

Access2Access

Evaluation and Learning

Understanding regulatory and policy approaches in countries of operation

Rochelle Momberg, April 2021

Disclaimer

This work is a product of the external consultant Rochelle Momberg (Rochelle.momberg@outlook.com). The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of AccessHolding (Access Microfinance Holding AG) nor those of the Mastercard Foundation.

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Acronyms

A2A	Access2Access
ACH	Automated Clearing House
AI	Artificial Intelligence
AML	Anti-Money Laundering
API	Application Programming Interface
ATM	Automated Teller Machine
ATS	Automated Transfer System
B2W	Bank-to-Wallet
BI	Business Intelligence
BFI	Banking and Financial Institutions
BIS	Bank for International Settlements
BVN	Bank Verification Number
CB	Central Bank
CDD	Customer Due Diligence
CEO	Chief Executive Officer
CGAP	Consultative Group to Assist the Poor
DFS	Digital Financial Services
DIS	Data Integration Strategy
EDW	Electronic Data Warehouse
ESB	Enterprise Service Bus
FATF	Financial Action Task Force
FI	Financial Institutions
FIU	Financial Intelligence Unit
FSD	Financial Sector Deepening
FSI	Financial Stability Institute
GSMA	Global System for Mobile Communications
ICT	Information Communication Technology
IMF	International Monetary Fund
KYC	Know Your Customer
MFI	Microfinance Institution
ML	Machine Learning
MMO	Mobile Money Operator
MNO	Mobile Network Operator
MSME	Micro, Small & Medium Enterprises
NFI	Network Financial Institution
OECD	Organization for Economic Cooperation and Development
P2P	Peer-to-Peer
PSB	Payment Service Banks
PSD2	Payment Service Directive (2)
UNCDF	United Nations Capital Development Fund
USAID	United States Agency for International Development
W2B	Wallet-to-Bank
WBG	World Bank Group

Regulatory Institutions:

BFM	Banky Foiben'i Madagasikara (Central Bank of Madagascar)
BNR	Banque Nationale du Rwanda (Central Bank of Rwanda)
BoZ	Bank of Zambia
CBL	Central Bank Liberia
CBN	Central Bank of Nigeria
CCPC	Competition and Consumer Protection Commission
LTA	Liberia Telecommunications Authority
NCC	Nigerian Communications Commission
NIBSS	Nigeria Interbank Settlement System
RURA	Rwanda Utilities Regulatory Authority
TCRA	Tanzania Communications Regulatory Authority
ZICTA	Zambia Information and Communications Technology Authority

AccessHolding Network Financial Institutions:

ABL	Access Bank Liberia
ABM	AccèsBanque Madagascar
ABN	AB Bank Nigeria
ABR	AB Bank Rwanda
ABT	Access Bank Tanzania
ABZ	AB Bank Zambia

Boxes and Figures

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Executive Summary

AccessHolding has supported its network of financial institutions in creating new products, channels and ways to interact with clients by advancing their digital capabilities, while still giving banking a human face. The motivation behind this study is **to establish a framework which allows AccessHolding to understand the regulatory and policy approach applied within their African countries of operation to enhance the offering of digital financial services.**

Financial sector digital evolution has seen increasing changes with a move towards technology driven delivery channels, and the explosion of mobile into the financial sector aided to scaling online banking through digital apps and enabled innovation of new DFS products and services, further driven by the entry non-banks including the telecom or mobile money operators (MMO) within the ecosystem. **Savings are the biggest value-proposition for DFS uptake,** which can be facilitated by digitizing village banking. This has the potential to increase risk scoring of clients and expand lending services. Customer readiness influence the adoption of innovative products. Using social media channels to raise awareness and proactively contribute towards the spread of digital financial literacy build trust with both the consumer and the government. **Digitalization, whether in the institution or the regulator, start with having a pro-digital mindset and continues by developing a digital culture** within which goals and strategies and capacity building can be advanced.

A purposeful progression in the development of high-level strategies and redefining of regulatory approaches and frameworks and the adaptation of infrastructure create an enabling, promotive, and protective environments for the providers and users of financial services. Often the biggest barriers to digital financial services evolution are not regulatory in nature, but rather due to processes, bureaucracy, and legacy systems. The question is not always whether there is a willingness to innovate and a flexibility, but rather, what the approach and processes in place are in terms of risk mitigation. Despite progress in the quantity and quality of financial sector regulatory reforms regarding new players and technology, reforms to deal with emerging risks are still evolving, especially within the developing world.

Today's digital environment creates an instant interconnectedness between people, devices and data creating a broad and complex ecosystem. In evaluating opportunities for relationships and partnerships, stakeholders should consider whether overlap or interactions already exist, whether more formal partnerships could better advance customer-centric goals, the level of technology involved, and its costs and benefits. The best model will be the most achievable, productive and mutually beneficial to all parties involved and work towards the greater good of the customer.

Open Banking has the potential to transform not only how banks operate, but how and even why consumers and businesses choose to work with them and will catalyse substantial service innovation¹ as it increases the connectivity between the players within the ecosystem and reshapes the competitive landscape thereby increases the customer's access to a wider marketplace and reshaping consumer experiences of the banking industry. Interoperable technology provides a common language for financial systems to digitally communicate, unlocking economies of scale, reducing fixed costs and increasing financial service offerings viability. Between a fully open and fully closed system there are many degrees of openness, mainly reflected by the number of third-party technologies that integrates within the system and the ease with which these integrations take place. Social media platforms are becoming a crucial tool for product innovation, made possible by APIs.

¹ Mastercard, 2019, Delivering on the promises of Open Banking, [Mastercard Open Banking Solutions | Mastercard Open Banking Solutions](#)

Designing a digital identity system combined with interoperable digital government systems act as a catalyst for increasing transparency, providing the opportunity of eKYC and pave the way towards open banking practices. Identity ideally is a risk-based system linking identifiers, activities, proxy identifiers onto a single identity allowing for identity to be proven over time and through this create a robust identity proofing system.

As governments take the lead in incorporation of open banking principles within their regulatory frameworks, it is important to ensure the necessary regulatory authorities and processes are in place including an API or Technical standard setting body and alternative dispute mechanisms. Compatibility is complicated where there is a lack of acceptable standards for development and deployment. The introduction of evolution-based regulation is not enough and must include the implementation of RegTech and SupTech. Data-driven analytics and intelligence building create better product design, improve customer experience. enable evidence-based regulatory decision-making and lead to increase monitoring and risk management capabilities. The increase in the collection of additional alternative data, such as IP addresses, location details, personal preferences, and an increasing collection of personal identifiable information makes protection and privacy of the data and its use is paramount and require security standards, processes, and governance in the areas of unauthorised processing, transfer and even sale of data. Beyond the collection and use of data, storage and data maintenance, continuous access and longevity of data depend on regulatory requirements.

Data privacy and protection and cybersecurity frameworks are nascent in development and implementation, providing opportunities for addressing broader considerations. Data localization or residency laws do not necessarily support the move towards open systems and given jurisdictional issues collaboration and coordination between authorities on both regional and international levels are required. Concerns around the risk of data storage and processing service providers, especially data concentration risk and operational risk in the case of failure, require appropriate mechanisms.

Longer term, regulation should be an ongoing open process where industry players can graduate from one license to another and over time build up tested risk mitigation and increase approaches to complying with supervisory practices. The lack of a well-organized legal and regulatory framework, whether narrow or comprehensive, leave or create many gaps. Harmonizing and aligning regulations across different regulatory authorities avoid complexities, increase collaboration and streamline the supervision function and the reporting obligations of the institutions.

‘Wait and see’ and ‘test and learn’ regulatory approaches facilitate flexibility and collaborative industry involvement. Risk-based, goal-based and standard-based approaches can strengthen the enabling of a conducive regulatory setting whilst addressing emerging risks allowing for agile adjustments to tackle them.

The government needs to act as a catalyst by creating a policy roadmap and putting in place digital strategies to provide goals, priorities, and mechanisms for change where challenges are experienced. The impact of the covid-19 pandemic has brought to the forefront that enterprises with the ability to rapidly digitalize is stimulated by digital technology enhancements, a need for advancement of small and medium enterprises and enabling independent individual self-reliance on a national level whilst opening doors for regional and global involvement.

Introduction

The motivation behind this study is **to compile research and expert knowledge on the key issues shaping financial innovation** as the most **powerful tool for remaining competitive as a business** and **simultaneously addressing major challenges such as inequality, poverty, education and health care**. AccessHolding has supported its network financial institutions in creating new products, channels and ways to interact with clients by advancing their digital capabilities while still giving banking a human face.

The Access2Access (A2A) programme was set up in summer 2016 with the overall objective of strengthening the capacities of the AccessHolding Network Financial Institutions (NFI) to increase outreach and enhance access to financial services that meet client needs more efficiently and profitably. AccessHolding entered into a Partnership Agreement with Mastercard Foundation to support the two components: (i) Capacity Building and (ii) Digitalisation of the A2A Programme.

AccessHolding Network currently consists of eight financial institutions of which six operate in Africa, one in Brazil and one in Georgia (<https://accessholding.com/network-banks/>). Each of the countries of operation is characterized by a different ecosystem in terms of legal and regulatory frameworks, financial and digital infrastructure but also about the fintech companies and fintech users and consumers. (see figure 1)

A digital evolution is taking place in financial institutions (FIs), that is, the development, integration and deployment of technology and digital mechanisms into products, services, and communication, as well as organizational functions and systems. Additionally, social media platforms are also becoming a crucial tool for FIs in both brand building and product innovation. Such innovation brings with it risks associated with the management of data, establishment of new business models, emergence of alternative user interfaces and experiences, and a rapidly expanding infrastructure.

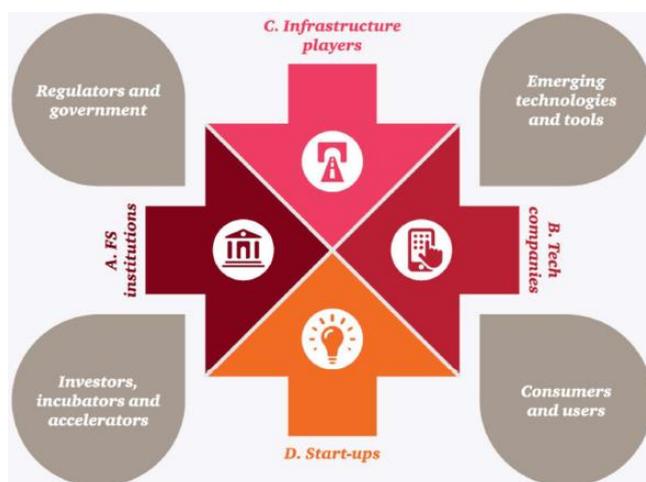


Figure 1: FinTech Ecosystem for Digital Financial Services²

The financial institutions of the AccessHolding Network, are increasingly offering digital financial services in payments, lending and digital banking, enabled by technological advancement and innovation which have the potential to lower costs, increase speed, security and transparency and allow for more tailored financial services that serve the poor at scale.

Governments are responding to the shift towards an online, digital, and application-based ecosystem with differentiating approaches in adapting their regulatory environments and re-engineering their internal structures and systems. This study, which focus on the African countries of operation (Liberia, Madagascar, Nigeria, Rwanda, Tanzania and Zambia), sets up a diagnostic framework which gives a holistic view of factors at play to allow an understanding of the regulatory and policy approaches applied to enhance the offering of digital financial services.

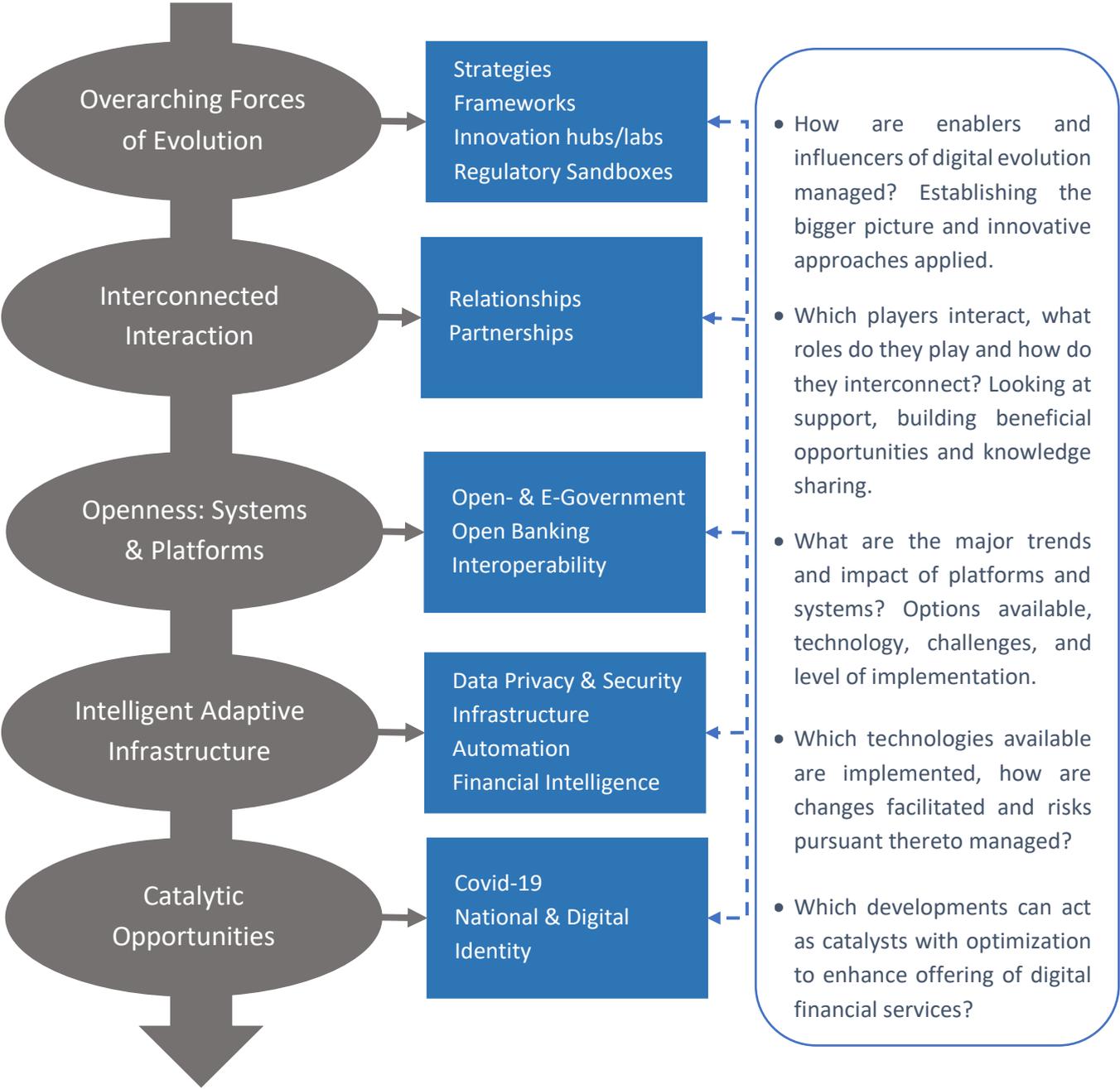
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² PWC, 2016, Blurred lines: [How Fintech is shaping Financial Services](#)

Framework

The framework contains five analytical dimensions depicting elements shaping strategic decisions for innovation-based regulatory adjustments and indicators. These dimensions are cross-cutting and interdependent on different levels. The framework does not go into depth on the complexity of the different factors, but rather focuses on observing the approaches taken by the governments of the countries. They are discussed in terms of components within which the interplay between innovation and regulation enable challenges to be overcome or benefits to be maximized.

Figure 2: Diagnostic Framework



Overarching Forces of Evolution

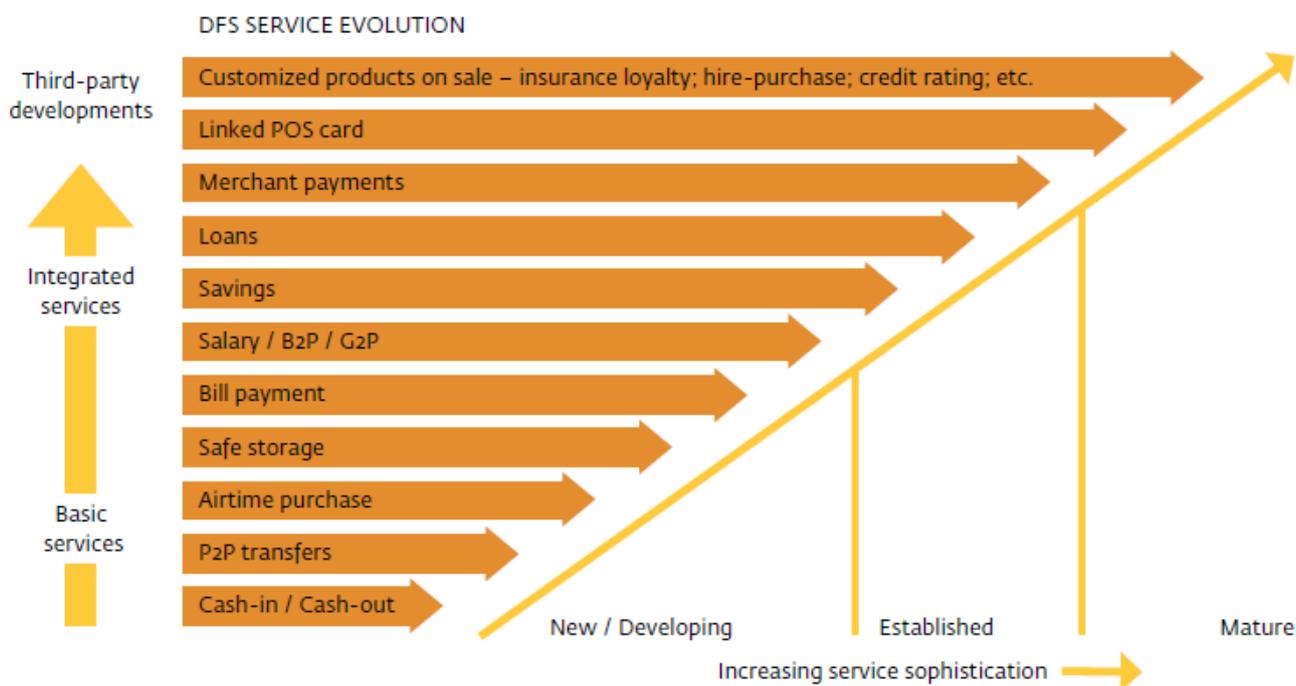
Digital evolution takes place from both internal and external perspectives. Internally, it is simply put the development, integration and deployment of technology and digital mechanisms into every area - products and services, interactions, communications, organizational agility, functions and systems, data and risks - of the organization to transform the way in which it is delivered. Externally, it revolves around the wider ecosystems with new players – BigTech, fintech, data aggregators – new business models, new customers with alternative user interfaces and experiences and expanding infrastructure with increasing speed and scale. Given all the cross-sections within which digital evolution takes place, it is both broad and deep.

Financial sector digital evolution has seen increasing changes with a move towards technology driven delivery channels, for example internet and smartphones and technology driven security, for example EMV³ and biometrics. Traditional banking services (payments, salary & savings accounts, personal loans, investment & wealth management) moved into the digital sphere with the development of ATMs, online banking, and card services. The explosion of mobile into the financial sector aided to scaling online banking through digital apps and enabled innovation of new DFS products and services, further driven by the entry non-banks including the telecom or mobile money operators (MMO) within the ecosystem.

The World Bank identifies four broad stages of digital transformation⁴ in the financial sector ranging from predominantly cash-based to fully digital: 1) basic access to transaction accounts; 2) more intensive use of transaction accounts for digital payments; 3) moving beyond payments to other DFS products (e.g., credit, insurance); and 4) widespread adoption and usage of DFS by individuals and MSMEs.

Figure 3: Digital Financial Services Evolution

DFS service evolution as markets mature⁵



Source: Digital Access: Future of Financial Inclusion in Africa.

³ EMV is short for Europay, MasterCard, and Visa, the 1994 founders. It commonly refers to a credit card with a smart chip to store the data that is needed to process a transaction rather than the previous mag stripe. EMV® defines a suite of security standards for credit and debit card transactions. EMV can be used for NFC mobile payments as well.

⁴ World Bank, 2020, Digital Financial Services, [How Countries Can Expand Access to Digital Financial Services \(worldbank.org\)](https://www.worldbank.org/en/topic/digital-finance)

This front-end evolution is enabled by the growth of underlying technologies including digital ledger technology, application program interfaces, cloud computing, chatbots, neurolinguistic programming and big data analytics amongst others. By drawing on new data sources, sensor technology, machine learning and AI, financial-sector players can use technology to differentiate themselves in the market by using their client data to better understand client needs and behaviour and tailoring their products accordingly⁵.

Managing this shift to an online, digital and application-based environment require a new approach from governments as they are equally faced with the need to transform and re-engineer a digital evolution within their own structures and systems. Digital evolution within the governmental sphere can be described as the purposeful progression in the development of high-level strategies and redefining of regulatory approaches and frameworks and the adaptation of infrastructure to create an enabling, promotive, and protective environment for the providers and users of financial services. Digitalization, whether in the regulator or the institution, starts with having a pro-digital mindset and continues by developing a digital culture within which capacity building, goals and strategies can be advanced.

Strategies

To fulfil their objectives, governments create a set of different broad strategies, plans or roadmaps. These are influenced by many factors such as achieving sustainable development goals, harnessing opportunities for economic diversification and growth, broadening education objectives and facilitating digital transformation.

Creating a digitally focused vision for the country sets the path for developing regulatory frameworks and tools that grows the financial sector market, the players and the nature of engagements. Some countries may opt for developing a national digital strategy, whilst others embark on goal-based approaches. A National digital strategy creates a drive towards a more integrated government and links efforts to build out infrastructure, improve access to information and communication technology (ICT), increase technology literacy, create centres of digital innovation and sector-driven (finance, health, agriculture, manufacturing etc.) objectives.

In most countries there are no national digital strategy but evidence of a goal-based approach, for example digital economy, e-government, financial inclusion, or e-health, with digital issues addressed within these strategies⁶. These strategies must be supported with the necessary tools to address challenges and barriers and create avenues for applying opportunities.

Frameworks

Regulatory and policy frameworks remain the core tool for creating an enabling and adaptive environment towards innovation. It is complex with licences, certificates, directives, guidance documents and interpretive notes or toolkits supplementing the main legislation and regulations.

There is a disparity between the speed at which industry innovate and the government develop an enabling environment. The biggest challenge in effectively managing digital evolution is ensuring an understanding of the underlying technology and front-end innovation. The public sector often suffers a lack of, or inadequately skilled manpower and often struggles to attract and retain talent. Within the financial sector skill levels varies depending on whether personnel appointments are made in-country versus from a global workforce.

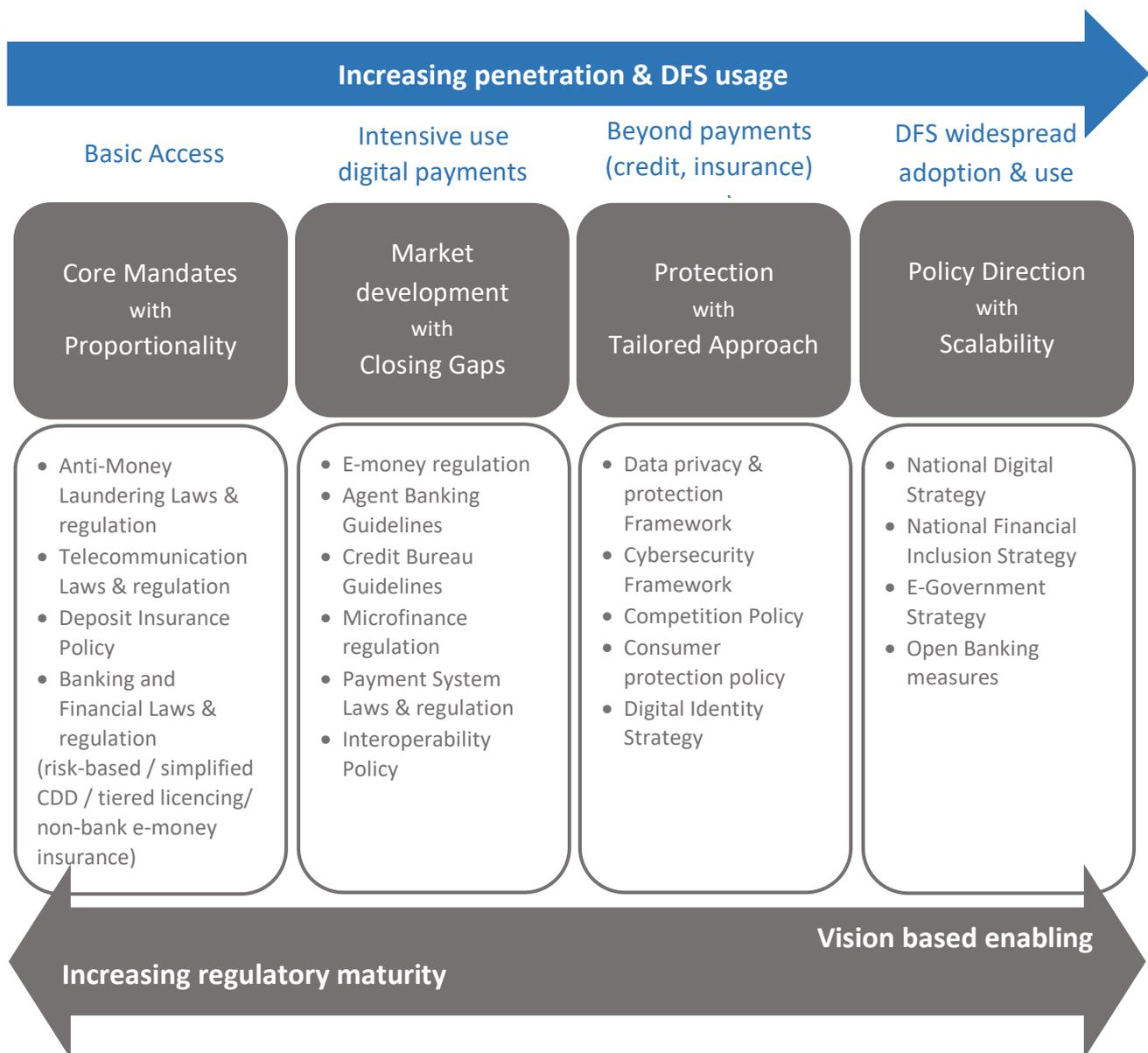
⁵ Cenfri, 2019, Regulating for innovation framework focus note, <https://cenfri.org/wp-content/uploads/Regulating-for-innovation-framework-focus-note-2019.pdf>

⁶ Observer Research Foundation 2019, National digital economy strategies: [A survey of Africa](#)

The challenge for policymakers is to maximise the benefits of fintech while minimising potential risks for the financial system⁷. Businesses can play a key role in helping governments as they develop laws and standards that increase the reliability of emerging technologies⁸

Adopting a ‘regulate for innovation’ approach can help regulators navigate decision-making processes for enhancing their regulatory frameworks. Cenfri developed a framework that regulators can use as a toolkit to guide them in this approach. When using the Cenfri framework and combining it with the four broad stages of digital transformation and policy enabler per stage from the World Bank, it provides for a vision-based enabling environment with a focus on increasing maturity in the level of regulations developed.

Figure 4: Innovation-based regulatory evolution



Country regulatory environments differ according to demographics but most countries have strong core mandate and regulations for closing gaps as the market develops, except for deposit insurance policies. When it comes to

⁷ FSI Insights on policy implementation No 23 - Policy responses to fintech: a cross-country overview (BIS 2020)

⁸ Microsoft, 2018, The Future Computed: Artificial Intelligence and Its Role in Society (p. 64)

the safeguarding of consumers funds in case of institutional default or bankruptcy, traditional banks are covered by deposit insurance measures established through regulation. In terms of MMOs, this regulation is very absent⁹.

To a lesser degree, supplementary regulations and guidelines covering credit bureaus, competition and consumer protection and agent banking are prevalent within certain countries. The real benefit of regulation in terms of credit bureaus is that everyone in the financial sector contributes data and information to them creating a holistic view of clients and contributing to risk reduction. A protective regulatory environment with tailored approaches for identity, data privacy and cybersecurity are sparse irrespective of the level of financial services innovation.

Governments can adopt different approaches when regulating for new innovations. The World Bank classified four regulatory approach categories: (a) “Wait & See”, (b) “Test & Learn”, (c) Innovation Facilitators (including Sandboxes) and lastly (d) Regulatory Laws and Reform. There are three commonly observed policy responses: (i) applying existing regulatory (same risk – same rule) frameworks to new innovations; (ii) adjusting existing regulatory frameworks and re-engineering existing processes; and (iii) creating new regulatory frameworks or regulations (new functionality – new rule).¹⁰

The World Bank, based on their experience, revealed that a detailed review of existing laws and regulations, combined with a defined means of communication with the regulator (such as an innovation office to serve as point of contact) and in suitable cases a “test-and-learn” methodology which could potentially result in regulatory reform, has worked best. (WBG 2020)

The ‘test and learn’ approach as explained by the World Bank is a process enabling financial service providers (FSPs) to acquire approval from the regulator before launching a product. This allows the regulator to study the products in detail to ensure standards for integrity, transparency and stability of the financial ecosystem are adequately met. Allowing industry and market to lead in providing innovative products and solutions facilitate an environment of risk-based analysis. It enhances private sector confidence and create a structure for drafting enabling and protective regulation.

Governments sometimes opt for the ‘wait and see’ approach where they allow the lack of regulation or the grey areas of regulation to enable innovation from which lessons can be extrapolated to drive regulatory updates, generally taking place at a late stage of innovation.

Innovation is further supported by a mixed approach to policy responses that prioritizes the same risk-same rule and new functionality-new rule approaches. An example of these are the differing approaches to digital banking and digital payment services and e-money. (BIS-FSI 2020)

- **Digital banking:** Most jurisdictions *apply existing banking laws and regulations* to digital banking, meaning that applicants for a banking licence with a fintech business model need to pass through the same licensing process and face the same regulatory requirements as applicants with a traditional business model.
- **Digital payment services and e-money:** Most surveyed jurisdictions *have a dedicated regulatory framework for e-money* services and regulated separately because of the risks involved.

Regulatory flexibility is often dependent on the type of legal jurisdiction the country operates under, for example English common law countries, such as Nigeria, have more flexibility. The question is not always whether there is

⁹ Interpol, 2020, Mobile money and organized crime in Africa, [Report: Criminals infiltrating Africa’s booming mobile money industry \(interpol.int\)](#)

¹⁰ Financial Stability Institute (FSI) (BIS) 2020, Policy responses to fintech: a cross-country overview

a willingness to innovate and a flexibility, but rather what the approach and processes in place are, in terms of risk mitigation. For example, Nigeria is conservative with risk mitigation. Whilst there is some progressive licensing, such as the differentiation of MFI licenses in place, other licensing is counter-productive and inaccessible, such as the e-money and the remittance licensing setting restrictive capital and track record experience requirements.

Longer term regulation should be an ongoing open process where industry players can graduate from one license to another and over time build up tested risk mitigation and increase approaches to complying with supervisory practices¹¹. The South Africa foreign exchange Adler system is a great example of a progressive licensing and expansive service provision. Another example is Mozambique where there is a proliferation of different micro-bank and other licensing regimes allowing industry players to progress, with some of the bigger players being MFIs rather than banks, operating without an excessive number of risks. The Deputy Governor of the Bank of England notes that a move to a more activities-based approach to payments regulation is needed.

Text Box 1: Country approaches – Overarching Forces of Evolution

Liberia: Pursue a ‘wait-and-see’ approach adopting a stepwise, initiative driven and capacity building agenda. Policy direction through the NFIS is in place, however other vision-based scalability enabling policies are lacking. Core mandate regulations are sufficiently implemented with establishing proportionality through a tiered risk-based approach prioritized as high in the 2020 NFIS. According to GSMA data, deposit insurance regulation for each mobile money account is still lacking. Market development regulations has been implemented and strengthened through e-payment service regulation 2020 with closing gaps prioritized through agent banking regulation amendments to facilitate agent non-exclusivity and harmonize with requirements that pertain to mobile money agents. Regulation in terms of protection with tailored approaches are in development with consumer protection revisions to be adopted, that will introduce the disclosure standards which would enable digital credit on feature phones, and the cybersecurity strategy draft released for stakeholder inputs.

Madagascar: Pursue a ‘wait-and-see’ approach adopting an interest and initiative driven agenda. Policy direction through the adopted Digital Transformation Roadmap, publishing of an e-governance strategy, and implementation of National Financial Inclusion Strategies in a drive to increase access to financial services and decrease poverty act as vision-based enablers for innovation. Core mandate regulations are implemented and strengthened through new banking and AML/CFT regulations. Further proportionality-based amendments and deposit insurance policy for mobile money accounts are required. A proactive approach to protection with tailored approaches to data privacy and cybersecurity regulation implementation took place in 2014. Market development with closing gaps were addressed through new financial sector laws for e-money, microfinance, and credit bureaus passed by parliament in 2017 and 2018. Insufficient risk mitigation processes in place affects government’s ability of decision making. AccèsBanque Madagascar waited over two years to gain regulatory approval to launch agent banking channel which was eventually achieved by establishing a new wholly owned subsidiary.

¹¹ Cooper, B, 2020, Cenfri Interview

Text Box 1: Country approaches – Overarching Forces of Evolution (continue)

Nigeria: Pursued a proactive test and learn approach adopting regulatory revisions and law reforms with a collaborative agenda in a drive toward development and inclusion objectives. There is movement towards the 'combined with a defined means of communication with the regulator' through regulatory sandboxes. Policy direction through a National Integrated Infrastructure Master Plan and an Economic Recovery and Growth Plan to deal with digitalization, and the National Financial Inclusion Strategies are in place as vision-based enablers. Core mandates are in place with deposit insurance policy for mobile money accounts and proportionately enabled through tiered KYC. Market development with closing gaps is comprehensive with a conservative risk approach thereby stifling innovation rather than enabling it. Protection regulation is sufficient with specific tailored approaches covered, and although no direct digital identity strategy is in place, the bank verification number (BVN) was a good idea and whilst the initial implementation was very weak, it increased over time. From an overall sector point of view, especially for the Commercial Banks, it created more strength.

Rwanda: Pursued a test and learn approach adopting a national-level policy framework and initiatives agenda with proactive regulatory development and revisions and a focus on building collaboration and coordination. There is a thinking towards utilizing the 'combined with a defined means of communication with the regulator' approach through the implementation of regulatory sandboxes of the BNR and RURA. The President had an innovation mindset enabling and implemented policy direction through an array of different strategies including Vision 2020 & 2050, and a National Strategy for Transformation. Core mandates and market development regulatory frameworks are implemented with proportionality through six-tiered frameworks for the purposes of CDD. These frameworks are updated in a swift response to evolution with e-money, interoperability and payment systems focal points and risk strengthening tackled through consolidated supervision regulation and new AML/CFT laws. Protection with tailored approach directives leaves room for improvements and are prioritized through the new data privacy law.

Tanzania: Pursued a test and learn approach adopting regulatory flexibility and collaborative and coordinated agenda in a drive toward financial inclusion. The Central Bank Governor had an innovation mindset and provided policy direction through the implementation of the Financial Sector Development Master Plan and the National Financial Inclusion Strategies. The World Bank involvement focused on the development of regulations and enforcement mechanisms to support implementation of the e-Government Act. There were calls from within the government, during October 2020, for preparing and coordinating a National Digital Strategy to ensure an end-to-end approach. Core mandates and market development with proportionality and closing gaps were a public-private partnership process. Industry led processes, such as interoperable standards setting and bilateral pricing agreements. Government led processes such as simplified CDD, third-party agents and mobile money aspects. A six-tiered framework with the two lowest levels available to individuals based on SDD is used. Differentiation are made between retail and super agents for purposes of CDD, with super agents required to be registered corporations to distribute e-money. Lessons learned during that time provided clarity on oversight challenges and competition benefits, allowing the regulator to construct a transparent and harmonized framework in terms of licenses and requirements, and procedures applicable to all parties. In terms of protection with a tailored approach the cybercrime acts are in place, however, the lack of a comprehensive statute has left many gaps in respect of privacy and data protection. Whilst progress have been achieved in terms of national identity, there is still a long way to go to a digital ecosystem.

Text Box 1: Country approaches – Overarching Forces of Evolution (continue)

Zambia: The proactive and test and learn approach to be expanded by combining a regulatory sandbox. There is a strong focus on creating a digital economy and a collaborative and coordinated approach between government departments and private sector stakeholders to move forward digital initiatives. The Central Bank Governor had an innovation mindset and provided policy direction with the implementation of the National Financial Sector Development Policy and the National Financial Inclusion Strategies together with Vision 2030 and more recently the National Payment Systems Vision and Strategy 2018-2022. Core mandates are in place with updates during 2016-2017 and proportionality enabled through tiered KYC. Market development with closing gaps regulations saw development and implementation between 2015 and 2018. Irrespective of this, the Zambian private sector platforms are leaning toward the use of credit cards and PayPal instead of mobile payments. Mobile operators are not required to report transactions to credit bureaus. Challenges in terms of insufficient floats by agents are prevalent. The regulatory framework around protection with tailored approaches have recently been strengthened.

Early-stage innovators struggle to navigate regulation and specifically understanding licensing, what they need to comply to as well as possible partnership opportunities. Often these may not be complex, but the perception of how to go about applications, finding the right information and how to engage with the regulator could be confusing or intimidating. A key message to regulators is to be proactive in establishing processes for engagement and communication. Many jurisdictions are adopting innovative regulatory approaches within a rapidly changing DFS and fintech environment. Innovative approaches include utilizing mechanisms such as innovation hubs, innovation labs, incubators and accelerators and regulatory sandboxes. Understanding the objectives of the different tools is important for implementing the most suitable mechanism.

Innovation Hubs, Labs & Accelerators¹²:

Innovation hubs refers to a specific scheme, via which firms can engage with the supervisory authority to raise questions and seek clarifications or non-binding guidance, whilst innovation labs comprise of public-private partnership to facilitate testing with dummy data in a virtual sandbox. Incubators and accelerators help refine ideas, accelerate growth, and advance maturity.

Regulatory Sandboxes:

A regulatory sandbox is a framework set up by a financial sector regulator to allow small-scale, live testing of innovations by private firms in a controlled environment under the regulator's supervision. It is an alternative, or in most instances complimentary, to the 'test-and-learn' policy approach, designed to be a more proactive, standardized, transparent and published process. It offers different journeys and tools that regulators can choose from which can assist them in speeding up reactions to emerging innovation. The risks of developing a stand-alone sandbox is the focusing of regulatory responses or the shifting of the responsibility of responses to innovation to select individuals. Ensuring a cross-functional management team assist in a more comprehensive understanding, allow for finding a balance between different regulatory aspects and overcome issues of conflicting laws. Shifting thinking on an internal level across departments, however, that results in building practical methods for implementing flexible regulations may be more effective¹³.

¹² DFSObservatory, 2020, The State of Regulatory Sandboxes in Developing Countries, <https://dfsobservatory.com/publication/state-regulatory-sandboxes-developing-countries>

¹³ Gray, J, 2020, Cenfri Interview

Regulatory Sandboxes offer government an opportunity to build technology capacity. A survey study conducted by CGAP and the World Bank Group revealed that “nearly 85 percent of the regulators we surveyed stated that their motivation for setting up a sandbox or other innovation facilitator was to keep up with the markets and to learn about emerging innovations”. It moves towards a more open and active dialogue where each side learn from the other.

It is important to be sure of the hypothesis of why the sandbox is developed and what challenges it will address. In addition to general purpose sandboxes there are thematic sandboxes focused on promoting specific technology policy objectives. Clear transparent eligibility criteria are necessary. As it is a testing environment using live customers, putting measures in place by which market applicants identify ways in which customers will be compensated in the case of harm.

The Financial Conduct Authority “witnessed the denial of banking services first-hand across a number of firms in the first two cohorts of the sandbox. Difficulties have been particularly pronounced for firms wishing to leverage DLT [distributed ledger technology], become payment institutions, or become electronic money institutions”.¹⁴

Regulatory sandboxes can be very costly, and the benefit and risks need to be weighed carefully to justify the expense. The Milken Institute suggests that an industry consultative process prior to and during the development of a sandbox should be followed. This will also assist in the decision of whether a sandbox or other alternative should be considered. CGAP published a technical guide to assist governments with deciding whether a regulatory sandbox is the right solution. The decision process¹⁵ within the guide considers questions such as whether regulation creates uncertainty and if that can be resolved through industry consultation, or with the updating of rules and whether live testing is necessary to make determinations.

The Global Fintech Survey (GFS) found there is insufficient evidence to claim that Regulatory Sandboxes is the most effective approach. Other Innovation Facilitators, such as Fintech Accelerators and Innovation Hubs which have been used instead of, or as a complement to, a Regulatory Sandbox have shown promise of being more effective and suitable to business needs (WBG 2020). Though there are regulatory sandboxes within a few of the six NFI operating countries they are in an infancy stage. Companies operating in and graduating from these sandboxes are extremely limited.

¹⁴ FCA, 2017, Regulatory sandbox lessons learned report, [regulatory-sandbox-lessons-learned-report.pdf \(fca.org.uk\)](https://www.fca.org.uk/publications/regulatory-sandbox-lessons-learned-report.pdf)

¹⁵ CGAP, 2020, How to build a regulatory sandbox: [Practical guide for Policy Makers](#)

Text Box 2: Country approaches – Regulatory Sandboxes

Nigeria: The Central Bank of Nigeria released a regulatory sandbox framework draft for review by stakeholders, June 2020. In November 2019, an industry innovation sandbox was launched. The "Financial Industry Sandbox" is managed by the newly created Financial Service Innovators Association and supervised by the Central Bank of Nigeria (CBN) and the Nigeria Interbank Settlement System (NIBSS) – the result of a collaborative effort. The Securities and Exchange Commission has a proposed sandbox for fintechs and provide assessment forms for interested companies. (DFS Observatory) The Nigerian Communications Commission (NCC) is planning its own sandbox which might cover innovations made by telco's. (Techpoint.Africa)

Rwanda: Draft regulatory sandbox framework November 8, 2017 was issued by the Rwanda Utilities Regulatory Authority (RURA). Riha Mobile Wallet was announced as the first, and so far, only entity admitted to the regulatory sandbox launched by the National Bank of Rwanda (BNR). (CGAP)

Tanzania: The East African Securities Regulatory Authorities (EASRA) was established via a MOU between Capital Markets and Securities Authority (CMSA)-Tanzania, Capital Markets Authority (CMA)-Kenya and Capital Markets Authority (CMA)-Uganda. the regional regulators agreed to employ regulatory sandboxes which provide test environments where innovative products, services, business models can operate, subject to clear conditions on scale and reach, without incurring the regulatory consequences or meeting onerous regulatory requirements. To that end, a sample regulatory sandbox application and evaluation criteria was adopted to guide member states implementation of national sandbox initiatives. (2018) (DFS Observatory)

Zambia: A regulatory sandbox process is by the Bank of Zambia (BoZ) is undergoing an enactment process. The industry innovation FinTech4U Accelerator Programme was launched by the Securities Exchange Commission (SEC) together with UNCDF and BongoHive and governmental partners, the Bank of Zambia and ZICTA. (UNCDF)

Interconnected Interactions

Today’s digital environment creates an instant interconnectedness between people, devices and data shifting the way and level, from one-to-one to one-to-many, with which our interactions take place. This creates a broad and complex ecosystem. The regulator has an important role to play in developing and managing the ecosystem by establishing open dialogue and consultative processes on two levels:

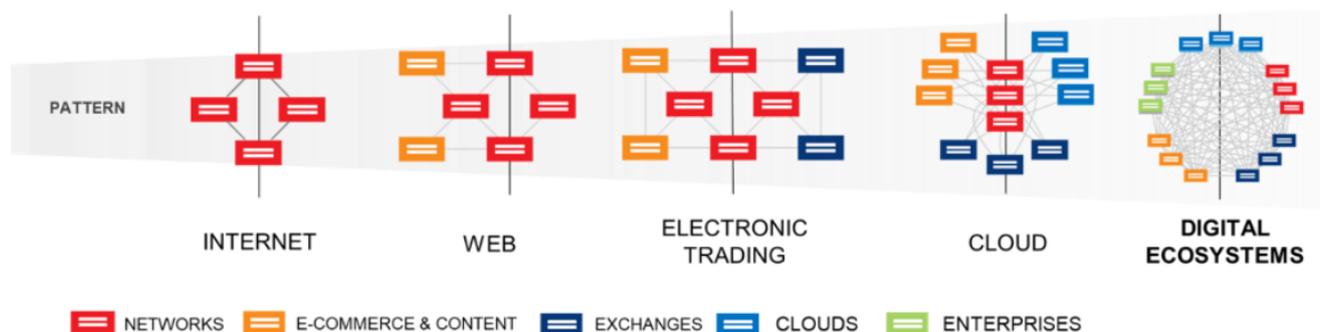
- Building relationships with development and knowledge partners
- Creating an enabling environment within which industry can develop partnerships

Collaboration, user-centric design, and automated ecosystem interaction are key issues for driving efficiencies in the adoption of new technologies and the development of DFS and fintech solutions. Building trust and awareness is the key issue for driving broad-based user adoption, a longevity of product use and increased customer value. Whilst licensing, capital requirements and the broader regulatory environment influences the expansion of market players within the financial sector, it is the adoption of collaborative and coordinated relationships and partnerships that facilitates an enabling environment for product innovation and platform solutions. Collaboration focuses on ensuring goals, strategies, resources, and implementation are aligned and that all stakeholders participate in joint decision making and operate well within an environment where problem statements and interventions are clearly defined. Coordination focuses on ensuring alignment between goals and strategies with implementation carried out separately by stakeholders with maintaining autonomy¹⁶.

Interconnected interactions are moving towards complex ecosystems on two levels:

- Human: New business models from a combination of different stakeholders – government, banking, third-parties, vendors.
- Machine: depicted in the diagram below.

The Evolution of Interconnected Ecosystems



Source: Equinix: [6 Things You Need to Know About Interconnection Now](#)

Collaboration has become more important in the open era as has knowing when to co-operate and when to compete. The Level One Project, a financial inclusion initiative from the Bill & Melinda Gates Foundation, summarises the co-competition approach well. It is one of rules and rails, accounts and apps. Participants collaborate on the rules and rails — the governance, rules and features of the system. They compete on the accounts and apps — the individually-branded products and services sitting on top of the platform. On the one spectrum markets are structured in a way that don’t encourage innovation and on the other spectrum they are too risk averse and don’t encourage trust. In looking at key areas for collaboration, certain services, such as deposits, lending, transfers, and payments are prime for strong alliances. Financial services organizations can leverage their vast account and

¹⁶ APE, 2020, Purposeful partnerships: [Opportunities for different types of interactions](#)

transaction level data to collaborate with fintechs to drive stronger marketing, increased stickiness among products and more insightful financial advice¹⁷. Trust can be harnessed and enhanced through partnerships between banks, MNOs and fintechs in countries where citizens levels of trusts in the banking sector and government are low.

From a digital development perspective there is an array of stakeholders within the financial sector that interconnect and interact with each other. In evaluating opportunities for relationships and partnerships stakeholders should consider whether overlap or interactions already exist, whether more formal partnerships could better advance customer-centric goals, the level of technology involved, and its costs and benefits. There are no one best model to pursue, whether it is a relationship or partnership. The best model will be the most achievable and productive and mutually beneficial to all parties involved and work towards the greater good of the customer.

Relationships

There are different levels at which relationships can take place, which could be international, regional, private sector or inter-agency and different combinations there-of. Development organizations such as the World Bank, USAID and UNCDF plays a big role in terms of assisting governments in building the digitalization efforts of the country through project initiatives such as the MM4P programme and the Digital Economy Initiative for Africa. As knowledge partners and funders, building resources and capacity are key priorities within these relationships. Other organizations such as FSD Africa seek to create a collaborative enabling environment by building relationships between regulatory and industry bodies, and DFS providers. Industry bodies provide an enabling interface between the DFS providers and the regulatory bodies.

The biggest value for creating an enabling regulatory environment that promotes innovation comes from a collaborative and cooperative relationship between regulatory counterparts. Sitbon argues that regulators have a role to play in addressing digital finance competition bottlenecks, which can include 1) connectivity and channel issues, particularly for USSD; 2) agent network issues, such as exclusivity; 3) account-level barriers, such as interoperability; and 4) application-level issues, such as APIs¹⁸. However, the biggest challenges for regulators and policymakers in addressing these bottlenecks lie in 1) determining the right moment of growth to foster change; 2) defining the right positions to facilitate growth; and 3) resolving uncertainty between the roles of banking and telecoms regulators¹⁹. Developing and signing Memorandums of Understanding (MOUs) assist in alleviating the latter. Regulation, other than from a financial and technology perspective, such as tax reliefs, also plays a role in how well organisations' scale. The assurance of quality of data between stakeholders functioning under different regulatory oversight further highlights the need for inter-agency collaboration.

Partnerships

The key to DFS evolution is partnership²⁰. Partnerships are about building stability, ensuring integrity, and working together to reach set goals. The biggest value for driving digital financial services evolution comes from having multiple partnerships with other DFS providers focused on use case and building these out as the market and customer environment matures. These partnership benefits include access to tools and technologies without costly system redevelopment, and the ability to offer a broader range of digital services. It plays an important role in bridging the gaps and divides in knowledge, skills, and resources.

¹⁷ Bank Business, 2020, The Power of Collaboration, [The Power of Collaboration: Financial Services Organizations and Fintechs Working Together to Meet Customer Needs – Bank Business eMagazine](#)

¹⁸ Sitbon, "Addressing Competition Bottlenecks in Digital Financial Ecosystems"; and Mas, "What Is the Telecom's Regulator's Role in Fostering Mobile Money?"

¹⁹ Mastercard Foundation, 2018, Finance Digital Africa: [What is the role of regulation in digital finance?](#)

²⁰ Lonie, S 2018, International Finance Corporation, Digital Access: The future of financial inclusion in Africa

There are many aspects to be considered prior to forming partnerships to avoid risks and challenges. Decisions around ownership, obligations, rules, and communication protocols, monitoring practices, risk management and termination processes need to be in place. Data ownership and sharing practices together with understanding who has which compliance responsibilities is key. How many partners will be included, for example, is there a need for aggregators to play a role in the partnerships. It is crucial to have aligned objectives to ensure mutual benefits to balance transformative change with risks. For example, in Nigeria opportunities for partnerships between solar companies and MFIs have provided more complexity than benefits. What is emerging are new business models which lies somewhere between a true partnership and a vendor relationship.

Partnerships must be done according to the standards and the regulations of the industry. Regulators have focused more heavily on issuing guidance on how new products and new relationships fit into the current regulatory framework²¹. Adherence to third-party regulation and outsourcing regulatory requirements needs to be ensured when forming the partnership. In most instances, regulators require institutions to ensure that third-party activities meet the regulatory requirements. Data protection and competition policies will further affect how the partnership roles and responsibilities are developed, implemented, and managed. Cybersecurity regulation, whether through a single policy or fragmented across ICT policies will affect partnership structures and models. Third-party partners will be expected to ensure processes are in place covering business continuity and incident response risks.

Regulators may require parties to demonstrate capabilities in several areas including a solid understanding of banking risk management and compliance, customer analytics, technology being used and ways in which the partnership advances financial inclusion, as well as how the partnership protects the industry from unfair competition practices and offer consumers dispute and complaint mechanisms. According to Paul Makin, the most common area of discussion for financial regulators is in the choice of scheme type, given the implication for the stakeholders, security and consumers. Often, regulators will err on the side of caution and not allow any MNOs or new market entrants to apply for or obtain licences.

²¹ FAS, 2020, Fintech: [Overview of Financial Regulators and Recent Policy Approaches](#)

Text Box 3: Country approaches – Interconnected Interactions

Inter-Agency Relationships:

Liberia: The National Identification Registry joined the Liberia Technology Authority together with private sector mobile network operators, Lonestar Cell MTN and Orange Liberia, in carrying out strategies to achieve its objectives effected through the signing of a Memorandum of Understanding.

Madagascar: Reflections have already been initiated with a view to setting up a collaborative platform between BFM and the ARTEC.

Nigeria: The Central Bank of Nigeria and the National Communications Commission signed a memorandum of understanding clarifying roles and responsibilities and improving coordination to resolve regulatory overlap in terms of mobile money providers.

Rwanda: The National Bank of Rwanda and Rwanda Utilities Regulatory Authority signed a Memorandum of Understanding to ensure oversight of financial market infrastructures and payment services and shared responsibility on issues of cybersecurity, monitoring of digital finance transaction data and data protection.

Text Box 3: Country approaches – Interconnected Interactions (continue)

International / Private Sector Relationship

Liberia: The USAID is working with the Ministry of Finance and Development and CBL as well as other institutions through their project, the Liberia Economic Policy Dialogue Activity (LEPDA), to assist government with pushing the agenda of economic growth and ensuring financial transparency. The UNCDF, CBL and GSMA partnered to develop mobile money guidelines and established a DFS working group.

Rwanda: The World Bank and IMF prepared a Financial Sector Assessment Program (FASP) report and FinMark Trust implemented the FinScope survey.

Tanzania: Interoperability began in September 2014 with a bi-lateral agreement between Airtel and Tigo, joined by Zantel in 2014 and then Vodacom in 2016. With funding from the Bill and Melinda Gates Foundation and the Financial Sector Deepening Trust, the International Finance Corporation (IFC) acted as project managers to facilitate discussion and agreement and helped provide regulatory, technical, and financial expertise to overcome concerns about technical possibility, competition, and potential loss of their share of the voice and mobile money markets. (FSDT 2019)

Zambia: Two major role players are the UNCDF through the mobile money for the poor (MM4P) project and FSD Zambia. The UNCDF and BongoHive launched the Zambia FinTech4U Accelerator Programme to support FinTech SMEs to develop relevant digital finance solutions for the market. Governmental partners include the Bank of Zambia, Securities and Exchange Commission and ZICTA. FSD Zambia facilitated an inclusive stakeholder meeting enabling collaboration and discussions of existing mobile money regulation to ensure market driven regulatory updates in 2019. They also facilitated capacity building on digital identity for members of the national identity government working group and Smart Zambia.

Partnerships:

Madagascar: Orange Money partnership with Accès Banque Madagascar in February 2019 saw the launch of a nano credit product, Accès Flash offered to all the MNO users with a savings account at Accès Banque to access an interest-free loan amount over 30 days disbursed on the Orange Money account.

Rwanda: Tigo, in conjunction with Urwego Opportunity Bank, launched an interest-bearing savings account on their mobile wallet which offers 7% interest to savers.

Tanzania: In 2014 Vodacom launched M-Pawa in partnership with the Commercial Bank of Africa to offer savings and loans. In 2017, FINCA Microfinance Bank Tanzania partnered with MNO Halotel to offer HaloYako, a mobile savings product offering a free account and airtime bonuses when savings targets are met. (WBG 2020)

Zambia: AB Bank Zambia are integrated with the biggest agent network in Zambia, Kazang and have further partnerships with MTN and Airtel. Zambia allows banks, MNOs, non-banks and fintechs to operate DFS in one form or another enabling the exploration of different partnership models.

Openness: Systems and Platforms

“Openness” encompasses a whole new approach to IT, ranging from open interfaces to entire open ecosystems of developers, businesses, and code²². First a few definitions:

- *Open platform*²³: describes a software system which is based on open standards, such as published and fully documented external application programming interfaces (API) that allow using the software to function in other ways than the original programmer intended, without requiring modification of the source code. Using these interfaces, a third party could integrate with the platform to add functionality.
- *Open systems (Wikipedia)*: computer systems that provide some combination of interoperability, portability, and open software standards.
- *Interoperability*²⁴: The process of combining different systems to enable data sharing, coordinated control actions and unified user interaction.

Open platforms and systems therefore enable its data to be both accessed directly by users and published in open formats. Between a fully open and fully closed system there are many degrees of openness, mainly reflected by the number of third-party technologies that integrates within the system and the ease with which these integrations take place.

Open financial ecosystems and digital financial systems enable government entities, service providers, and consumers to connect between themselves and between each other.

Systems: Open Government & E-Government

The fundamental difference between open government and e-government is their objective.

- E-Government is defined by the World Bank as “the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management.”
- Open Government is defined by the OECD (Organization for Economic Cooperation and Development) as “the transparency of government actions, the accessibility of government services and information, and the responsiveness of government to new ideas, demands and needs.”

“The data made available by Governments can stimulate innovation through people-centric analytics and applications. Providing open data through an online portal can eliminate redundancies and red tape and reduce the time and resources associated with public requests for information”²⁵.

²² Build with Google Cloud, Openness is the future of IT. Here's why, [Interoperability is the upgrade your old IT model needs \(cloud.withgoogle.com\)](https://cloud.withgoogle.com)

²³ Eisenmann, Thomas R. & Parker, Geoffrey & Van Alstyne, Marshall (August 31, 2008). "Opening Platforms: How, When and Why?", [Opening Platforms 090108 v2 \(hbs.edu\)](https://hbs.edu)

²⁴ AEENE, 2016, Open Systems and Interoperability, https://aeenewengland.org/images/downloads/Past_Meeting_Presentations/john_petze_open_protocol_ems.pdf

²⁵ United Nations 2020, E-Government Survey 2020: [Digital Government in the Decade of Action for Sustainable Development](https://www.un.org/en/development/digital-government/survey-report)

Platforms: Open Banking

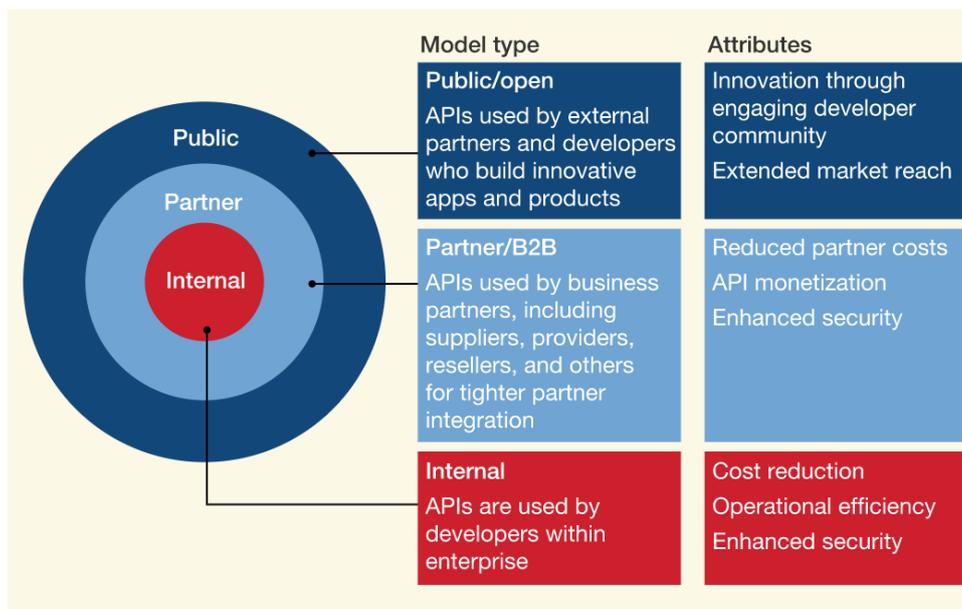
Open Banking is a secure way to give service providers access to a person’s financial information. It is an innovation that allows third parties to build apps and services around financial institutions like banks. For example, a person could connect their bank account to an app that would analyse their spending and recommend a new product like a credit card or savings account to save their money or sign up to a provider which displays all their accounts with multiple banks in one place²⁶. Other services could include allowing third-party providers to initiate payments on a person’s behalf, or for small businesses automating accounting processes with real-time updates of payments or receipts.

Open Banking has the potential to transform not only how banks operate, but how and even why consumers and businesses choose to work with them and will catalyse substantial service innovation²⁷. It increases the connectivity between the players within the ecosystem and reshapes the competitive landscape with the promise of new revenue streams. It increases the customer’s access to a wider marketplace and reshapes consumer experiences of the banking industry.

Open banking encompasses user consent management and data portability and requires secure data exchange solutions and unified data models and consent mechanisms. The use of application programming interfaces (APIs)²⁸ allows the networking of accounts and data across institutions for use by consumers, financial institutions, and third-party service providers. The key premises of the open banking movement are as follows²⁹:

- On-demand, real-time data sharing enabled via APIs
- Permissioned access to any type of transactional, payment, or credit data
- Sharing requests can be initiated by both financial and non-financial players

The **impact of API banking models** depends on the extent and manner of data sharing. There are different API models.



McKinsey&Company | Source: McKinsey Payments Practice

²⁶ Noble, J, 2020, Money Saving Expert, [Open Banking explained](#)

²⁷ Mastercard, 2019, Delivering on the promises of Open Banking, [Mastercard Open Banking Solutions | Mastercard Open Banking Solutions](#)

²⁸ Investopedia, 2020, <https://www.investopedia.com/terms/o/open-banking.asp>

²⁹ Intellias, 2020, Attention to Account Aggregation: [The Benefits and Risks Explained](#)

An example of an internal API model is AccessHolding's move to an API-gearred flexible microservice composition with different software solutions, including an open-source Apache Camel enterprise service bus (ESB), which incorporates increased levels of security and support. An example of partner/B2B APIs can be seen in AccessHolding NFIs partnerships with MNOs such as the MTN MoMo API. An example of open or public API is Facebook's that facilitate their messenger app to be utilized for financial services enhancements.

Developing APIs however can be challenging. Integration of systems can be complicated if some of the stakeholders are using legacy software. Compatibility is further complicated where there is a lack of acceptable standards for development and deployment. Other challenges include vendor lock-in, unscalable custom coding and unforeseen costs. In some cases, banks may need to upgrade their IT strength and recovery systems.

Open banking raises risks related to data privacy and protection. Similarly, APIs raises their own security risks and requirement for security and protection mechanisms. Governments can require the implementation of secure but usable APIs as part of their financial sector policies, as is achieved through the PSD2³⁰ in Europe. For example, in the United Kingdom different services, account information versus payment initiation, require different authorisations.

As governments take the lead incorporating open banking principles within their regulatory frameworks, it will be important to ensure the necessary regulatory authorities and processes are in place including an API or Technical standard setting body and alternative dispute mechanisms. Other authorities can include competition, consumer and data privacy authorities discussed as part of creating a comprehensive regulatory environment.

³⁰ "In Europe the Regulatory Technical Standards on Strong Customer Authentication (RTS SCA) have been in place since September 2019 and are a set of implementation guidelines to help financial organizations ensure strong customer authentication (including multi factor authentication) and common and secure open standards of communication (APIs) to comply with PSD2", Imperva, 2020, [Open Banking Around the World](#)

Text Box 4: Country approaches – Openness: Systems & Platform

Open- & E-Government: The United Nations 2020 E-Government Survey rank countries according to their E-Government Development, the EGDI. The report also ranks open government data development and access among individuals and businesses, the OGD rankings.

EGDI rankings: The six NFI operating countries are in the middle EGDI ranking.

OGDI rankings: LOW - Liberia and Madagascar and MIDDLE – Nigeria, Rwanda, Tanzania, and Zambia.

Open Banking:

Nigeria: Open Technology Foundation (OTF) launched Open Banking Nigeria in 2018, which focus on harmonising APIs belonging to Nigerian banks. OTF together with other companies, including Sterling Bank are helping to create a standard for the country and recently signed a Memorandum of Understanding to promote the development of an independent Open Banking API Gateway. The Central Bank of Nigeria responded and prioritised Open Banking in its Payment Systems Vision PSV 2030 (a briefing document for a new framework in the banking sector).

Rwanda: The Payment System Strategy launched in 2018 provides a regulatory system based on Europe's PSD2. The introduction of APIs in the financial sector is included within the framework, which also supports the implementation of (technical) standards by 2024. The Open Banking regulation covers individual consumers and small businesses and addresses data sharing and data portability with a view to encouraging innovation, efficiency, new products development, and new players.

Zambia: At present there is no national legislation, policy, or initiative covering open data or right to information in Zambia. Zambia provide data to the International Monetary Fund Dissemination Standards Bulletin Board. It does not participate in the Open Government Partnership. The government is scoping open-source software, open architecture, and open interface platforms, for example, for rollout of the National ID. (Zambia world bank country diagnostic report 2020) SMART Zambia has set guidelines to facilitate interoperability among public sector platforms, and government-to-business interoperability with private sector platforms, for example, commercial banks.

Interoperability

Interoperable technology provides the opportunity to move away from operating in silos by providing a common language for financial systems to digitally communicate. The benefits of interoperability are unlocking economies of scale, reducing fixed costs and increasing financial service offerings viability. True interoperability takes place across three levels: infrastructure, cross-system and system-wide. Effective oversight across all three levels is paramount.

System-wide interoperability is dependent on the ability of the two platforms to interact and the contractual relationship between the parties requiring the interaction. It furthermore requires regulatory compatibility. A lack of interoperability can create an environment that result in exclusivity arrangement. CGap identified three broad types of interoperability environments:

- Multilateral agreements among three or more providers.
- Bilateral agreements negotiated between two providers.
- Third-party solutions that connect providers.

GSMA identifies five broad categories that market participants and regulatory authorities can use to assess different interoperable models, two of which are specifically relevant to the regulator or central bank, namely³¹:

- 1) Scalability from a financial inclusion perspective:
 - time needed to develop and launch solution
 - capacity to handle more users and transaction volumes with technical features
 - capacity to incorporate new participants and use cases in standardized and timely manner
- 2) Robustness from an integrity perspective:
 - extent to which the solution allows identification and monitoring of transactions, participants, and end users
 - ability for all users to access the solution at all times and trust the outcomes
 - solution's ability to protect financial data and resist external threats

The concepts of clearing and settlement remain central to the payments industry and liquidity risks, rules and management will be a factor to consider when choosing an interoperable environment. Examples of established payment sector interoperable platforms and standardization includes a central switch such as a national payment switch, real-time gross settlement (RTGS), automated clearing houses (ACH) and payment scheme adherence such as card switches (Visa/Mastercard).

Most countries opt for the implementation of a national switch. A national payment switch acts as the front and back end processor that should be able to handle an unlimited number of devices, networks and host systems. Using a national switch, or other purposes of real-time payments and mobile money, may provide more functionality but putting the infrastructure in place does not result in gaining utility on the ground and there is a legacy of underutilized national switches across Africa. The discussion has changed to how to make these fit-for-purpose in the new instant and open system era³². A shift in focus to a regional level for reducing costs and upgrading systems to enable shared fraud services at network level with tiered identification and KYC are future options considerations.

National switches can be government driven or market-led, either by an industry or legislative body, such as a banking association, or by a group of financial or mobile service providers.

Market-led approaches are often driven by aspects around price sensitivity and the opportunity to influence interchange fees. A switch should support the use-cases of its stakeholders. Peer-2-peer transfers are the most common mobile money use case. Merchant interoperability enabling payments at point of sale and over a shared network offer many benefits, including additional data and behaviour markers, such as consumer spending and electronic evidence. In Madagascar and Tanzania where interoperability was market initiated, there is the possibility of transitioning to a national hub.

Government-led approaches of mandating interoperability through regulation is often driven by environments dealing with new market entrants, such as non-banks. Financial inclusion is often another driver of a national switch. An important point to bear in mind, is that interoperability does not necessarily result in greater access or inclusion.

³¹ GSMA, 2020, The many paths to mobile money interoperability: [Selecting the right technical model for your market](#)

³² Tieto & Payment Industry Intelligence, 2017, National payment systems in the open era

Creating a national switch environment can present many challenges and careful considerations of factors for implementing a switch is required. These include hardware and software requirements, operating rules, business agreements and the choice of developing partner. Other issues that can affect the success or failure of a switch is data formats and security levels of transaction validity. The governments ability to fully implement the system and its functionalities will determine whether it is efficient, or whether additional measures needs to be implemented.

The timing for and benefits of adopting a new regulatory mandated approach and central hub model is debated. There are disadvantages, which could include processing fees and setup costs. And then there are, more complex innovative payment instruments such as using API connections, which can be proprietary or open source, as alternatives to a central switch option. Market conditions, the regulatory environment and approach, technical infrastructure, and collaborative environment play a role in choosing the most cost-effective and efficient solution.

Text Box 5: Country approaches - Interoperability

Liberia: Legislative bodies, such as the banking association, are instrumental in influencing initiatives that affect the financial sector such as the automated clearing house (ACH) systems and the national switch development and implementation. The National switch platform was a particularly good initiative but has failed to go fully live creating delays within the financial ecosystem. In the NFIS 2020-2024 it notes that the “national switch is largely underutilized with no ACH debits and many functions of the switch not yet operational”. The regulation was restrictive in terms of ensuring Telco stakeholders are part of the ecosystem and a separate directive was issued in 2019 allowing FIs to directly interact with them.

Madagascar: Implemented an industry-led (MNO) model facilitated through GSMA in 2016, by entering into bilateral agreements and operating rules.

Nigeria: In Nigeria, interoperability has been mandated. MNOs are required to connect to the National Central Switch (NCS) to ensure interoperability of all schemes in the system. The Nigerian Interbank Settlement System (NIBSS) is responsible for its operation. Fintech companies are advised to approach NIBSS through PSSPs or Banks. Irrespective of mandated interoperability, financial inclusion remains a struggle.

Rwanda: Implemented a national policy on interoperability in 2014 enabling bilateral agreements between institutions. In 2016 the government set out to develop a National Switch which took 3 years and launched RSwitch in 2019. The BNR has licensed 2 Payment System Operators (PSO) which also include VISA Rwanda Ltd. PSOs are defined as entities that operate/own payment systems and may be BNR, commercial banks, MFIs, switches, telecoms or other entities. The ongoing Rwanda National Digital Payment System project is implementing a layer for an open application programming interface that would enable fintech start-ups to interact securely with the platform.

Tanzania: Implemented harmonization of all mobile-money platforms through the National Switch Interoperability Agreement by the Tanzania Communication Regulatory Authority (TCRA). Developed between DFS providers, scheme rules and revenue sharing models were established and negotiated. The interoperability increased transaction numbers for all parties. This model reflects that mandates from a CB or regulator are not necessary to achieve interoperable successes. Tanzania is transitioning to regulatory mandated interoperability requiring connection to the national payment switch, TIPS.

Zambia: The introduction of the National Financial Switch (NFS) by the Bank of Zambia which puts together all banks, non-banks, card issuers, MNOs, agent networks and non-bank wallets levelled the playing field. The NFS platform allow instant interactions for example instant bill payments, cash-in and cash-out for agents and wallet to wallet transfers. The only restriction with the switch currently is that money cannot be moved from a wallet to a bank account. The BoZ is working on enabling this. FSD Zambia worked with the BoZ to establish a Payments Association to provide an environment within which small Fintech players, who are unable to meet the relevant requirements on their own, can also participate on the switch.

Intelligent Adaptive Architecture

Innovative customer-facing elements and increasing regulatory changes create the need for agile back-end processes and adaptive architecture for both the institutions and the regulators supervising them. There is a need to address common challenges such as siloed data, turning legacy systems into layered models, a lack of visible and accurate insights and insufficient compliance management. Innovative customer-facing elements and a need for agile back-end processes and adaptive architecture are propelled by technology developments, bringing forth an opportunity for greater efficiency as well as new risks.

Despite seeing a lot of progress in the quantity and quality of financial sector regulatory reforms to enable new players and technology to enter the ecosystem, reforms to deal with emerging risks still needs to evolve, especially within the developing world. New levels of risks and vulnerabilities include:

- Privacy and Security, where the proliferation of data points create ingestion, storage, access control, sharing and protection level risks
- Infrastructure, with scalability and hosting, such as cloud services bringing about vulnerabilities
- Automation, where the use of artificial intelligence such as chatbots and neuro-linguistic programming for front-end services and machine learning for back-end processes generate risks on multiple levels
- Financial Intelligence, where increased gathering through analytics moving into big data technology application, business intelligence tools incorporating scenario analysis and compliance aiming to produce real-time monitoring cause new vulnerabilities

Many countries are still confronted with scenarios where the vulnerabilities and risks related to these issues are not addressed at all or a fragmented approach exist, consisting of several different policies, regulations and legislation. Regulators need to create an enabling framework to mitigate these new risks and vulnerabilities by creating national strategies, regulations, laws, and standards focused on the following areas:

- 1) consumer – data privacy and personal information protection;
- 2) institutions – data security, information sharing and competitiveness;
- 3) country – cyber protection and security.

Privacy & Security

Financial institutions and Mobile Network Operators are drowning in customer data and cumulating it daily, whether it is a debit/credit card swipe, an online bill payment, a wallet transfer, a loan application or every ACH. As digital financial services evolve and institutions implement new technologies for delivering them, there is an increase in the collection of additional alternative data, such as IP addresses, location details, personal preferences amongst others, and is seeing an increasing collection of personal identifiable information. Digital data analysis provides an opportunity to identify new solution or services and revenue opportunities. UNCDF has discovered the critical role of data in, not only driving increased financial inclusion, but for the larger Digital Economy within Zambia and the other 40+ Least Developed Countries³³.

Ensuring protection and privacy of the data and its use is paramount for financial integrity and stability. In 2018 the European Union (EU) implemented the General Data Protection Regulation (GDPR), a single law to protect the data of all EU citizens enforced on all organizations, regardless of location, that collects or processes personal data. Since then, many countries have embarked on developing country specific data privacy laws. Other laws within the regulatory environment that affects data privacy is the constitution of the country and freedom of information laws. Data privacy laws generally details aspects on what personal data is, such as biometrics, the rights of the data subject, such as access to and consent of data use, and collection and processing requirements. The challenge in some countries is the enforcement of the law due to a lack of establishing an independent regulatory body.

Beyond privacy and protection, data ownership, geographical location and jurisdictional aspects needs to be considered. This gives rise to laws and requirements on 3 levels³⁴:

- Data sovereignty: businesses must comply with local data protection laws on collection, processing, and storage.

³³ Nandini Harihareswara, UNCDF 2019, Introducing the DFS Data Automation System: [Bank of Zambia and UNCDF's data automation solution](#)

³⁴ Permission, Data Privacy, <https://permission.io/blog/data-residency/>

- Data residency: a government body, industrial body, or business simply specifies the geographical location where it stores its data.
- Data localization: refers to keeping the data of businesses within the borders of a country.

It may be deemed that data residency laws do not support the move towards open systems, and rather result in “overriding disadvantages for local consumers, industries, technological development and job markets”, Lothar Determann, Partner, Baker McKenzie. International treaties like the Transpacific Partnership Agreement (TPPA) expressly commit member countries to refrain from enacting data residency laws or local data center requirements³⁵.

As countries focus on data centre projects, creating e-governments and explore open banking, fintech players and products evolve and traditional institutions become increasingly digital, there is an increased need to establish stronger cybersecurity frameworks. Many countries still rely on old laws which was established prior to the fourth revolution. Embarking on establishing regulation and guidelines and the use of international standards is a key priority. Governments need to take the lead with a national strategy to guide all stakeholder within the financial sphere.

Text Box 6: Country approaches – Adaptive Architecture: Privacy & Security

Liberia: The CBL issued the Cyber Security Policy, a formal set of rules through which authorized users of the different technologies and systems are governed.

Madagascar: Issued a data protection law (DP law) in 2015 but the data protection authority, the Commission Malagasy sur l'Informatique et des Libertés (CMIL), has not yet been established. Also issued a dedicated Cybercrime Act.

Nigeria: Released a data protection regulation (NDPR) in 2019, but has not set up an independent regulatory body, instead tasking the National Information Technology Development Agency (NITDA), who issued the regulation, with enforcement and has also issued a dedicated Cybercrime Act.

Rwanda & Tanzania: Issued a dedicated Cybercrime Act

Zambia: Gazetted the Cyber Security and Data Protection Bill during May 2020.

Infrastructure

Financial institutions not only collect but need to store and maintain and have continuous access to voluminous amounts of data for different lengths of time depending on regulatory requirements. In addition, institutions need to organize information such as customer, client and vendor data for storage in different databases. This can require large internal servers, additional storage capacity and several technologies enabling access and control. To effectively manage this infrastructure, institutions may opt for cloud services. The European Banking Authority defines cloud computing as “a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

³⁵ World Economic Forum, 2020, Article: How data residency laws can harm privacy, commerce, and innovation - and do little for national security, <https://www.weforum.org/agenda/2020/06/where-data-is-stored-could-impact-privacy-commerce-and-even-national-security-here-s-why/>

Cloud (virtual communication platform) services is a complex topic which differentiate between cloud computing (processing of data such as data mining) and cloud storage. Both have different models that can be implemented, and both can require the use of a third-party, namely a Cloud Service Provider (CSP). The CSP bears all the set-up, maintenance, updates and security management responsibilities and costs. The CSP services may be available on three different levels: 1) public cloud, 2) community cloud and 3) private cloud. Sometimes a combination of these, a hybrid cloud, may be used. Different cloud service models include 1) infrastructure as a Service (IaaS), 2) Platform as a Service (PaaS), 3) Container as a Service (CaaS) and 4) Software as a Service (SaaS).

The cloud's essential value lies in its ability to connect people, tools, and systems — in real time, from any Internet-enabled device³⁶. The cloud's key benefits lie in its ability to enable banks to improve their agility, drive innovation by tapping into cutting-edge technology and leverage industry-specific solutions, for example³⁷:

- Integrated decision-making through data sharing
- Deepening and sophisticated analytics through connected data sets and shared platforms
- Gaining ability to replicate data and app services across more than a single data center or region
- Enhancing companies' overall resilience to respond more quickly to physical outages, disruption, etc.

Regulators need to evaluate the complexities involved in the “shared responsibility model” that exists between a cloud customer and the CSP to ensure oversight and controls. Currently only a few firms can provide data storage and processing services, which causes some concern about concentration risk and operational risk should any one of these service providers fails³⁸. The US Federal reserve noted that “the majority of cloud services already have well-established redundancy protocols in place”. In 2019 though, the Financial Stability Board (FSB) noted concerns about concentration risks and encouraged regulators worldwide to review national regulatory frameworks for appropriate oversight³⁹. In many instances the initial response by governments is to treat these arrangements the same as other outsourcing contracts, under the same rule-same risk approach.

Unauthorised processing, transfer and even sale of data are risks that require security standards, processes, and governance. As these risks increased and the reliance by financial institutions on cloud services grew, governments adopted their approach moving to a test-and-learn approach requiring institutions to seek approval from the respective supervisory body for the use of cloud services or allowing use without approval if applicable conditions are met. Other approaches include imposing one or a combination of the following measures⁴⁰:

- Data localization rules that restrict transnational data flows
- Prohibition from using the cloud even for noncritical data or functions
- A requirement to replicate all cloud data on in-country infrastructure
- Detailed system, infrastructure or encryption specifications that may quickly become outdated
- Local staffing and data center requirements on the cloud provider

Where cloud deployment is embraced by governments there is a greater opportunity for institutions to utilize cloud service models as part of their business operations. The Genesis Analytics report, *Cloud Banking in Africa: The Regulatory Opportunity*,⁴¹ urges African regulators to develop clear policy positions and regulations on data privacy, risk and security; data sovereignty; cybercrime; protection of intellectual property; vendor risk; and migration complexity as well as operational risk, to enable financial institutions to reap the benefit of cloud banking⁴². Given

³⁶ Build with Google, Infrastructure, [Interoperability is the upgrade your old IT model needs \(cloud.withgoogle.com\)](https://cloud.withgoogle.com/interoperability/)

³⁷ Deloitte, Perspective: [Cloud banking: More than just a CIO conversation](#)

³⁸ BIS, 2020, The digital economy and financial innovation

³⁹ JDSupra, 2019, [FSB Concerns Over Cloud Concentration in Financial Services Continues](#)

⁴⁰ CGAP, 2019, Regulator's Friend or Foe? [Cloud Computing in Financial Inclusion](#)

jurisdictional issues of data privacy and localization laws, collaboration and coordination between authorities on both regional and international levels are required.

Adopting cloud services can be a costly exercise and a cost-benefit analysis, which will include costs related to regulatory non-compliance needs to be conducted. Accessing data, capacity stored, retrieval frequency, network bandwidth, size of datasets, data migration and disaster recovery are all aspects that play a role in determining costs. It may not make good business sense to adopt cloud services, even if regulation is supportive thereof.

Automation

Automation is the use of technology to turn manual processes into computer driven processes. This may sound simple, however, understanding what activities can be automated and through which applications are key. It is also important to consider that automation does not necessarily remove the need for human interaction, but rather streamlines and creates efficiencies around functions.

The implementation of automation solutions is estimated to enable businesses to save up to 70% on operating costs, experience fewer errors and have faster turnaround times, however they also generate a different set of risks. Some technologies used for finance automation include:

- Document automation: logic-based systems that use pre-existing text and/or data segments to compile a new document.
- Machine Learning: algorithms that learn from past transactions and customer decisions, perceive decision-making patterns, and use these patterns to make future choices, by for example running simulations.
- Conversational agents and Chatbots: a two-way conversation between a human and a computer using natural language processing (NLP) and machine learning.

According to a Juniper study, the use of chatbots will save banks up to \$7.3 billion worldwide by 2023⁴¹.

Chatbots can handle customer queries and communicate information, such as reminder of payments thereby enhancing service delivery. At the same time, they can collect customer data, such as for loan applications and run credit checks, analyse spending habits, and provide financial advice, such as savings plans. It is paramount for the customer to understand that they are interacting with a machine assistant and not a human virtual assistant through live chat. Only a few banks in Africa has started using chatbots.

The extended value of social media is integration with DFS through the use applications such as Facebook Messenger Pay. Users of Facebook Messenger can transfer money to their friends without leaving the service. Messaging platforms is an ideal environment for chatbots. Facebook Messenger and Twitter have integrated services with banks. And the eventual launch of the developer WhatsApp API will enable integration on their platform as well. In 2018, Orange Money partnered with a fintech, Teller, to develop Africa's first mobile money chatbot, MoMo. MoMo is an SMS-based financial assistant that helps customers learn how to open an account, look up fees, check their balance, and access customer service. A major challenge of any chatbot using natural language processing is training it to understand incoming messages, including typos, shorthand, and emojis. For example, think about how many ways there are to say your account is blocked: "My login isn't working", "I can't access my account", "I forgot my password", "I need to reset my PIN", etc. To deal with this issue, Teller slowly

⁴¹ Juniper research, 2019, <https://www.juniperresearch.com/press/press-releases/bank-cost-savings-via-chatbots-reach-7-3bn-2023>

expanded access to test groups, before launching to all users. This ensured that manual reviews and training of MoMo to understand new messages and get smarter⁴².

The biggest concern over using a social media platform within the financial sector is the issue of data protection, and the larger concern of competition, specifically the potential for creating monopolies if partnerships between the social media company and other large companies, such as Mastercard is formed. Brazil suspended WhatsApp Payments shortly after its launch due to these concerns, however subsequently announced it will be accepted during a normal regulatory process given that concerns has been mitigated. WhatsApp Pay has been tested in India for just over 2 years but is yet to receive regulatory approval to expand services nationwide. Facebook highlighted secure encryption systems, layers of hardware and software protection and a payment system separate from the social network. Further safety measures are the responsibility of the user, and whilst smartphones offer the options of FaceID or TouchID, penetration of smartphones in Africa is still fairly low. Another challenge for users is the lack of recourse for payments erroneously made.

Chatbots also brings its own set of risks, such as errors of interpretation or incorrect transaction executions. On the other hand, it can be used to identify fraud and issue alerts through monitoring and recognizing warning signs in activities. Chatbot technology must address the issue of privacy and security. Systems that can anonymize or pseudonymize conversational data, channels that support end-to-end encryption and bots that present privacy statements are factors to consider and implement to ensure compliance with data privacy and cybersecurity laws and standards. Although implementing chatbots is still in its early stages, it shows potential to reinvent customer services, but it must be done in conjunction with automating risk, fraud, and compliance processes.

Text Box 7: Country approaches – Adaptive Architecture: Infrastructure & Automation

Infrastructure:

Rwanda: The Central Bank of Rwanda denied approval to the cloud-based solution of AB Bank Rwanda requiring processes to be revised.

Tanzania: Cloud service model adoptions: IaaS and PaaS: IBM is supporting the Government of Tanzania with the implementation of cloud computing solutions. SaaS: Rubikon has provided support to Efatha Bank Tanzania for the setting up of cloud computing infrastructures.

Zambia: The Bank of Zambia issued policies on data protection and cloud computing. Approval for cloud services were denied for AB Bank Zambia requiring adjustment of processes.

Automation:

Madagascar: AccèsBanque will be the first bank in the country to use a chatbot developed for its Facebook Messenger application to offer financial information for its clients which allows account statements, checking balances, performing peer-to-peer transfer and pay utility bills.

Nigeria: United Bank Africa has unveiled an interactive chatbot, Leo, that enables customers to make use of their social media accounts to carry out transactions. Leo has had over 35 million conversations and processed over 500,000 transactions. (NextBillion 2018)

⁴² Teller, 2019, TELLER CUSTOMER CASE STUDY: MoMo: The Orange Money Digital Assistant, <https://www.financedigitalafrica.org/wp-content/uploads/2019/02/Teller-Case-Study-1.pdf>

Financial Intelligence

Decisions on (macroprudential) regulation – including the decision whether to regulate – require good and reliable data as an input for surveillance work⁴³. Financial Intelligence is the proactive detection and recognition of insights and patterns of financial risks, crimes and related transaction flows using the data collected by financial institutions and regulated entities. Data in raw form has little value. The use of analytical technologies is necessary to turn raw data into a meaningful decision-making tool that can facilitate risk management and processes for complying with regulatory requirements. Equally, supervisory bodies must create financial intelligence from data submitted by institutions and entities to inform national risk assessments.

Managing risk and compliance processes is regulated through anti-money laundering and counter-terrorist financing (AML/CFT) regulations issued by the Financial Action Task Force (FATF). FATF adopt a frequent update approach to recommendations and standards by analysing risks and challenges of new technologies and products and services as they evolve. Key updates include e-money, cryptocurrency, crypto-assets and the latest a focus on digital identity.

Countries develop and implement national AML/CFT laws depending on their country risks and must update these in accordance with FATF updates. A key shift was the move from a rules-based approach to a risk-based approach. From the perspective of countries, there is the revision of regulations and a shift towards an independent supervisory body, and FIU / FIC. Establishing FIUs provide the opportunity for countries to join the Egmont group of FIUs which will provide support in expanding and systematizing the exchange of financial information across borders. FIUs are often seen as a threat rather than a protector of financial service environment. Similarly, governments are often extremely cautious with national AML/CFT regulation development because of the FATF Mutual Evaluations and possible economically exclusionary consequences for non-compliance.

The FATF AML/CFT framework is data intensive and has significantly change the analytics of financial institutions and their supervisory bodies. Utilizing RegTech and SupTech technologies enable advanced and enhanced continuous processes through the entire value chain from customer onboarding, to transaction monitoring and information flow, to detecting risks and suspicious behaviour to reporting. Some technology examples include:

- Electronic data warehouses and data lakes for advanced storage and analysis mechanisms
- Combining structured and unstructured data for big data analysis
- Real-time data streaming to facilitate monitoring in real-time
- Business Intelligence (BI) tool and dashboards
- Supervisors are rethinking how they regulate and supervise existing and new market entrants and deal with the increase of new and alternative data. One priority approach that is increasing is the use of risk-based regulation and supervision.

The fundamental challenge is that these solutions often highlight illicit financial flows and other forms of financial crime, which can lead to not only negative consequences for the institution, but also for government creating challenges in terms of political buy-in. Their benefits lie in the immediate data analysis and consolidation capabilities and trade and partnership avenues they open up and the focus needs to be on implementing foundational RegTech and SupTech capabilities.

Another priority approach is the move towards linking directly to institutions information systems for real-time monitoring and automated reporting. Changes on the side of the supervisor often has a knock-on effect on the institution with cost implications and the requirement for access to skilled personnel. The *'FinTech, RegTech and*

⁴³ BIS, 2020, The digital economy and financial innovation

the Role of Compliance Report 2020' noted that 31% reported a lack of budgetary support for RegTech, up from 25% from 2019.

Text Box 8: Country approaches – Adaptive Architecture: Financial Intelligence

Madagascar: There is the acquisition of Bank Supervision Application (BSA) banking supervision software to: 1) collect, control and operate automatically the financial information transmitted periodically by electronic money institutions (operational with BFM) and 2) manage banking supervision activities (regulation, approval, inspection of establishments). (AACB, 2019)

Nigeria: The Central Bank of Nigeria (CBN) and the Nigeria Inter-Bank Settlement System Plc (NIBSS) requested a partnership to redesign their payments data infrastructure and better convert voluminous raw data into easily digestible insights, creating a so-called "data stack." The new data infrastructure will consist of a transactional data warehouse and dashboards for CBN and other stakeholders to access, visualize, and digest relevant payments data. The "data stack" will allow Nigerian authorities to guide supervision more effectively, assess financial inclusion, monitor competition, and generate richer open data sets for public and private use. (R2A 2020 – Nigeria Data Stack)

Rwanda: The National Bank of Rwanda uses an electronic data warehouse (EDW) to "pull" data directly from the IT systems of more than 600 supervised financial institutions and performs transformations on them to meet reporting requirements for internal and external users. The system not only aims to streamline data collection and reduce the regulatory reporting burden for financial institutions, but it also aims to provide BNR with additional, more granular data to track progress on financial inclusion. A data dictionary was developed, and each financial institution was required to write data scripts that would map the data dictionary to the information in its own systems. (BIS 2020)

Parliament recently revised its AML/CFT regulations with government deciding to establish an independent body and will now see the establishment of an FIU for the first time

Catalytic Opportunities

Catalysts that propel financial innovation can take on different forms. A decade ago, we saw how financial inclusion became a catalyst for digitalization within the financial sector. This spurred the development of fintechs, but largely left behind financial institutions. Finance Minister Nirmala Sitharaman of India said: "At this stage, the catalysts for economic revival, the catalysts who have the pulse of every one of their customers, are banks". The change in business models, through embracing collaborative relationships and adopting partnerships, goes hand in hand with shifting a catalyst into a tool of positive growth and change.

Catalysts that are front and centre at this time, include:

- Covid-19: The pandemic with lockdowns may have brought on an economic crisis, but it is a catalyst that breathes new life into rapid policy adaptations within the financial sector.
- National and digital identity technology: The catalyst for unlocking inclusivity, sits at the interface between the power and prerogatives of the institutions and the rights and needs of individuals⁴⁴.

Covid-19

The long-term impact of covid-19 pandemic is the strengthening of the resolve that digital technology adoption and infrastructure enhancements on a national level from within government and through government will in turn result in opening doors for regional and global involvement and accelerate future ready financial sectors. It highlights the need for greater collaboration between big companies and start-ups as well between B2B organizations to better facilitate innovative products. It brings to the fore banks' resilience strategies and their ability to contribute to a bank-supported economic recovery.

The short-term impact highlighted the central role of the financial system and its regulatory environment and the importance of a government and financial institution integrated relationship model. Governments had to implement a range of policy measures to stabilize monetary policy and ensure ongoing fiscal strength and to assist the financial sector, the development of the SME sector and growth of adoption and use of digital channels by customers. There are a variety of trackers related to covid-19 responses, each with their own specific focus, such as [GSMA mobile money regulatory responses](#), [AFI Policy response tracker](#), [KPMGs Government Stimulus tracker](#), [Milken Institute Africa Watch](#) and the [IMF Global Policy tracker](#). These highlight some key interventions that include:

- Policy rate reduction
- Exchange rate measures
- Capital requirement reduction
- Liquidity support measures
- SME finance support measures
- Loan deferral or refinancing frameworks
- Digital Finance: Fee waivers & transaction limit increases
- Flexible KYC & onboarding
- Promoting digital electronic payment and services (providing incentives to pay for goods or services digitally, through mobile money or e-wallets)
- Promoting interoperability and fast-tracking regulatory innovation approaches, such as regulatory sandboxes

⁴⁴ USAID, 2017, Identity in a digital age: Infrastructure for inclusive development, <https://www.usaid.gov/digital-development/digital-id/report>

Many of the measures placed a large part of the responsibility on financial institutions, such as the moratorium on loan payments and direct capital injections in companies to strengthen solvency⁴⁵. Financial institutions, furthermore, had to make provisions to absorb potential losses and adapt systems to ensure an increased capacity to deliver financing quickly and strongly and increase risk analysis capacities. This were further affected by the defining of essential and non-essential businesses:

- In most countries banks and ATMs remained opened with restrictions in terms of staffing and service delivery times.
- Remittances remained essential and digital delivery services, such as online and app services became more mainstream.
- Agent networks were more severely affected given the diversity of services they deliver. Dedicated financial services agents could be clearly classified as essential. In many countries though, agents delivering a broader range of services were often closed based on the non-financial services offered, putting at risk customers seeking financial services in rural or remote areas.
- Microfinance clients with loans were adversely affected due to closures and non-operations. This affects the liquidity levels of financial institutions focused on microfinance.

One of the lessons of the crisis is “that there is a rapidity with which liquidity can disappear and that building banks’ capital is not optional but a requirement⁴⁶”. In addition to operational threats covid-19 highlights the need for regulatory frameworks needed to respond to emerging threats of fraud, data privacy and security and financial intelligence (AML) and customer due diligence (CDD).

⁴⁵ Santander, 2020, Governments and banks in the COVID-19 crisis, <https://www.santander.com/en/press-room/insights/authors/governments-and-banks-in-the-covid-19-crisis>

⁴⁶ McKinsey, 2020, [Banking system resilience in the time of COVID-19 | McKinsey](#)

Text Box 9: Country approaches – Covid-19 policy measures

Liberia: The central bank decided to reduce the monetary policy rate from 30% to 25%. Fees on P2P, B2W and W2B transfers and merchant payment transactions were waived. Daily transaction limits for using mobile money were increased.

Madagascar: The government implemented measures by providing a A420 billion liquidity injection and access to credit for viable companies and simplified procedures to open individual e-money accounts to facilitate cash transfer payments to vulnerable populations.

Nigeria: The Central Bank of Nigeria put in place measures that reduced its policy rate by 1 percent to 11.5 percent and for a reduction in the interest rate on intervention loans from 9% to 5% and regulatory flexibility for banks to restructure facilities in the affected sectors. The central bank has injected liquidity into the banking sector to protect jobs, stimulate local economic production and the process of import substitution. Nigeria's First City Monument Bank and Access Bank Plc each secured a USD 50 million loan for SME lending and liquidity purposes, with Zenith Bank Plc securing a USD 100 million loan to strengthen its support to clients and businesses whose cash flows have been disrupted. MTN Nigeria waived fees for local money transfer services. CBN barred operators of Payment Service Banks (PSBs) from accepting foreign exchange deposits and to accept any closed scheme electronic value (airtime) as a form of deposit or payment, issuing a circular to banks, telecoms and MMOs that emphasized that PSBs are not allowed to grant any form of loans, advances and guarantees (directly or indirectly).

Rwanda: The National Bank of Rwanda (BNR) announced measures that included the extension of liquidity facilities (funds of 50 billion Rwandan francs) for distressed banks at the BNR rate, with a validity extended to 3, 6 and 12 months and lowered the reserve requirement ratio by 100 basis points to 4 percent. They also made recommendation of digital channels and mobile contactless payments to banks and financial institutions: zero charges on all transfers between bank accounts and mobile wallets; zero charges on all mobile money transfers; zero merchant fees on payments for all contactless point-of-sale (via mobile) transactions and an increase in the limit for individual transfers using mobile money wallets, from RWF 500,000 to RWF 1,500,000

Tanzania: The Bank of Tanzania (BoT) introduced policy measures that included lowering the statutory minimum reserves requirement from 7% to 6%, reducing the discount rate from 7% to 5% for banks requiring additional funding and provided regulatory flexibility to banks and other financial institutions that will carry out loan restructuring in a transparent and impartial manner as well as made recommendations to mobile money operators to increase daily transaction limit to customers.

Zambia: Bank of Zambia reduced the policy rate by a further 125 basis points to 8 percent. A medium-term refinancing instrument (10K billion) and open market operations to provide short-term liquidity to banks and a decrease in processing fees for the Zambian Interbank Payment and Settlement systems. Recommendation of zero charges for P2P transfers of transaction up K150. The limits by agents have been revised upwards to give agents more float to deal with transactions.

National and Digital Identity:

The UN SDG is to have a legal identity for all by 2030 clarifying further that all people must have access to proof of their legal identity, giving 9 years to achieve this mammoth task. Identities that are trusted is a vital component of a well-functioning inclusive society. The OECD sees inclusiveness as governments fostering better conditions for all people to help create a world where all people have access to opportunities for a better life.

An authoritative (trusted) data source for identity is a repository or system that contains attributes about an individual and is considered to be **the primary or most reliable source** for this information⁴⁷. Governments are considered the authority that issue people with a legal identity and verify these identities based on the attributes collected. These legal identities can range from birth certificates, drivers' licenses, voter cards, passports to a single national identity. Many governments within the developing world currently have no national identity system in place, whether paper-based, partially- or fully digital, or have an inefficient system at best.

Governments are moving towards building digital identities as a foundation for new services, and to support people and businesses. Digital ID is a key building block for platforms and systems for public service delivery, civil service personnel and payroll management, taxation and fees for public service. These digital IDs can not only identify people, but also reduce the administrative burden for beneficiaries and facilitates service access from multiple channels⁴⁸.

The government needs to act as a catalyst by paving a policy roadmap and putting in place a digital ID strategy to provide goals, priorities, and mechanisms for change where challenges are experienced. Building a digital economy and digital financial services are underpinned by an inclusive digital identity (ID) system. An identity ecosystem is made up of government and private sector ID systems. Success is not a given, and adoption can be paved with complexity and difficulties. Learning lessons from other countries and schemes are paramount:

- Developed country programs include UK Verify launched in 2016 and started in the digital authentication area relying on the private sector, including financial institutions. The program was set for termination due to many challenges, but then received renewed government funding to continue operations during covid-19, which saw greater adoption from citizens.
- Developing country programs include the India Aadhaar system, one of the most successful identity programs of inclusivity and in terms of social protection, however highlighted the issues of data privacy and security, with court cases around constitutional rights.

“While governments will obviously play a large role in digital identity systems, it is essential that there be collaboration with private sector organizations to define best practices, identify the best technologies and implement the best policies for these infrastructures”. Kate Eagle, Director of Ecosystem Engagement, Digital Business Unit at IDEMIA

Before designing ID systems, it is important to understand what it is: *“Digital ID systems are those that use digital technology throughout the identity lifecycle, including for data capture, validation, storage, and transfer; credential management; and identity verification and authentication”* (ID4D World Bank). Inclusive and trusted foundational ID systems can serve two important functions:

- Verified, unique identities: Provide an ‘authoritative trusted digital source of basic, government recognized identity information
- Digital credentials & authentication: Allow users to securely prove their verified identities for public and private transactions

The challenge is about creating a non-competitive efficiency base identity utility with sufficient scale to reduce costs. Once that is in place there can be competitive solutions layered on top, verification and credentialing, as a value-added space. A system of identity proofing is most optimal. If there are foundational national identity

⁴⁷ FICAN-BnBuckler: Github, Streamline Identity Management Playbook, [Step 2 - Identify Authoritative Data Source\(s\) - Streamline Identity Management Playbook \(bnbuckler.github.io\)](#)

⁴⁸ World Bank, GovTech: Putting people first, <https://www.worldbank.org/en/topic/governance/brief/govtech-putting-people-first>

systems in place, they can be used within this system, but should not be seen as a necessity. Identity ideally is a risk-based system linking identifiers, activities, proxy identifiers onto a single identity allowing for identity to be proven over time and through this create a robust identity proofing system. This will allow for behavioural patterns to serve as an early warning system of identity abuse and fraud. An option is to enable access and interoperability across the different identity systems already built up by governmental, financial and other players with the necessary user consent driven mechanisms in place. This level of access and data sharing again emphasises the importance on having the necessary data related safeguards in place.

FATF released its Digital ID draft guidance on the topic of relying on digital identity to provide clarity on a whether a particular form of digital ID can meet the standards of KYC/CDD requirements, that is, of being both reliable and independent. This includes thinking about outcome-based frameworks by which they can certify, audit, and assure the levels of reliance. International standard setting processes like ISO29003 creates a basis which individual governments can use to make these assessments. The FATF guidance process is heavily weighted to whether **government has authorized a digital ID system.**

Text Box 10: Country approaches - Identity

Liberia: Liberia enacted the National Identification Registry Act in 2011, and in 2017 begun issuance of the biometric card. The registry process facilitates the creation of a web platform that will be the only way to identify citizens by accessing their National Identification Card, incorporating biometrics and electronic signatures but not yet smartcard technology. The platform has been developed but still needs to be rolled out. This real-time identity verification can lay the groundwork for digital identity providers to enter the ecosystem.

Madagascar: In 2017, the country adopted a National Strategy for Civil Registration reform, informed by a Civil Registration & Vital Statistics assessment in collaboration with UNICEF and AfDB, and an Identity Management System Assessment (2015), in collaboration with the World Bank ID4D initiative. Political instability delayed prioritization since 2004. With support from the WB-financed Public-Sector Performance Project (P150116), the Malagasy Government created an inter-ministerial group to work on digital government solutions to drive the outcomes of identity management within the country.

Nigeria: The National Identity Management Commission (NIMC) was created in 2010 to issue the National Identification Number (NIN) card. The process is fraught with challenges, such as lengthy time frames to obtain the cards and complaints of not having an e-ID upon receiving the card. There are other functional IDs, such as the BVN and voters' IDs which is use case driven. Different IDs are not harmonised nor interoperable.

Rwanda: The government issued the integrated eID cards through the National Identification Agency (NIDA), which carries a much higher cost than the baseline ID card, but it is optional rather than mandatory. Rwandan AI firm Digital Umuganda is developing speech recognition software for Rwandan which could be incorporated in biometric verification processes. A World Bank study on the state of identification in Africa published in 2017 found Rwanda to have an overall advanced system based on the criteria: Coverage, Robustness, Integration, Legal Framework. A National Identification system is being drawn on by all financial institutions to easy e-KYC and online authentication.

Tanzania: The National Identification Authority (NIDA) launched the project for National ID card (NID) in 2013. The project suffered many challenges and was refocused to increase the National Identification Number (NIN) with biometrics. It suffered corruption practices with officials suspended. 53 institutions have signed a MoU to access Common Interface Gateway for authentication services through API. (NIDA-2018)

Zambia: The national identity government working group and Smart Zambia is working on the INRIS Biometric identity project. Government plans to begin the enrolment exercise and commencement of the electronic civil registration of all citizen's demographic and biometric attributes countrywide. This is in readiness for issuance of the biometric enabled digital National Registration Card (NRC), or an electronic identity document. Through the G20 Argentina Presidency, the G20 has offered to support some of the initiatives on digital on-boarding.

Conclusion

The digital evolution in the financial industry is prolific. Front-end innovation, the underlying technology and the risks associated with ecosystem environment changes such as the management of data, establishment of new business models, emergence of alternative user interfaces and experiences and rapidly expanding infrastructure affects the government and its ability to ensure stability and integrity. Individual pieces of legislation and regulation, the broader regulatory setting, response approaches by regulators, and the level of technology innovation within the government affects financial institutions digital financial services (DFS) evolution and implementation. When making decisions on how to encourage and manage this evolution, government must consider a broad range of relevant factors and exercise a fine balance.

In this paper, we highlighted five analytical dimensions depicting elements shaping strategic decisions for innovation-based regulatory adjustments and indicators and set out the approach's applied within the six African countries: Liberia, Madagascar, Nigeria, Rwanda, Tanzania, and Zambia.

Countries aim for a holistic approach but inevitably focus their efforts on different dimensions:

- **Overarching Forces of Evolution:** Rwanda, Tanzania, and Zambia are front-runners in creating a vision-based policy directed enabling and maturing regulatory environment, with Rwanda and Nigeria leading in terms of drafting regulatory sandbox frameworks.
- **Interconnected Interaction:** Liberia, Nigeria, and Rwanda top the scale by actively engaging in establishing Memorandum of Understanding's (MOUs) between agencies and incorporating private sector stakeholders.
- **Openness: Systems and Platforms:** Nigeria and Rwanda are the main players by pursuing the creating of technical standards for APIs.
- **Adaptive Architecture and Intelligence:** Tanzania government is leading by example with the adoption of both IaaS and PaaS cloud service models. Nigeria and Rwanda rank first in their efforts to enable intelligence building data infrastructure.
- **Catalytic opportunities:** The Rwandan National Identification system are advanced system based on the criteria: Coverage, Robustness, Integration and Legal Framework, according to a World Bank study. Rwanda is establishing a further lead by developing speech recognition software that can be incorporated in biometric verification processes.

All six countries reveal a consistent approach in terms of moving towards a vision-based enabling environment with a focus on increasing maturity in the level of regulations developed. A mix of 'wait and see' and 'test and learn' responses to innovation is observed with a move towards the implementation of regulatory sandboxes.

Countries of operation are adopting a collaborative and cooperative relationships approach to varying degrees. A similarity across countries in building relationships with international development organizations and private sector organizations, to assist with the creation of enabling national vision-based regulatory environments and facilitate activity-based regulatory frameworks, can be seen. A move towards building inter-agency relationship in conjunction with telecom and financial sector stakeholders are gaining traction. Partnerships between financial institutions, telecom operators and non-banks remain a complex area for governments to navigate mainly due to a lack of or inadequate consumer protection and competition policy frameworks. Partnerships tend to gravitate around expansion of wallets with the implementation of savings and lending products.

All the countries need to enhance efforts for building e-government systems and open banking platforms with a specific focus on technical standards and ensuring the necessary underlying infrastructure. The implementation of National Payment Switches, on a positive, created an interoperable environment facilitating a broader customer base and increased user experience, however, on a negative, created additional costs for stakeholders and failed in terms of implementation in achieving objectives.

Across the different countries, the appreciation and importance of data privacy rights are not present or well understood, creating a lack of substantive need for putting the relevant frameworks in place. Without regulatory frameworks or a capacity for safeguarding data privacy and security the trade-off between security versus added functionality, are generally quite easy for institutions and citizens., especially in terms of national identity, KYC and eKYC processes. Special attention to shift identity platforms from being a catalyst to a tool for growth through the development of a digital identity ecosystems will strengthen building openness, increase partnership opportunities and innovative product adoption, and enable higher levels of financial intelligence.

There is no ‘one-best’ method for governments to apply when it comes to innovation and the respective regulatory and technology environments, but rather the need for a multi-dimensional diagnosis that allows for the development of optimal cross-context solutions to innovation evolution.

The table below outlines some of the key perspectives and country highlights of each dimension.

Analytical Dimension	Diagnostic Perspective	Country Highlights
Overarching Forces of Evolution	Establishing the type of digital financial services evolution, e.g. wallets, payments, savings, loans and level of penetration and use, enable a focus for regulatory adjustments. It is important to determine the right moment of growth to foster change. Vision-based policy direction enabled through national strategies and followed by activity-based frameworks that mature as DFS penetration and usage increase, lay the groundwork for an innovation-based regulatory environment, of which flexibility and ongoing open processes are key mechanisms. Regulatory flexibility is enabled by applying proportionality within regulation such as the risk-based tiered approach to customer due diligence (simplified & enhanced) and KYC. Flexibility is further enabled through licensing opportunities, which should incorporate tiered proportionality, or by providing a method of obtaining product approval or by implementing innovation mechanisms such as regulatory sandboxes.	<ul style="list-style-type: none"> • A mix of ‘wait and see’ (Liberia & Madagascar) and ‘test and learn’ (4 other countries) approaches to creating enabling regulatory and policy approaches is observed with a move towards implementing regulatory sandboxes. • Nigeria opted for regulatory guidance during <i>early-stage innovation</i> with a conservative risk management approach thereby restricting the flow of digital financial service evolution especially from a mobile money perspective and limiting success in terms of financial inclusion, however, is leading in the field of implementing tiered licensing in terms of Microfinance Institutions. • Proportionality in Nigeria are enabled through three tiers of KYC and in Rwanda and Tanzania through six-tier frameworks.

Interconnected Interactions	<p>Evolution brings expansion that changes the way and level of connection and interactions, requiring the building of new degrees of trust. Furthermore, the design and implementation of vision require knowledge, resources, and capacity. Defining the right positions with which to facilitate growth and resolving any overlaps or uncertainty between the roles of relevant regulators is necessary. To facilitate these aspects, governments build relationships, engagement, and collaboration with international development organization and between national agencies, as well as enable an environment within which ecosystem stakeholders can build partnerships.</p>	<ul style="list-style-type: none"> • MOUs is observed, <i>in Liberia</i>, between the National Identification Registry and the Liberia Telecommunications Authority (LTA) and mobile network operators, Lonestar Cell MTN and Orange Liberia in revising the regulatory framework and, <i>in Nigeria</i>, between the Central Bank of Nigeria (CBN) and the Nigeria Communications Commission (NCC) clarifying the understanding of roles and responsibilities and improving coordination to resolve regulatory overlap in terms of mobile money providers. • The World Bank, International Monetary Fund, USAID, UNCDF are key international development organizations with which governments have relationships
Openness: Systems and Platforms	<p>Adopting a mix of platforms and systems that allow data to be accessed directly by users, or the use of third-party technologies, enable government entities, service providers and consumers to connect more readily. This can be achieved through creating open government, e-government, and open banking environments. Building these environments focus on creating interoperability and implementing APIs. Compatibility is complicated where there is a lack of acceptable standards for development and deployment. Associated risks include data privacy and protection.</p>	<ul style="list-style-type: none"> • The ongoing Rwanda National Digital Payment System project is implementing a layer for an open application programming interface that would enable fintech start-ups to interact securely with the platform. • With the exception of Madagascar all countries have implemented a national payment switch with different levels of operationality and success. • Liberia’s national switch is especially largely underutilized with no ACH debits and many functions of the switch not yet operational.
Adaptive Architecture & Intelligence	<p>Both institutions and governments need to enhance infrastructure and automation capabilities to facilitate scalable and robust solutions. Regulatory settings affect data storage and analysis, infrastructure, and intelligence solutions. Cost consideration, protection mechanisms and risk management take precedence in creating an enabling regulatory environment. A lack of data privacy and cybersecurity laws shifts the focus of compliance to embracing international standards. Governments and citizens are often not sensitized to data protection or cybersecurity issues.</p>	<ul style="list-style-type: none"> • Madagascar (2015) and Nigeria (2019) were proactive in issuing data protection laws, however failed in terms of establishing a data protection authority. • Nigeria, Rwanda and Tanzania issued dedicated Cybercrime Acts with Liberia issuing a formal set of rules only. • In Nigeria and Rwanda, the Central Banks implemented data infrastructures consisting of transactional and electronic data warehouses, respectively, to standardize and automate data collection and access and streamline regulatory reporting.

<p>Catalytic Opportunities</p>	<p>Catalysts can become a tool to propel financial innovation. Current opportunities are covid-19 responses and moving towards digital identity systems. Depending on the approaches applied to catalysts, it can act as an enabler or a barrier to innovation.</p>	<ul style="list-style-type: none"> • In Rwanda, a National Identification system is being drawn on by all financial institutions to enable easy e-KYC and online authentication. • In most of the countries, especially Liberia and Madagascar, covid-19 highlighted a shortage of adequately skilled manpower, a common and continuing challenge for financial institution’s business operations and governments alike. • Across all countries during covid-19 regulatory adjustments of fee waivers, limit increases and loan restructuring created an enabling environment for institutions to support customers. • Nigeria emphasized that Payment Service Banks are not allowed to grant any form of loans, advances, and guarantees (directly or indirectly).
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Country Annexures

Liberia

Access Bank Liberia's (ABL) digitalization process is driven by internal and AccessHolding strategies as well as creating a competitive edge within the financial sector.

Management of enablers and influencers of digital evolution

Two main ministries set the scene for establishing the legal and regulatory framework for the financial sector within Liberia is 1) Ministry of Commerce & Industry and 2) Ministry of finance and development planning (MFDP). The key governmental bodies within Liberia's financial sector are the Central Bank (CBL), the Financial Intelligence Unit (FIUL), and the Telecommunications Authority (LTA).

The legal and regulatory framework is quite scattered and whilst it often lags behind private sector activities and innovations, advances towards a digitally enabling framework has evolved over the last 5-6 years. Some key timelines include:

- Banking regulation 1999
- Telecommunication Act 2007
- Financial Inclusion Strategy 2009 (current version: 2020-2024)
- Regulations for Microfinance Deposit-taking Institutions (MDI) 2012
- FIU Act 2013
- Payments system law 2014
- Mobile money regulation 2014
- Regulations for Credit Unions 2015
- Agent Banking Regulation 2017
- Competition law 2017
- E-payment services regulation 2020

Mobile money has been the driving force behind gains in financial inclusion. Presently 21.6 percent of the population have accounts at a financial institution, a 2.8 percentage point increase from 2011, while 20.8 percent of Liberian population reported having a mobile money account. In this context, 27.6 percent of Liberians reported making or receiving digital payments. Mobile money services are available in all 15 counties in Liberia through a **large mobile money agent network** (6,995 agents as of 2018).

Challenges persist within government and infrastructure that affects the delivery and innovation of digital financial services in a cost-effective and efficient way. These include an insufficient and non-digital customer base, challenges in ensuring network security and managing high network maintenance costs and inadequately skilled manpower in both government and financial sector.

Access Bank faces the challenge of staff capacity and competence which was increased by covid-19 due to staff rotation requirements. These issues can negatively affect the banks security levels and require stringent measures to ensure ongoing innovation and project implementation.

Interconnected Interactions

Private stakeholders play an important role in the digitalization of the Liberian economy and financial sector. Three major stakeholders are the World Bank Group, the United States Agency for International Development (USAID) and the United Nations Capital Development Fund (UNCDF). The USAID is working with the MFDP and CBL as well

as other institutions through their project, the *Liberia Economic Policy Dialogue Activity (LEPDA)*, to assist government with pushing the agenda of economic growth and ensuring financial transparency.

The Liberian government partnered with UNCDFs MM4P programme to accelerate the development of digital financial services. The UNCDF, CBL and GSMA partnered just before the Ebola crisis in 2015 to develop mobile money guidelines to enable the proliferation of mobile money services. A DFS working group was established with the inaugural session held on 20 September 2016. Mr. Weeks, the CBL Executive Governor at the time stated in his opening remark: *“we as regulator(s) seek to learn from the policy and regulatory approaches that have been successfully tested and implemented in other countries⁴⁹.”*

2020 proved to be a progressive year for the Liberian government. The LTA issued SIM and RUIIM registration regulations aimed at improving national security. The revised regulations framework will see the National Identification Registry (NIR) join the LTA and both mobile network operators, Lonestar Cell MTN and Orange Liberia, in carrying out strategies to achieve its objectives effected through the signing of a Memorandum of Understanding (MOU).

Openness: Systems and Platforms

In 2014 the Liberian development context was not supported by an effective digital landscape⁵⁰. According to the UNCDF Liberia was among the countries with the lowest banking penetration in the world in 2016. At that time there were 3.4 banks branches for every 100,000 adults with predictions to shrink given infrastructure challenges that made traditional banking unsustainable outside the country’s capital. Lack of financial, human, and material resources also places constrains on the government’s ICT capacity.

The arrival of the Africa Coast to Europe (ACE) Submarine Cable and the launch of the Cable Consortium of Liberia (CCL) in 2013 had a major impact in the supply of retail broadband Internet. The CCL is owned jointly by the Government of Liberia (55%), Libtelco (20%), and the two mobile network operators: Lonestar MTN (10%) and Orange Liberia (10%). Internet and broadband networks are available through several commercial wireless internet service providers (ISPs) and as well as the main GSM mobile networks using GPRS, EDGE, HSPA and WiMAX technologies⁵¹. In the mobile sector, competition has led to some of the lowest call prices in Africa despite the country’s power infrastructure handicaps.

There are still areas where improvements need to be facilitated. Often the CBL initiate innovation but fails in terms of follow through and implementation. An example is the electronic funds transfer system which aims to automate reconciliations and provide real-time information on cash balances. The system remains mainly dormant. A further challenge is the EFT system lacking connectivity to the MFDP’s Integrated Financial Management Information System (IFMIS).

Access Bank faced the challenge of unsuccessful collaborations and influence in terms of changing credit bureau processes, which is documentation heavy, restrictive in terms of amounts and slow in terms of CBL feedback. Collaboration with CBL to develop a platform whereby banks can reference information online to move closer to a more real-time verification of credit references process was unsuccessful. Though ABL operates with a Commercial banking licence the bulk of loans are within the microfinancing environment with many smaller loans, which

⁴⁹ UNCDF 2017, Creating an enabling environment for mobile money in Liberia, <https://www.uncdf.org/article/2102/creating-an-enabling-environment-for-mobile-money-in-liberia>

⁵⁰ USAID 2020, Digital Finance Bright Spot: Digital Payments in Liberia, https://www.usaid.gov/sites/default/files/documents/2020_DigitalPaymentsLiberia.pdf

⁵¹ Privacy Shield Framework, Country Commercial Guide: [Liberia-Telecommunications](#).

complicates the lending process and causes operational delays. The regulation is supportive in terms of mandatory requirements for banks to provide information to the credit bureaus, but the lending regulations needs updating and more digitization opportunities.

Adaptive Architecture and Intelligence

New digital services, even after approval by the CBL, can often **enhance existing risks** requiring adjustments to ensure the necessary processes is put in place for protecting the customer and the stability of the financial system.

USAID – LoneStar Cell MTN: MTN Liberia launched free of charge international remittances direct to mobile money accounts in the beginning of August 2020. This was halted a month later by the FIUL. According to Front Page Africa a letter from the FIU noted: ““After review of the risk assessment document presented by the Lonestar MTN Mobile Money management, it was observed that the product among other things could provide easy means for criminal exploiting the financial system of Liberia using the international remittance service of the Lonestar MTN Mobile Money platform to continue unobserved.” Collaborations between LoneStar Cell MTN and the FIU resulted in the service being fully restored with Lonestar noting: “We adhered to the highest standards with the implementation and launch of the MoMo international remittances service and made sure to comply with all the requirements of the CBL, who are the sector regulators. Our AML/CFT controls were also recently audited and passed by both the FIU and CBL”⁵².

In August, the FIU launched the AML/CFT library and e-learning center which is to serve as a catalyst in bridging the knowledge and capacity gaps across governmental agencies. FIUL Director General Edwin W. Harris stated that “a library that will serve both the FIUL staff, prosecutors, judges and law enforcement along with compliance officers from financial institutions is the best option⁵³.”

Capacity building within government could lead to opportunities for innovation and automation. ABL and other financial Institutions regulatory reporting processes with both the CBL and the FIUL are still manual relying mainly on excel templates with no automated or push-pull data access, sharing or standardized templates in place.

Regulatory & Policy approach: Pursue a ‘wait-and-see’ approach adopting a stepwise, initiative driven and capacity building agenda. Government initiatives reflect an emphasis on creating a collaborative and interactive approach between regulatory, supervisory and enforcement agencies and with institutions and other stakeholders to ensure an enabling environment. **The government understands that to build an e-society, it must try different approaches and learn from its mistakes⁵⁴.**

Additional measures for improvements: A more focused regulatory framework in terms of the microfinance sector and related activities are needed to enhance the functionalities and innovation efforts of Access Bank, and within the country. Savings are the biggest value-proposition for DFS uptake, which can be facilitated by digitizing village banking.

“The lockboxes are where many village savings and loans associations (VSLAs) keep their cash. Susu clubs, as these groups call themselves across West Africa, function as informal community banks. MFIs stand in the space between the intimate VSLA and the well-resourced commercial bank. Women make up 98 percent of Liberian MFIs’ nearly 310,000 active borrowers, with more than \$5.5 million in loans. CBL.”⁵⁵

⁵² Front Page Africa, 2020, Press release: Liberia: [Lonestar Cell MTN Mobile Money Reinstates International Remittance Service](#)

⁵³ Yates 2020, Daily Observer, Gov’t Launches AML/CFT Library and E-Learning Center, <https://www.liberianobserver.com/news/govt-launches-aml-cft-library-and-e-learning-center/>

⁵⁴ USAID 2020, Digital Liberia and Electronic Government Activity: [Final report](#)

⁵⁵ WORLDQUANT, 2020, [Unlocking the Microfinance Cash Box](#)

Madagascar⁵⁶

Accès Banque Madagascar (ABM) innovation is driven by client needs, new Fintech players and competitiveness in the market and the issue of driving financial inclusion given the still high levels of exclusion amongst citizens. AccessHoldings provide some guidance and solutions of innovation as well. Innovation is influenced by the culture and mindset of the Madagascar people which require some creative solution development. For example, many people do not even know what cards are when it comes to financial services.

Management of enablers and influencers of digital evolution

The main ministries that set the scene for establishing the legal and regulatory framework for the financial sector within Madagascar is the Ministry of Economy and Finance. The key governmental bodies within Madagascar's financial sector is the Banky Foiben'i Madagasikara (BFM), the Commission de Supervision Bancaire et Financière (CSBF), and the Autorité de Régulation des Technologies de Communication (ARTEC). BFM regulates the national payment system and related aspects, whilst CSBF deal with financial institution licensing and prudential regulations. ARTEC has a dual responsibility of telecom regulations and consumer complaints handling.

As part of the strategy for the development of payment systems, BFM encourages the development of innovative means of payment and provides for⁵⁷:

- studies on the feasibility and use of next-generation payment methods and systems involving, inevitably, the Fintech;

the definition of incentives to encourage investment in infrastructure for the acceptance of modern means of payment.

The regulator and the legal and regulatory framework are proactive and the last 5 – 6 years has seen a collection of regulatory mechanisms towards a digitally enabling and mature framework providing consumer protection, personal data protection, and data sharing infrastructure improvements. Some key timelines include:

- 2014, Personal Data Protection Act
- 2014, Law on Electronic Signature
- 2014, Cybercrime regulation (implemented as protection against illicit funds flows)
- 2016, Law on Electronic Currency and EME (Electronic money Act - MMOs issue mobile money without association to formal financial institution)
- 2016, SIM personal information regulation
- 2017, Law on Governance of activities and control of offices
- 2018, CRIF Madagascar Bureau of Credit Information approval
- 2019, Implementing rules instruction (information collection on borrower financial situations)

Interconnected Interactions

The Financial Inclusion Project financed by the World Banks is a driver of many of the changes, especially within microfinance. The microfinance sector in Madagascar has been involved in agency banking for the past few years, particularly supported by technical and financial partners, such as AFD. This is notably the case of Baobab, Accès Banque, ACEP, OTIV TANA, OTIV DIANA. Since 2016, Baobab has also surpassed Accès Banque to become the market leader in terms of collections of deposits. To further realize interoperability between MFIs without waiting for the national switch, setting up microfinance e-wallets is recommended.

⁵⁶ UNCDF, 2020, Diagnosis of the Digital Financial Services Ecosystem in Madagascar

⁵⁷ AACB, 2019, Draft report of the experiences and initiatives of AACB member central banks in fintech and cybersecurity

Partnerships are a key driver of customer education to facilitate financial inclusion and adoption of digital products. To help more people access and use financial accounts, PAMF Madagascar, a microfinance institution serving over 130,000 clients, and Orange Money Madagascar, a mobile money service with 2.8 million clients, teamed up to create M-Kajy, a digital savings and micro-loan product similar to Singa Ni Mara. Due to partner priorities, the pilot targeted clients who had been identified by PAMF's algorithm as having a short or unreliable payment history or lower transaction amounts and frequencies with Orange Money. As these lower engagement clients would not qualify for a loan on M-Kajy, the messages focused on the savings functionality. The campaign highlighted the benefits of saving on M-Kajy, the risks of non-digital and/or informal saving practices, the growing social norm of saving digitally, and the fact that with compound interest, small amounts of savings can grow large over time. We chose these messages to address a variety of behavioral barriers. The Madagascar pilot demonstrates that behavioral text messaging can meaningfully shift short-term digital savings behavior.⁵⁸

Openness: Systems and Platforms

Irrespective of the enabling framework, the payments environment remains fragmented with low interoperability between mobile money and banking systems. Adding to these challenges are a citizen base with low levels of understanding payments with a lack of confidence in financial institutions. The FinScope 2016 study reveals that 81% of Malagasy people do not use any formal payment instrument. Suggestions for improvement include the use more interoperable access points, as well as money and bank agents. The BFM is reflecting on innovation trends including biometrics, DLT technology and blockchain and are working on a draft revision of the law for including mobile insurance (insurtech).

Adaptive Architecture and Intelligence:

BFM acquired specialized banking supervision software to automate and manage banking supervision activities (regulation, approval, inspection of establishments).

ABM invested in a data warehouse to build business intelligence capability and developed a risk management strategy with a customer relationship management (CRM) system to link customer data and reduce risk profiles.

Regulatory & Policy approach: Pursue a 'wait-and-see' approach adopting an interest and initiative driven agenda. Where there was no regulation covering mobile money right from the beginning the regulators have been pragmatic and decided on a minimum set of rules to authorize mobile money operators to launch. The regulators allowed a market-driven interoperable approach with infrastructure for payments between the three MNOs (Telma M'Vola, Orange Money, and Airtel Money). The BFM actively support product innovation such as solar electricity payment (Pay as You Go - PAYG), mobile credit and savings.

Additional measures for improvements: Accès Banque now offer card services in cooperation with Mastercard for SME clientele and with UnionPay for the mass market clients. At the same time ABM is already collaborating with Orange Money to provide existing credit and savings customers of the bank with flash loans.

Nigeria

AB Microfinance Bank Nigeria's (ABN) innovation is private sector and competition driven. ABN focus on their niche service area, of becoming a one-stop shop for clients and innovate to become the best. ABN already offer all the digital methods including debit and credit cards, online banking and POS networks for clients to perform lending, deposits, payments and transfers. An innovation for ABN is in terms of digitization non-cash payments, however

⁵⁸ Ideas42, 2019, Digital Financial Services in Mali and Madagascar, https://www.ideas42.org/wp-content/uploads/2019/09/ideas42_ProjectBrief_ABMal Madagascar_3.pdf

this is already market practice, and sees ABN catching up. The digitalization process is driven by internal and AccessHolding strategies, such as the risk scoring and loan recover tool.

Management of enablers and influencers of digital evolution

Two main ministries set the scene for establishing the legal and regulatory framework for the financial sector within Liberia is 1) Ministry of Industry, Trade and Investment and 2) Federal Ministry of Finance. The key governmental bodies within Nigeria's financial sector is the Central Bank (CBN), the Nigerian Communications Commission (NCC), the Nigeria Financial Intelligence Unit (NFIU) and.

Other role players include the Nigerian Deposit Insurance Corporation (NDIC), the Special Control Unit Against Money Laundering (SCUML), the National Information Technology Development Agency (NITDA), the National Identity Management Commission (NIMC) and the Federal Competition and Consumer Protection Commission, as well as the Economic and Financial Crimes Commission (EFCC), the Securities and Exchange Commission (SEC) and National Insurance Commission (NAICOM).

The legal and regulatory framework is sporadic with new laws and guidance implemented early in the innovation process resulting in a magnitude of regulations. Some key timelines include:

- Banks and Other Financial Institutions Act, 1991 (amended)
- Code of Conduct Bureau Act 2004
- Microfinance Policy, Regulatory and Supervisory Framework, 2011 (revised with new issuance taking effect April 2021)
- AML/CFT Regulations, 2013 (separately issued by the Central Bank of Nigeria (CBN), the Securities and Exchange Commission (SEC) and National Insurance Commission (NAICOM) to their respective operators)
- Guidelines on Money Transfer Services, 2014
- Guidelines on Mobile Money Services, 2015
- Cybercrimes Act, 2015
- Guidelines on operations of Electronic Payment Channels, 2016
- Guidelines for licensing and regulation of Payment Service Banks (PSB), 2018
- Regulatory Framework for USSD, 2018
- Federal Competition and Consumer Protection Act, 2018
- Data Protection Regulation, 2019

It could be deemed that the Commercial banking environment is overregulated, with the top 5 banks having 80% of the market, making competition immaterial. Earlier capital requirement reforms impact the sector with a huge reduction in the number of banks within the country and more recent reforms impact is expected to include mergers and acquisitions. The Financial Inclusion Strategy presented positive impact but also failed on implementation and enforcement. The CBN originally initiated a practice where FIs were sent letters specifying for instance that an institution had to open 500 accounts within the month. There was no follow up on whether it was achieved by the bank, but also no repercussions if it was not achieved.

Another challenge for banks is the high loan-deposit ratio. MFIs are more geared towards the lending market given the loan-deposit ratio of 65% for banks versus the up to 1% of your total equity for MFIs.

ABN feels that the cost of regulation can be a real problem for Commercial banks especially when you are small. However, combined with the deposit insurance scheme, there is protection to prevent failures of the depositors, which are mainly concentrated within a few trusted MFIs including ABN. The volume of MFI regulation is far lower than for Commercial banks, which is greatly beneficial, for example 10 ratios once a quarter. The differentiation of

licencing for MFBs are fundamental and should be a model for other countries to adopt. ABN highlights the lack of manpower of the CBN in supervision of MFI, especially the large amount of Unit style MFBs which are over 80% of total MFIs.

Interconnected interaction and Openness

The rise of mobile money, the increasing penetration of smartphones and the move from community banks to microfinance banks (MFBs) and the introduction of PSB enables an open playing field for DFS evolution and fintech players. Digitalization in the banks is high with most banks offering mobile and online banking platforms and applications. Irrespective of the enabling regulatory environment with a high level of maturity, it is important to note that the provision of DFS still dominated by commercial banks has not yet made an impact in financial inclusion and reaching underserved customers. According to the CGAP study on regulatory impact, Nigeria has the highest number of mobile money providers in Africa (20), comprising banks and companies but this has not resulted in improved uptake.

Agent Networks are actively encouraged and supported by organizations such as the Shared Agent Network Expansion Facility (SANEF) who also focuses on increasing financial literacy. MNOs in Nigeria do not 'own' their own agent and this is holding back the expansion of financial services and financial inclusion in the country. This is considered a contributor for slow uptake of mobile money⁵⁹.

AB Microfinance Bank experience complication with agent networks in terms of management and technology. Managing payment settlements and the data submission are resource intensive. There is a lack of standardization with agents submitting data in different formats with high levels of missing data.

Banks are now moving into using social messaging apps to further technology driven platform use. Nigeria's country infrastructure is not ideal, and technology and the operational aspects of data exchange play a role in creating complexities.

AB Microfinance Bank have no partnerships with Telco's, such as MTN. The idea of mobile money has not taken off hugely, although about 2 years ago a PSB licence option was introduced, with some telecoms applying. Those operating in the financial ecosystem do so mainly in the payments space, which is not ABNs business being an MFB with a lending priority.

Challenges remain, given the complexity of the environment. Ensuring effective supervision require adequate resources and skills. This was highlighted when Fortis, the 2nd biggest MFB suffered financial losses with funds stolen by its management, which went undetected by the CBN. Regulatory overlap also presented between the CBN and the NCC in terms of mobile money providers. This was resolved with a memorandum of understanding clarifying roles and responsibilities and improving coordination.

AB Microfinance Bank struggles with the regulatory overlap challenges that occur between the CBN and the NIDC and their lack of collaboration and coordination in terms of audit schedules and data sharing practices.

The Central Bank of Nigeria has recently established a Payment Systems Management Department to regulate the activities of FinTech companies. This Department also follows the evolution of cryptocurrencies. The Nigerian Forum on Electronic Fraud (NeFF), chaired by Central Bank of Nigeria, is a platform created to foster stakeholder collaboration in the FinTech ecosystem and cybersecurity, law enforcement, telecommunications, etc. This Forum had begun to discuss the creation of the African Electronic Fraud Forum to foster continental collaboration⁶⁰.

⁵⁹ CGAP, 2015, Regulatory Impact on Mobile Money and Financial Inclusion in African countries, [Regulatory Impact on Mobile Money and Financial Inclusion in African Countries - Kenya, Nigeria, Tanzania and Uganda \(cgdev.org\)](#)

⁶⁰ AACB, 2019, Draft report on the experiences and initiatives of AACB member Central Banks in fintech and cybersecurity

Catalytic Opportunities: Covid-19 and National / Digital Identity:

Covid-19 did not see any banking rule changes, nor did it affect client behaviour. The law in place that recognize electronic signatures which banks, especially [AB Microfinance Bank](#), utilizes to speed up the lending process and clients utilizes to enable them greater convenience was in place prior to the pandemic. [In the case of AB Microfinance Bank – with 40,000 loan clients, 3000 depositors and few thousand with current accounts – for most clients are a one product organizations which sets the requirement quite low for implementing new innovations such as digital identity for remote onboarding.](#)

Regulatory & Policy approach: Pursued a test and learn approach adopting proactive regulatory development and revisions with a collaborative agenda in a drive toward development and inclusion objectives. The government run a consultative process for regulatory changes and encourage active stakeholder engagement. DFS and fintech innovation has been evaluated on a case-by-case basis. There is movement towards the ‘combined with a defined means of communication with the regulator’ through the regulatory sandbox launched by Financial Service Innovators (FSI) backed by the CBN and NIBSS.

Additional measures for improvements: Creating a more unified regulatory system that can effectively coordinate activities of DFS evolution, as well as streamlining coordination between and within government is needed.

To manage digital evolution successfully, ABN focus on its management style by ensuring shareholders and management responsibilities are prioritized and executed well, and by building trust over the length of its existence.

Rwanda

[AB Bank Rwanda’s \(ABR\) digitalization process is driven by internal and AccessHolding strategies, financial sector innovation and the vision-driven and enabling regulatory framework.](#)

Management of enablers and influencers of digital evolution

The main ministries setting the scene for establishing the legal and regulatory framework for the financial sector within Rwanda is the Ministry of Finance and Economic Planning. The Ministry of Information and Communications Technology and Innovation (MINICT) directs the technology innovation regulatory environment. The key governmental bodies within Rwanda’s financial sector are the National Bank of Rwanda (BNR), the Rwanda Utilities Regulatory Authority (RURA), and the soon to be established Financial Intelligence Unit (RFIU).

The legal and regulatory framework reveals new releases with innovation-based tailored responses and directed periods of revisions. Some key timelines include:

- Banking law, 2008
- Establishing the organization of microfinance activities Law, 2008
- Regulation on the organization of microfinance activities, 2009
- Payment system law, 2010
- Regulation on electronic funds transfers and electronic money transactions, 2010
- Regulation on Sim Card registration, 2013
- Interoperability Policy, 2014
- Regulation on payment system operators, 2015
- Agent Governance, 2017
- New Banking Law, 2017 (revised)

- Capital requirements for banks regulation, 2018 (revised)
- Payment service provider regulation, 2018
- Credit reporting system law, 2018
- Regulations on PSPs, Remittances, Aggregators, 2018
- Outsourcing regulation, 2018
- Regulation on electronic data warehouse reporting, 2018
- Cybersecurity regulation, 2018
- Credit reporting regulation, 2019
- Consolidated supervision regulation, 2019 (revised-2011)
- AML/CFT law, 2020
- Data protection and privacy law, 2020

Interconnected interactions and Openness

Economic, financial and digital transformation is driven from a national perspective with an array of National Strategies. International stakeholders play a role in advancing the reforms, including The World Bank, the International Monetary Fund (IMF), USAID and UNCDFP. Mobile money drives digital financial services evolution.

2000: The government laid down a strategic roadmap for political, social, economic and technological reforms, called Vision 2020, setting out a framework and key priorities for Rwanda's development. The vision was revised in 2012 and is now replaced with Vision 2050.

2005/2008: The World Bank and IMF prepared a Financial Sector Assessment Program (FASP) report which led to the creating of the Financial Sector Development Program (FSDP). Driven by the lack of credible information to guide policy interventions and financial sector providers, the FinScope survey tool, funded by FinMark Trust, an independent non-profit organization, was implemented. This laid the groundwork for the banking and microfinance laws.

2009/2010/2012: The government implemented the National Financial Inclusion Strategy (NFIS) which saw the introduction of the Payments System Law with BNR overseeing both banks and non-banks, and the introduction of mobile money and electronic transfers and transaction regulation in 2010. The FinScope Survey provided insights in addressing the priorities and challenges of the NFIS and provided an understanding of customer financial behaviour.

2013: Vision 2020 was revised in 2012. The Government has put private sector development at the forefront of poverty reduction and economic transformation and developed the private sector development strategy which is supporting the objectives of development partners in the country⁶¹.

2015/2017: The Smart Rwanda Master plan and National Strategy for Transformation drives a focus on infrastructure increasing financial services access, e-government and e-financial transactions. The BNR approves cross-border mobile money. In addition, the Constitution of Rwanda (2003) was revised.

2018-2020: Efforts to meet different international and regional standards, implementing a risk-proportionate approach, expand participation in payment services and enhance collaboration, saw the revision and implementation of new financial laws and regulation. The Rwanda Payment System Strategy, forming a part of

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this, sets out a roadmap to establish a cashless economy by 2024 focusing on public-private collaboration, operationalizing regulatory sandboxes and working with the fintech industry on digital payments and security.

Interdepartmental coordination is just as important as stakeholder collaboration in developing, implementation and enforcement. A memorandum of understanding between BNR and RURA was signed to ensure oversight of financial market infrastructures and payment services and shared responsibility on issues of cybersecurity, monitoring of digital finance transaction data and data protection.

Mobile money is a driver for financial inclusion and going cashless and is offered by banks and the three MNOs, MTN, Tigo and Airtel. Digital service evolution includes payment products and services and remittances but is being expanded by new offerings, such as credit services and savings. A credit product introduced by Airtel provides customers micro-loans with a biweekly term for repayment and a 10% facilitation fee⁶².

Savings products though, are the biggest value-proposition for DFS uptake to drive customer adoption and usage. Tigo, in conjunction with Urwego Opportunity Bank, launched an interest-bearing savings account on their mobile wallet which offers 7% interest to savers⁶³.

To encourage a fintech ecosystem the government developed a regulatory sandbox. Riha Payment System secured a six-month testing approval of their innovative mobile wallet solution (Riha Mobile Wallet), the first start-up to be granted permission by the sandbox⁶⁴. Both BNR and RURA operates regulatory sandboxes, however these are underutilized due to lack of awareness and the process being paper intensive with fintech start-ups seeing minimal value in participation therein⁶⁵.

Interoperability drives the expansion of the digital financial services and successes includes the interoperability policy resulting in bilateral agreements between institutions and the implementation of a national switch which took 3 years to go from development to implementation.

Adaptive Architecture and Intelligence

A local bank was the victim of a cyber-attack and Central Bank, the Banque Nationale du Rwanda, had to provide technical support. This triggered the release of cybersecurity regulations and regular cybersecurity assessments for banks.

As part of the digital first approach, the government pursued the implementation of SupTech solutions. The National Bank of Rwanda (BNR) implemented an automated financial reporting and supervision system for the collection, analysis and dissemination of data from regulated banks and non-bank financial institutions. The system will allow BNR to automatically pull data from financial institutions' core MIS (for those that have them), thus improving the accuracy, integrity, and timeliness of offsite reporting data. With support from the World Bank, new reporting templates have been designed to improve the scope, consistency, and quality of data, including financial inclusion indicators— such as target market segments, gender, geographic location, among others. All licensed banks have been on-boarded onto the system, while some MFIs are submitting the new templates in Excel format.

⁶² Balancing Act, 2015, Article: Airtel Rwanda Introduces Micro-Loans On Airtel Money, [Airtel Rwanda Introduces Micro-Loans On Airtel Money | Balancing Act - Africa \(balancingact-africa.com\)](https://www.balancingact-africa.com/)

⁶³ Finclusion, Country Perspective Rwanda, [Rwanda · Financial Inclusion Insights from Kantar \(finclusion.org\)](https://www.finclusion.org/)

⁶⁴ The New Times, 2018, Article: Central Bank grants testing approval to emerging fintech firm, [Central Bank grants testing approval to emerging fintech firm | The New Times | Rwanda](https://www.newtimes.co.rw/)

⁶⁵ UNCDF, 2019, The Fintech Landscape in Rwanda, [The Fintech Landscape in Rwanda.pdf \(ruralfinanceandinvestment.org\)](https://www.ruralfinanceandinvestment.org/)

Related reforms are ongoing to establish core MIS in Savings and Credit Cooperatives (SACCOs) to ensure that they too can participate in the new system⁶⁶.

Rwanda is shifting their thinking towards the potential of issuing a digital currency, according to Bloomberg. The Financial Stability Director-General Peace Masozera Uwase noted that: “There are still concerns about how exactly you convert the entire currency into digital form, how to distribute that and how fast can you process those transactions,” Uwase said. “Challenges come in, if technology is down how do you deal with such issues?”⁶⁷

Regulatory & Policy approach: Pursued a test and learn approach adopting a national-level policy framework and initiatives agenda with proactive regulatory development and revisions and a focus on building collaboration and coordination. The government focuses on proper analysis and evaluation prior to implementing regulations and policies. The government run a consultative process for regulatory changes and encourage active stakeholder engagement. They also moved towards the ‘combined with a defined means of communication with the regulator’ through the regulatory sandboxes of the BNR and RURA.

Additional measures for improvements: A comprehensive strategic framework for FinTech is under development. Threat intelligence or incident report sharing frameworks needs to be developed, however we have a fraud forum in place as part of security information sharing in the sector.

⁶⁶ GPF, G20 report on Digital Financial Inclusion: Emerging Policy Approaches, [G20 report on Digital Financial Inclusion: Emerging Policy Approaches | GPF](#)

⁶⁷ Bloomberg, 2020, Article: Rwandan Central Bank Studying Ways of Issuing Digital Currency, [Rwandan Central Bank Studying Ways of Issuing Digital Currency - BNN Bloomberg](#)

Tanzania

Access Bank Tanzania's (ABT) focus on development of DFS products and embracing of new technologies and partnership models are driven by consumer behaviour and needs as well as the innovations within the industry and the regulatory environment.

Management of enablers and influencers of digital evolution

The main ministry for setting the scene for the establishment of a legal and regulatory framework for the financial sector within Tanzania is the Ministry of finance and planning (MFP). The key governmental bodies playing a role within Tanzania's financial sector is the Bank of Tanzania (ToZ), the Financial Intelligence Unit (FIU), and the Tanzania Communications Regulatory Authority (TCRA).

The legal and regulatory framework displays frequent updates and new additions. This seems to have provided a flourishing environment within which a digitally enabling environment evolved over the last decade. Some key timelines include:

- Banking and Financial Institutions (BFI) Act 2006
- *BFI regulations 2011,2012,204,2015* (issued according to activity i.e. financial leasing, credit reference databank, capital adequacy, microfinance activity etc.)
- Credit Reference Bureau Regulations, 2012
- Anti-Money laundering (AML) regulations 2012, AML (EFT/CTR) regulations, 2019
- National Payments System Act 2015
- Payment Systems Licensing and Approval Regulations, 2015
- Electronic Money Regulations, 2015
- Cybercrimes Act, 2015
- Microfinance Act 2018
- Financial Consumer Protection Regulation 2019
- SIM Card Registration Regulation 2020

The issuing and implementation of new regulations between 2011 to 2015 were followed by the banking sector suffering a period of instability during 2016-2017. Many banks were forced to set aside large sums of money for impairment losses on bad loans because of the downturn in the real estate sector. And the BoT had to shut down the FBME bank over money laundering charges⁶⁸ after a US court case.

In further efforts to promote financial inclusion the BoT created key guidelines and rules to facilitate the drive for financial inclusion:

- Electronic Payment Scheme guidelines, 2007
- BFI Risk Management guidelines, 2010
- Guidelines for Banking Consumer's Complaints 2015
- Agent Banking for BFIs guidelines, 2017

With the banking sector stabilizing, the financial sector, specifically Fintech, has been growing at a rapid pace. This success, notwithstanding a previously progressive Governor, can be attributed to a collaborative and co-operative public-private relationship model. The Tanzanian regulators actively encourage Fintech innovation and developed a legal framework that allow non-banking organizations to provide DFS. The Bank of Tanzania together with private

⁶⁸ BBC News 2017, [Tanzanian bank FBME shut down over US terror funding charges](#)

sector engagement laid the groundwork for the development of an environment that enabled the launch of mobile money services in Tanzania.

“The mobile financial services market in Tanzania is unique in that the four major players actively compete for customers, while also sharing the agent network. In 2017, 78 percent of Tanzanians in rural areas live within 5 km of an access point and in 2019 there were over 560 thousand agents”⁶⁹. ABT increased agent access through the introduction of transfers between its mobile account and the largest MNO wallets

Tanzania’s mobile money further lay the foundation on top of which lending and savings services are layered. In 2014 Vodacom launched M-Pawa in partnership with the Commercial Bank of Africa to offer savings and loans. In 2017, FINCA Microfinance Bank Tanzania partnered with MNO Halotel to offer HaloYako, a mobile savings product offering a free account and airtime bonuses when savings targets are met. (WBG 2020 - DFS)

Regulatory & Policy approach: Pursued a test and learn approach adopting regulatory flexibility and collaborative and coordinated agenda in a drive toward financial inclusion. For just short of a decade, 2006 to 2015, innovators entering the electronic payment space could achieve this by adhering to payment scheme guidelines and through obtaining no objection letters from the BoT. Industry led processes, such as interoperable standards setting and bilateral pricing agreements. Government led processes such as simplified CDD, third-party agents and mobile money aspects. Lessons learned during that time provided clarity on oversight challenges and competition benefits, allowing the regulator to construct a transparent and harmonized framework in terms of licenses and requirements, and procedures applicable to all parties.

FSD Africa engaged with regulators to support the development of mechanisms for regulating innovation, with the Capital Markets and Securities Authority looking to finalize an agreement to implement. This will allow for the test and learn approach to be combined with innovation facilitators for a further enhancement of the regulatory and policy response approach.

Additional measures for improvements: Tanzania have seen several high-profile cases of DFS fraud. A more formal approach or framework to risk mitigation is required. The Bank of Tanzania is very oriented towards innovation with group savings, mobile-accessed loans, and agent overdraft facilities, among other initiatives, with a focus on updating automated credit risk assessments. Regulators also need to adopt a standard process in the enforcement of regulations to enable consistency in terms of assessing mobile operators’ compliance, given the recent examples of significant variations in timelines and formats in the execution of compliance orders⁷⁰.

⁶⁹ World Bank Group 2020, Digital Financial Services, <http://pubdocs.worldbank.org/en/230281588169110691/Digital-Financial-Services.pdf>

⁷⁰ GSMA, 2019, Digital transformation in Tanzania: [The role of mobile technology and impact on development goals](#)

Zambia

AB Bank Zambia's (ABZ) innovation are driven by customer needs and internal strategies as well as the increasingly enabling regulatory and technology frameworks within government and the market.

Management of enablers and influencers of digital evolution

The main ministry for setting the scene for the establishment of a legal and regulatory framework for the financial sector within Tanzania is the Ministry of finance (MoF). The key governmental bodies playing a role within Zambia's financial sector is the Bank of Zambia (BoZ), the Financial Intelligence Centre (FIC), the Zambia Information and Communications Technology Authority (TCRA), and the Competition and Consumer Protection Commission (CPC).

A flexible, collaborative, and frequent update approach to the legal and regulatory framework provided a digitally enabling environment for evolution over the last decade. Some key timelines include:

- Anti-Money Laundering Directives, 2004
- The National Payment Systems Act, 2007 (undergoing review)
- Competition and Consumer Protection Act, 2010
- Financial Intelligence Centre Act 2010, amendment act 2016
- Electronic money issuance guidelines, 2015 (repealed)
- Directive on National Financial Switch Implementation, 2015
- The Banking and Financial Services Act (BFSA), updated 2017
- The National Payment System Directive on Electronic Money Issuance, 2018
- Directive on processing of DDAC and funds transfers on ZIPSS, 2018
- Directive on domestic ATM, POS, internet transactions and mobile payments, 2020

The financial sector evolved from commercial banks, dominated by foreign banks such as Stanbic and Barclays, to local smaller banks such as Zanaco, and a growing number of microfinance institutions. Fintech has equally boomed with enterprises such as Zoono mobile money entering the market. Private sector innovation also extends to other sectors, such as Muhanya in off grid energy, and Live Well in health product delivery.

The BoZ has recognised the role of Fintechs in economic development by including it in its National Payment Systems Vision and Strategy 2018-2022. The Bank has taken a supportive stance on fintechs although at the same time being cognisant of the risks that come with fintechs and the need to properly manage such risks.

Interconnected Interactions

Private stakeholders play an important role in the digitalization of the Zambia economy and financial sector. Two major role players are the UNCDF through the MM4P project and FSD Zambia. FSD Zambia engage stakeholders demand side, customer information, supply side capacity building, regulatory interaction, FSP partnerships and collaboration and association creation for market development. They have a special focus on building trust in alternative channels and seek out to assist as a point of contact for consumer recourse. FSD Zambia facilitated an inclusive stakeholder meeting enabling collaboration and discussions of existing mobile money regulation to ensure market driven regulatory updates in 2019. They also facilitated capacity building on digital identity for members of the national identity government working group and Smart Zambia⁷¹.

The UNCDF and BongoHive launched the Zambia FinTech4U Accelerator Programme to support FinTech SMEs to develop relevant digital finance solutions for the market, with a focus to improve women and youth participation

⁷¹ Charity Chikumbi 2020, Expert Interview

in the digital economy. Governmental partners include the Bank of Zambia, Securities and Exchange Commission and ZICTA⁷². BoZ further tackle fintech, through its representation at the Alliance for Financial Inclusion (AFI) working group and the Committee of Central Bank Governors (CCBG).

Mobile network operators, especially the two largest MTN and Airtel, plays a big role in facilitating the development of DFS and reaching targets of financial inclusion. Challenges around infrastructure remain an obstacle for adoption of DFS. There can be no technological shift without having an enabling communication infrastructure and optimal power grids. The government is rolling out cell phone towers in remote areas with no connectivity and FSD Zambia together with MTN, Airtel and Zamtel are distributing handsets to people receiving social security.

ABZ focus on creating partnerships to expand its innovative footprint. ABZ are integrated with the biggest agent network in Zambia, Kazang. ABZ further have direct integrations with MTN and Airtel to further ABZs digitalization. Mobile money and KYC often present a challenge and supervision of this needs to be improved. The KYC requirements for individual mobile money accounts are tiered, where the difference between tiers is that tier 2 individual account holders require proof of address. Fraud is a real challenge not only for Zambia but also neighbouring countries such as Uganda where the Airtel case has recently been exposed. A challenge is that mobile operators do not report transactions to the credit bureaus increasing risks. System failure and insufficient float by agents were main challenges experienced while using digital financial services in Zambia.

Regulatory & Policy approach: The proactive and test and learn approach to be expanded by combining a regulatory sandbox. There is a strong focus on creating a digital economy and a collaborative and coordinated approach between government departments and private sector stakeholders to move forward digital initiatives. Fintechs in payments services are licensed by the Bank of Zambia. Payment fintechs engage with the Bank of Zambia by applying for a licence or designation as a PSP. The fintechs then go through a process of testing their products under the supervision of the Bank of Zambia with a restricted number of customers. The fintechs are required to document the risks that they may encounter or have encountered during the testing period, as well as risk mitigation strategies that must be approved by the Bank of Zambia. The Bank of Zambia has a FinTech team that is facilitating the development of regulatory frameworks for Fintechs in Zambia⁷³.

Additional measures for improvements: The NFS, which currently do not accommodate a universal payments standard like ISO 20022, needs to be enhanced by embracing PoS, ATM and mobile universality. BoZ take a regional approach and is working towards establishment of standards and regulation that facilitate for interoperability of retail and large value payment streams both domestically and across the border (e.g., within the SADC region). There are insufficient mechanisms for consumer redress, with no financial ombudsman despite legislative provision. Risk mitigation strategies needs to be strengthened as not much progress has been made yet with regards to regtech and supotech.

From ABZs point of view what still need to improve is the topic of identity provider, a more comprehensive credit bureau and open banking standards. There are several emerging initiatives for digital identity service provider partnerships, though in infancy stage. There are challenges with credit bureaus which include the technical aspect of hacking and the ethical aspect of blacklisting people to prevent irrelevant and unfair blacklisting practices. Credit ratings are limited to the financial sector and not gathered on a broader economic level to develop a more comprehensive risk scoring analysis based on behaviour patterns. ABZ would like to see the implementation of a comprehensive system that includes digital transaction history, something like the Kenya system.

⁷² BongoHive Zambia 2020, Regulatory Navigation for FinTechs in Zambia - [Zambia ICT Agency: 3-part webinar series](#)

⁷³ Cenfri-BankServ Africa, 2019, Zambia payments diagnostic

An example of this can be seen in Kenya, where in April 2020 the CRB and Kenya's Credit Information Sharing (CIS) system regulatory framework were updated. The CIS take into account the borrower's credit history and allow credit to be priced accordingly. It is important to note that credit-only institutions and unregulated digital lenders were removed from the CIS due to their lack of effective customer complaints and redress mechanisms. This shows the importance of alignment between different regulatory instruments and the need for developing enforcement mechanisms.

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Glossary

WORD/ TERM/ACRONYM	Working definition
Artificial Intelligence (AI)	The theory and development of computer systems able to perform tasks that traditionally require human intelligence. AI can ask questions, discover and test hypotheses, and make decisions automatically based on advanced analytics operating on extensive data sets. AI has several sub-categories, such as Machine Learning, Expert Systems, NLP etc.
Agent Banking	Third-party business arrangements of banks and non-bank payment service providers that are typically local entities, such as small shops, to provide basic payment and transaction account-related services on their behalf. Also referred to as branchless banking or correspondent banking.
Application Programming Interface (API)	The means by which a piece of computer software communicates with another. A set of rules and specifications followed by software programs to communicate with each other, and an interface between different software programs that facilitates their interaction. Often, these pieces of software are designated as a client and a server: the client initiates a request, for example to create, read, update, or delete a record in a database, while the server completes that action and returns an appropriate response. For example, these requested actions can include: authentication to a service, machine learning predictions on a given data set, web browser / mobile app functionality, transfer of data across a network, and many more.
Automated Clearing House (ACH)	An electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunications networks, and then cleared amongst the participants. All operations are handled by a data processing center. An ACH typically clears credit transfers and debit transfers, and in some cases also cheques.
Big Data	Refers to the large volume of and/or complicated data sets that can be generated, analyzed and stored using a variety of data elaboration techniques, information systems and digital tools. This capability is driven by the increased availability of structured data, the ability to process unstructured data, increased data storage capabilities and advances in computing power.
Big Data Analytics	Analytics focused on, for instance, discovering patterns, correlations, and trends in the data, or customer preferences. It can be based on AI or other technologies.
Chatbots ⁷⁴	A computer program designed to simulate conversation with human users and is widely used for online customer services at FSPs and beyond. More recent chatbots use the AI sub-category of Machine Learning for improved performance.

⁷⁴ Medium, 2019, [What is a chatbot](#)

WORD/ TERM/ACRONYM	Working definition
Cloud Computing	Refers to the use of an online network (“cloud”) of hosting processors to increase the scale and flexibility of computing capacity. This model enables convenient on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage facilities, applications and services) that can be rapidly released with minimal management effort or service provider interaction.
Data Lake	A storage repository that holds a vast amount of raw data in its native format, including structured, semi-structured, and unstructured data. The data structure and requirements are not defined until the data is needed.
Data Warehouse (DW)	A central repository for all the (integrated) modeled/structured data collected by an enterprise's various operational systems, be they physical or logical. DW emphasizes the capture of data from diverse sources in a relational database for query and analysis rather than for transaction processing.
Digital Financial Services	Financial products and services, including payments, transfers, savings, credit, insurance, securities, financial planning and account statements that are delivered via digital/electronic technology such as e-money (initiated either online or on a mobile phone), payment cards and a regular bank account.
Digital ID	A set of electronically captured and stored attributes and credentials that can uniquely identify a person.
Distributed Ledger Technology (DLT)	DLT such as blockchain are a means of recording information through a distributed ledger, i.e., a repeated digital copy of data at multiple locations. These technologies enable nodes in a network to securely propose, validate and record state changes (or updates) to a synchronized ledger that is distributed across the network’s nodes. Blockchain is one type of a distributed ledger which organizes data into blocks, which are chained together in an append only mode.
Enterprise Service Bus (ESB) ⁷⁵	A style of integration architecture that allows communication via a common communication bus that consists of a variety of point-to-point connections between providers and users of services.
E-wallet	E-Money product, where the record of funds is stored on a particular device, typically in an IC chip on a card or mobile phone.
Financial Inclusion	The uptake and usage of a range of appropriate financial products and services by individuals and MSMEs (micro, small, and medium enterprises), provided in a manner that is accessible and safe to the consumer and sustainable to the provider.
FinTech	Technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services.

⁷⁵ Oracle 2013, Enterprise Service Bus, <https://www.oracle.com/technical-resources/articles/middleware/soa-ind-soa-esb.html>

WORD/ TERM/ACRONYM	Working definition
FinTech Ecosystem ⁷⁶	Combination of stakeholders made up of consumers, financial institutions, Fintech start-ups, investors, regulators and educational institutions with the aim to provide mutually beneficial cooperation to help deliver financial services at lower cost, higher speed and at better quality to more consumers.
Information System (IT) Infrastructure	Refers to the composite hardware, software, network resources, data centers, facilities and related equipment for the existence, operation and management of an enterprise IT environment. It allows an organization to deliver IT solutions and services to its employees, partners and/or customers and is usually internal to an organization and deployed within owned facilities and relates to its IT Architecture.
Information System (IT) Architecture	Refers to the conventions, rules, and standards used as technical framework to design or integrate various components of the information system infrastructure.
Interoperability	A situation in which payment instruments belonging to a given scheme may be used in platforms developed by other schemes, including in different countries. Interoperability requires technical compatibility between systems but can only take effect where commercial agreements have been concluded between the schemes concerned.
Machine Learning	A form of AI, a method of designing a sequence of actions to solve a problem that optimize automatically through experience and with limited or no human intervention by focusing on the giving computers the ability to learn without being specifically programmed for such through hand-inputted codes. It uses a variety of techniques, including neural networks and deep learning. ML has progressed from rules-based (logic-based algorithm) methods to data-based (big data analytic) methods.
Mobile Network Operator (MNO)	A company that has a government-issued license to provide telecommunications services through mobile devices.
Mobile money	E-money product where the record of funds is stored on the mobile phone or a central computer system, and which can be drawn down through specific payment instructions to be issued from the bearers' mobile phone. Also known as m-money.
National Switch	A payment gateway that will facilitate efficient payment processing and interconnectivity between different payment institutions and payment systems. Allows for authentication and routing of payment information between the initiator of the payment to the recipient independent of the banks or other payment service provider that actually provided the payment service.

⁷⁶ Mittal Varun 2019, EY FinTech Ecosystem Playbook, <https://www.researchgate.net/publication/330702088> EY FinTech Ecosystem Playbook

WORD/ TERM/ACRONYM	Working definition
Natural Language Processing (NLP)	A form of AI, that is the ability of a computer program to understand human language as it is spoken. Is a form of statistical analysis in which words are digitized and language is modeled in order to enable human interaction with computers via text or voice (i.e. conversational user interfaces, or CUIs). Examples: chatbots, voice assistants. Machine learning techniques can be applied such that the computer continues to grow its model of language as it increases its history of interactions. For instance, NLP technology applied to regulation, that uses natural language, enable machine readable regulation.
Open banking	The sharing and leveraging of customer-permissioned data by banks with third party developers and firms to build applications and services, including for example those that provide real-time payments, greater financial transparency options for account holders, marketing and cross-selling opportunities.
Peer-to-peer lending ⁷⁷	Refers to direct lending from savers to borrowers – traditionally the platform avoids intermediation by banks but also do not bear the risk of default.
RegTech ⁷⁸	Any application or platform that makes regulatory compliance more efficient through automated processes and at lower costs.
Regulatory Sandbox	A framework setup by a regulator offering a controlled, time-bound, live testing environment without immediately incurring all the normal regulatory consequences of engaging in the activity in question. The testing environment may involve limits or parameters within which firms must operate.
SupTech ⁷⁹	The use of innovative technology to support supervision, helping supervisory agencies digitize reporting and regulatory processes, resulting in more efficient and proactive monitoring of risk and compliance.

⁷⁷ World Bank, Global Financial Development Report ‘Cross-Border Lending by International Banks’
<http://pubdocs.worldbank.org/en/148061509974150469/GFDR-2018-Chapter3.pdf>

⁷⁸ SHCP & CNBV 2018, “RegTech and SupTech: Where do we see the frontier?”,
<http://pubdocs.worldbank.org/en/841991528990787287/04062018-RegTech-ySupTech-Foro-Bernardo-Gonzalez.pdf>.

⁷⁹ FSI Insights on policy implementation No 9, 2018, “Innovative technology in financial supervision (suptech) – the experience of early users”, <https://www.bis.org/fsi/publ/insights9.pdf>.