
Scaling DFS with Regulatory Sandboxes

White Paper



Contents

Executive Summary	3
Introduction	4
Financial Services & Technology	4
Background	7
Financial Inclusion	7
Cashless Nigeria	8
Regulatory Environment & Systems	10
Supporting Innovation	11
Scaling DFS	11
Ecosystem Hurdles	11
Increasing Throughput	13
Regulatory Sandboxes	17
Sandbox Types	19
Sandbox Implementation Examples	19
Conclusion	21

Executive Summary

The incursion of technology into financial services has introduced new entrants, otherwise known as FinTechs into the ecosystem. Unlike traditional payment service providers such as deposit money banks (DMBs) or other financial institutions, these FinTechs are providing new financial products and services as well as business models that challenge current regulatory mechanisms.

While the role of the financial services regulator remains the maintenance of financial systems stability, the management of these innovative products and services and business models needs careful management amidst the varying levels of uncertainty. Even with the licensing of first generation FinTechs and mobile money operators, Nigeria is yet to make significant strides in financial inclusion due to diverse provider, regulatory and consumer constraints. As such, the implementation of the various social intervention programmes (SIPs) launched by the Federal Government have failed to reach critical mass.

Regulatory sandboxes are a new regulatory instrument that supports the controlled testing or experimentation of a new product, service or policy initiatives (examples include cashless, financial inclusion, etc.) with some degree of regulatory forbearance over a specific time period. Sandboxes are used to support the evaluation of regulations adaptable to new FinTech innovations or market-specific challenges. Although first adopted to enhance financial inclusion in the United States, regulatory sandboxes are being established by a myriad of regulators in other countries to encourage and support innovations with minimal risk to the financial system.

Regulatory sandboxes support the introduction of FinTech innovations and the inclusion of FinTech firms into the financial ecosystem. Their adoption will also facilitate on-market testing of new policy directives prior to national rollout and policy changes, towards an effective and inclusive regulatory environment. The paper posits that any approach to regulatory sandbox adoption in Nigeria should commence with consultations to develop a framework of operational and governance structures, acceptance criteria, etc. followed by a pilot test.

Introduction

Financial Services & Technology

Since the introduction of credit cards in the 1950s, we have seen various technological innovations in financial services (Figure 1) and the evolution of a financial technology (FinTech) industry that provided services through incumbent financial institutions in both customer facing and back-office activities such as risk management, cross border remittances, etc. As technological innovations progressed in the twenty-first century, third-party provisioning of solutions through incumbent financial institutions was further challenged by increased consumer expectations, and venture capital funding which provided entry for upcoming technology firms offering solutions directly to consumers. These financial technologies or “disruptive innovations are changing the structuring, provisioning and consumption of financial services”¹.

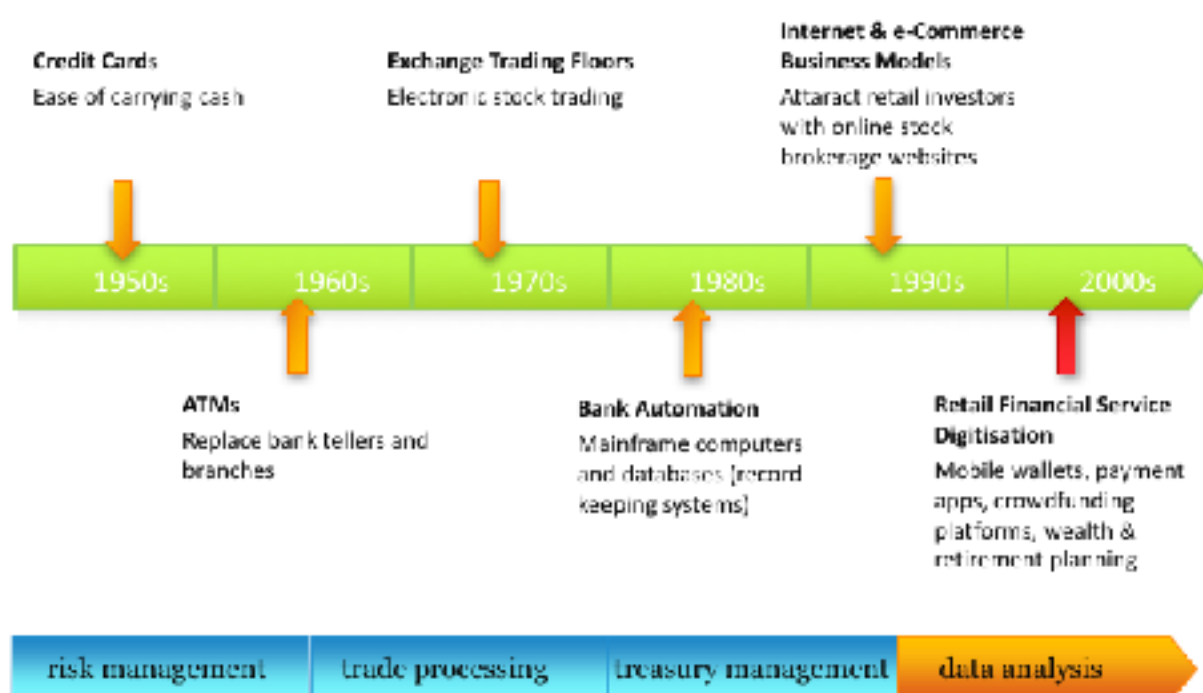


Figure 1: Financial technology evolution (source: created by author²)

The FinTech industry comprises of over 1000 companies across global FinTech hubs in North America (California and New York), Europe (United Kingdom and France), Asia (India, China) and Australia. These FinTechs are reported to have a current value of about \$870 billion, having raised over \$105 billion in total funding². FinTechs operate across the financial services landscape, the classification framework (see Figure 2) identified eleven clusters spanning six financial services functions. In payments, these innovations are not limited to products but also alternative rails such as mobile money enhancing access to finance, a global dilemma that is transforming some developing economies.

¹ World Economic Forum. (2015). The Future of Financial Services. Retrieved May 12, 2017, from http://www3.weforum.org/docs/WEF_The_future_of_financial_services.pdf

² Su, J. B. (2016, September 28). The Global Fintech Landscape Reaches Over 1000 Companies, \$105B In Funding, \$867B In Value: Report. Retrieved May 10, 2017, from <https://www.forbes.com/sites/jeanbaptiste/2016/09/28/the-global-fintech-landscape-reaches-over-1000-companies-105b-in-funding-867b-in-value-report/#42ff00fd26f3>

In Nigeria, industry surveys conducted by KPMG³ and PwC⁴ highlight the presence of global key FinTech trends — entrepreneurial mindset, venture capital and angel funding and technology penetration — that have stimulated the emergence of FinTechs, albeit at lower maturity levels and significant activity (see Figure 3⁵) in all financial services function areas classified by the World Economic Forum (Figure 2). With the rise of these new entrants, the PwC report identified retail banking and payments as financial services sub-sectors to be most disrupted, and central banking the least. Thus, with the provision of next generation payments and other financial services using diverse technology infrastructure, economic and social phenomenon such as financial inclusion will be enhanced.



Figure 2: Global FinTech classification wheel
(source: World Economic Forum)



Figure 3: FinTech landscape: Nigeria (source: Irrational Innovations⁵)

In spite of the technological opportunities in the sector, regulatory uncertainty, disintermediation of financial institutions and obsolete identity management protocols constrain

³ KPMG Professional Services. (2016). FinTech in Nigeria. Lagos.

⁴ PwC. (2017). Nigeria FinTech Survey 2017. Pwc.com.

⁵ https://irrationalinnovations.com/Nigeria_Fintech_Landscape

the industry. With regulatory practices steeped in financial institution regulation, the FinTech threat of new financial products and services increases uncertainty which in turn supports the calls for the introduction of alternative regulatory models for innovative products and services. New technology innovations such as blockchain and the central premise of decentralisation, threaten the trust-building nature of incumbent financial institutions, yet offer opportunities for low-cost payments to enhance financial inclusion. Finally, the obsolete identity solutions and protocols will encumber service providers as well as consumers. In all, changes — technological, process, institutions — in the financial services industry are imminent and warrant the attention of all stakeholders.

This white paper presents the regulation-technology/innovation gap introduced by these emerging FinTechs in Nigeria. The paper introduces new regulatory approaches such as the sandbox as a mechanism to learn and understand the regulatory impacts of new FinTech products and services that will support the development of appropriate rules and guidelines for all stakeholders. The paper presents regulatory sandboxes, a mechanism that engages stakeholders in the regulatory process and a laboratory environment that provides feedback on what works and what doesn't work. Regulatory sandboxes are proposed as an approach to bridging the regulation-technology/innovation gap in the financial services industry.

The contents of this white paper are presented in 5 sections. Following this introduction, a background of FinTech activity and regulatory provisions is presented. The third part presents pain points limiting scalability of DFS. In section four, regulatory sandboxes are introduced — the types as well as established and emerging implementations. Finally, the concluding section proposes the adoption of regulatory sandboxing as a tool for DFS scalability.

Background

Financial Inclusion

Financial inclusion, a long-standing challenge of the Central Bank of Nigeria (CBN), has been addressed through various initiatives for over 5 decades (see Figure 4), with a strong emphasis on providing access to financial services in rural locations. In spite of the various initiatives launched, opportunities for enhancing financial inclusion piggybacked on the high penetration rates and multi-functional utility of mobile phones. While the introduction of mobile money licensing regime has produced a DFS ecosystem (Figure 5⁶) and market entry opportunities for FinTechs, the performance has not significantly moved the financial inclusion barometer. Figure 6 summarises the mobile money environment in Nigeria.



Figure 4: DFS Ecosystem (source: Lagos Business School (2016))



Figure 5: DFS Ecosystem (source: Lagos Business School (2016))

⁶ David-West, O., Ajai, O., Umokoro, I., Salami, D., Isheyemi, O., Ihenachor, N., et al. (2016). Digital Financial Services in Nigeria: State of the Market Report 2016, 1–112. <http://doi.org/10.13140/RG.2.2.24491.23849>

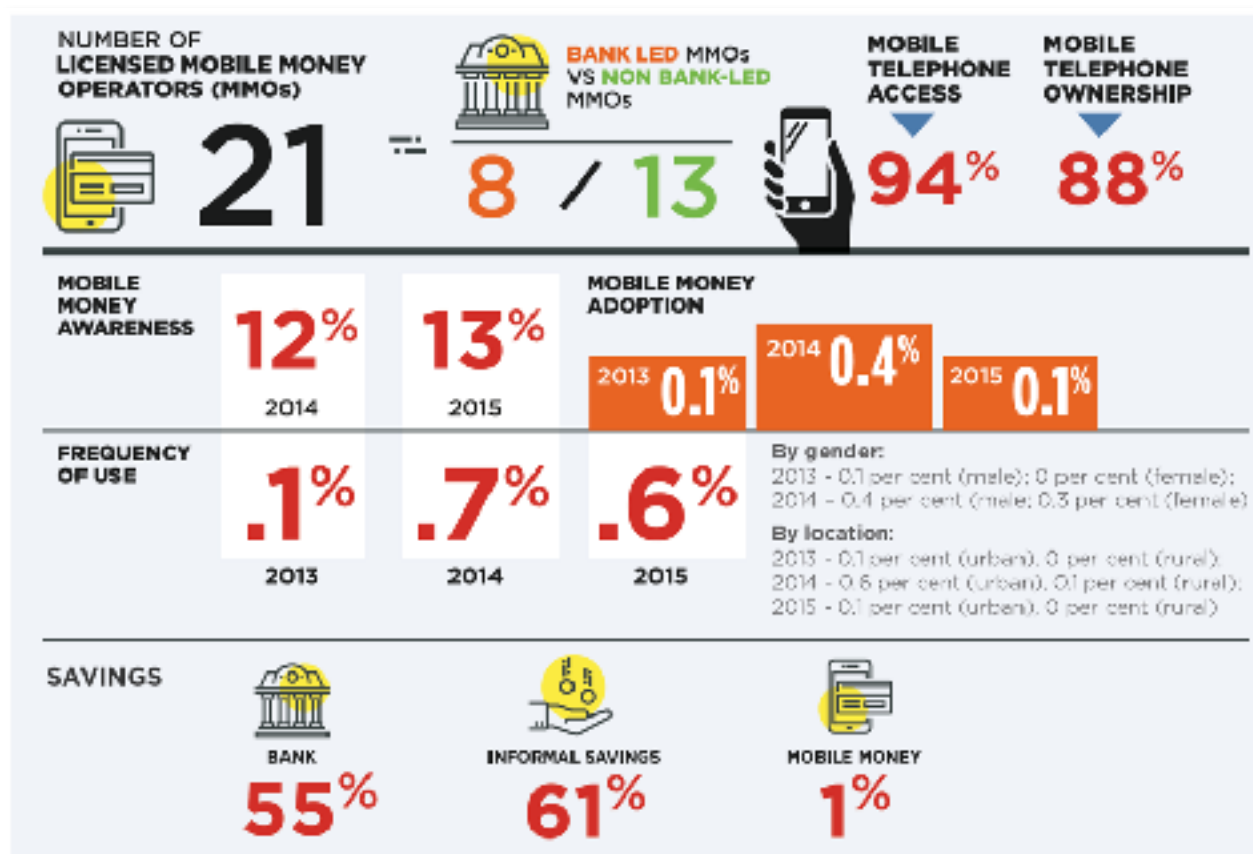


Figure 6: DFS in Nigeria, 2008 - 2014) (source: Lagos Business School (2016))

Cashless Nigeria

With the introduction of digital payment systems, the shift of wholesale and retail transactions from paper-based (cash and cheques) to digital equivalents is illustrated in Figure 7. While the use of physical cash (notes and coins) persists amongst the underserved, the CBN, in a bid to reduce physical cash circulation in the economy launched the Cashless Nigeria project. Through penalties for cash-based transactions, the policy was intended to reduce cash carrying/handling costs and risks as well as to reduce the cash usage subsidy afforded to volume cash users. The phased roll-out launched in Lagos on January 1, 2012, in 5 other states and the Federal Capital Territory (Abuja) on July 1, 2013, with full nationwide implementation (30 States) by July 1, 2014. The need to address financial inclusion goals as well as reducing physical cash in circulation can be merged through the reach of mobile DFS.

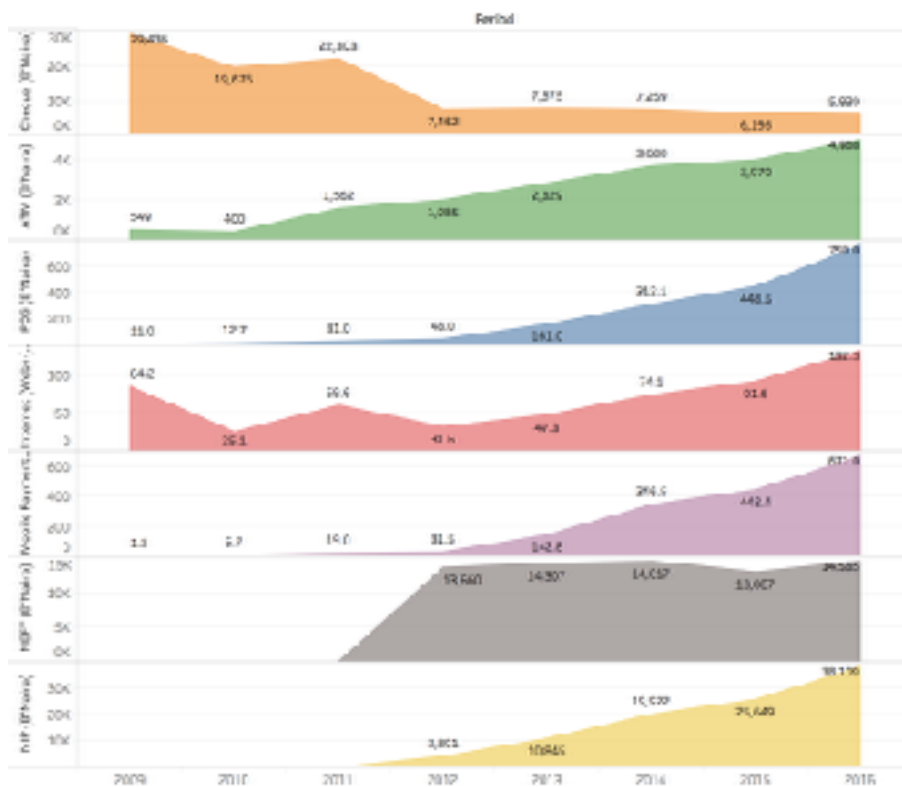


Figure 7: Payment systems statistics (N'value) (source: compiled by author using CBN data)

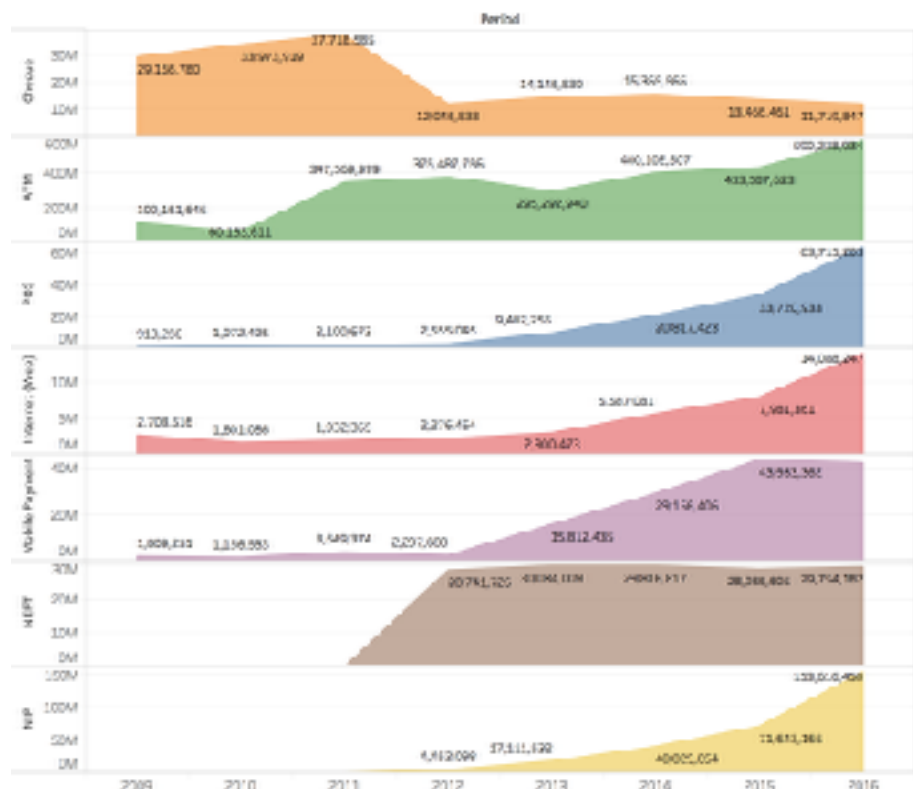


Figure 7: Payment systems statistics (volumes) (source: compiled by author using CBN data)

Regulatory Environment & Systems

Within the industry or scope, the act of regulation includes rule-making as well as compliance activities. In Nigeria, under the Banking and Other Financial Institutions (BOFI) Act of 1991, the CBN is mandated to “ensure high standards of banking practice and financial stability through its surveillance activities, as well as the promotion of an efficient payment system.” CBN activities include:

- Development and implementation of policies and regulations for banking and payments providers
- Licensing and approvals for banks and other financial institutions
- Offsite and on-site examinations
- Development and implementation of an effective consumer protection framework
- License and supervise authorised dealers

As result of the innovativeness of FinTech products and services, their business models and the need to ensure financial systems stability, the limited regulatory instruments pose some regulatory uncertainty. The uncertainty leads to a lack of clarity on FinTech products and services and business models could either discourage new entrants or limit innovation by incumbents when it is overly observed. On the other hand, lack of clarity could also create market confusion and may introduce fraud or misuse of new FinTech services. Table 1 lists extant regulatory instruments as well as benefits and risks.

Table 1: Regulatory Instruments

Instrument	Description	Benefits	Risks
No objection certificate (NOC)/ letter	Statement of non-objection issued by CBN or other party.	Supports case-by-case decision	One off, ad hoc, specific determination for each company Resource intensive process
Prudential guidelines	Guidance on banking operations and practices.	Not-binding, flexible	Ambiguous, may invite litigation
Registration	The use of registries for the registration of security interest in movable property to enhance access to credit.	Easy to implement	Requires periodic monitoring and audits by regulator
Licensing	Approval (backed by legislature) to operate subject to adherence to capitalisation requirements, prudential guidelines, and others.	Comprehensive	Resource intensive — labour and time
Prohibition	Restrictions applied to bank or customer access to services as a means of enforcing regulatory compliance.	Definitive	Requires knowledgeable team and institutional agility
Self-Regulation	Structures and practices that warrant self-regulation.	Flexible	Puts onus on organisation Requires presence of resourceful ecosystem

Supporting Innovation

The DFS-Nigeria ecosystem map identifies FinTech actors using the current CBN licensing regime with provision for mobile money operators (MMOs), switching companies, payment terminal service providers (PSTPs) and payment solutions service providers (PSSPs). However, a mapping of FinTech clusters and trends alongside regulatory/licensing provisions (Table 2) presents the regulatory gaps highlighting the inability of current provisions to support these new entities.

Scaling DFS

Ecosystem Hurdles

The mobile penetration rates in Nigeria led to the evolution of FinTech participants in the ecosystem and subsequent introduction of licensing guidelines for mobile money and super-agency operations. Unfortunately, DFS adoption amongst the under-banked and unbanked adult Nigerians is yet to grow. Consumer constraints in Figure 8 highlight various obstacles ranging from unemployment and lack of funds to distance/access, complexity and proposition. Likewise, provider inhibitors learned from various stakeholder engagements are classified and summarised in Table 3.

	UNDER-BANKED				UNBANKED			
	BANKING	SAVINGS	LOANS /CREDIT	INSURANCE	BANKING	SAVINGS	LOANS /CREDIT	INSURANCE
AWARENESS	✓	✓	✓	✓	✓	✓	✓	✓
UNEMPLOYED	✓	✓			✓	✓	✓	
HAVE ALTERNATIVES		✓	✓			✓	✓	
SERVICES OFFERED NOT SUITABLE/NEEDED			✓	✓			✓	✓
COMPLEX	✓	✓			✓	✓		
NO MONEY	✓				✓			
NO EXTRA CASH		✓				✓		
CONTROL OF MONEY	✓				✓			
DISTANCE	✓				✓			
LITERACY	✓				✓			
ACCESS		✓				✓		
RELY ON FAMILY			✓				✓	
CREDIT AMOUNTS NEEDED TOO SMALL			✓				✓	
TRUST					✓			

Figure 8: DFS consumer inhibitors (source: Lagos Business School, 2016)

Table 2: FinTech License Provisions (source: compiled from WEF and financial institution regulators)

FinTech Area	Clusters	Trends	Regulator	Licensing Provisions
Payments	Cashless World	Mobile payments Streamlined payments Integrated billing Next generation security	Central Bank of Nigeria (CBN)	Switching Payment terminal service providers (PSTPs) Payment Solutions Service Providers (PSSPs)
	Emergent Payment Rails	Cryptographic protocols Person-to-Person (P2P) transfers Mobile Money		Mobile money operations (MMOs)
Insurance	Insurance Disaggregation	Disaggregated distribution Sharing economy Self-driving cars Third party capital	National Insurance Commission (NAICOM)	Insurance Operators
	Connected Insurance	Smarter, cheaper sensors Wearables Internet-of-Things (IoT) Standardised platforms		
Deposits and Lending	Alternative Lending	P2P Lean, automated processes Alternative adjudication	Central Bank of Nigeria (CBN)	Deposit Money Banks Microfinance Banks Other Financial Institutions (OFI) Credit Registry Bureaux
	Shifting Customer Preferences	Virtual banking 2.0 Banking as platform (API) Evolution of mobile banking		
Capital Raising	Crowdfunding	Empowered angel investors Alternative adjudication	Securities and Exchange Commission (SEC)	Capital Market Operators
Investment Management	Process Externalisation	Social trading Automated advise & wealth management Retail algorithmic trading	Central Bank of Nigeria (CBN) Securities and Exchange Commission (SEC) Nigerian Stock Exchange (NSE)	Investment Bank Capital Market Operators
	Empowered Investors	Advanced analytics Natural language Process-as-a-service Capability sharing		
Market Provisioning	Smarter, Faster Machines	Machine accessible data Artificial intelligence/ machine learning Big data		
	New Market Platforms	Fixed income Funds/fund of funds Private equity/venture capital shares Private company shares Commodities & derivative contracts	Central Bank of Nigeria (CBN) Securities and Exchange Commission (SEC) Nigerian Stock Exchange (NSE) National Pension Commission (PENCOM)	Dealers Fund Managers Private Equity

Table 3: DFS provider constraints (industry view) (source: compiled from industry engagements)

	MMO/FinTech	Super-Agent/Agent Aggregator/Sub-Agent
Institutional	<ul style="list-style-type: none"> • Risk Management/Control Structures • Collaboration/Co-opetition • Capacity (technical, human, knowledge, governance) of business of MM • Unclear DFS business strategy • Interoperability, especially at service points 	<ul style="list-style-type: none"> • Capacity (technical, human, knowledge, governance) of business of MM • Limited ability to partner with large corporations
Economic	<ul style="list-style-type: none"> • Access to [Patient] Capital • Business case/ROI • Performance Management • High rural operational costs — lower margins • Agent mobility/churn • Cost-to-serve 	<ul style="list-style-type: none"> • Access to [Patient] Capital • Agent development • Business case • Transaction volumes • Brand recognition/trust • Agent mobility/churn • Cost-to-serve • Access to credit to support liquidity shortages
Regulatory	<ul style="list-style-type: none"> • Regulatory Burden - time & cost • Limited regulator relationship management experience • Pricing regime • Competition/competitiveness regulation and impacts on ecosystem 	<ul style="list-style-type: none"> • Limited regulator relationship management experience • Agent Visibility • Regulatory Burden - time & cost • Pricing regime
Infrastructure	<ul style="list-style-type: none"> • Collaboration /Co-opetition • Identity management for AML/KYC • High software license and support fees increase operational costs • Network access & quality • Pricing exploitation 	<ul style="list-style-type: none"> • Identity management for AML/KYC • Physical Security • Network access & quality • Pricing exploitation
Market (Socio-Cultural)	<ul style="list-style-type: none"> • Low brand equity and visibility • Customer trust • Consumer knowledge 	<ul style="list-style-type: none"> • Customer trust • Limited customer adoption - MMO brand equity and visibility

Collectively, these constraints limit the scale of DFS activities, impede ecosystem development and growth as well as fundamental national policies such as financial inclusion and a cashless economy.

Increasing Throughput

The Nigeria State of Market Report identified the portfolio of actor payments supported by DFS. With primary focus on person-to-person (P2P) transactions, the payments grid depicted in Table 4 highlights the various payments types between parties as well as estimated transaction opportunities in USD⁷. Monetary transaction flows between government and persons (G2P / P2G), government and business (G2B / B2G) and government and government (G2G) such as the social investment programmes (SIP) with a cash commitment of N500 billion are an example of the required throughput. The components of the SIP include:

⁷ Bill & Melinda Gates Foundation. (2014). Digitizing Government Payments in Nigeria. docs.gatesfoundation.org.

- **N-Power:** It is a job creation scheme supporting graduates and non-graduates. N-Power seeks to enhance the employability of scheme participants by providing stipends while non-graduates acquire vocational skills; graduates, on the other hand, are trained to work in communities as school teachers, health support and agriculture extension workers.
- **Home Grown School Feeding (HGSF):** It is a school feeding programme to enhance the nutrition and learning of primary school children, provide markets for agriculture providers and jobs for food vendors in the community. Payments for agricultural produce and cooking services are made by the government.
- **Conditional Cash Transfer (CCT):** It is a poverty-reduction scheme providing cash transfers of N5,000 (five thousand naira) to N1,000,000 (one million naira) to very poor and vulnerable Nigerians on the national social registry (NSR).
- **Government Enterprise and Empowerment Programme (GEEP):** This is an interest-free credit scheme for micro and small enterprises that lack access to formal credit.

Table 4: Payments grid (source: State of Market Report)

	Person (P)	Business (B)	Government (G)
Person (P)	USD 89 billion	USD 56 billion	USD 26 billion
	inbound/outbound remittances cash in/cash out	wages dividend payments	wages welfare pensions agriculture credits
Business (B)	USD 95 billion	USD 317 billion	USD 36 billion
	bills — electricity, cable TV other — school, medical airtime/top-up savings/investments	supplier/distributor payments investments	rebates agriculture credits
Government (G)	USD 4 billion	USD 62 billion	USD 6 billion
	bills/tariffs taxes	bills/tariffs taxes agriculture inputs	statutory payments sub-national accounts

These SIP schemes involve the disbursement of cash to a broader base of Nigerians and aim to increase the throughput of payments as well as to promote financial inclusion. In spite of the perceived benefits, the SIP implementation has been embroiled in extant financial system infrastructure constraints. A short review of challenges relating to the CCT scheme follows.

In its initial phase, the CCT scheme covers 9 States with existing social registries. Enrolment in the bank verification numbering (BVN) scheme is used to validate identities of NSR beneficiaries. After validation, the funds are paid into bank accounts of participating banks through the Nigerian Interbank Settlement System (NIBBS). Since the scheme's launch in 2016, three challenges have limited the scalability of CCT and the intended social and economic benefits. Firstly, due to technical and operational constraints with the BVN system, only about 20 percent of the NSR beneficiaries have been validated. Secondly, proximity to and availability of financial service points (FSPs) — bank branches and /or agents to provide account opening and other customer service activities at the last mile renders CCT funds domiciled in bank accounts inaccessible. In the case of account opening, only about 57 percent of beneficiaries with validated

BVNs have successfully opened bank accounts. Thirdly, liquidity shortages at FSP limits supply of on-demand cash payouts (cash-out).

Identity

The requisite process of validating the identities of intended CCT beneficiaries and account creation has not produced sufficient recipients of the CCT funds. The technical and operational constraints of the BVN scheme such as the use of proprietary technology and their ancillary costs and data quality and accuracy have limited the establishment of enrolment centres to an already limited number of bank branches. Thus, to address the BVN registration and validation of CCT beneficiaries, some initiatives to be considered include:

- Increasing remote enrolment points beyond bank branch infrastructure
- Adopting non-proprietary technology and systems that will not compromise data quality, accuracy and security
- Incentivising third party enrolment operators/ managers to ensure only genuine/ accurate individuals are validated and data capture is compliant with AML and counter terrorism requirements.

Reach

The 2015 study of financial service points⁸ (FSPs) in Nigeria confirmed the existence of less than 30,000 access points serving an adult population in excess of 90 million. Data presented showing access points by distance (Table 5) further emphasises the plight of rural dwellers. The proximity of access points presents a conundrum that impacts consumer utility, the commercial

sustainability of agents and ultimately financial inclusion. The access constraints mandates the creation of additional access posts and systematic mechanisms that facilitate commercial sustainability through even demand for agent services and increased transaction volumes.

Table 5: FSP proximity challenge (source: fspmaps.org)

Distance from access point	Percentage of total population		
	General	Urban	Rural
5KM	57.6	98.9	43
1KM	32.8	74.4	18.2

Cash-Out

The conversion of digital payments to physical cash at agent locations is often limited by the proximity / access problem and manifests in behaviours that warrant the immediate and complete withdrawal of funds received, leaving no residual funds in the account. This behaviour is not only detrimental to cashless tenets, but also creates liquidity demand surges at peak periods that may be difficult to fulfil and lead to fee exploitation. Unattended management of such service failures could potentially jeopardise system trust and confidence. The management of agents will include additional oversight that:

- Guarantees liquidity
- Optimises processes, ensuring ease of use, as well as transparent fees and charges

⁸ <http://fspmaps.org>

-
- Develops troubleshooting and redress protocols that resolve downstream issues encountered by agents and customers/beneficiaries
 - Monitors agent rollouts and reacts to issues as they occur

In sum, addressing these pain points will ultimately improve financial inclusion and also address the scalability of the CCT and other SIP schemes. The nature of the pain points presented and initiatives proposed are mostly operational and exploratory. Without definitive knowledge of the implementation outcomes of the proposed initiatives, a regulatory approach that supports experimentation and testing is essential.

Regulatory Sandboxes

Regulatory sandboxes are a new approach used to address the FinTech incursion and

Table 6: Regulatory vs. industry sandboxes (source: InnovateFinance)

	Regulatory	Industry/Virtual
Focus	Provide test environment for evaluation of innovative products and services and business models	
Goal/Objective	Consumer engagement	Industry collaboration/testing towards functional acceptance
Scope	On-market (involves consumers)	Off-market (consumers excluded)
Participants	FinTechs Consumers Regulators	FinTechs Other industry actors
Regulatory Compliance	Existing regulations may be relaxed/ waived in sandbox period	N/A
Regulatory Implications	Creation of bespoke/amended regulator framework	None
Eligibility	Meet requirements and criteria of regulator	N/A

Table 7: Emerging regulatory sandbox implementations (source: compiled by author)

Country	Regulator	Objectives
India	Reserve Bank of India (RBI)	Create the right ecosystem for FinTech startups and financial institution.
Ireland	Financial Services Ireland Irish Central Bank	Help Ireland take a giant leap into the FinTech world.
Switzerland	Switzerland Financial Market Supervisory Authority (FINMA)	Create a more welcoming atmosphere for startups working in the FinTech space.
USA	House Financial Service Committee (Financial Services Act of 2016, "Bill")	Encourage innovation in the financial industry through Financial Services Innovation Offices (FSIOs).

regulatory uncertainty in the financial services industry. The sandbox is a “safe space” where financial service innovations can be tested in a “live” environment, without the full burden of regulation whilst still safeguarding consumer protection. The concept of sandboxing FinTech innovations was introduced in October 2014 with Project Innovate, a programme of the Financial Conduct Authority (FCA) in the United Kingdom. Project Innovate was modelled after the US Consumer Financial Protection Bureau’s Project Catalyst⁹ that launched in 2012¹⁰. While Project

⁹ Project Catalyst focused only on consumer issues relating to financial inclusion and easier payments.

¹⁰ Financial Conduct Authority. (2015, November). Regulatory Sandbox. Retrieved April 20, 2017, from <https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf>

Table 8: Established regulatory sandbox implementations (source: compiled by author)

Country	Regulator	Established	Objectives
Abu Dhabi	Financial Services Regulatory Authority (FSRA)	November 2016	Create a tailored framework that allows firms deploy innovative technology in the financial services sector ("FinTech Participants") to conduct their activities in a controlled and cost-effective environment.
Australia	Australia Government Australia Securities and Investments Commission (ASIC)	June 2016	Assist with speed to market and bridging organisational competence gaps in FinTechs to meet licensing requirements.
Bahrain	Central Bank of Bahrain	June 2017	Paves the way for increased interaction between FinTech firms in the Middle East (Bahrain) and Asia (Singapore) as well as facilitate the entry of Singaporean FinTech companies into the Kingdom.
Hong Kong	Hong Kong Monetary Authority (HKMA)	September 2016	Allow banks and other FinTech firms to pilot newly developed technology without full compliance with the HKMA's supervisory requirements.
Indonesia	Bank of Indonesia (BOI)	September 2016	Facilitate innovation and upcoming policies.
Malaysia	Bank Negara	October 2016	Provide a FinTech-conducive regulatory environment.
Mauritius	Bank of Mauritius	October 2016	To promote creativity and innovations through the application of technology
Russia	Bank of Russia	February 2017	To allow large and small market players to be sure that no harm, no foul also by developing proportional and adequate rules through testing and observing new business models or practice.
Singapore	Monetary Authority of Singapore (MAS)	November 2016	Containment of innovation failure, whilst maintaining overall safety and soundness of the financial system
Thailand	The Bank of Thailand	December 2016	To provide a safe space for business operators to test the financial innovation in capital markets without being restricted by the regulatory hurdles under the current regime
United Kingdom	Financial Conduct Authority (FCA)	November 2015	A sandbox unit was established under the FCA's Project Innovate to promote competition whilst supporting disruptive innovation.

Innovate adopted the principles of Project Catalyst - evidence-based decision-making and pilot testing - the scope covered all FinTech innovations. While sandboxes promote experimentation, they are not open-ended and have predefined restrictions¹¹ including but not limited to testing under regulatory supervision, client population or transaction limitations (sample size), limited test periods (time limit), etc. In providing the much-needed regulatory clarity to support FinTechs and their innovations, it is important to minimise uncertainty levels, improve access to investments and also improve collaboration and cooperation between stakeholders and regulators.

¹¹ Shoust, P., & Ryabkova, E. (2016). Regulatory Sandboxes. Regulation as a Service. Russian Electronic Money Association.

Sandbox Types

Sandboxes can either be regulatory or industry. A regulatory sandbox is driven by regulators towards driving adoption of innovations that deliver superior consumer outcomes. Industry or virtual sandboxes are supplementary, enabling industry players to self-organise and provide a knowledge-sharing and communication channel and fora, as well as an optional certification facility as part of the regulatory process. Additional differences are summarised in Table 6¹².

Sandbox Deployments

Since their introduction and adoption by the FCA in 2014, sandboxes have become a regulatory tool for testing innovations and creating a conducive working environment for FinTechs. Tables 7 and 8 present emerging and established regulatory sandbox implementations worldwide. To date, with the exception of Mauritius, African financial services regulators are yet to introduce sandboxes and the provisioning of test and learn environments in expanding the financial technology ecosystem¹³. The adoption of regulatory sandboxes by CBN will further distinguish the regulator's leadership capabilities not only amongst other Nigerian financial service regulators, but amongst other regional regulators.

Sandbox Implementation Examples

Financial Conduct Authority (FCA), UK

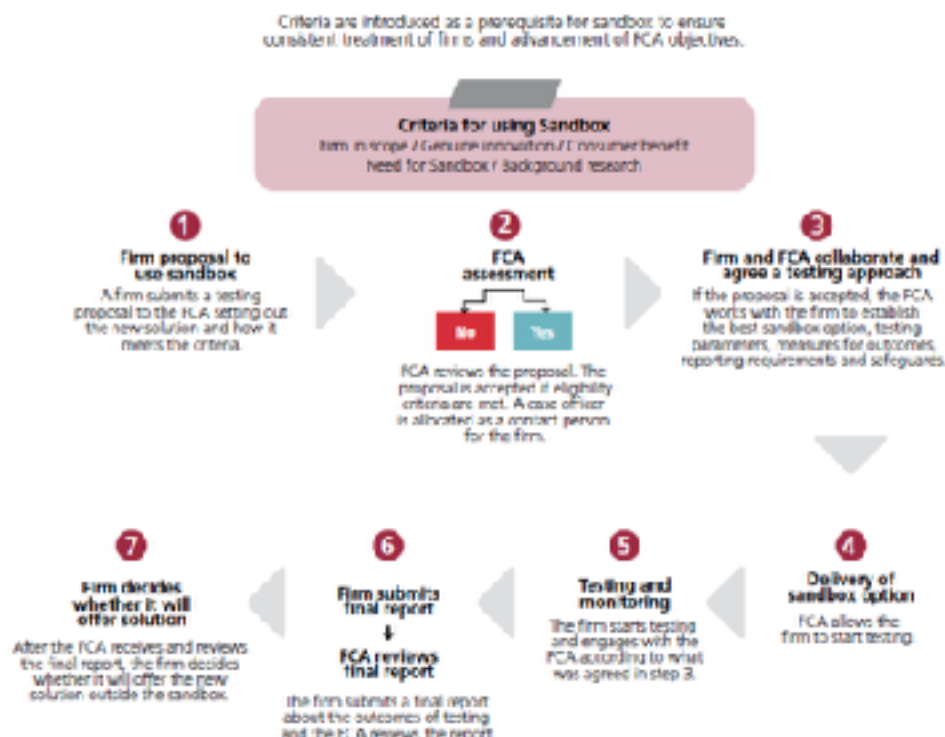


Figure 9: Sandbox engagement process (source: FCA)

¹² InnovateFinance. (2016). *Industry Sandbox*. London: InnovateFinance.

¹³ <http://www.financialtechnologyafrica.com/2017/06/15/why-africa-is-missing-in-trending-global-regulatory-sandbox-programmes/>

Depending on the nature and outcomes of the sandbox, process activities vary. Figure 9 illustrates the 7-step process activity implemented at the FCA subject to meeting pre-defined criteria and requirements.

- Step 1 - Application: The first cohort of the FCA regulatory sandbox closed in July 2016 with 69 applications
- Step 2 - Selection: Following FCA assessment, 24 institutions were accepted having met the sandbox eligibility criteria
- Step 3 - Design: Firms and FCA work on test design for about 10 weeks
- Step 4 - Test: Test is conducted using design protocols and conditions defined in Step 3
- Step 5 - Monitor: Weekly reporting of test progress and milestones is mandatory, else test can be terminated
- Step 6 - Report: At least 4 weeks after the end of the test period, a final report is submitted
- Step 7 - Feedback: FCA provides feedback on the report and works with FinTech to determine next steps

Monetary Authority Singapore (MAS)

Like the FCA in UK, MAS has pre-defined criteria for sandbox eligibility. These include:

- Technological innovativeness of proposed solution
- Proposed solution should either address an industry problem or brings benefits to customers
- Intention to deploy financial solution in Singapore after test period
- Definition of test scenarios and expected outcomes
- Identification of appropriate boundary conditions that sufficiently protect the customers and safety of the industry
- Identification and mitigation of risks from proposed financial service
- A defined exit strategy in the event of solution discontinuation

The approach adopted in Singapore (see Figure 10¹⁴) comprises three stages - application, evaluation and experimentation.

- Application Stage: all applications received are acknowledged. MAS provides confirmation of applicability for sandbox within 21 days.
- Evaluation Stage: MAS evaluates the completeness of all eligible applications and the legal and regulatory requirements. The sandbox applicant may make revisions to the application with MAS guidance.
- Experimentation Stage: the sandbox is launched with full customer disclosure and acceptance of risks. MAS must be informed of any material changes to the financial service being tested. Test results are periodically reported to MAS.

¹⁴ Monetary Authority of Singapore. (2016). *FinTech Regulatory Sandbox Guidelines*.

Conclusion

Over the years, measures taken by the CBN to address financial inclusion and other economic themes have become more prominent considering digital technology penetration rates. As opposed to being service providers to incumbent financial institutions, the entry of independent FinTechs and their innovative products and services and business models, demonstrates opportunities for enhancing access to finance (financial inclusion) in a country such as Nigeria.

With their innovative products and services, FinTech startups are changing the financial markets and providing access to new participants. While these innovations promote ease of use and customer engagement, their scope and creative approaches to financial services delivery are relatively nascent, untested and different from traditional practices. Hence, an understanding of

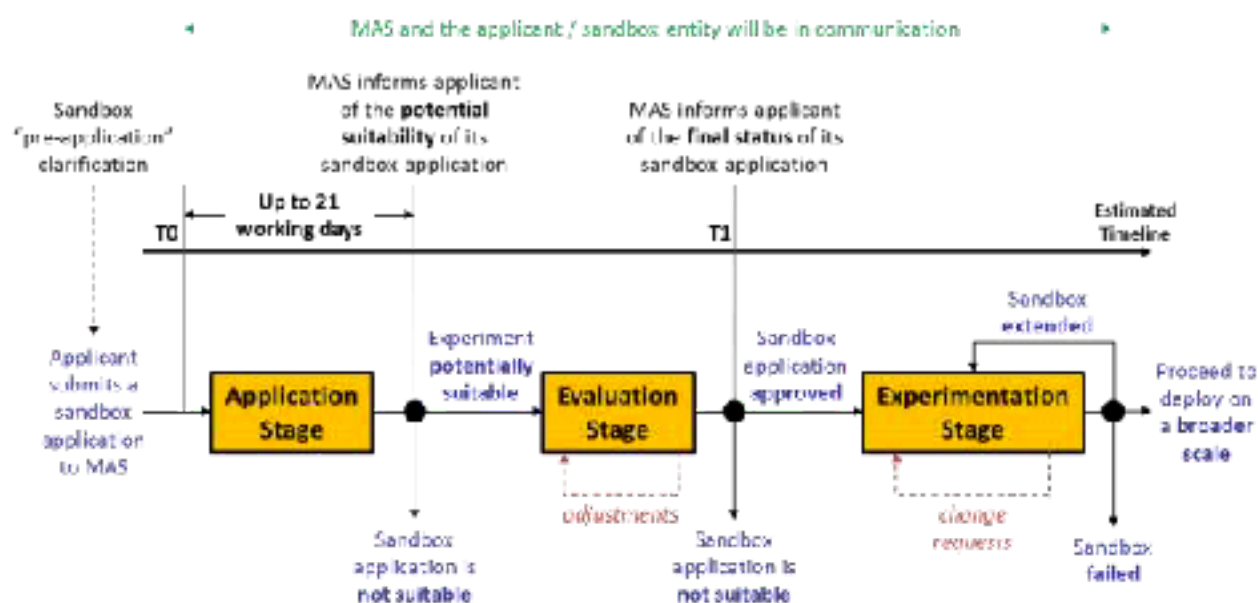


Figure 10: Sandbox application & approval process (source: MAS)

potential impacts to the financial system and the nature of regulatory guidance required will help address any potential risks as well as create collaborative regulator-industry engagements.

This white paper presents the regulatory-technology / innovation gap introduced by the emerging FinTech firms and other financial institutions in Nigeria and it highlights some pain points exposed by the government's adoption of social intervention programmes. The paper introduced regulatory sandboxes as a tool for addressing the emergence of FinTechs and providing a safe environment for product understanding and the development of effective regulatory guidelines.

Notwithstanding the introduction of mobile money, super-agents, agency banking, Know Your Customer (KYC) and other policies to enhance financial inclusion, the adoption by the government to increase transaction volumes through the various SIP initiatives have exposed constraints such as identity, reach (access) and cash-out (liquidity). However, the appropriateness and sufficiency of current regulatory tools and practices in the digital age is subject to further examination. A recent case in point is the further postponement of the nationwide cashless initiative rollout.

Regulatory sandboxes are consumer-based (on-market) tests that are conducted under supervision of the regulatory authority. While the sandbox is given some regulatory forbearance

for the test period, they provide regulators and innovators an opportunity to collaborate on the impacts of new products and services in the market place. They also provide the supporting data (feedback) that guides both regulators in the development of guidelines and other regulatory instruments and FinTechs in the product design activities.

To effectively address the pain points and enable innovation by the FinTechs and financial institutions, it is essential that regulators deploy the regulatory sandbox as an alternative approach to facilitate collaboration (see key actors in Figure 11) and financial innovation while ensuring consumer protection and guidance to enable new entrants and innovative products meet licensing requirements. In addition, the sandbox approach will aid regulators to do the following:

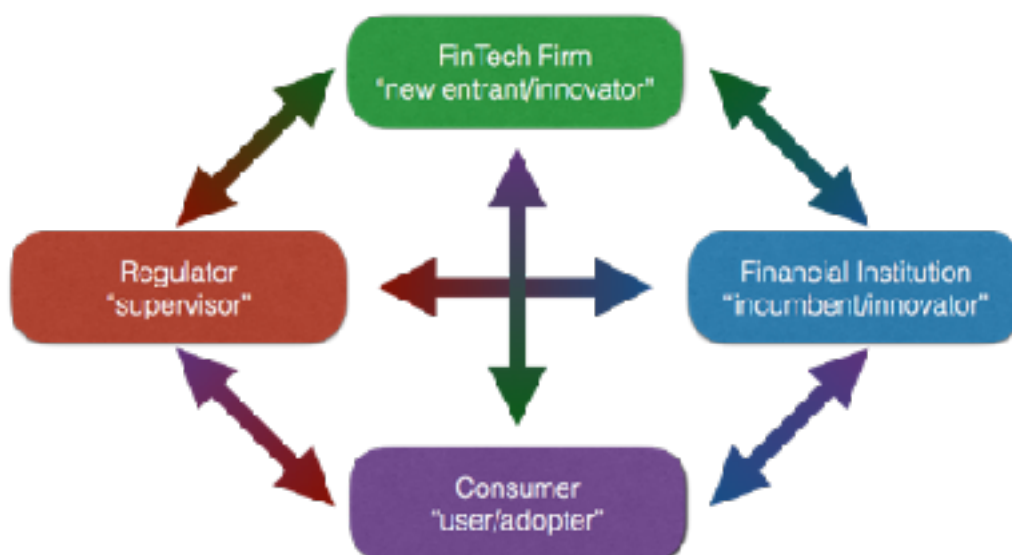


Figure 11: Key regulatory sandbox actors (source: compiled by author)

- Support financial services innovation
- Manage emergent financial system risks proactively
- Understand emergent technologies and innovations
- Feedback for regulatory and policy reviews
- Reduce policy somersaults or reversals
- Build community confidence
- Open opportunities for regulatory process innovations (RegTech)

The inclusion and active participation of FinTechs in the financial services ecosystem will deepen understanding of regulatory risks and processes as well as build collaborative regulatory relationships. FinTech participation in the ecosystem will complement and compete with innovations by incumbent financial services providers. This healthy competition will ensure the development of consumer-oriented financial products and co-created opportunities.

In Nigeria, the establishment of regulatory sandboxes will support innovations in the delivery of financial products and services that meet consumer needs and address social and economic opportunities. Where such sandboxes lead to regulatory or policy amendments, such reviews will encourage innovators and investors in support of Nigeria's emerging FinTech startup ecosystem. However, the introduction of regulatory sandboxes cannot be undertaken prior to the

development of a suitable framework/guidelines and a pilot test. The under-listed items include preliminary activities to guide the establishment of this regulatory approach:

1. Develop/Draft Sandbox Framework/Guidelines: Define operating and governance structures, acceptance/participation/evaluation criteria, etc.
2. Consultation Process: Draft guidelines open for industry-wide review
 - 2.1. Revise & Review Sandbox Guidelines
3. Run Sandbox Pilot
 - 3.1. Identify Sandbox Test(s): Through industry consultations, identify industry problems or new FinTech solutions that can be evaluated using a sandbox
 - 3.2. Design Sandbox: In collaboration with the selected provider, design the sandbox test parameters to be evaluated in the monitoring phase
 - 3.3. Conduct tests: The actual test will be conducted for a specific period with some regulatory forbearance
 - 3.4. Monitor Test: Evaluate sandbox using parameters specified in design phase
 - 3.5. Review Final Sandbox results
4. Refine/Revise Sandbox Framework/Guidelines
5. Build [Institutional] Governance and Operational Capacity
6. Public Launch of Regulatory Sandbox Initiative

August 2017

Acknowledgements:

Research assistance: Alexander Victor

Editorial: Ibukun Taiwo

Copyright © 2017 Lagos Business School

For more information, please contact Olayinka David-West, ydavid-west@lbs.edu.ng



Lagos Business School
KM 22 Lekki-Epe Expressway
Ajah - Lagos
www.lbs.edu.ng
