meet appropriate prudential and operating standards. An ADB evaluation of credit guarantee schemes found that they had limited ability to assess the business models and creditworthiness of non-traditional companies, and hence fell back on collateral and financial statements. This prevents the capabilities and assets of knowledge-based companies from being properly evaluated.<sup>43</sup> The heavy involvement of financial regulators in guarantee schemes gives them influence in reimagining the design of credit guarantee schemes along these lines.

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<sup>39</sup> Hong Kong Applied Science and Technology Research Institute [ASTRI], “Alternative Credit Scoring of Micro-, Small and Medium-sized Enterprises (MSMEs),” [White paper] (Hong Kong: Hong Kong Monetary Authority, November 2020), 111.

<sup>40</sup> Central Bank of Armenia, AFI Interview, June 23, 2022.

<sup>41</sup> See, for example: Le Ngoc Dang and Anh Tu Chuc, “Challenges in Implementing the Credit Guarantee Scheme for Small and Medium-Sized Enterprises: The Case of Viet Nam,” [Asian Development Bank Institute Working Paper no. 941] (Tokyo: Asian Development Bank Institute, April 2019).

<sup>42</sup> European Association of Guarantee Institutions [AECM], “SME Support in the COVID Crisis: The Role of Guarantee Institutions,” (Brussels: European Association of Guarantee Institutions, February 2021), 6.

<sup>43</sup> Roohollah Aboojafari, Alireza Daliri, Farhad Taghizadeh-Hesary, Mohammad Mokhtari, and Mohsen Ekhtiari, “The Role of Credit Guarantee Schemes in the Development of Small and Medium-Sized Enterprises with an Emphasis on Knowledge-Based Enterprises,” [Asian Development Bank Institute Working Paper no. 930] (Tokyo: Asian Development Bank Institute, 2019), 18.



## BOX 6 INDIA'S CREDIT GUARANTEE FUND TRUST FOR MICRO AND SMALL ENTERPRISES (CGTMSE)

The CGTMSE scheme in India offers a guarantee that encompasses loans provided to enterprises involved in manufacturing, services, retail trade, and educational/training services. The extent of guarantee coverage varies, ranging from 85% for micro enterprises, women enterprises, and enterprises in aspirational districts, among others, to 75% for small enterprises. Over the past few years, the scheme has undergone significant transformations. These include enabling collateral-free credit, incorporating Non-Banking Financial Companies (NBFCs) and Microfinance Institutions (MFIs), encompassing retail trade as an acceptable activity, enhancing the CGTMSE portal, and aligning the interest rates of individual credit facilities with RBI guidelines. Moreover, the CGTMSE team collaborates with State Government bodies to directly disseminate the benefits of CGTMSE to women entrepreneurs and other potential MSME segments at the grassroots level.<sup>44</sup>

**Step 2: Ensure Credit Guarantees Substitute for Collateral.** An Effective credit guarantee programs should focus on making certain that the guarantee is used as a substitute for collateral and a true credit enabler, rather than a secondary credit enhancement in addition to collateral. Opening up credit guarantee schemes to DFS providers with more experience in automated underwriting and the use of alternative data sets can help expand the addressable universe of MSMEs reached by credit guarantees beyond those with immovable collateral.

### D. DFS Credit Providers' Access to Collateral

Digital financial lenders, with access to alternative credit data and other innovative fintech funding models such as crowdfunding and receivables finance, may in time reduce reliance on collateralized lending. Nevertheless, for the time being, it remains the predominant source of financial institution funding for businesses, with the World Bank Enterprise Survey finding that collateral was required in over 75% of all loans, and this requirement increasing in lesser-developed markets.<sup>45</sup>

Principles underlying collateral registries are particularly critical in the area of MSME access to finance and DFS since DFS credit providers are less likely to be secured by real estate, and more likely to be physically remote from the borrower. Therefore, they are more reliant on their ability to establish claims over movable collateral, and less likely to be able to see it in person.

Therefore, even more so than that with traditional finance, DFS relies on consistency, accessibility, and predictability of information, registration, and access to collateral.

### Regulatory Interventions

**Step 1: Institute a Registry for Collateral.** Regulators should consider a registry for movable collateral and associated security interests if one does not already exist. In doing so consideration should be given to any existing technical infrastructure which could be leveraged to add to such a registry, such as existing credit bureaus, land registries, or corporate registries. Using an existing service has the

<sup>44</sup> [CGTMSE: Home](#)

<sup>45</sup> Inessa Love, María Soledad Martínez Pería, and Sandeep Singh, "Collateral Registries for Movable Assets: Does Their Introduction Spur Firms' Access to Bank Finance?," [World Bank Policy Research Working Paper no. 6477] (Washington, D.C.: The World Bank, June 2013), 2.

advantage of a built-in user base, and can help minimize confusion among different naming or identification schemes for entities covered.

### Box 7 Evidence from Moveable Collateral Registries in Colombia, Ghana and Laos

Recent research by Women’s World Banking highlighted the opportunities and challenges for moveable collateral registries to enhance the financing of women owned MSMEs:

- In Colombia, since a moveable collateral registry was implemented in 2015, over 1.3 million registrations with a value of more than \$93 billion (USD) have been transacted, and over 100 financial institutions engage with the movable collateral registry as lenders.
- In Ghana, the registry has seen significant uptake in the last decade, with nearly three quarters of all loans being made to MSMEs, and women entrepreneurs account for 40 per cent of all registrants.
- In Laos, a moveable property registry was established in 2013.

Such examples indicate the potential of moveable collateral registries, these cases also illustrate some of the challenges to enhancing further uptake, whilst the impact on women MSMEs’ access to credit requires further data and research.<sup>46</sup>

**Step 2: Universal and Digital Accessibility.** Both registration of security interests and checking of existing interests should be available to any registered user (not just banks) for a minor fee, and the registry should be both available on-line and able to be queried automatically via an API layer or other automated feed system. IFC data shows that using an online database can lead to a dramatic increase in the number of registrations.<sup>47</sup> Universal access which can be integrated with existing credit and approval systems will aid in the development of fintech-enabled lending by both incumbent financial institutions and new types of digital lenders. As MSME lending tends to have high fixed costs, any improvement that reduces this barrier will not only lower total costs of funding for clients, but in many cases will make new types of loans viable which were not previously economic at any market-clearing price.

**Step 3: Easy Notice Registration.** There are two types of security interest registration: notice and document. Document registration requires provision and recording of the actual agreement between borrower and lender and sometimes other documentation regarding the specific collateral and the entities involved. Notice registration does not require documents to be registered (except when attempting to enforce the security interest in a court proceeding), just sufficient information to alert a potential creditor or buyer of a claimed security interest in the asset described in the notice.

Jurisdictions requiring additional documentation may also require use of notaries, certified copies of the original agreements, and/or personal appearances for filing by either or both of the parties. These systems create additional cost and time barriers which are material to MSME owners. In addition, the barriers are most severe for rural entrepreneurs, who may live far away from the nearest filing centers, and for disabled business owners, who may face additional difficulties in appearing in person for filings.

An additional consideration is that document-based registration systems frequently have a temporal gap between the filing of paperwork regarding a security interest and the entry and reflection of that interest in the system. Such a gap creates an opportunity for unscrupulous borrowers to quickly pledge

<sup>46</sup> Women’s World Banking, “Women’s Financial Inclusion Through Moveable Collateral: Three Case Studies”, August 2022.

<sup>47</sup> Alejandro Alvarez de la Campa, Santiago Croci Downes, and Betina Tirelli Hennig, “Making Security Interests Public: Registration Mechanisms in 35 Jurisdictions,” (Washington, D.C.: International Finance Corporation, 2012), 11.

the same asset to multiple lenders before the first security interest is updated and can be seen. That this possibility exists will cause lenders—especially DFS providers who would like to make instantaneous or automated credit decisions and can not wait for information to be updated—to be wary of relying on a registration system, knowing that it may be outdated and that there may be a prior (and therefore superior) lien wending its way through the system. Any such uncertainty will lower the amount of credit provided.

For all these reasons, IFC experts note that: “A notice [rather than document] registration system is considered ideal for registration of security over movable assets.”<sup>48</sup>

**Step 4: Open to all.** Collateral registry data should be accessible to the public via the internet and potentially through registry staff for those who may not be on-line. Registry searches should be encouraged and should be free or extremely low-cost, with the cost of maintaining the system paid for either by filings or as a public service. Searching the registry should require minimal registration information and should be instantaneously available without verification beyond the users email address or phone contact, as opposed to filing a security interest which may require additional contact information.

Keeping searches free and easy to initiate incentivizes potential lenders to search proactively. IFC notes an “interesting aspect regarding the number of searches is the ratio of the number of searches to the number of new registrations. Where there is rough parity in those numbers, it is an indication that users value the registry as a risk management and prudent lending tool to assure priority. It means they are searching before making lending decisions and registering. Where the ratio is low, it is an indication that users register only because it is part of a process. They do not search before making decisions and take more risks than creditors that use the search function as a prudent lending technique.”<sup>49</sup>

Data should be searchable by debtor name, unique debtor ID number (such as corporate registry number or tax ID), or by a serial number if looking for collateral which bear the same.

#### **BOX 8: Ghana’s Collateral Registry**

The Collateral Registry (Ghana) is the first of its kind to be established on the African continent. It was operationalized by the Bank of Ghana on February 1, 2010 under the statutory mandate of the Borrowers and Lenders Act 2008, (Act 773). The Borrowers and Lenders Act, 2020 (Act 1052) which repealed Act 773 establishes the Collateral Registry pursuant to Section 18, to principally register security interests created by borrowers in favor of lenders.

The creation and mandate of the Registry was a response to the problems in Ghana’s credit market which stifled the flow of credit to Small and Medium-sized Enterprises in particular, and the economy as a whole. The Registry operates an electronic web-based platform and provides the following services to its clients:

- a platform for registering security interests in both movable and immovable assets;
- a platform for conducting searches on assets pledged as collateral;
- assists with the realization of security interests in property upon default by a borrower; and

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<sup>48</sup> *Ibid.*, 7.

<sup>49</sup> *Ibid.*, 16.

- a platform for registering and conducting other post - registration activities (i.e. discharges, amendments, transfer of registration, subordination of registration, appointment of receiver or manager and notices of default).

Source: <https://www.collateralregistry.gov.gh/>

### **Box 9: Egypt’s Credit Bureau “I-Score”**

The Central Bank of Egypt (CBE) awarded the Egyptian Credit Bureau “I-Score” an operational license to commence its operations in July 2008. Shareholders of the company include 25 banks in addition to MSMEDA (Micro small & Medium Enterprise Development Agency).

I-Score holds a database of credit information for individuals and SMEs from commercial banks & non-bank financial institutions (NBFIs) in Egypt.

There are several products and services provided by I-Score, for example issuing market benchmarks reports to the banking sector, where each subscribed bank compare its different products portfolios with the total market or selected peers, which can facilitate and support banks in setting different marketing & risk strategies based on total credit market.

Based on the new banking sector law (2020), CBE is working on updating the I-Score regulations and has issued a new version of regulations on mobile wallets that allows behavioral scoring for individuals under specified conditions, along with a regulation allowing use of alternative data in credit assessment via behavioral scoring models for MSMEs.<sup>50</sup>

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<sup>50</sup> Source: <https://www.i-score.com.eg/en/information-for-individuals/home/>

### **Pillar III: Market Efficiency**

Market efficiency encompasses end-to-end digital facilitation for MSME development from streamlining digital strategy at the national level to cascading digitalization action plans. Interventions to support market efficiency can include promoting on-line business registration, improving market access through digital market platforms, strengthening the capacity of MSMEs for digital transformation through digital financial literacy and financial education for MSMEs.

#### **A1: National roadmaps for digital transformation**

National roadmaps for digital transformation can set out the challenges, including infrastructure, financing, and skilling challenges, faced by economies in achieving digital transformation and the corresponding strategies to address these challenges. Such roadmaps are useful in aligning public and private institutions on the overall direction of digital transformation and can be a precursor to more detailed strategies dealing with specific areas such as MSME digital adoption or fintech adoption. Importantly, by providing clear signals on the direction of digital transformation, a digital transformation roadmap can help to guide policymakers in creating the policy environment necessary to foster digital transformation and focus the direction of private sector interest and investment into relevant digital infrastructure, including infrastructure to support DFS.

#### **BOX 10: KENYA'S DIGITAL ECONOMY BLUEPRINT**

Kenya's Digital Economy Blueprint that sets out the key strategic directions for Kenya in its pursuit of a digital economy. The Blueprint sets out five pillars of focus including digital government, digital business, infrastructure, innovation-driven entrepreneurship, as well as digital skills and values. Specific to MSMEs, the Blueprint sets out plans to enable new business models for MSMEs through digitalisation, including through a 'Digitisation Campaign for SMEs' that will provide support to MSMEs to adopt digital solutions amongst other initiatives.<sup>51</sup>

#### **A2: Programs to support MSMEs in adopting digital tools**

In both developed and developing countries, MSMEs lag large corporations in digital adoption. This is attributed to a lack of knowledge of digital needs and a lack of resources to adopt relevant tools. As such targeted policies to guide the digital transformation of MSMEs are critical to ensure that they can harness the benefits of digital transformation and DFS. Policymakers can take reference from MSME support programs in Singapore and Australia (see Box 1).

#### **BOX 11: HELPING MSMEs GO DIGITAL IN SINGAPORE AND AUSTRALIA**

In Singapore, the SMEs Go Digital program supports MSMEs in using digital technologies and building stronger digital capabilities. Various forms of support are available under the program to help firms understand their digital needs and enable them to meet these needs. One example is the Industry Digital Plans that have been created to guide firms in adopting 4IR technologies, particularly MSMEs. The plans provide clear guidance on the industry-specific digital tools that firms can adopt at different stages of growth. Diagnostic tools are available for firms to gauge their readiness to adopt

<sup>51</sup> Government of Kenya (2019), "Digital Economy Blueprint: Powering Kenya's Transformation." Available at: <https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf>

various digital tools.<sup>52</sup> Other tools complement the Industry Digital Plans under the SMEs Go Digital program. The Productivity Solutions Grant (PSG) supports firms keen on adopting IT solutions and equipment to enhance business processes by subsidizing the cost of adopting a suite of MSME-friendly approved solutions, including solutions to help businesses build and operate an e-commerce presence.<sup>53</sup> The SME Digital Tech Hub provides expert advice to MSMEs on how they can transform their businesses using digital technologies.<sup>54</sup>

In Australia, the Digital Solutions - Australian Small Business Advisory Services program provides independent advice to Australian small businesses to help them build their digital capabilities. The first interaction with the service is free. After that, small businesses with fewer than 20 full-time employees and sole traders can access consultancy services at a subsidized rate of AUD 44 for seven hours of support. Specific advice is offered in areas such as how digital tools can help the business, e-commerce, social media and digital marketing, cybersecurity, and data privacy.<sup>55</sup>

### **A3: Programs to strengthen the capacity of MSMEs for digital transformation**

In both developing and developed countries, MSMEs are likely to face challenges in hiring and training workers adept at using digital tools compared to large corporations with better economies of scale and more resources. Therefore, incentive schemes to encourage MSMEs to provide training to workers could contribute to building a digital-ready workforce better able to leverage the benefits of digital tools and DFS while reducing the number of workers made obsolete by digital transformation in the long-run.

For instance, in Singapore, the Enhanced Training Support for SMEs program provides funding for up to 90% of course fees when MSMEs send their employees to attend training courses. In addition, to ensure that employers are not deterred by the loss of the workforce when employees undergo training, the program also offers absentee payroll funding to cover up to 80% of the worker's salary during the training period.<sup>56</sup> Eligible training courses include courses to understand digital finance innovations and developments in the fintech space. Such courses ensure that MSME workers are equipped with the necessary digital tools for DFS adoption. Similarly, in Japan, the “Jinzai Kaihatsu Shien Joseikin” (“Subsidy to Support Human Resource Development”) program subsidizes firms for their reimbursement of employees' wages during training, with the amount of subsidy being tailored to the type of training and size of the firm.<sup>57</sup>

### **A4: Collaborative frameworks or partnerships with digital platforms**

Compared to large corporates, MSMEs lack economies of scale to develop their unique digital platforms or tools and are often reliant on digital platforms as their primary digital service providers. This could

<sup>52</sup> IMDA. Industry Digital Plans. <https://www.imda.gov.sg/programme-listing/smes-go-digital/industry-digital-plans>

<sup>53</sup> Enterprise Singapore. Productivity Solutions Grant. <https://www.enterprisesg.gov.sg/financial-assistance/grants/for-local-companies/productivity-solutions-grant>

<sup>54</sup> IMDA. SMEs Go Digital. <https://www.imda.gov.sg/programme-listing/smes-go-digital>

<sup>55</sup> Business.gov.au. Digital Solutions - Australian Small Business Advisory Services. <https://business.gov.au/expertise-and-advice/digital-solutions-australian-small-business-advisory-services>

<sup>56</sup> Skills Future Singapore. Enhanced Training Support for SMEs. <https://www.ssg.gov.sg/programmes-and-initiatives/training/enhanced-training-support-for-smes.html>

<sup>57</sup> OECD (2018). Getting skills right: future-ready adult learning systems. [https://read.oecd-ilibrary.org/education/getting-skills-right-future-ready-adult-learning-systems\\_9789264311756-en#page1](https://read.oecd-ilibrary.org/education/getting-skills-right-future-ready-adult-learning-systems_9789264311756-en#page1)

include e-commerce platforms for goods such as Amazon, service platforms such as Food Panda, and providers of broader digital tools to increase productivity such as Microsoft or Amazon Web Services.

These platforms are familiar with the needs and challenges faced by MSMEs and could be useful partners to collaborate with policymakers to address these needs. For instance, governments could work with these platforms to increase digital adoption and promote secure B2C or B2B payment ecosystems that would help MSMEs to transact securely in the digital space. For example, in the Philippines, Grab - a regional ridesharing and food delivery platform - worked with the Department of Agriculture for the eKadiwa Program as well as with the Department of Tourism for the Philippine Harvest Initiative. Both initiatives aim to connect farmers and other rural agri-entrepreneurs with consumers. Grab is also an active supporter of the Department of Trade and Industry's MSME Reboot Program, which aims to provide digitalization support and solutions for MSMEs, especially during the pandemic.<sup>58</sup>

## Regulatory Interventions

**Step 1: Review the national landscape and develop a digital economy roadmap.** The first step is to identify issues that limit strong digital connectivity and access to digital services as well as potential solutions. National roadmaps for digital transformation can set out the challenges, including infrastructure, financing, and skilling challenges, faced by economies in achieving digital transformation and the corresponding strategies to address these challenges. Such roadmaps can be a precursor to more detailed strategies dealing with specific areas such as MSME digital adoption or leveraging the benefits of technology for financial inclusion.

**Step 2a: Identify the specific challenges faced by MSMEs.** After the broader strategies to strengthen digital connectivity and access to digital services at the national level have been considered and established, the next step is to identify the specific issues faced by MSMEs. These could include a lack of knowledge of digital needs, a lack of resources to adopt relevant tools or a lack of skilled manpower. These issues could be identified through surveys with MSMEs or consultations with industry chambers focused on engaging MSMEs. Once the specific issues have been addressed, programs can be devised to meet the needs of MSMEs. In this stage, it is critical to distinguish between sectoral issues for MSMEs in specific sectors and cross-cutting issues that impact MSMEs in all sectors, as the solutions could differ significantly.

**Step 2b: Identify potential partners to implement MSME support programs.** In devising programs to meet the needs of MSMEs, it is also important to identify the stakeholders or partners involved in delivering such programs. In the case of training programs, this could include the type of training providers available. It could also include key ecosystem partners such as platform providers that can help to make access to digital services more secure and affordable for MSMEs.

**Step 3: Create robust feedback mechanisms.** As programs to strengthen support for MSMEs are developed and implemented, robust feedback mechanisms would also need to be put in place to measure the effectiveness of these programs and ensure that they can be adjusted even as the needs of MSMEs change. For instance, when implementing training programs for MSME workers, it is important to tailor the focus and level of such programs to the changing digital proficiency levels of workers and changing technology needs as new technology emerge.

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<sup>58</sup> Grab (2020). Grab launches new program to help small businesses thrive online in the 'new normal'. <https://www.grab.com/ph/press/others/grab-msme-socialimpact/>

## B. Promote On-line Business Registration

MSMEs may exist in or on the verges of the informal economy, meaning that registration of any kind is a hurdle for them. Good regulatory interventions will among other things promote registration by adding benefits to offset the time and effort required to participate, and the cost of entering the formal economy. Business registries serve as the central legal entity identity (LEI) authority, as well as providing some parts of a centralized KYC platform. Business registration can also be linked with other related functions as part of a “one-stop” government service bureau.

### BOX 12: ARMENIA’S ONE-STOP SHOP

Business registration can be linked with other related functions as part of a “one-stop” government service\_bureau. This might include business registration and incorporation or LLC filing if warranted, tax ID declaration, specific business licenses, VAT account opening, and employee registration. Armenia’s process (see case box below) is a good example and also incorporates mandatory bank account opening as part of the tax ID and payment process; taxes can only be filed and paid on-line from a bank account.

We would suggest that in order to increase the use of financial accounts and e-payments, registrars should consider implementing such a requirement as part of the business registration process. This would involve either an affirmative “must-open” requirement for banks to provide account services to any registering entity, or alternatively to use e-wallets or mobile money, perhaps via a national payment system rather than full bank accounts. Such innovation will mean that every registered business can trade and pay online and receive monies electronically as desired.

Armenia launched a Business Entry One-stop Shop within the Ministry of Justice in March 2011. Companies and individual entrepreneurs can now obtain the name reservation, business registration and tax identification number on-line or at a single location and at the same time. An application for a taxpayer identification number is filed to the tax authority at the one-stop shop, and the State Registrar issues the TIN. Since January 2019, VAT registration can take place a year after a business exceeds the threshold of AMD 58.35 million. Starting from January 2018, entrepreneurs can opt for voluntary VAT registration within the application for company registration. In that case, no additional follow-up or interaction is required to complete the VAT registration. The VAT number (same as TIN, with the additional number “1” at the end) will be included in the incorporation certificate. This process contributes to Armenia’s Starting a Business Score of 96.1 for 2020, ranked #10 in the world. Business registration can be linked with other related functions as part of a “one-stop.”<sup>59</sup>

Establishing the identity of a business is important for many reasons: to establish KYC for financial institutions, access government services and pay taxes, provide accountability for customers or counterparties who may need to contact or make complaints against them, and for the accuracy of national statistical information. Frequently this is done by means of a business or corporate registry, a prosaic but essential piece of financial systems infrastructure.

<sup>59</sup> —World Bank Group, “Doing Business 2020: Economy Profile: Armenia,” <https://www.doingbusiness.org/content/dam/doingBusiness/country/a/armenia/ARM.pdf>



### BOX 13: THE GLOBAL LEGAL ENTITY IDENTIFIER

An example of a unique ID for businesses is the Legal Entity Identifier (LEI), a standardized 20-character code promoted by the Global LEI Foundation (GLEIF)<sup>60</sup> to identify companies, their ownership and other key information accurately. The LEI has been adopted by government and regulatory agencies in the USA, the EU and India. The new digitized and cryptographically verifiable LEI offers potential for instant, global, and automated identity verification and is now being discussed for greater adoption by economies.<sup>61</sup>

#### Regulatory Interventions

**Step 1: Online Business Registration.** Registration itself be able to be completed on-line, with the basic filing and assignment of a unique LEI being without cost, and charges for higher tiers (where checking of documentation may be necessary) being set at most for cost recovery. Querying the registry should be available on-line to encourage participation.

**Step 2: Biometric and Digital ID Eases Ownership Authentication.** Identifying those authorized to sign on behalf of a business or who serve as the business's legal representatives can integrate with any national identification system, including biometrics and/or e-IDs, permitting easy authentication of transactions on behalf of businesses.

**Step 3: Interoperability.** The benefits of a comprehensive on-line database of business entities with unique identifiers are that it can be used to disambiguate other private and government services. For example, integration with collateral registers or land cadastres is possible and reduces the amount of new information which must be collected.

### BOX 14: THAILAND'S IMPLEMENTATION OF E-KYC

The Bank of Thailand initiated a multi-stage sandbox process for testing and validating e-KYC using a shared KYC utility built on top of the National Digital Identity Platform (NDID). The initial test involved 12 commercial banks and payment services providers focused on using facial recognition to verify customer identity. Using the results of this test, the BoT developed initial guidance for financial institutions using e-KYC on how to meet AML and CFT requirements.

Following this initial round of testing and policy adaptation, the BoT launched a second round with six local banks in 2020 allowing their clients to remotely “open saving accounts with new banks through secure digital channels by using the verification and information from accounts which they already have with their existing bank in order to verify their identities using reliable facial recognition technology.” (BoT, 2020).

<sup>60</sup> The GFEIF is a non-profit established by the Financial Stability Board with the support of the G20.

<sup>61</sup> APEC (2021), “Asia-Pacific Financial Forum Virtual Roundtable: Accelerating MSME Digital Transformation through Finance”. Available at: <https://www.smefinanceforum.org/sites/default/files/publication/MSME%20Digital%20Trans%20RT%20Report%202021-07-14%20Final.pdf>

This effort is intended to eventually result in making remote biometric authentication via NDID broadly available to all financial sector participants.<sup>62,63</sup>

### C. Digital Financial Literacy and Financial Education for MSMEs

AFI has formulated a definition of digital financial literacy as “acquiring the knowledge, skills, confidence and competencies to safely use digitally delivered financial products and services, to make informed financial decisions and act in one’s best financial interest per individual’s economic and social circumstance.”<sup>64</sup>

The experience with consumer financial literacy is highly relevant to financial inclusion of SMEs as they tend to make decisions about financial products based mainly on the knowledge of their founders or majority owners. Especially in the realm of digital financial services, education is a critical part of effective take-up, as providers must overcome not only inherently low financial literacy but the added unfamiliarity with novel digital tools and business models.

Digital financial literacy is an area of keen focus for nearly all our responding regulatory agencies—80% or more of respondents are currently engaged in or planning/considering each of the separate mandate areas we surveyed, with 97% engaged in education on the rights and responsibilities of borrowers and users of financial products and 93% with programs aimed at avoiding fraudulent schemes and fake counterparties.

It should be remembered that even these figures do not represent the totality of regulatory efforts in this area, in that in many countries there are separate agencies responsible for financial education or in the case of multiple prudential and systemic regulators a single lead agency responsible for consumer financial education, so we can conclude that the number of jurisdictions pursuing such a mandate overall is even higher than this survey would suggest.

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<sup>62</sup> Bank of Thailand, “The Bank of Thailand Approves Banks to Provide Online Cross-bank Identity Verification for Opening Bank Accounts in the Regulatory Sandbox,” [BOT Press Release No. 6/2020], February 6, 2020.

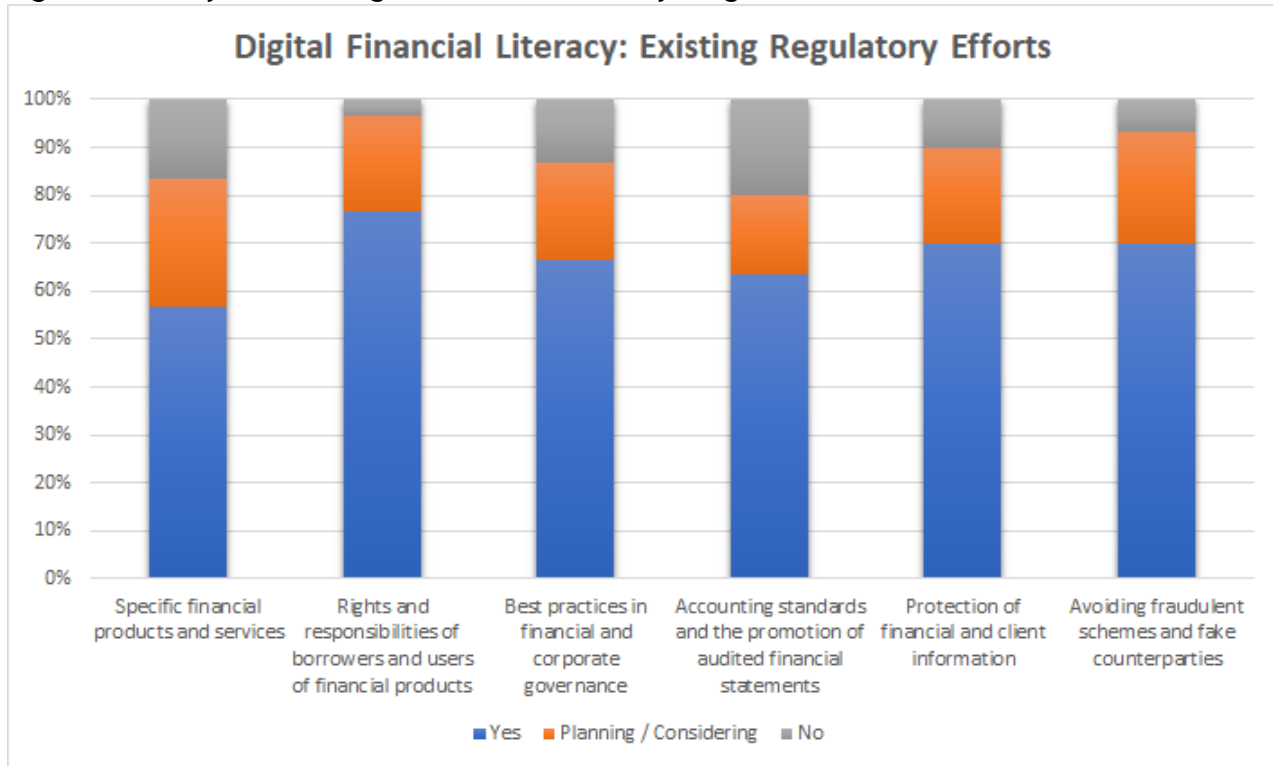
<https://www.bot.or.th/English/PressandSpeeches/Press/2020/Pages/n0663.aspx>, accessed August 1, 2022.

<sup>63</sup> Jeník and Duff, “How to Build a Regulatory Sandbox,” 11.

<sup>64</sup> Alliance for Financial Inclusion [AFI; Digital Financial Services Working Group and Consumer Empowerment and Market Conduct Working Groups], “Digital Financial Services Literacy Toolkit,” (Kuala Lumpur: AFI, July 2021), 4.

[https://www.afi-global.org/wp-content/uploads/2021/07/AFI\\_DFS\\_Literacy\\_Toolkit\\_V5\\_29July.pdf](https://www.afi-global.org/wp-content/uploads/2021/07/AFI_DFS_Literacy_Toolkit_V5_29July.pdf).

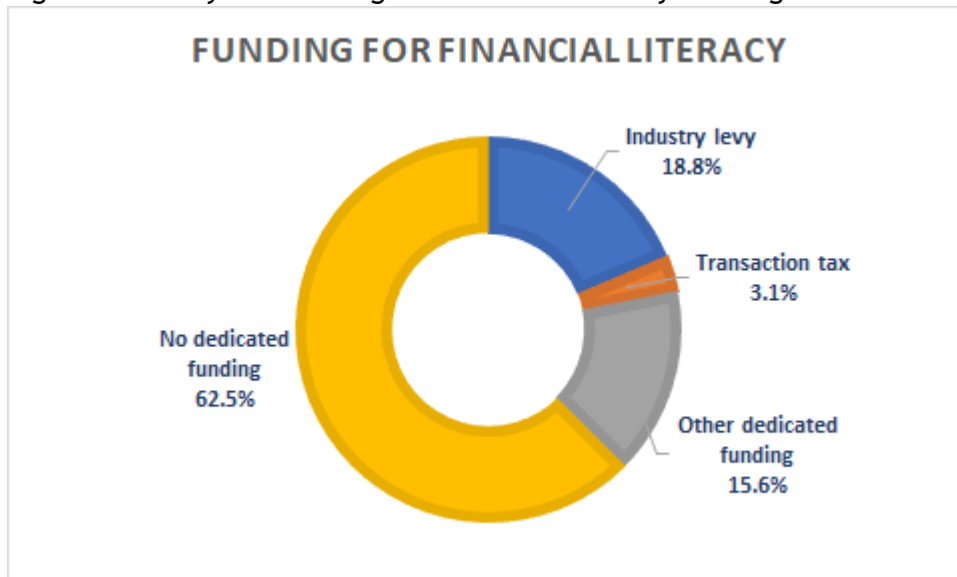
Figure 1: Survey Results—Digital Financial Literacy Programs



Source: AFI/G20 Survey, July 2022

An interesting finding of the survey is that while the mandate to pursue consumer digital financial literacy is well-established, a dedicated source of funding for these programs is generally lacking. Of our respondents a substantial majority have no dedicated funding for financial literacy, depending on annual discretionary budget allocations.

Figure 2: Survey Results—Digital Financial Literacy Funding



Source: AFI/G20 Survey, July 2022

## **Capacity Building for financial institutions to enhance knowledge of MSME sector**

Training for financial institutions on specific skills building and financing needs of MSMEs is important in bridging the knowledge gap of financial institutions regarding the financing risks of MSMEs and more effective understanding of MSME risk profiles to overcome risk aversion. Building the capacity of financial institutions and disseminating appropriate MSME data are important for MSME access to finance for several reasons: (a) financial institutions can identify high-value economic opportunities with MSMEs and determine whether they are feasible (b) financing systems can be developed and instruments adapted to MSMEs rather than large corporates (c) financial institutions can mitigate information asymmetry from the demand side and provide better information and advice to their MSME customers on available services, products and schemes.

The Reserve Bank of India and Bank Negara Malaysia have both implemented specific training programs for bankers to improve the quality of their advisory services and address the information gaps MSMEs face. Such programs are intended to better enable MSMEs to gain access to financial services that meet their needs and improve their capabilities, particularly in the areas of financial management and business strategy.

### **Regulatory Interventions**

**Step 1: Measure digital financial literacy.** As with many regulatory interventions, effective policy depends on being able to establish a baseline of financial literacy, digital skills and digital financial literacy (knowledge, behavior and attitudes of small business owners towards digital financial services) –including across different sub-populations and groups—and repeat the survey periodically so as to assess the impact of educational measures. The OECD/INFE survey (see box, below) is a useful starting point which can yield not only data about the absolute level of financial literacy but also relative metrics versus a wide variety of countries at all levels of development.

#### **Box 15: THE OECD/INFE TOOLKIT FOR MEASURING FINANCIAL LITERACY**

The OECD/INFE toolkit is a useful way to begin any assessment of baseline financial literacy.<sup>65</sup> The toolkit also includes a useful survey instrument and a dataset which can be used or adapted to serve in a variety of conditions so as to obtain not only baseline readings but an evaluation comparable across many countries, which can be helpful to regulators in assessing the true level of development and thus which best practices and models might be most applicable.

Note that the survey instrument itself—originally written in English—is now available in Afrikaans, Albanian, Arabic, Chinese, Croatian, Czech, Dutch, Estonian, Finnish, Flemish, French, Georgian, German, Hungarian, isiZulu, isiXhosa, Korean, Latvian, Lithuanian, Malaysian, Norwegian, Polish, Portuguese, Russian, Setswana, Thai, tshiVenda, Turkish, and Xitsonga

**Step 2: Tailor financial education to specific populations.** Consistent findings across all literature on financial literacy are that: 1) early financial education is the most effective, especially when given

<sup>65</sup> <https://www.oecd.org/financial/education/2018-INFE-FinLit-Measurement-Toolkit.pdf>

simultaneously with a basic numeracy curriculum; 2) women have consistently lower financial literacy than men; 3) older populations are significantly less likely to have facility with non-financial digital products, which impedes digital financial literacy especially; and, 4) rural, migrant, and disabled populations also have specific challenges which may cause them to have generally lower financial literacy—especially in the digital realm. Therefore, specific interventions and programs can and should be designed for each of these groups in order to promote broad and equitable financial literacy and thus inclusion.

**Step 3: Integrate digital financial services concepts into financial literacy programs.** With DFS rapidly-evolving, it is likely that existing financial literacy programs may either omit key DFS categories or have outdated concepts and product examples which are not helpful in understanding the current DFS choices faces by MSMEs. Sponsors should ensure that materials and programs are frequently reviewed and updated so as to contain specific and current information relevant to actual DFS issues in the marketplace.

#### **BOX 16: INDONESIA’S PROMOTION OF DIGITAL FINANCE FOR MSMEs**

Responding to the negative impact of the pandemic on the vast majority of MSMEs, Bank Indonesia has supported the economic recovery of the sector through overseeing the widespread adoption of digital payments solutions, including a QR standard for national payments (QRIS), accompanied by targeted digital finance education campaigns with a focus on underserved segments such as youth. As of April 2022, there were 17.2 million registered QRIS merchants, of whom 90% were MSMEs. A digital application (SI APIK) was also launched to promote accounting standards for MSMEs’ financial statements to enhance the ability of financial institutions to analyze the feasibility of financing.

**Step 4: Consider providing digital tools and calculators.** MSME owners and managers in particular may have limited time in which to evaluate their financial options. Providing digital tools for comparison, cost calculators, simulations, and walk-throughs of various activities relating to digital financial services can assist in simplifying financial choices and providing unbiased information.

**Step 5: Use survey results to guide regulation and disclosure.** Regulators should seek to identify from survey and other observational results key areas of confusion or lack of understanding about digital financial services (e.g., opaque fees, uncertain total costs of usage, mis-assessment of product risks) and to mitigate these areas with additional disclosure requirements or other regulations. This is a minimalist and effective way of using regulatory powers to have maximum impact on areas of highest priority. AFI’s Policy Model on Consumer Protection for Digital Financial Services can be a useful resource in adapting such regulatory interventions into those specific for MSMEs.<sup>66</sup>

**Step 6: Establish dedicated funding.** The majority of jurisdictions without a dedicated funding source for digital financial literacy should carefully consider whether a consistent stream of program funds should be established, and which entities or activities should be included in the funding. Popular methods include either a dedicated industry levy or a transaction tax of some kind; in some cases there are multiple funding sources with each dedicated to a separate area of financial education. In

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<sup>66</sup> Alliance for Financial Inclusion [AFI; Digital Financial Services Working Group and Consumer Empowerment and Market Conduct Working Groups], “Policy Model on Consumer Protection for Digital Financial Services,” (Kuala Lumpur: AFI, September 2020). <https://www.afi-global.org/publications/policy-model-on-consumer-protection-for-digital-financial-services/>.

either case, regulators should look broadly at participants in DFS—who may not all be regulated—and consider to what extent all of these participants should bear some of the cost of education efforts.

## Pillar IV: Special Considerations Around Participation of Underserved Populations in MSME Finance

It is well documented that MSMEs, and particularly microenterprises, owned and/or run by women, youth, the elderly, migrants, forcibly displaced persons, and rural populations, amongst others, face specific additional challenges in accessing finance, and can also face additional barriers in navigating the transition to digital financial services. Policymakers and regulators should therefore consider additional tailored actions to ensure effective reach and inclusion of such underserved populations.

### A. Regulatory Interventions: For all underserved populations

**Step 1: Data Collection.** Consider policy options for the enhancement of financial system participation data (and MSME activity data, where possible) specifically collected and analyzed with entities owned by underserved populations disaggregated. The added granularity of such disaggregated data will better enable the monitoring of specific regulatory interventions taken.

**Step 2: Tiered Licensing Regimes.** To meet the needs of underserved populations, regulators may consider amending the licensing regimes for banking, leasing, payment services, and other DFS models to create special categories for institutions (either for-profit or cooperative/community-based) which are based in or serve primarily underserved markets. These classes of institutions should have low capital requirements and simplified operating needs, with tiers and requirements very clearly delimited in terms, for instance, of customer type, economic sector or areas, amount of risk, etc. Many regulators have done this effectively in the traditional lending space with microfinance institutions and/or credit cooperatives, but less so with NBFIs and DFS providers. Where such institutions exist, helping them to digitize and link to larger DFS platforms, as the Central Bank of Egypt has done with traditional gamey'a savings cooperatives, can be a useful and low-cost intervention.<sup>67</sup>

**Step 3: Tiered and risk-based KYC.** MSMEs and their owners as part of underserved populations have considerably lower rates of formal documentation and identification, and the cost of obtaining ID or registering their MSMEs is relatively higher due to financial, social, and geographic factors. Regulators can help encourage tiered and risk-based KYC and onboarding by working with financial institutions to implement a risk-based approach to the Financial Action Task Force standards, for example specifying low risk products (e.g. those with capped balance and transaction limits) for which alternative methods of KYC such as identification by community leaders or use of non-standard documentation can be used.

### B. Women Owned MSMEs

Women-owned MSMEs have substantially greater difficulty accessing financial services across almost every dimension, contributing to a financial inclusion gender gap of seven percentage points globally and nine percentage points for developing countries.<sup>68</sup> Structural issues resulting in different firm characteristics of woman-owned businesses include “lack of financial identification documents, lower financial independence, less financial literacy, greater risk aversion, and sociocultural norms preventing women from accessing financial services,” as well as “additional barriers related to ownership of capital and childcare.”<sup>69</sup>

<sup>67</sup> Alliance for Financial Inclusion [AFI; Financial Inclusion Strategy Peer Learning Group], “Enhancing Financial Inclusion in Rural Areas,” [Guideline Note no. 50] (Kuala Lumpur: Alliance for Financial Inclusion, May 2022), 11.

<sup>68</sup> Alliance for Financial Inclusion [AFI; Digital Financial Services Working Group], “Lessons on Enhancing Women’s Financial Inclusion Using Digital Financial Services (DFS),” (Kuala Lumpur: Alliance for Financial Inclusion, May 2020), 6.

<sup>69</sup> DiCaprio, Yao, and Simms, 2-3

Exacerbating these issues of women-owned businesses is that gender skew is a major factor in financial literacy: the most comprehensive data set shows that “There are notable gender differences in the level of financial knowledge in some countries, and on average across all participating countries, 61% of men achieve the minimum target score compared with only 51% of women...”<sup>70</sup> In the DFS realm, this financial literacy gap is exacerbated by lower access to technology for women, which impedes takeup of DFS, for example in Ghana: “...there is still a gender gap in both mobile phone ownership of 16% and similarly mobile money account ownership of 17%.”<sup>71</sup>

The COVID-19 pandemic has widened the gender gap in financial services, in part because women-owned MSMEs are more likely to be in face-to-face retail or service businesses which were disproportionately hurt by quarantine orders, and in part due to lower financial capacity and resiliency to begin with. The World Bank estimates that women-owned MSMEs were 6% more likely to have closed their businesses during the pandemic than male-owned businesses.<sup>72</sup>

## Regulatory Interventions

**Step 1: Make special efforts to promote women entrepreneurs in gaining equal access to digital technology, mobile internet and, and digital payments platforms in order to be able to promote & sell their products through different channels, and grow their digital footprint.**

**Step 2: Support women entrepreneurs to enhance their digital and financial skills to improve their ability to use digital platforms & tools safely and with confidence, thereby helping them in interacting with customers, suppliers, and authorities.**

**Step 3. Promote deeper data collection and evidence about women micro-entrepreneurs to ensure that woman entrepreneurs and the MSME segment are counted as a critical driver of every economy and that financial services and technology providers understand their needs.**

**Step 4: Champion issuance of national ID documentation to women as a strategic goal for financial inclusion.**

**Step 5: Make special efforts to promote registration of women-owned businesses, even in the informal sector. Where registration includes ownership information, be aware that in the case of jointly-operated household-enterprises, “listing only a single or the primary owner on registration forms may marginalize women.”<sup>73</sup>**

**Step 6: As part of the licensing process, monitor how business models and/or products will serve women-owned MSMEs and contribute to closing the gender gap. Set specific metrics and targets which can be reported on an ongoing basis.**

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<sup>70</sup> Organisation for Economic Co-operation and Development [OECD], “OECD/INFE International Survey of Adult Financial Literacy Competencies,” (Paris: OECD, 2016), 31.

<sup>71</sup> GSMA, “Mobile Money: Bringing financial inclusion to life for women in Ghana,” January 4, 2018. <https://www.gsma.com/mobilefordevelopment/blog-2/mobile-money-bringing-financial-inclusion-life-women-ghana/>, accessed July 27, 2022.

<sup>72</sup> Markus Goldstein, Paula Gonzalez Martinez, Sreelakshmi Papineni, and Joshua Wimpey, “The Global State of Small Business during COVID-19: Gender Inequalities,” September 08, 2020. <https://blogs.worldbank.org/developmenttalk/global-state-small-business-during-covid-19-gender-inequalities>, accessed September 21, 2022.

<sup>73</sup> Anne M. Golla, “Engaging Informal Women Entrepreneurs in East Africa: Approaches to Greater Formality—An ILO-WED Issue Brief,” (Geneva: International Labour Organization, October 2015), 5.



**Step 7: Review and remove requirements and barriers used in credit guarantee schemes or other government schemes which disproportionately affect women.**

### C. Youth Entrepreneurs

In the developing world there are 1.2 billion people between the ages of 15 and 25.<sup>74</sup> Youth unemployment is particularly high in North Africa, at almost 30%, and is also significantly elevated in South Asia, Latin America, and the Caribbean.<sup>75</sup>

Youth entrepreneurs face special barriers to finance in addition to the traditional challenges common to all MSMEs. They are severely restricted in access to credit and other financial services due to lack of track record and collateral, as well as age stereotyping.

Changing business models due to the rise of DFS provide an opportunity to rethink these barriers, and for regulators to make special efforts on the part of youth-owned MSMEs.

#### Regulatory Interventions:

**Step 1: Assess legal barriers** to contract on the part of youth—are those not legally adults able to access deposit and payment services? How about DFS products which contain a credit component? Can a guarantor program be used to permit MSMEs run by minors to contract, at least for basic financial services?

**Step 2: Promote the use of alternative scoring data** to compensate for short formal credit histories of youth MSME owners. Regulators can do this by a) ensuring that capital requirements for small youth loans lacking collateral are not punitive, and by accepting statistically-rigorous alternative data sources as equivalent risk mitigants; and b) by licensing new DFS business models for lending which complement existing bank collateral-based regimes and are specifically-targeted towards youth-owned MSMEs.

**Step 3: Ensure that licensing regimes permit (and have achievable requirements for) micro-leasing companies.** Micro-leasing coupled with digital payments (where lease fees can be deducted at source, daily or weekly) is a transparent DFS business model which can help youth and members of other underserved segments who do not have collateral available.

### D. Migrants and Forcibly Displaced Persons (FDPs)

Global migration has risen steadily over the past two decades, with the UN recording 281 million people living outside their countries of origin in 2020, a 62% increase from 2000 levels. Of particular concern underlying these overall figures are the over 34 million migrants who have been forcibly displaced across national borders, fleeing war, violence, and persecution.<sup>76</sup>

Barriers for migrant and FDP MSMEs centre around documentation, work permits, and the ability to attract capital. There is potential for some of these barriers to be addressed through digital finance and regulatory intervention.

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<sup>74</sup> United Nations, “State of the World’s Youth,” <https://www.un.org/en/global-issues/youth>, accessed August 19, 2022.

<sup>75</sup> *Ibid.*, and Susannah Horton, Helena Molina, Ammar Khalid and Patteera (Mae) Chaladmanakul, “Unlocking Finance for Youth Entrepreneurs: Evidence from a Global Stocktaking,” (Washington, D.C.: World Bank, 2020), 1.

<sup>76</sup> United Nations Department of Economic and Social Affairs, Population Division (2020), “International Migration 2020 Highlights,” [ST/ESA/SER.A/452] 6.

## **Regulatory Interventions:**

**Step 1: Promote fast and early documentation of FDPs and migrants, who may arrive without accepted forms of ID;**

**Step 2: Issue specific guidance on tiered KYC to ensure that entering migrants are able to open appropriate accounts and make transactions using the documentation they will likely have or be issued;**

**Step 3: Coordinate with other public sector agencies on migrants' permission to work and register businesses.**

### **BOX 17: SPECIAL CONSIDERATIONS FOR FORCIBLY DISPLACED PERSONS (FDPs)**

FDPs starting a micro or small business in their host country are likely to face challenges including documentation, work permits, and the ability to attract capital.

Regulators can assist by:

- Promoting fast and early documentation of FDPs and other migrants, who may arrive without proper ID, or ID in a form which is contemplated by national laws and regulations.
- Use local officials and international aid organizations to issue documentation on the spot, potentially leveraging trusted members of the community to vouch for and identify other new arrivals and vet foreign documents.
- Issuing specific provisions and guidance on tiered KYC to ensure that entering migrants can open accounts and make transactions using the documentation they will likely have or be issued. This means explicitly giving safe harbor to financial intermediaries for onboarding of migrants and FDPs within limits of exposure and transaction volume.
- Granting permission to work, employ others, and form businesses, and making registration of such businesses accessible and possible with the documentation at hand.

## **E. Rural, nomadic, and agricultural populations**

Providing the benefits of DFS to rural and nomadic populations can be extremely difficult. Penetration of mobile phones is lower (and especially low for rural women), and connectivity tends to be limited.

## **Regulatory Interventions:**

**Step 1: Ensure access to both traditional banking and DFS via agency banking** measures, licensing and promoting these “last-mile” enablers who can operate both traditional “cash-in, cash-out” services as well as newer DFS analogues such as digital wallet refills or electronic payments, as well as other financial services such as microinsurance and micropensions. This could include measures to support more women DFS agents to increase engagement among low-income rural women.<sup>77</sup>

**Step 2: Partner with local officials and cooperative associations for identification of rural people who lack formal ID**, under a tiered KYC system, so that they and their businesses can access financial services.

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<sup>77</sup> Women's World Banking, Policy Brief: Why Advocate for More Women Agents?, April 2023

**Step 3: Use special rural banking, payment services provider, and leasing licenses with lower capital and operating requirements for rural areas, to promote additional cooperative and microfinance institutions which can help bridge the gap to the wider DFS landscape.**

## **4. Conclusion and Summary of Key Takeaways**

This regulatory toolkit has outlined how DFS can benefit MSMEs by removing some key constraints to their access to finance and by creating access to new products and services. The toolkit provides guidance and aims to assist financial regulators and policy makers from G20 and non-G20 jurisdictions in different stages of their policy implementation process to enhance the regulatory environment for MSME to access to innovative digital financial services and complements existing financial landscape. Besides outlining the tools available to financial regulators, it also highlights the need to learn from other jurisdictions, collaborate with other regulators/ government agencies and the private sector, and work towards cross-border harmonization of the ecosystem.

### **Key Insights and Recommendations from the Toolkit**

#### **1. Digital financial services can help address the MSME funding gap**

Innovative technologies and digital financial services can help bridge trust and information gaps, and therefore improve MSMEs' access to finance, enabling growth and development.

#### **2. Financial regulators have a key role in market development and creating a safe and innovative environment**

Regulatory agencies need to work in collaboration with public and private sector agencies to create an enabling environment for DFS. They can enable best practices for systemic stability, consumer protection, and market efficiency. Any plan for intervention should start by quantifying the MSME funding gap and monitoring the effectiveness of interventions over time.

#### **3. Think holistically: the “Stack Approach”**

Regulators can achieve the most impact when initiatives in different digital products and domains interact with and build on one another. India's example to leverage national biometric IDs into a universal payment layer, shared eKYC, and digital certifications and documents is an example of the whole being greater than the sum of the parts.

#### **4. Bring legal clarity**

The pace of digital financial innovation has given rise to uncertainty and fear, as technology has outpaced rulemaking. Regulators should be technology-agnostic, but ensure that the legality, finality, and acceptance of DFS is as clear and consistent as their traditional analogues. Provide explicit guidance and safe harbours wherever possible for avoidance of doubt.

#### **5. Promote open, digital access to resources**

Regulators should promote open access to key platforms and systems by as many participants as possible, consistent with safety and security of the underlying network and protocols. In order to promote innovative products which have minimal manual intervention, data stores and platforms should be accessible on-line, and via transparent APIs so that they can be integrated into DFS providers' own workflows and systems.

#### **6. Encourage Interoperability**

Unified national and regional systems help to increase returns to scale and increase take-up on both demand and supply sides. In order to avoid balkanization and/or lock-in by single-provider proprietary

systems, regulators should prefer that for fundamental and systemic infrastructure the core specifications, protocols, and data types should be defined by an open consortium and maintained on a public utility model. Broad participation by different financial institutions, businesses, and consumers should be available, conditioned upon the acceptance of interoperability and standards for quality, risk, security, and data protection.

### **7. Support digitization of information, documents, and workflows**

Regulators have a key role to play in driving digitalization of processes both inside other areas of government and in the market. These enabling technologies can increase speed of service and lower costs of providing DFS—especially critical for MSMEs which may not be profitable to service via traditional means.

### **8. Enable innovation and product testing**

Sandboxes and other innovation enablers can be used to test new products and evaluate concepts without risk to financial stability, integrity or consumer protection. Effective use of such enablers requires the design of specific, narrow challenges to surface potential solutions in areas where there are identified gaps in market provision.

### **9. Tailor DFS policies to ensure inclusion of underserved populations**

Measurements of the MSME financial market and the impact of regulatory interventions should include disaggregated data specifically designed to assess the inclusion of underserved populations such as women, youth and the elderly, migrants and FDPs, and rural and agricultural groups. Tiering of licensing and KYC requirements can be used to promote inclusion without compromising compliance with global financial stability and integrity standards.

## Appendix A: Survey Data

As part of the process of generating this regulatory toolkit, AFI under the sponsorship of the Working Group and the G20 conducted a detailed survey of the status of existing SME initiatives in digital financial services, as well as the key current concerns of regulators. We received complete responses from 44 agencies as well as numerous comments which helped to shape the survey and the structure of the detailed participant interviews which followed. We discarded duplicate and unidentifiable responses. Key insights from the survey follow, with additional data on specific areas addressed throughout this toolkit.

The area of greatest overall concern to survey participants was in the area of data security, encompassing customer data protection, privacy concerns, and cybersecurity. This is an area in which prudential and systemic regulation lags behind the very fast pace of change in the DFS arena—itsself a concern to survey respondents, over half of whom rated the ability of regulators to keep up with the rate of change in the industry as a 4 or 5 on a scale of 1-5, with 5 being most critically concerned. Other key issues center around the ability for foreign platforms and companies to serve MSMEs from outside the regulatory jurisdiction, including potentially from jurisdictions where they are not required to be licensed or regulated at all. Respondents expressed concern over the “ability of offshore platforms to provide digital financial services to MSMEs in our country without being subject to local licensing / supervision” as well as the “entrance of foreign/global platforms which provide digital financial services to MSMEs into our country after being granted local licenses, in that they may displace domestic financial players or not be firmly committed to servicing our market in the future.”

Translating some of these issues into high-level systemic concerns, respondents worried that the long term effects of a DFS transition could impair their ability to make monetary policy decisions or might destabilize the currency, as well as giving rise to unmonitored concentrations of systemic risk.

Following are summarized survey results and findings, ahead of our detailed interviews.

Our regulation of digital financial products and services in general is oriented around:

Entirely	Mainly	Partially	Not at all	
Institution / License type and activity	17	13	12	2
Specific financial product / activity	9	18	15	2
Specific risk dimensions and concentrations	11	11	14	8

Comments:

Respondent regulatory authorities are still primarily oriented towards regulating DFS based on the licensing type and activity of the engaging financial institution. This produces regulatory gaps and arbitrage opportunities when Fintech companies engage in similar activities to those of traditionally- licensed institutions, but where the regulatory requirements may be radically different.

As a regulator, our approach to regulation and supervision of novel financial products/services within our own remit is to:

Yes	Partially	Planning / Considering	No	
Develop new laws and regulations specific to new financial products before permitting their use	29	6	5	3
Permit existing authorized financial institutions to engage in new products which are analogous to existing products with notification only	19	8	5	11
Allow limited testing of new products via _____ a _____	22	6	7	8

Comments:

Most respondents prefer to specify the regulatory rules for novel financial products before permitting their introduction, although a majority have also implemented limited testing via regulatory sandbox programs.

We have regulatory / systemic risk / data privacy / competition and economic development concerns regarding the trend towards digital financial products as to:

Not at all concerned	Critical concerns				
1	2	3	4	5	
Ability of offshore platforms to provide digital financial services to MSMEs in our country without being subject to local licensing / supervision	9	5	8	12	7
Entrance of foreign/global platforms which provide digital financial services to MSMEs into our country after being granted local licenses, in that they may displace domestic financial players or not be firmly committed to servicing our market in the future.	12	9	8	8	4
Lack of transparency in transaction / capital flows causing problems for monetary policy and/or currency value management	12	2	8	11	8
Lack of transparency in transaction / capital flows causing problems for taxation	12	3	6	11	8
Lack of transparency in transaction / capital flows causing undiscovered concentrations of systemic risk	10	3	10	10	7
Cybersecurity and systemic digital infrastructure hardening	6	5	2	13	15
Protection of customer data and privacy	7	3	4	8	19
Speed of change in financial products / services outpacing ability of regulators to evaluate and alter rules	7	2	11	10	11



Erosion of business of incumbent local financial institutions by digital models leading to systemic risk issues	9	3	13	12	4
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Comments:

Survey respondents' areas of most critical concern are protection of customer data and privacy and cybersecurity and systemic digital infrastructure hardening, rated "critical" by 46% and 37%, respectively. On the process side, respondents have strong concern about the speed of change in financial services versus the slower pace of regulatory actions, as well as the ability of offshore fintech providers to service in-country clients without parallel licensing and regulation.

Regulatory Concern	Weighted Concern Rating
Protection of customer data and privacy	3.71
Cybersecurity and systemic digital infrastructure hardening	3.63
Speed of change in financial products / services outpacing ability of regulators to evaluate and alter rules	3.39
Ability of offshore platforms to provide digital financial services to MSMEs in our country without being subject to local licensing / supervision	3.07
Lack of transparency in transaction / capital flows causing undiscovered concentrations of systemic risk	3.03
Lack of transparency in transaction / capital flows causing problems for monetary policy and/or currency value management	3.02
Lack of transparency in transaction / capital flows causing problems for taxation	3.00
Erosion of business of incumbent local financial institutions by digital models leading to systemic risk issues	2.98
Entrance of foreign/global platforms which provide digital financial services to MSMEs into our country after being granted local licenses, in that they may displace domestic financial players or not be firmly committed to servicing our market in the future.	2.59

Our jurisdiction has implemented specific licenses and/or laws/regulations for credit products and other financial enablers used by MSMEs:

Yes	Planning / Considering	No
Factoring	1 5	7 16
Reverse Factoring	9	6 23
Financial leasing	1 8	7 13
Loan securitization	1 9	4 15
Loan participations / syndications	2 2	4 12
Trade finance	1 9	6 13
Alternative credit scoring methods and/or registries	1 5	8 15
Lending against warehouse receipts	1 1	6 21
Shared KYC service providers or bureaux	1 8	6 14
Moveable collateral registries	2 3	9 6
Blockchain or other distributed ledgers	5	11 22
ICOs	4	9 25
Digital / Cryptocurrencies	8	9 21
Stablecoins	6	6 26
Smart contracts	1 0	8 20
Credit insurance / guarantees	2 5	6 7

Comments:

Most responding agencies reported that they have made specific provision for credit guarantees, loan syndications and movable collateral registries, although there is still clearly work to be done on all three. As expected with such relatively new and unclear financial instruments, few agencies have made explicit rules for cryptocurrencies, blockchain implementations, ICOs, or smart contracts.

An interesting potential area of focus, given its importance for digital MSME finance due to the lack of immovable collateral typical of such borrowers, is the relatively low attention paid to such well-known

traditional products as factoring, lending against warehouse receipts, and leasing.

AML/ KYC					
The areas in which our regulated institutions face the biggest challenges in maintaining AML / KYC compliance regarding MSME clients <sup>78</sup> specifically are:					
	Not at all a challenge				Severe Challenge
	1	2	3	4	5
Ascertaining the identity of client entities	17	5	7	3	3
Ascertaining the ownership/control of client entities	12	7	9	2	5
Documenting the identity of owners/control parties	16	7	5	4	3
Maintaining adequate records of client onboarding and KYC processes	12	9	6	5	2
Assessing the risk of clients and transactions	7	6	11	6	5
Screening transactions for high-risk or non-conforming transactions and counterparties	9	5	14	5	2
Cost/benefit of qualifying and maintaining compliance for small-value customers	9	10	8	6	2

Comments:

In the AML/KYC realm we face a divergence between the reported concerns of regulators and the reported experience of financial institutions, especially those engaged in digital finance. Survey respondents’ agencies reported relatively low levels of concern over the challenges of ascertaining and documenting identity and ownership of MSMEs, with somewhat more difficulty seen in risk assessment and transaction screening, but even there a fairly low level of apprehension.

However, our conversations with MSME DFS providers themselves have revealed that they consider establishing identity and ownership—especially in a digital manner—an extremely challenging problem and one which impedes client onboarding and credit decisions. We are not certain why the disconnect

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<sup>78</sup> As defined in your jurisdiction – if you have a customized definition of SME or MSME please provide details or references.

exists, but we believe based on such channel checks that these areas are not as well-settled as the regulatory community would think.

Our jurisdiction participates in				
Yes	Partially	Planning / Considering	No	
A national business registry which is accessible on-line	14	6	2	1 2
A national agency or entity responsible for the promotion of MSMEs	25	3	0	6
Legal entity identifier programs (LEIs) for any entities	8	7	4	1 5
LEIs specific to MSMEs	6	6	2	1 9
Verifiable LEIs (vLEIs)	5	4	4	2 0
Electronic signatures for commercial documents	14	6	4	1 0
Electronic signatures for government and legal documents	18	6	3	7
Electronic transferable records <sup>91</sup> for trade and invoice documentation	10	5	5	1 4
National identification credentials for individuals	23	3	1	7

Comments:

A majority of surveyed institutions report that their jurisdiction has a national agency for the promotion of MSMEs, which is seen as a valuable means of coordinating various efforts of regulators, direct credit subsidies, and lawmaking. Majorities also have national identification credentials (which can be leveraged for MSME registration and representation) and accept electronic signatures, at least in some applications. We believe that a positive outcome of the pandemic is that this last items shows significantly more acceptance than would have been the case 3 years ago.

Accessible business registries and legal entity identifiers lag well behind, however, a possible reason why FDS providers report so much difficulty in onboarding.

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<sup>91</sup> Within the general meaning and intent set forth by the 2017 United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Transferable Records (MLETR).

<b>Collateral and Credit</b>			
<b>Our jurisdiction maintains:</b>			
<b>Yes</b>	<b>Planning Considering</b>	<b>/</b>	<b>No</b>
A national public credit information utility, aggregating negative credit information only	8	6	20
A national public credit information utility, aggregating negative and positive credit information	1 7	5	12
One or more private credit information bureaux	2 0	4	10
A shared or public KYC registry (national or regional) for businesses, including MSMEs	1 1	5	18
A program of direct credit subsidies, insurance, or guarantees for MSME credit.	1 9	7	8

Comments:

Credit bureaux are well-established in the majority of surveyed jurisdictions; however, discussions and interviews reveal that breadth of coverage is an issue. Direct credit guarantees or insurance continue to be among the most popular interventions on behalf of MSMEs, with nearly 80% of respondents either having or considering active programs.

Shared KYC services and registries have failed to make much headway despite considerable attention.



We have regulatory / economic development concerns regarding the credit information infrastructure in our jurisdiction regarding MSME clients as to:

Not at all concerned					Critical concerns
1	2	3	4	5	
Accuracy of the data collected in credit databases	6	2	14	5	4
Sufficiency of the data points collected regarding each entity	3	7	12	5	4
Broad inclusion of existing MSMEs in any existing credit databases or information services.	7	7	9	4	4
Broad inclusion of existing MSMEs in any existing credit databases or information services, specific to rural and peripheral areas of the country	7	5	9	7	3
Ratings or algorithmic bias against women-owned MSMEs	7	9	6	7	2
Ratings or algorithmic bias against MSMEs owned by migrants or FDPs	11	7	7	4	2
Ease of access to credit databases by a wide range of financial intermediaries and lenders	11	5	8	3	4
Transparency of information maintained to borrowers, and ability to challenge erroneous data	10	3	8	4	6

Regulatory Concern	Weighted Concern Rating
Sufficiency of the data points collected regarding each entity	3.00
Accuracy of the data collected in credit databases	2.97
Broad inclusion of existing MSMEs in any existing credit databases or information services, specific to rural and peripheral areas of the country	2.81
Transparency of information maintained to borrowers, and ability to challenge erroneous Data	2.77
Broad inclusion of existing MSMEs in any existing credit databases or information services.	2.71
Ratings or algorithmic bias against women-owned MSMEs	2.61
Ease of access to credit databases by a wide range of financial intermediaries and	2.48

lenders	
Ratings or algorithmic bias against MSMEs owned by migrants or FDPs	2.32

Comments:

National regulators are fairly content with the quality of information collected by credit information services, as well as the transparency and recourse offered. Ratings and algorithmic bias are not a key current concern, although our structured interviews revealed that many regulators are still looking at ways to evaluate and test this going forward, and so are ill-equipped to make decisions about it in the near term.

Our jurisdiction				
Yes	Partially	Planning / Considering	No	
Digital/on-line registers for viewing ownership of land and real property	1 5	3	2	10
Digital/on-line registers for viewing security interests in and liens on land and real property	1 2	3	3	12
Digital/on-line registers for initiating and perfecting security interests in and liens on land and real property	1 4	2	4	10
Digital/on-line registers for viewing ownership and security interests in other business assets / movable collateral	1 2	4	5	9
Digital/on-line registers for initiating and perfecting security interests in other business assets / movable collateral	1 1	6	4	9
Centralized or distributed on-line registers for invoice discounting or accounts receivable-based finance	7	3	2	18

Comments:

Existence and accessibility of digital property and security interest registers are a key barrier to MSME finance, and one where there is considerable room for improvement based on our survey results. We commend to the attention of interested regulators the applicable sections of this toolkit for reference as to best practices in this area.

Insolvency and			
As a regulator, we provide incentives for our supervised institutions to:			
Yes	Planning / Consideri ng		No
Seek voluntary out-of-court restructurings of stressed MSME credit	12	3	15
Re-age or reprofile restructured MSME loans after a period of renewed performance	14	4	12
Engage in collective voluntary corporate debt restructuring (London Approach or other) for multi-creditor exposures	5	4	21
Agree to provide or subordinate to debtor-in-possession or other similar new financing for restructuring companies	6	3	21

Comments:

Voluntary corporate restructuring provisions, including debtor-in-possession financing and other collective action clauses have been seen to be a useful feature of financial system recoveries after credit crises of the last 20 years; however, they tend to receive less attention during good times. None of the insolvency and restructuring rules or interventions surveyed garnered a majority of institutions

implementing it, and some such as voluntary CDR and DIP financing had relatively minimal take-up.

Our jurisdiction maintains:			
Yes	Planning Considering	/	No
A simplified or expedited insolvency process for MSME firms	8	3	19
A simplified or expedited court process for judicial restructuring of MSME firm debts	5	4	21
A process for restoration of troubled MSME firms, including re-aging/classification of restructured debts.	9	3	18
Any specialized “second chance” or standstill process or program in place specifically designed to cope with the effects of the COVID-19 pandemic.	17	1	12
A specialized insolvency court or specialist judges for dealing with insolvency of firms	4	5	21

Comments:

As above, the only judicial measures around MSME insolvency and restructuring to show material take-up were specialized standstill arrangements organized around the COVID-19 pandemic and ensuing economic disruption. These experiences should be carefully studied so as to assess which, if any, interventions might make sense to implement in future crises or as permanent legal features.

Financial Literacy			
As a regulator, we are involved in promoting digital financial literacy of SMEs regarding:			
Yes	Planning Considering	/	No
Specific financial products and services	17	8	5
Rights and responsibilities of borrowers and users of financial products	23	6	1
Best practices in financial and corporate governance	20	6	4
Accounting standards and the promotion of audited financial statements	19	5	6
Protection of financial and client information	21	6	3
Avoiding fraudulent schemes and fake counterparties	21	7	2

Is there a dedicated source of funding for the ongoing promotion of financial literacy?			
Yes	Planning / Considering		
			No
Yes, dedicated industry levy	6	0	1
Yes, dedicated transaction tax	1	0	2
Other dedicated funding	5	0	2
No dedicated funding, annual budget appropriations	20	0	0
No funding	0	0	7

### Comments

There is very broad agreement among regulators and other responding agencies that financial literacy and education are important parts of furthering digital financial services take-up among MSMEs, especially in underserved populations which tend to have lower baseline levels of financial literacy.

Worth noting is that for all of the emphasis (properly) placed in this area, dedicated funding mechanisms are scarce, with most financial literacy efforts being funded with (sometimes sporadic) annual appropriations.

Does your agency (or another government department or agency) periodically survey or measure the financial literacy of MSME owners/managers?			
	Yes	Planning/ Considering	No
	17	7	5
<b>Consumer Protection</b>			
Has your organization or country taken steps to institutionalize consumer protection and informed disclosure as part of the legal and regulatory regime?			
	Prudential regulatory level for individual institutions	Distinct consumer protection regulatory level for individual institution	Through legal rights with enforcement via judiciary
Yes	24	0	2

Planned or in progress	20	0	4
No	15	0	6

Comments:

The overwhelming majority of regulators surveyed have made consumer protection and disclosure part of their prudential standards and expectations for licensed institutions, and our structured interviews reported that most were confident that these standards were actually being used in the supervision process. Relatively few jurisdictions have implemented direct consumer protection standards outside the prudential regime as yet, so efforts of supervision and surveillance staff remain critical.

Has your jurisdiction implemented:			
Yes	Planning Considering	/	No
Laws and regulations covering consumer protection in financial services provided by non-traditional institutions.	1 7	4	3
Laws and regulations protecting the use and transfer of customer data, even in alternative and digital finance providers.	1 6	6	6
An ombudsman, complaint bureau, and/or redress procedure for customers who feel these regulations have been violated.	1 9	3	4
A program of coordination between financial regulators and other ministries and agencies, either ad-hoc or via a centralized coordinating agency.	1 5	2	4
A public digital register of offenders against such laws and regulations.	7	5	14

Comments:

In the area of consumer protection for financial services provided by non-traditional (including DFS and offline) institutions, regulations are somewhat less well-developed, possibly due to the prevalence of regulation by license type as seen in the responses to question 1. Nevertheless, there is substantial movement in the direction of stronger protections seen in the number of regulators which have partially implemented protections, or which are actively considering or planning to do so.

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