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Financial Sector Deepening

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FINTECH IN UGANDA

Implications For Regulation

Produced by

Cambridge
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UNIVERSITY OF CAMBRIDGE
Judge Business School

MicroSave
Market-led solutions for financial services

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Foreword

FSD Uganda

Financial innovation has played an integral role in the formation and transformation of the global financial sector. Over the last decade, the pace of technological progress has accelerated, resulting in the introduction of new business models which both better address customers' needs and make processes more efficient. Worldwide, a digital revolution is driving fundamental changes in financial sector. This revolution is underpinned for consumers by widespread use of technology, more affordable communications, mobile money and a generational shift in expectations towards financial services. People are changing how they access services, through agents, through their mobile phone, at any time of day or night, and wherever there is a mobile signal.

A wide variety of FinTech firms are emerging globally and indeed, also in Uganda. These firms are offering new products and services underpinned by new technologies. There is much hope that these new approaches to delivering financial products and services offer the potential to bring about benefits to consumers in terms of increased access, speed, quality, price and choice.

The nature and pace of change poses challenges for policy makers and regulators as they seek to balance support for innovation with protection for the financial system as a whole and for individuals in particular. Information and unbiased, critical analysis driven from a perspective of digital financial inclusion for all is of fundamental importance if we are to avoid a new category of digitally financially excluded Ugandans.

Traditional Financial Services Providers (FSPs) clearly face challenges in extending financial services to the unbanked and under-banked population. FinTech companies have sought to target the gap in access to finance by utilising innovative technology, while simultaneously entering some of the most profitable segments of the financial services value chain. While, by global standards, the FinTech market in Uganda is still small, over the past two years, the average annual growth rate of the FinTechs in Uganda has been approximately 35%. The fast-paced nature of technological developments, and technological uptake by consumers, means that regulators should consider the risks to their regulatory objectives, and devise appropriate response, at an early stage.

This study explores the FinTech innovations in Uganda's Financial Services markets and implications for such FinTech innovations for regulatory and policy interventions. The approach to financial regulation in Uganda is typically based on a set of detailed rules which governs financial services providers' behavior and what they should do. This contrasts with approaches adopted by a number of other markets, which defines a set of desired outcomes and provides

more flexibility for financial services providers to decide how they should achieve these outcomes. Best practices for regulating the FinTech market are advanced.

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Cambridge Centre for Alternative Finance

The Cambridge Centre for Alternative Finance (CCAF) is an international and interdisciplinary research centre based at the University of Cambridge Judge Business School. It is dedicated to the study of innovative instruments, channels, and systems emerging outside of traditional finance.

This includes, among others, crowdfunding, marketplace lending, alternative credit and investment analytics, alternative payment systems, cryptocurrencies, distributed ledger technology (e.g. blockchain) as well as related regulations and regulatory innovations (e.g. sandboxes & RegTech).

MicroSave

MicroSave is a global financial inclusion consulting firm that aims to enable social, financial, and economic inclusion for everyone. We have been at the center of the digital finance revolution since its early days. We work with governments, banks, telecommunication companies, and third-party service providers across Africa and Asia. We offer strategic and operational advice and help implement programs based on insights from meticulous field-based research that is rooted in a deep understanding of clients, their needs, perception, aspirations, and behaviour. We facilitate transformations, support strategy and implementation, uncover insights, and create efficiency and impact. Our advisory services help achieve sustainable performance improvements and unlock enduring value.

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Philip is the Regulatory Innovation Lead at the CCAF. Philip was previously a regulator specialising in FinTech, competition policy and financial inclusion, focusing on enabling supportive regulatory environments for development. In his capacity as the International Lead at the UK Financial Conduct Authority's Innovate initiative, he closely supported dozens of financial services regulators and governments in their efforts to promote innovation in financial services, including those in developing markets. A leading authority on regulatory sandboxes, Philip is regularly consulted by those seeking to promote innovation in regulation. During his time at CGAP, Philip successfully advocated for the implementation of pro-innovation and pro-competition regulatory policies with regulators and competition authorities to promote financial inclusion. Philip has also served at the UK's competition authority, the Competition and Markets Authority (CMA), where his work focused on improving competition in banking.

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Acronyms

AFI	Alliance for Financial Inclusion
AI	Artificial Intelligence
ASIC	Australian Securities and Investments Commission
ATM	Automated Teller Machine
B2B	Business to Business
BOU	Bank of Uganda
CBN	Central Bank of Nigeria
CCAF	Cambridge Centre for Alternative Finance
CDRs	Call Data Records
CRBs	Credit Reference Bureaus
DLT	Distributed Ledger Technology
eKYC	Electronic Know Your Customer
FCA	Financial Conduct Authority
FITSPA	Financial Technology Service Provider Association
FSB	Financial Stability Board
FSPs	Financial Service Providers
G20	Group of Twenty
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
ICT	Information and Communications Technology
IMF	International Monetary Fund
IoT	Internet of Things
KYC	Know Your Customer
LMI	Low and Middle Income
MFIs	Micro Finance Institutions
MFS	Mobile Financial Services
MIS	Management Information Software
ML	Machine Learning
MNOs	Mobile Network Operators
MPOS	Mobile Point of Sale
MSMEs	Micro, Small and Medium Enterprises
MTN	Mobile Telephone Network
MTO	Money Transfer Organisation
NGOs	Non-Governmental Organisations
NSSF Act	National Social Security Fund Act
OCR	Optical Character Recognition
P2P	Peer to Peer
POS	Point Of Sale
PSD2	Payment Services Directive 2
QR Code	Quick Response Code
RPA	Robotic Process Automation
SACCOS	Savings and Credit Cooperative Organisations
SDGs	Substantive Development Goals
SEIAS	Socio-Economic Impact Assessment System
SME	Small to Medium Enterprise
SMS	Short Message Services
STK	SIM Toolkit
UGX	Ugandan Shilling
USD	United States Dollar
USSD	Unstructured Supplementary Services Data
VC	Venture Capital
WSBI	World Savings Bank Institute

Executive Summary

Technological progress has played an integral role in the formation and transformation of the global financial sector. Over the past decade, the pace of technological progress has accelerated, resulting in the introduction of new business models that aim to make processes more efficient and address the needs of customers better.

These technologies have stimulated the development of technology-enabled financial services, or "FinTech" as it is known. FinTechs are companies that utilise technology to provide financial services. Globally, there are now over 4,000 FinTechs operating across all areas of the financial services sector.

FinTech holds great potential for both financial inclusion and economic development in a wider sense. Digital financial solutions have been expanding access and reach to consumers, especially the unbanked and under-banked. They have been significantly lowering the costs of providing financial services, making it possible to serve the base of the pyramid in a more profitable way. Fintechs have also enabled new business models that offer expanded services to customers and continue to generate new revenue streams for financial service providers.

In 2016, the McKinsey Global Institute[1] highlighted that digital finance has the potential to provide access to financial services to 1.6 billion people in emerging economies by 2025, with more than half of them being women. The report also highlights that the widespread use of digital finance could boost the annual GDP of all emerging economies by USD 3.7 trillion. Technological innovations in financial services have also changed how consumers interact with and receive financial products and services. This, together with the disruptive and fast-paced nature of FinTech, presents at once both opportunities and challenges for regulators and policymakers.

On the one hand, FinTech presents significant benefits for financial inclusion and may also promote competition and reduce information asymmetries. On the other hand, regulators have been wrestling with whether, when, and how to regulate these providers, and if they present consumer protection, competition, or financial stability risks of their own.

In this context, FSD Uganda, the Cambridge Centre for Alternative Finance (CCAF), and MicroSave collaborated to assess FinTech in Uganda, and its implications for policymakers and regulators. This study outlines key priority areas necessary for regulatory and policy development in Uganda to address the challenge of facilitating

1 Digital Finance for All: Powering Inclusive Growth in Emerging Economies, McKinsey Global Institute, 2016: *https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx*

responsible development of inclusive digital finance. It draws upon insights, experiences, and best practices with respect to the regulatory and policy developments of FinTech from a number of other leading regulators and standard-setting bodies around the world, including the UK, Kenya, Australia, South Africa, the Financial Stability Board, and the International Monetary Fund.

This study aims to:

- Define and illustrate traits and key features of Uganda's fledgeling FinTech sector and discuss how FinTech has been emerging in the context of Uganda;
- Analyse best practices and further learnings taken from different markets in the region and globally;
- Consider the current regulatory approach to FinTech in Uganda and its appropriateness;
- Provide recommendations for policymakers and regulators that seeking to develop the appropriate regulatory framework for FinTech in Uganda.

Key findings on FinTech in Uganda:

- There are currently around 70 FinTechs operating in Uganda.
- While this figure is small by global standards, it is anticipated that this number will grow quickly given that the average annual growth rate of the FinTechs in Uganda has been approximately 35% over the past two years.
- Payments is the largest area of FinTech in Uganda, with a transaction volume of UGX 17.6 trillion (~ USD 4.7 billion) in 2016.
- The next largest FinTech sectors in Uganda are banking infrastructure, investment and savings, lending, and markets. In 2017, the total market volume of FinTech companies in Uganda was approximately USD16 million.
- About 60% of the FinTechs that currently operate in Uganda are native to the country, 21% are more generally focused on Sub Saharan Africa, while the rest are global FinTechs with operations in Uganda.

Key findings and best practices of the regulatory approach to FinTech in Uganda:

- In Uganda, the twin challenges of providing an enabling regulatory environment to support the benefits of FinTech, while balancing the emerging risks which it presents, require careful consideration.
- While the FinTech sector in the country is small by global standards, the fast-paced nature of technological developments, and their uptake by consumers, means that the authorities in Uganda should carefully consider the risks to their regulatory objectives, and the appropriate response, at an early stage.

- This is all the more important given that the policy and regulatory space tends to move much more slowly than innovation in the sector.
- There are a number of best practices that the regulatory authorities in Uganda could develop while the FinTech sector is still relatively small.
- These best practices will help to balance the mitigation of the potential issues and risks that FinTech may present in Uganda. The best practices can also help policymakers and regulators seize the opportunities and benefits that FinTech can offer with respect to increased financial inclusion, investment, and growth in both the financial sector and the wider economy.

These best practices are based on the examples of other leading financial services regulators around the world as well as on the unique characteristics of the financial services market in Uganda.

Best practice 1: Development of a comprehensive consumer protection framework, including data privacy

The development of a comprehensive and robust consumer protection framework in Uganda would support both the development of the FinTech sector and mitigate some of the risks that may subsequently arise as it grows. Consumer protection regulation can help address how technology-enabled financial service providers interact with consumers and ensure the effective disclosure of pricing and other terms and conditions of products and services.

This could also incorporate data protection and privacy legislation, which would promote trust in financial services and, in turn, encourage the uptake and usage of technology-enabled financial services. The forthcoming Data Protection and Privacy Bill[2] provides an excellent opportunity to develop a data protection framework in Uganda.

2 Data Protection and Privacy Bill: *www.nita.go.ug/publication/data-protection-and-privacy-bill-published*

Best practice 2: Address priority areas for systemic risk that FinTech presents

Potential systemically important segments of FinTech in Uganda, such as the provision of digital credit and alternative lending channels, are currently at low volumes. However, the rapid growth of the sector in other parts of the world indicates that this may not remain the case for long. Given the potential systemic risks that FinTech may present, the authorities in Uganda should consider implementing a pre-emptive approach for mitigation.

There are three priority areas for systemic risk, based on the recommendations of the Financial Stability Board[3]:

1. Managing operational risks from third-party service providers, such as cloud computing and data services;
2. Mitigating cyber risks through contingency plans for cyber-attacks, information sharing, and monitoring;
3. Monitoring macro-financial risks, through better data collection on the sector.

Best practice 3: Develop competition policy in financial services

FinTech represents a huge opportunity to promote competition in financial services in Uganda and, in turn, promote financial inclusion and indeed further innovation. At the same time, new technology-enabled financial services providers will stress existing legislation and place greater emphasis on competition policy and law.

The development of a comprehensive approach to promoting competition in financial services would support the development of FinTech in Uganda, while also helping to mitigate the risk of market power. This would also be highly complementary to the draft of the Competition Bill and the National Financial Inclusion Strategy.

3 Financial Stability Board (2017): Financial Stability Implications from FinTech: *www.fsb.org/wp-content/uploads/R270617.pdf*

Best practice 4: Up-skill regulators on FinTech

Policymakers must respond and move quickly to understand FinTech – only by doing so can the appropriate regulatory responses evolve. However, there are currently low levels of awareness and understanding of FinTech among policymakers and regulators in Uganda. Given the regulatory knowledge gap with respect to FinTech in Uganda, up-skilling regulators on the subject will be important for ensuring the appropriate regulatory framework and responsible development of the sector. There are a number of options to support this:

1. Greater engagement between authorities and the industry, which would promote mutual understanding;
2. Promoting awareness and understanding of global best practices regarding the regulatory approach to FinTech;
3. FinTech-specific regulatory initiatives, such as innovation hubs or regulatory sandboxes provide a channel through which regulators can engage with, and learn more about, technology-enabled financial services providers and their implications for financial regulation;
4. Training and other educational opportunities that can provide the opportunity for regulators to up-skill on FinTech.

Best practice 5: Clarify the regulatory approach to FinTech

The current regulatory approach to FinTech in Uganda is uncertain and unclear, resulting in increased regulatory barriers to entry and innovation in the sector, and gaps in consumer protection. Clarifying the regulatory approach to the sector would support the responsible development of technology-enabled financial services in Uganda. There are a number of options that would serve to support this:

1. Greater regulatory coordination

Given the number of different authorities that play a role in financial services regulation in Uganda, particularly in the case of FinTech, enhanced regulatory coordination would provide increased clarity and certainty on the regulatory framework as it applies to the sector.

2. Activity-based regulation

A possible consequence of institution- or product-based regulatory frameworks is that companies that provide financial products and services via new channels, such as technology may be regulated differently, or not at all, compared to other companies. These other companies provide these products or services via more "traditional" channels, such as at a branch or through an agent.

One approach to ensure the consistent, certain, and clear approach to regulating financial services providers is to regulate based on the activity or "function" that the provider undertakes, rather than on the "type" of institution that provides the product or service.

3. Principles vs rules-based regulation

The current regulatory framework in Uganda is mainly rule-based, with regulations prescribing the exact way in which providers should comply with the regulation. This leaves little room for flexibility and innovation in *how* financial services providers comply with the regulation. A principles-based approach may enhance the consumer protection environment while allowing financial services providers of all kinds the space to innovate. Principles tend also to be more technology neutral, which would ensure flexibility for those with different products, services, and business models.

4. FinTech-specific regulatory initiatives

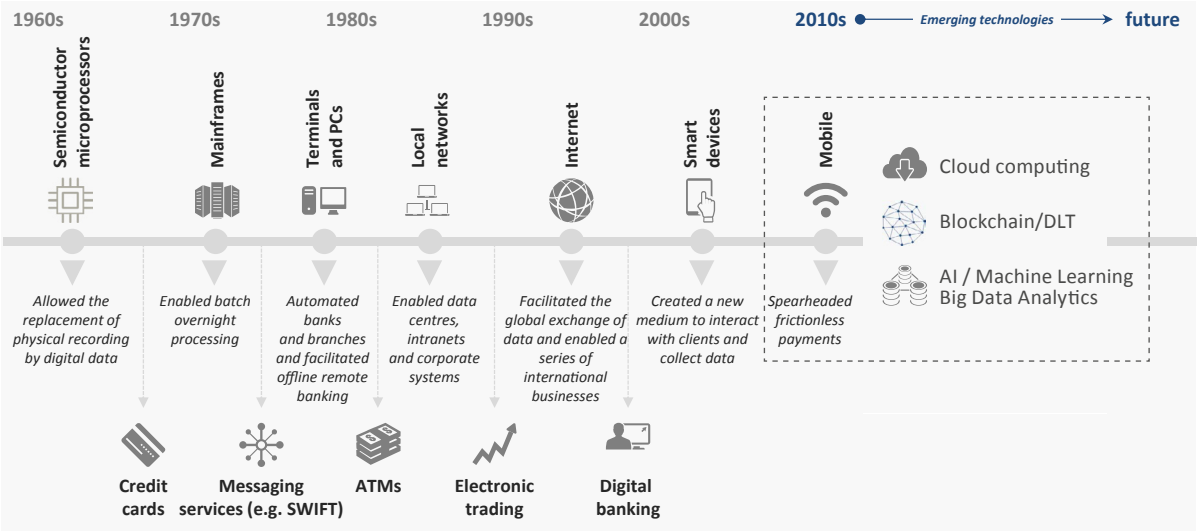
FinTech-specific regulatory initiatives, such as innovation hubs or regulatory sandboxes, provide a channel that regulators can utilise to develop the regulatory framework, while simultaneously reduce regulatory uncertainty for technology-enabled financial services providers.

Chapter 1: Introduction to FinTech

1.1 Definition and characteristics

Technological progress has played an integral role in the formation and transformation of the financial sector globally. Over the past 50 years, a variety of technological innovations have helped introduce new business models and products, as well as ways to conduct financial transactions. For instance, the proliferation of computer terminals and personal computers in the 1980s led to automated bank branches and facilitated remote banking with the introduction of the Automated Teller Machine (ATM) (Figure 1).

Figure 1: The accelerating pace of technological progress in financial services



Source: *"The future of financial infrastructure: An ambitious look at how blockchain can reshape financial services"*, World Economic Forum (WEF) report, August 2016. *www3.weforum.org/docs/WEF_The_future_of_financial_infrastructure.pdf*

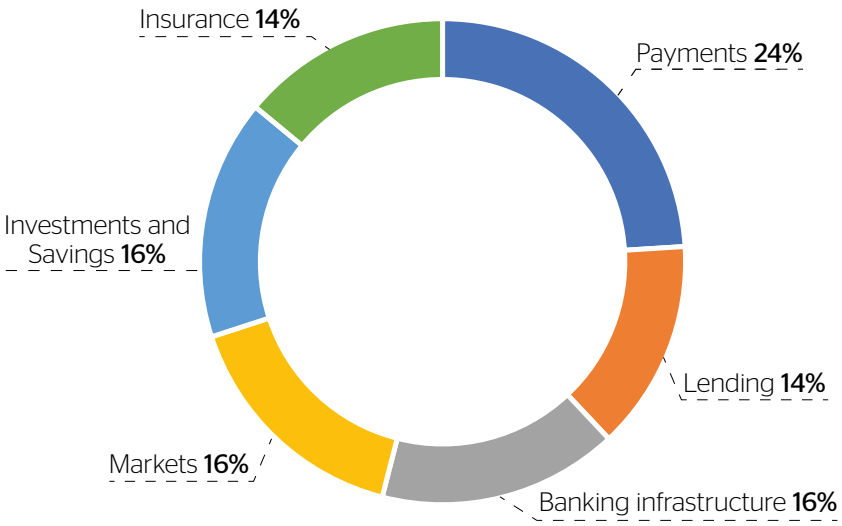
Over the past decade, the pace of technological progress has accelerated. It has resulted in the introduction of new business models to make processes more efficient and to better address the needs of customers. Specifically, four key technological advances are currently revolutionising the financial sector around the world:

1. Mobile phones/Internet - sharing economy
2. Artificial Intelligence (AI)/Machine ILarning (ML) and Big Data analytics
3. Blockchain/Distributed Ledger Technology (DLT)
4. Cloud computing

These technologies have stimulated the development of technology-enabled financial services, or FinTech as it is commonly known. FinTechs also refers to companies that utilise technology to provide financial services. They operate across all areas of the financial services sector.

Globally, there are over 4,000[4] FinTechs operating across the payments, lending, banking infrastructure, markets, investments and savings, and insurance sectors. Payments is the largest area of FinTech, followed by banking infrastructure, investment and savings, and markets.

Figure 2: FinTech around the world



Source: FinTech by the numbers, Incumbents, startups, investors adapt to maturing ecosystem, Deloitte

Key drivers in the emergence of FinTech around the world

While there are a number of drivers in the emergence of FinTech around the world, three of these are particularly prominent and interconnected.

1. Demographic and cultural shifts

Fifty per cent[5] of the world's population is under the age of 30. This so-called millennial[6] generation is digitally native. They bring a new psychology and perspective concerning banking and financial services. Products and services in all sectors are expected to be mobile-first, delivered using digital channels, and personalised for the end-user. FinTech fits with the demographic and cultural shifts perfectly in the domain of financial services

2. Gaps in the traditional financial services sector

Banking and financial services used to be the stronghold of "traditional" established financial institutions. These providers had a number of advantages related to their size and scale and were able to serve much of the mass market. However, many have also traditionally had high-cost branch networks and legacy IT systems, which have rendered some both sluggish to adapt to the new digital world and also led to some consumers being considered "unprofitable", with negative consequences for financial inclusion.

4 FinTech by the numbers, Incumbents, startups, investors adapt to maturing ecosystem, Deloitte: *www2.deloitte.com/content/dam/Deloitte/tr/Documents/financial-services/dcfs-fintech-by-the-numbers.pdf*

5 This is what millennials want in 2018, World Economic Forum, *www.weforum.org/agenda/2018/01/this-is-what-millennials-want-in-2018/*

6 Born in the years between the 1980s and the early 2000s

A comparative assessment of traditional financial services providers and FinTechs highlights a number of benefits and value propositions for FinTechs to end-users.

Table 1: Benefits and value propositions for FinTechs to end-users

Attribute	Traditional financial services providers	FinTechs	User value proposition for FinTech
Cost of services	High	Medium to High	• Ease of use • Faster services • Good experience • Lower cost of access to financial solutions • More services and features available • Value-added services
Turnaround-time	With delays	Instant	
Customer service	Extremely generalised	Personalised	
Personalised services	Offered to premium customers	Offered to all customers	
Processes	Complex, partially automated	Simple and hassle-free, fully automated	
Documentation requirements	High	Low	
Updates on request	Takes time	Instant	
Key operational channel	Branch	Mobile	
Quality of service	Medium	High	
Ease of use	Low to Medium	High	
Features	Limited	Multiple, personalised, advisory	
Other Integrations	Limited	Social media, bill payments	

3. Technological advancements

Technology has evolved over the past decade. It has paved the way for digitisation of transactions, data analytics for a better understanding of the users, personalisation of solutions, and automation of processes. Section 1.2 provides further details about the key technological advancements that have had an impact on the financial services sector.

1.2 Technology-enabled innovations in financial services around the world

This section explores the four main technology innovations, as set out in the introduction, which drive FinTech and how each has an impact on the different financial products and services globally. It highlights examples of FinTechs around the world which are utilising these technologies to both disrupt traditional financial services providers and address the gaps identified above.

FinTech is considered to be disruptive[7] in nature for the following reasons:

- **Disaggregation of the value chain:** FinTechs have sought to disaggregate the financial services value chain. Instead of providing the full range of products and services like a traditional

7 FinTech and financial inclusion, presentation by World Bank, *http://pubdocs.worldbank.org/en/877721478111918039/breakout-DigiFinance-McConaghy-FinTech.pdf*

financial institution, such as a bank, FinTechs often target one particular product or service and seek to provide it in a better way – either through price or service. This obviously poses significant competition for incumbents.

- **The use of open platforms:** Where financial institutions have traditionally sought to keep their customers within their 'walled garden' of legacy products and services, many FinTechs have taken the opposite approach and instead operate using open platforms. Through these open platforms, FinTechs seek to build applications and services on top of pre-existing products, thereby capitalising on the existing customer base of the products.
- **Use of alternative information:** FinTechs use alternative sources of information and data, such as e-commerce and mobile transaction histories, to complement or substitute traditional methods of client identification and credit risk assessment. They are therefore able to offer the prospect of more accurate credit scoring and extend credit to previously unbanked consumers.
- **Customisation and personalisation:** FinTechs have sought to offer greater customisation and personalisation compared to traditional financial services providers through better data collection and analytics. Personalisation and customisation have included human-centred product design, such as intuitive user interfaces or targeted alerts and notices to consumers.

Overall, these technological advances have had three main effects on consumers, businesses, and financial services providers:

A. **Improved the customer experience** – by making it easier and more intuitive to perform financial transactions, and providing more transparency in the process;

B. **Provided better access** – advances in technology allow customers and businesses to perform financial transactions anytime, almost anywhere in the world, and across a range of devices;

C. **Lowered operating costs and increased process efficiency** – new tools developed from technological innovations transform the way financial services firms operate by making the processes faster, more efficient, and thereby lowering the costs of operation.

1.2.1 Technology innovation 1: Mobile phones/Internet – sharing economy

Mobile phones: Mobile phones have an impact on many aspects of our daily lives and have transformed the way we conduct business and interact socially. A major development in the financial services market over the past few years has been the increasing use of mobile phones to access financial services, perform financial transactions, and manage personal finances – or as it is commonly referred, mobile financial services (MFS) or mobile money.

Given their wide availability, mobile phones have become an essential distribution channel for financial products and services with

many banks, financial institutions, and mobile network operators (MNOs). These service providers offer apps in smartphones, as well as using SMS or USSD in feature phones. The apps allow individuals to perform financial transactions, such as deposits, bill payments, account transfers, balance inquiry, and investment management. In addition, other non-traditional financial products, such as insurance are also being offered through the mobile phone.

The 2018 Global Digital suite of reports from *We Are Social* and *Hootsuite* reports that 5.135 billion people in the world have mobile phone connections[8]. This represents a staggering 68% of the global population.

Mobile payments: Conducting payments using a mobile phone, or mobile payments, has been the first and most widely adopted financial product using mobile phone technology worldwide. According to Forrester (2016), the volume of mobile payments in the U.S. was approximately worth USD 112 billion in 2016 and is expected to grow at a 20% compound annual rate to reach USD 221 billion by 2021.[9] Similarly, Forrester (2016) estimates that the European mobile payments market will almost triple over the next five years, increasing from USD 52 billion at the end of 2015 to USD 148 billion by 2021.[10]

Equally important is the fact that emerging markets have been experiencing tremendous growth and adoption of mobile payments. In many cases, more individuals in these markets have been using mobile payments than in developed markets. According to the GSMA (2017), the total value of mobile payments transactions for emerging markets was USD 32 billion per annum[11]. The report suggests that there are 276 mobile money companies in 90 countries around the world, with 690 million registered mobile money accounts that process an average of USD 1 billion per day.

Over the past five years, the landscape of mobile wallets has been quickly evolving. A number of players have been vying for a piece of this fast-growing market. These include FinTech start-ups, established technology firms, and mobile handset providers, such as Apple and Samsung, among others. Once considered one of the first FinTech start-ups, PayPal is a leading mobile wallet globally. At the time of writing, it had more than 184 million active customer accounts and over USD 13 billion held by customers in their PayPal digital wallets[12].

In China, companies such as Alipay and WeChat Pay dominate the online payments and mobile payments markets. Relying on the use of QR codes, these technology behemoths serve more than half a

8 Global Digital Report 2018, We are Social and Hootsuite, June 2018. *https://digitalreport.wearesocial.com*

9 Mobile payments volume in US will triple by 2021: report, Retail Dive website: February 6, 2017. *www.retaildive.com/ex/mobilecommercedaily/mobile-payments-volume-in-us-will-triple-by-2021-report*

10 Mobile payments 'to triple by 2021', Retail Systems, website: February 2, 2017. *www.retail-systems.com/rs/Forrester_Mobile_Payments_Report_2021.php*

11 2017 State of the Industry Report on Mobile Money, GSMA, 2017, *www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/05/GSMA_2017_State_of_the_Industry_Report_on_Mobile_Money_Full_Report.pdf*

12 PayPal Heads Mobile Wallet Rankings as Users Forecast to Pass 2 Billion Next Year, Juniper Research, April 4, 2018; *www.juniperresearch.com/press/press-releases/paypal-heads-mobile-wallet-rankings*

billion consumers in China and are aggressively expanding to other countries in Asia through partnerships and investments in local FinTech payment firms.

Apart from mobile payments, money transfer and remittances are a big area as well. *TransferWise* is one of the most well-known FinTechs in this space. It utilises technology to match the orders of unrelated customers to execute international money transfers, while limiting how much currency actually crosses borders, thus keeping costs and prices low. The company estimates that it saves customers USD 50 million in fees on the USD 2 billion in money transfers executed on its platform each month.

Other mobile financial products – Lending, investment, savings, and insurance: Alternative lending and investment products have emerged due to advances in technology, such as the Internet. The mobile phone serves as an alternate distribution channel for these new financial products, making them more readily accessible. Due to the limited internet penetration in emerging markets, the mobile phone becomes the main distribution channel for these alternative lending and investment products.

Micro-savings and micro-insurance products offered on mobile phones are also gaining popularity but are more visible and relevant in developing markets, including in Africa. Chapter 2 on FinTech in Africa covers such mobile financial products in detail.

Internet – Sharing Economy: A number of factors have propelled the emergence of alternative financial products. These include faster Internet connectivity and wider availability globally, the digitisation of financial processes, growing consumer awareness, the rise of social media, and the loss of trust in major financial institutions after the 2008–2009 global financial crisis. These new financial products form part of the "sharing economy", or collaborative economy, as it is commonly called.

Most of the companies that drive the sharing economy are technology start-ups. These are structured as online platforms that connect resources and people. An attractive feature of these online platforms is that they use digital technologies to address information asymmetries that may occur and, in the process, provide transparency to consumers for them to make more informed decisions.

Over the past 10 years, a wide variety of alternative financial products have become part of the sharing economy. These products are sometimes referred to as Peer-to-Peer (P2P) finance since they involve the exchange of money from individuals to other individuals or businesses through a platform that bypasses the traditional financial intermediaries. P2P finance products fall under two categories:

Alternative Lending or P2P Lending is a debt financing method. It uses an online platform that connects individuals and businesses which want to borrow funds (borrowers) with investors which have

access to funds and are willing to lend it (lenders) for an agreed interest rate, without involving a bank or a traditional financial institution. To assess the borrowers' identity and their ability or willingness to pay the loan, the FinTech manages the online platform and provides information to the investor in order to vet the borrower. The information may include an assessment of the borrowers' credit risk, the purpose of the loan, as well as the borrowers' identity information.

The P2P lending market has grown at an astonishing rate since it offers borrowers and lenders significant efficiencies over the traditional lending model. For borrowers, the application process is a lot simpler and more streamlined than a traditional bank loan application. Another important benefit is the reasonable interest rates on the loans, which tend to be significantly lower than traditional bank lending rates. A third benefit is the quick process of getting the loan fulfilled – which is typically much faster than traditional lenders.

Founded in 2007, *Lending Club* is a California-based FinTech that operates a P2P lending platform for consumer and small- and medium-sized enterprise (SME) loans over fixed periods of 36 or 60 months. The company assesses applicants' risk and allows users to lend directly to individuals or spread their money across a number of loans.

The platform uses a combination of a proprietary scoring model, credit score, and other credit features of the applicant. It charges borrowers an origination fee of 1-5% (depending on credit risk) and creditors a service fee equal to 1% of the loan amount. It manages over USD 20 billion in loans and is the largest P2P lending platform in the world with USD 98 million in revenue in 2017.

Investment Crowdfunding refers to sourcing money for a company or raising funds for a project or case by using an online platform and asking backers to each invest a relatively small amount in it. FinTechs that offer investment crowdfunding platforms differ from P2P lending companies since the underlying financial product is either equity ownership in the company that is raising capital or just a donation.

The benefit of equity-based crowdfunding for companies is the ability to raise capital to invest in their companies through an alternative channel – which may be a lot easier and cheaper than trying to raise capital from venture capitals (VCs) and private equity firms. For individuals, equity crowdfunding allows them to invest in start-ups and private companies that they were unable to do so before since it would have been mainly the realm of VC and private equity funds.

Republic is a New York-based crowdfunding platform that enables its users to invest in start-ups. It seeks to democratise access to angel investing by allowing entrepreneurs to crowd-fund investments. It vets early-stage start-ups and identifies high potential start-ups for their investor base. Consumers can participate by investing as little as USD 10.

1.2.2 Technology Innovation 2: Artificial intelligence, Machine Learning, and Big Data

Big Data, Artificial intelligence (AI), Machine Learning (ML), and Big Data have become some of the most disruptive technological innovations in today's world. The terms Big Data, AI, and ML, are used interchangeably, but broadly:

- **Big Data** – refers to high-volume and high-velocity (real-time) datasets for enhanced insight and decision making;
- **Artificial Intelligence (AI)** – refers to the analysis of data to model some aspect of the world by using computers and models that learn from the data in order to respond intelligently to new data and adapt their outputs accordingly;
- **Machine Learning (ML)** – refers to the set of techniques and tools that allow computers to 'think' by creating mathematical algorithms based on accumulated data.

The financial sector has been an early adopter of Big Data and AI/ML, which has had a profound impact on investment management, trading, cybersecurity, and on how transactions are performed. FinTechs have embraced AI/ML and Big Data analytics. A wide variety of firms use these analytical methods to deliver financial products and services to other businesses, such as banks, as well as to end users.

Medici[13] summarises four key areas where FinTechs have been making use of AI, ML and Big Data analytics (Figure 3):

Figure 3: AI, ML and Big Data analytics across FinTech

Credit Scoring	Marketing		Risk Management	Investment Management
	Customer Acquisition	Customer Retention and Loyalty		
– Gather customer data from multiple available sources – Quantify qualitative aspects – Customize scoring models iteratively	– Customer acquisition: Focus on digital channels – Improvising digital touchpoints to engage consumers – Creating complete customer preference profiles by going beyond transactional data – Personalized, contextual offerings		– Enhanced fraud & authentication solutions – Eradicate vulnerable access points – Device identification, biometrics, behavior analysis	– Automated advisory solutions – Combine multiple data points (social media, search data, etc.) and provide visual insights – Identifying anomalies
	Source: LTP, Powered by MEDICI			
credit sesame, PROSPER, LendingClub, OnDeck, Kabbage, FAIRCENT.com, zestfinance, Vouch	cardlytics, CARTERA commerce, truaxis, segmint, personetics		BILL GUARD, centrifuge, feedzai, Klarna	wealthfront, EIDOSEARCH, SIGFIG, Betterment, LEARNVEST, PERSONAL CAPITAL, jemstep
	Note: Company list is not exhaustive and is focused on startups			

Source: MEDICI; *https://gomedici.com/how-is-big-data-analytics-being-leveraged-across-fintech/*

13 How Big Data Analytics, AI and Machine Learning is Being Leveraged Across FinTech, MEDICI, February 2016; *https://gomedici.com/how-is-big-data-analytics-being-leveraged-across-FinTech/*

Credit-scoring: AI for credit scoring has become one of the most popular use-cases employed in the financial services sector. By using a mix of traditional data, such as credit bureau, applicant-provided data and non-traditional data, such as digital payments, mobile call data records (CDRs), social media, and behavioural analytics, FinTech companies have developed highly sophisticated credit risk assessment models to evaluate the ability and willingness of customers to pay their loans.

More importantly, these new models have opened up the possibility to serve customers who have limited or no credit history, such as 'thin file' customers and the unbanked – which were not included in the past due to the difficulty of assessing their credit risk.

Affirm offers instant three, six and 12-month loans for purchases from 1,500 online merchants at rates that vary between 0% and 30% annually. Using its machine learning technology, Affirm lends to consumers who might not qualify for credit cards and that repayment helps them build credit histories. Affirm has disbursed over a million loans and is estimated to have a value of USD 1.8 billion.

Founded in 2009, *Kabbage* provides a business line of credit to small businesses up to USD 250,000, based on a number of factors, including business volume, time in business, transaction volume, social media activity, and the seller's credit score. If approved, many applicants receive money is as little as five minutes.

Customer marketing: AI, ML, and Big Data analytics software solutions have improved customer engagement, resulted in higher customer revenue, and offer tailored financial products that meet their needs with greater ease. AI and ML algorithms can combine different data sets, such as historical transactions and customer preferences, among others, to segment the customers in a cost-effective way. The segmentation process can provide personalised and contextual products, rewards, and increase cross-sell and upsell opportunities.

FinTechs have developed chatbots that can address consumers' questions and complaints, and also provide personalised messages for financial and product education. These chatbots can also be utilised in customer on-boarding to automate the process and make it more efficient.

Founded in 2008, *Cardlytics* uses purchase-based intelligence to make marketing more relevant and measurable. Through it is a proprietary native bank advertising channel, it enables marketers to reach consumers through their trusted and frequently visited online and mobile banking channels.

Risk management: Confirming the identity of individuals and making sure they are not involved in illicit activities is an important first step in the on-boarding of new customers at financial institutions. This due diligence process is most commonly referred to as Know-Your-Customer (KYC) and can be cumbersome and tedious – both for

the customer and the financial institution – since it involves filling out multiple forms and recording signatures.

AI, ML and Big Data simplifies the process by using biometric data, facial recognition and optical character recognition (OCR) to extract important personal details from IDs and forms, reducing the customer friction.

AI has also been playing an important role in the regulatory compliance and controls area of major banks globally. Regulatory Technology, or RegTech, is a subset of FinTech that uses AI, ML, and Big Data to simplify compliance and save banks from a complex, time-consuming, and costly activity.

Centrifuge is an open, decentralised operating system to connect the global financial supply chain. It allows participants to transact on a global network while maintaining ownership of their data, including their validated company details, their reputation, business relationships, and subsequent transactions. The resulting open ecosystem allows third-parties to build decentralised apps on top.

Onfido is a London-based RegTech start-up that uses machine learning in order to provide companies with instant access to robust checks of identity, as well as background checks for both customers and employees. The platform interacts with a variety of databases that are available publicly and gives employers an opportunity to monitor a person's employment, their criminal records, as well as verify identity.

Investment management: AI, ML, and Big Data has had an impact on how firms manage their investment portfolio. Through the use of complex analytical tools, providers can generate highly profitable investment decisions after combing through extensive amounts of data.

Robo-advisory FinTechs use the power of AI to provide customers with automated, algorithm-driven financial planning with little to no human supervision. Typically, robo-advisers collect information about an individual's financial situation and goals. They then use this data to either offer advice or automatically invest client assets or both. Robo-advisors can also help customers to either set up savings alerts or automation or both. They can also provide predictions and advice on their next purchase.

WealthFront is an automated financial advisor that offers financial planning, investment management, and banking-related services all on a mobile app. Similarly, *Acorns* is a mobile app that rounds up each debit or credit card purchase to the nearest dollar, investing the extra cents in diversified portfolios of low-cost index exchange-traded funds. It has 2.9 million investment accounts, with 2.4 million active users.

1.2.3 Technology innovation 3: Blockchain or distributed ledger technology (DLT)

Blockchain is a form of distributed ledger technology that is open to anyone. It is a vast, global decentralised database that is cryptographically secure and runs on millions of devices. The transactions in the distributed ledger are immutable and verifiable, therefore, making them transparent and easy to track.

Like the Internet, blockchain is effectively a protocol upon which applications can be built. One of the most powerful features of blockchain technology is the fact that it does not require traditional intermediaries when doing a transaction between two parties, thereby significantly lowering or even potentially eliminating transaction costs.

Blockchain technology represents a new paradigm – decentralised trust. This is because the validation of transactions no longer has to be done by a centralised trust body, but by a network of autonomous computers. These autonomous computers confirm and validate the content by following a unique algorithm that compels them to act in the common interest (*Dahan & Casey, 2016*).[14]

Another important feature of blockchain technology is smart contracts, which are software programmes that automatically execute complex instructions when certain conditions are met. These smart contracts are on the blockchain and have the potential to significantly lower the costs of contracting and making payments. Academics and researchers claim that blockchain will disrupt the financial services system with a cheap and secure form of banking, which does not have to rely on financial intermediaries.

Blockchain has certainly caught the attention of global institutions like banks and corporates, development organisations, and regulators. In 2016, IBM surveyed 200 banks in 16 countries around the world, and roughly 65% of the banks expect to have blockchain solutions in production in the next three years.[15]

One of the earliest use-cases of blockchain technology is for cross-border payments and remittances. The advantage of blockchain technology for international remittances is the fact that it can significantly lower transaction costs. By using blockchain technology, transaction costs can be lowered from approximately 7.3% of the transaction amount to 1 to 3 cents. Another advantage of using blockchain is that the remittance process is almost instantaneous, whereas the traditional methods typically take between 2 to 5 days.

Coins.ph, a FinTech start-up based in the Philippines, is a good example of a company that is offering a mobile, blockchain-based

14 Dahan, M., & Casey, M. (2016). Blockchain technology: Redefining trust for a global, digital economy. Retrieved July 23, 2017, from *https://blogs.worldbank.org/ic4d/blockchain-technology-redefining-trust-global-digital-economy*

15 Leading the Pack in Blockchain Banking. IBM. September 2016. *https://public.dhe.ibm.com/common/ssi/ecm/gb/en/gbp03467usen/GBP03467USEN.PDF*

platform to allow Filipinos to send money at a faster and more affordable rate. Blockchain technology gives Coins.ph the ability to facilitate remittances between individuals around the world without relying on existing bank infrastructures.

Coinbase provides a cryptocurrency trading platform. It offers digital currency wallets, cryptocurrency trading, and merchant tools. It has 10 million users and is estimated to have a value of USD 1.6 billion.

Robinhood is a mobile app that offers free basic stock trading. It also features a premium service, which allows users access to extended trading hours and margin loans. The company plans to launch a cryptocurrency trading platform to allow users to trade in 16 cryptocurrencies. Robinhood has 3 million users and is estimated to have a value of USD 1.3 billion.

1.2.4 Technology innovation 4: Cloud computing

Also referred to as on-demand computing, cloud computing can provide access to computing storage, servers and services as needed over the internet – similar to a public electric utility, but for computing resources.

Similar to a public utility, cloud computing can dynamically scale up or down depending on the computing needs of a company. Its usage can be metered and billed to each company. Essentially, cloud computing takes up all of the heavy lifting involved in processing, accessing, and storing data away from company servers and data centres to remote servers, which can be accessed over the Internet at any time and with any device that is connected to the internet.

According to Gartner (2016), cloud computing is considered one of the most disruptive forces of IT-spending since the early days of the digital age.[16] Indeed, cloud computing has had an impact on every sector of the economy and its market size is massive. Gartner (2016) estimates that the worldwide public cloud services market will grow by 18.5% in 2017, reaching USD 260.2 billion. It is projected to almost double to USD 411 million by 2020.[17]

Cloud computing is a highly disruptive innovation that has contributed to the fast growth and emergence of FinTech start-ups and TechFin companies globally. As was the case with mobile phones, cloud computing too serves as an essential infrastructure pillar that affects all product areas of the financial services sector, and more generally, all sectors of the economy.

For FinTechs, there are no upfront IT investments required since a user pays only for what is used. Therefore, FinTechs that develop

16 "Gartner Says by 2020 "Cloud Shift" Will Affect More Than USD 1 Trillion in IT Spending", Gartner press release, July 20, 2016; *www.gartner.com/newsroom/id/3384720*

17 "Gartner Says Worldwide Public Cloud Services Market to Grow 18 Percent in 2017", Gartner press release, February 22, 2017; *www.gartner.com/newsroom/id/3616417*

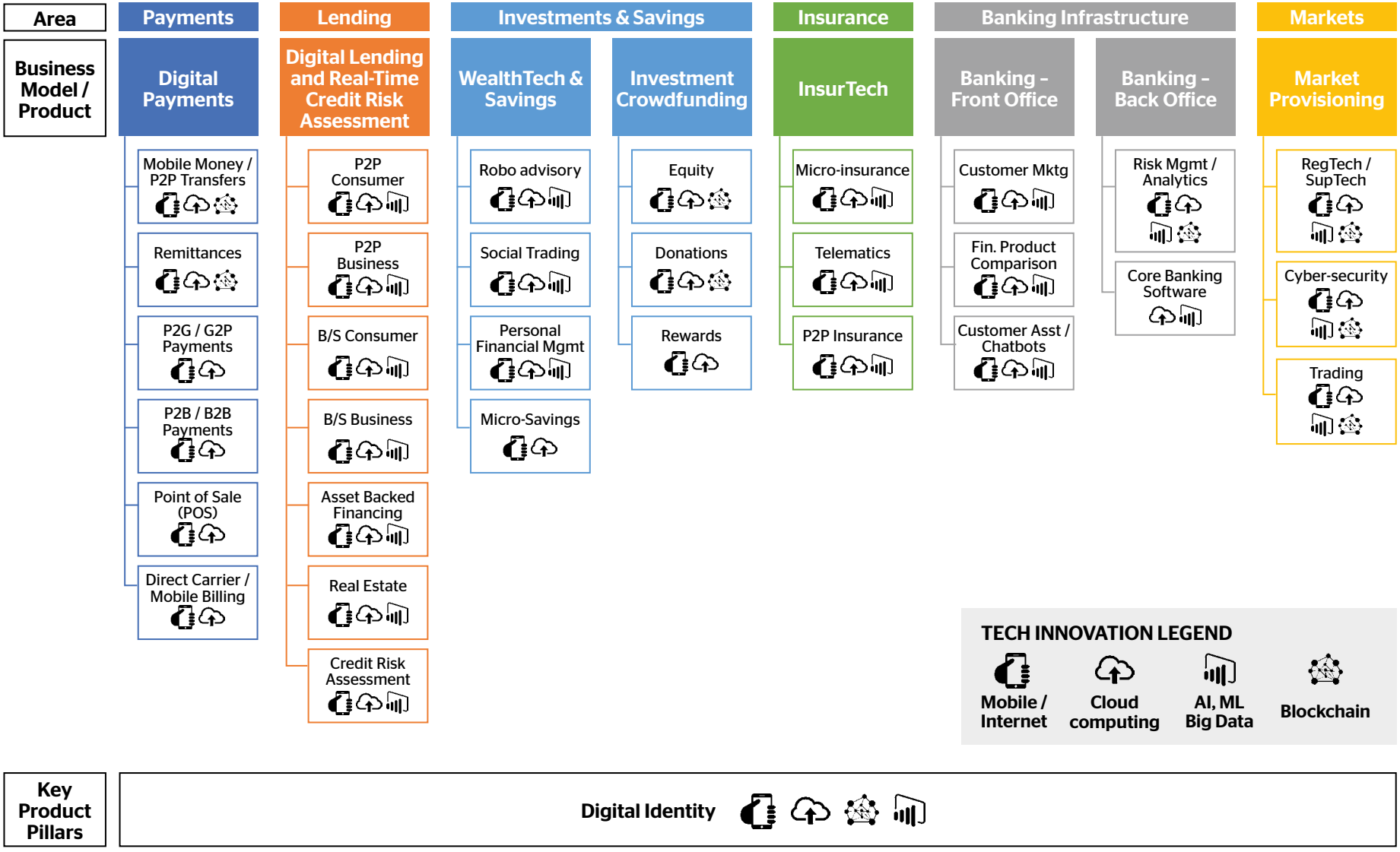
their platforms on the cloud are able to build and scale up or scale down their product offerings in real-time to meet customer demand. Consequently, many FinTechs have an "asset-light" business model, which allows them to effectively compete against larger financial institutions that run in-house legacy IT systems. Cloud computing provides a big competitive advantage for FinTechs over traditional financial institutions, because it removes most of the barriers related to IT infrastructure, resulting in large savings.

UiPath provides process efficiency and lowers costs for finance and banking companies using Robotic Process Automation (RPA) to rapidly deploy software robots that emulate and execute repetitive processes. This can help to reduce compliance costs and provide analytical insights.

1.3 FinTech taxonomy

The taxonomy below sets out a broad classification of FinTech globally. It highlights the wide range of financial products and services under FinTech. The taxonomy maps this to the four key technological advances that have been revolutionising the financial sector around the world, as outlined in section 1.2.1.

Figure 4: FinTech taxonomy



As per this taxonomy, there are six key areas where FinTechs have been disrupting the traditional financial services markets. These are payments, lending, investments and savings, insurance, banking infrastructure, and markets. The table below sets out a description and classification of the products linked to each of these six key areas

Table 2: FinTech business model, products, and description

Business model	Product and description
Payments	
Digital payments	**Mobile money or P2P transfers:** Secure and convenient technology that allow either direct payment – for example using email addresses or mobile phone numbers – or payments via a secure third-party vendor. A mobile money consumer accesses a mobile wallet using either USSD or STK channels. This enables them to carry out P2P payments – and in many cases, access other financial services such as credit, savings, and insurance. Users can perform cash-in and cash-out operations using the mobile money providers' agent network.
	Remittances: Cross-border and local payments between both consumers and businesses.
	P2G or G2P payments: P2G payments are payments made by individuals (persons) to government agencies or public sector organisations. G2P payments include the transfer of social benefits from governments.
	Point-of-Sale (POS) devices: A point-of sale-terminal (POS device) is an electronic device used to process card payments at retail locations
	Direct carrier or mobile billing: Involves a consumer using the mobile billing option during checkout at an e-commerce site. A PIN and one-time password allow a charge to be made to the consumers' mobile billing account. This bypasses the need for a card or banks altogether.
Lending and real-time credit risk assessment	
Digital lending	**P2P consumer:** Stems from private, unrelated individuals or institutional investors who provide unsecured or secured loans to consumers. There is no need for a financial institution to get involved except to transfer money to the borrower.
	P2P business: Similar to peer-to peer-lending, but the loan is made to businesses. The ticket sizes of these loans would be bigger and is there a potential for higher returns.
	Balance sheet (B/S) consumer: Loans made to consumers, where the credit risk rests with the lenders' own balance sheet drawn from investors' equity, debt, and retail deposits
	Balance sheet (B/S) business: Loans made to businesses, where the credit risk rests with the lenders' own balance sheet drawn from the equity, debt, and retail deposits of investors
	Asset-backed financing: Loans and advances to individuals and businesses backed by physical and psychological collaterals including invoice discounting
	Real estate: Includes digital lending platforms for construction and real estate owners and lenders, as well as lending for real estate purchase and construction
Real-time credit risk assessment	**Credit risk assessment:** The use of advanced data analytics, including alternative data sources to more accurately assess the credit risk of a borrower

Business model	Product and description
Investment and savings	
Investment and crowdfunding	**Equity:** Facilitates individuals or institutions to raise equity finance from individuals or institutions
	Donations: Facilitates donations from individuals or institutions for a cause
	Rewards: Facilitates donations from individuals or institutions towards a specific project in exchange for a tangible but non-financial reward once the funding has been secured
WealthTech and savings	**Robo-advisory:** Portfolio management systems that provide algorithm-based and largely automated investment advice, and sometimes also make investment decisions. Robo-advisory algorithms are generally based on passive investing and diversification strategies, incorporating the investor's risk tolerance and preferred duration of the investment.
	Social trading: A form of investment in which investors can observe, discuss, and copy the investment strategies or portfolios of other members of a social network. Individual investors are supposed to benefit from the collective wisdom of a large number of traders. Depending on the business model of a social trading platform, users can be charged for the usage, order costs, or as a percentage of the amount invested. In addition, innovative software solutions play an important role in the business models of many FinTechs in the asset management segment.
	Personal financial management: Provides services to users to record transactions, aggregate transactions across various heads, analyse information, compare against a budget, and help plan financial goals
	Micro-savings: Facilitates building up lump-sum by a user by prompting them to make small deposits on a frequent basis
Insurance	
InsurTech	**Micro-insurance:** Provides micro-insurance services characterised by individually-tailored policies and use of alternative data to determine the price of the premium.
	Telematics: Using a combination of telecommunications and informatics to design and deliver insurance products that price the premium based on customer behaviour for non-life insurance products.
	P2P insurance: Allows individual users to pool their premiums together to insure each other against a risk, creating a social risk sharing network.
Banking infrastructure	
Banking – back office	**Customer marketing:** Includes innovative, automated, personalised, relevant marketing outreach based on the preference and needs of users.
	Financial product comparison: Enables customers to compare financial products based on reviews from other users, which facilitates greater transparency and better-suited products as per the customers' needs.
	Customer assistance or chatbots: Provides automated customer service through a chat window. Enabled by artificial intelligence and customer engagement rules to provide real-time information, answer questions, and take requests.
Banking – front office	**Risk management analytics:** Includes automated and digitised protocols to review risk and fraud on a real-time basis, provide alerts, trigger actions based on protocols, and suggest mitigation mechanisms.
	Core banking software: The back-end architecture and information systems that enable any financial institution to record, manage, and analyse transactions.

Business model	Product and description
Markets	
Market provisioning	**RegTech/SupTech:** Enables companies to meet their regulatory and supervisory compliance requirements more efficiently.
	Cybersecurity: Provides cyber risk assessment and mitigation services to financial services providers to prevent cybercrimes.
	Trading: A platform that considers a user's personal circumstances, financial goals, and risk tolerance to automatically put together a recommended investment portfolio, using a unique risk profiling and portfolio-compiling algorithm.

Having explained the definition and the characteristics of FinTechs, the key drivers in the emergence of the FinTech, key enablers for FinTechs, and FinTech taxonomy, the next chapter looks at the FinTech business models prevalent in Africa.

Chapter 2: FinTech in Africa

2.1 Context and landscape

As with the rest of the world, FinTech has also developed in Africa, with new technology-enabled financial products and services emerging across the continent. *Finnovating for Africa 2017 Report* by Disrupt Africa has analysed the data for 301 FinTechs in Africa. The key insights from the report include:

- There are over 300 FinTechs in Africa. A majority of these are concentrated in the southern Africa and West Africa regions, with a concentration of 35% and 34% respectively.
- More than half of the FinTech start-ups are less than two years old.
- South Africa, Nigeria, and Kenya are the key hubs for the FinTech sector in Africa. Over 31% of the FinTechs are in South Africa, followed by 24% in Nigeria, and 18% in Kenya.
- Over 40% of the FinTechs in Africa focus on solutions in the payments and remittances space, followed by 20% of the FinTechs in the lending and financing segment. The other 40% of FinTechs belong to other segments, such as investment and savings, banking infrastructure, and markets.
- As of December 2017, venture capitalists had funded over 150 deals and invested over USD 100 million in FinTechs in Africa.

This chapter summarises the most common FinTech segments and products across Africa, illustrating these with examples. It is notable that many of the FinTech business models and products specifically aim to promote financial inclusion. Section 2.3 summarises the potential that FinTech holds for financial inclusion.

2.2 FinTech in Africa – Use-cases and examples

2.2.1 Payments and remittances

Payments

Payments are the largest segment of FinTech in Africa, with mobile money or P2P transfers being the most common area of payments. Digital financial services through mobile phone technology have become one of the primary ways to accelerate financial inclusion for the unbanked and under-banked in Africa. According to Ericsson, out of the 2 billion adults around the world that do not have a bank account today, 1.7 billion have a mobile phone.[18] Indeed, mobile phones are widely available and used in developing countries, with 89 active subscriptions per 100 people (*Neef et al., 2014*).[19]

18 *Mobile Wallets*, Presentation at ADB Conference on Financial Inclusion in the Digital Economy, May 24-25, 2016, Ericsson.

19 Neef et al. (2014). Using Mobile Data for Development. Retrieved from: *https://docs.gatesfoundation.org/Documents/Using Mobile Data for Development.pdf*

The scale of mobile money in Africa is impressive: more than 40% of the adult population in Kenya, Tanzania, Zimbabwe, Ghana, Uganda, Gabon, and Namibia use mobile money on an active basis. In Sub-Saharan Africa, there were 277 million registered accounts in December 2016, which is more than the total number of bank accounts in the region. In Africa, 66% of the combined adult population of Kenya, Rwanda, Tanzania and Uganda use mobile money on an active basis (*GSMA 2018*).[20]

The most successful example is M-PESA in Kenya, which is part of the mobile network operator (MNO) Safaricom. Founded in 2006, M-PESA currently reaches at least 84% of Kenyans who live below USD 2 per day (Costa & Ehrbeck, 2015), with more than 16.6 million active users and 101,000 agents. The company was able to grow rapidly, achieving 1 million active users in just 8 months (*GSMA, 2016b*)[21]. Ten years after the launch of M-PESA, mobile money has become commonplace in Kenya and is an essential part of the country's financial system. The company has launched new products and services and has significantly expanded the ecosystem through partnerships with different financial institutions. The transformative power of M-PESA in Kenya is clearly visible in the financial access it has provided to Kenyans. While there are only 11 ATMs and six commercial bank branches per 100,000 adults in the country, there are 538 mobile money agent outlets per 100,000 adults (*GSMA, 2016b*).[22]

Paga, based in Nigeria, offers a platform that allows users with mobile phones to transact electronically by turning the mobile phone into an electronic wallet. Its customers can use Paga to send cash, purchase airtime credit, pay bills and retailers, and more. Paga supports a large number of all types of mobile phones and enables customers to transact over the Internet via its mobile application. Paga serves over 5 million customers through its shared agent network of over 10,000 agents and processes over USD 1 billion each year.

Yoco is a mobile point-of-sale and payments solutions (mPOS) company that serves micro, small, and medium enterprises in South Africa. Yoco enables businesses to accept digital payments in various forms and integrate with multiple payments methods seamlessly, including cash. Card acceptance brings in new customers, increases average transaction size, and improves operational efficiency for MSMEs.

Zoona provides a platform on a mobile device to provide financial services, such as money transfers, payments, accounts, and more in over 1,500 locations in Zambia and Malawi. Zoona's over-the-counter service has enabled over 1,000 entrepreneurs to start their own businesses. It has processed over USD 1 billion in mobile money transactions across 1.5 million regular users.

20 GSMA (2018). State of the Industry Report on Mobile Money – 2017. Retrieved from: *www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/*

21 GSMA (2016b). State of the Industry Report on Mobile Money - Decade Edition: 2006 – 2016. Retrieved from: *www.microfinancegateway.org/library/state-industry-report-mobile-money-decadeedition-2006-2016*

22 GSMA (2016b). State of the Industry Report on Mobile Money - Decade Edition: 2006 – 2016. Retrieved from: *www.microfinancegateway.org/library/state-industry-report-mobile-money-decadeedition-2006-2016*

Remittances

International remittances are one of the largest sources of external financing in Africa, and often serve as a lifeline to the poor. Multilateral organisations, NGOs, and governments widely recognise that remittances can drive higher financial inclusion. The UN's Sustainable Development Goals (SDGs), as well as the G20 Global Partnership for financial inclusion, recognise the important role that remittances play in mobilising financial resources across Africa.

In Africa, the flow of international remittances as of 2017 was USD 585 billion, which has more than doubled over the past 10 years. Approximately 25 developing countries receive 10% or more of their GDP from remittances (*IFAD & World Bank, 2015*).[23] The study also highlights that a total of 19 African countries rely on remittances for 3% or more of their GDP, six countries for 10% or more, and Liberia for an incredible 31.2% of its GDP.

An estimated 300 million people in Africa now rely directly on remittances. Global remittances to developing countries increased by 51% between 2007 and 2016 to reach almost half a trillion dollars a year, although the number of migrant workers from the countries in question rose by only 28% over the same period.

However, one of the biggest issues with remittances is the high prices, which is mainly due to fragmented and inefficient payment systems and lack of liquidity. Sending money to Southern Africa, for instance, costs an average of 14.6% of the value of the money sent – the highest rate in the world. At the same time, the cost of transferring money via established money transfer operators is enormous.

The average cost to send remittances from a money transfer organisation (MTO) such as Western Union, or a bank in Sub-Saharan Africa, is approximately 7.3% of the transaction amount. The use of digital methods for international remittances can significantly lower the transaction costs, help smooth consumption patterns, and increase the recipient's household income. International remittances can also serve as a strong driver of women's financial inclusion and economic empowerment.

2.2.2 Lending and credit risk assessment

Lending

One of the most significant effects of mobile phone technology has been the ability to provide loans to the unbanked and MSMEs that did not have access to credit in the past. As of 2016, there were 52 mobile money-enabled credit companies, up from seven companies in 2011 (*GSMA, 2016*).[24] Most of the growth has taken place in Sub-Saharan Africa, where the mobile money industry is more established and mature. M-Shwari is a perfect example of a

23 IFAD & World Bank. (2015). The Use of Remittances and Financial Inclusion. Retrieved from: *www.ifad.org/documents/10180/5bda7499-b8c1-4d12-9d0a-4f8bbe9b530d*

24 GSMA (2016). 2015 Mobile Insurance, Savings & Credit Report. Retrieved from: *www.gsma.com/mobilefordevelopment/programme/mobile-money/2015-mobile-insurance-savings-credit-report*

mobile money-enabled credit product, which is offered by CBA and Safaricom. A similar product to M-Shwari, M-Pawa was introduced in Tanzania in 2014. As of May 2016, M-Pawa had 4.8 million accounts and disbursed USD 17.9 million to entrepreneurs – mostly young people and women (*GSMA, 2016b*).[25] In Kenya, there are now 50+ digital credit companies.

Over the past decade, financial inclusion in Africa has experienced remarkable growth. The 2017 Global Findex database shows that 43% of adults in Sub Saharan Africa had accounts in financial institutions or mobile money. However, about 0.8 billion adults are still unbanked and do not have an account either at a financial institution or with a mobile money provider. Poor people also comprise a disproportionate share of the unbanked. In fact, 40% of adults from poor households in Sub Saharan Africa remain financially excluded. Moreover, gender gaps in financial inclusion in Sub Saharan Africa are unchanged at 11 percentage points.

The past decade has seen a significant number of low- and middle-income (LMI) population and micro, small, and medium enterprises (MSMEs) adopt and use digital financial services via their mobile phones and cards. Digital credit in particular, in the recent years, has emerged as a new service offering at the digital finance frontier, drawing attention from all players across the digital financial services ecosystem. Defined alongside the three key attributes of instant, automated, and remote, digital credit provides borrowers quick and ready access to short-term credit and enables financial service providers to reach the mass-market at scale.

FinTechs are implementing digital credit products that use alternative sources of data to determine creditworthiness and provide loans to populations that have never had access to them before. Digital credit provides users with instantaneous loan approval and disbursement that helps users to meet their short-term goals.

Branch was founded in 2015. It offers consumer loans of up to USD 500 through its Android app. The app builds a credit score of the user by analysing their mobile money usage and over 2,000 data points on the customer's phone. It applies machine learning to create an algorithm that determines creditworthiness. Branch is available in a number of sub-Saharan African countries including Kenya, Tanzania, and Nigeria. Branch has over one million customers and has issued over six million loans, with more than USD 100 million disbursed.

Tala developed mobile data-based lending models focused on early smartphone users in developing markets. Their first product is a consumer lending app that underwrites customers in real-time using thousands of alternative data points using the Android smartphone. Customers can apply for a loan and receive an instant decision, regardless of their financial history. Tala is available in sub-Saharan African countries, such as Kenya and Tanzania. It has extended credit to over 1.3 million customers.

25 GSMA (2016b). State of the Industry Report on Mobile Money - Decade Edition: 2006 – 2016. Retrieved from: *www.microfinancegateway.org/library/state-industry-report-mobile-money-decadeedition-2006-2016*

Credit risk assessment

The Internet, computers, mobile devices such as phones and tablets, and Internet of Things (IoT) devices generate a staggering volume of digital data. All this data has powerful implications for driving higher financial inclusion, specifically by providing access to loans to the low-income households, MSMEs, and the under-banked.

New companies have emerged that use varied forms and combinations of non-traditional data – mobile call data records, user location and movement patterns, psychometric data, bill payments, Internet browsing patterns, and social media behaviour. These companies analyse the data with AI, ML, and Big Data analytics algorithms to develop new ways to assess the creditworthiness of the consumers and the MSMEs.

Since the cost of data storage and computing power has significantly declined and data analytics has become more mainstream, these new companies use their alternative credit assessment methods to offer convenient, quicker and lower cost unsecured loans to the unbanked, the under-banked, and MSMEs when compared to traditional banks. A good example of this in Africa is M-Shwari in Kenya and its sister M-Pawa in Tanzania. M-Shwari relies on mobile phone records to set initial credit limits and their subsequent savings and borrowing to adjust credit limits.

CGAP (2015) estimates that M-Shwari has 8.1 million customers, disbursed more than USD 193 million in loans and has total deposits of more than USD 1.1 billion.[26] A CGAP-McKinsey (2015) joint study also demonstrated that using alternative data for credit scoring can reduce the cost of lending USD 200 by 30% in Tanzania (*Chen & Faz, 2015*).[27]

Another example is *LenddoEFL* that operates across several African markets. It provides credit scores based on mobile data, traditional financial data, and psychometric data. Unlike other companies that use mobile data, social media, and Internet data, LenddoEFL additionally uses a combination of mobile data, data from social media, and behavioural science assessment to uncover personality traits that are predictive of credit risk.

2.2.3 Savings

The mobile phone has become a powerful enabler to provide access to savings to the poor, whether it is through storing cash through a mobile money account or through a dedicated savings account linked to mobile money. The main benefits of using digital tools for savings over informal methods are increased liquidity – since funds can be available immediately, higher transparency, lower costs, and a significantly lower risk of either theft or asset depreciation or both. According to GSMA (2016), there were 10 dedicated mobile savings services across Sub-Saharan Africa.

26 "Digital Financial Services: The Current Landscape", CGAP, January 2015; *www.slideshare.net/PeterZetterli/cgap-2015-framing-the-dfs-landscape-v12*

27 Chen & Faz (2015). The Potential of Digital Data. Retrieved from: *www.cgap.org/publications/potential-digital-data*

(*Dupas & Robinson, 2013a*)[28] conducted a field experiment in Kenya, which showed that women market vendors were able to save significantly more when they were provided with a savings account. As a result, they increased their expenditures by 38% when compared to a control group.

The World Savings Bank Institute (WSBI) (2018) affirms that the poor, who make up most of the low-income customers, engage in savings. Data suggest that they move money through time, across geographical distances, and around their social and business networks just like the other economic strata. Low-income customers meet their needs by using financial services, both formal and informal, through what is usually a complicated maze of portfolios.

Users of formal financial services have a mix of product options from fully liquid, semi-liquid, fixed short-term, and accumulating long-term accounts. For product design considerations, however, low-income savers often seek accounts that offer high levels of liquidity and are willing to sacrifice returns for open access to their funds. Some, however, graduate from low-balance, low-return products to larger, higher-return products as their income and assets grow. The emergence of digital micro-savings is a great opportunity to improve the access to savings.

Banks and traditional financial institutions in Africa do not focus on the low-income populations. Some banks have started focussing on the low-income clients by developing savings products for them. On account of lack of a strategic approach in designing products suited to the low-income clients, while a number of people opened accounts, the account usage was significantly lower than expected. Also, the other challenges include a need to enhance marketing and sales, brand promotion, motivating staff members, and refining products and services to ensure active account usage.

The microfinance industry in Africa has only been contributing partially to the achievement of full financial inclusion of the poor urban and rural households and individuals. This is because most microfinance institutions operate as credit-only institutions. In addition, these institutions lack the technical expertise and capacity to offer customer-centric savings products and services to the low-income segment.

2.2.4 Insurance

As per Munich Re Foundation's 2015 Report, *The Landscape of Micro-insurance Africa*, the total insurance industry in Africa brought in USD 69 billion in gross written premiums (GWP in 2014). This represents a slight, inflation-adjusted growth of 1.6% from 2013 to 2014.

Though industry in the region has grown, Africa still holds the smallest share of the world market, accounting for just 1.4% of global

28 Dupas & Robinson (2013a). Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya. Retrieved from: *https://doi.org/10.1257/app.5.1.163*

gross written premiums in 2014. Although Africa is home to 16% of the global population, the low share of insurance premiums is attributed to low income levels.

From 2014 to 2018, Zambia, Nigeria, Ghana, and Uganda recorded some of the highest growth rates within the insurance industry in Africa. This growth is attributed to the boom in micro-insurance and innovations in the use of mobile phones and agents as distribution channels. Around 27% of people covered by micro-insurance in Africa purchased coverage through an agent or broker. The use of mobile phones is second only to the use of paper in the premium collection process of micro-insurers.

An example of a FinTech operating in Africa in this space is *Inclusivity Solutions*, which partners with mobile operators, insurance companies, and other distribution partners to deliver digital insurance solutions. In Kenya, Inclusivity has developed a product to cover the loss of daily earnings in the event that the insured person is hospitalised for three days or more. Over 120,000 consumers had utilised this till June 2018.

2.2.5 Digital identity

As part of on-boarding processes, most financial institutions perform a Know Your Customer (KYC) check, which requires the prospective borrower to provide proof of identity. While this requirement may be easy for customers in developed economies, it is a significant barrier for the poor in developing economies, especially across Africa. Currently, there are approximately 1.5 billion people in the world that do not have an identity document. A lack of documentation excludes them from not only accessing formal financial products and services but also basic needs such as healthcare, education, and social welfare programmes.

Digital identity refers to providing a proof of identity through electronic means. These include numeric identification that is stored electronically, biometrics in the form of a fingerprint, iris scans stored digitally, and facial recognition. A digital identity can be more efficient than a traditional identification system since it may be able to process the identification check in a faster and more efficient manner than traditional manual checks, which can enable higher financial inclusion.

In Africa, digital identity systems have helped eliminate fraud and corruption and save money for governments by reducing leakages. For example, Nigeria implemented the Integrated Personnel and Payroll Information System in 2011, which biometrically enrolled civil servants and government workers. The system eliminated 43,000 'ghost workers' and saved the government approximately USD 74 million in its first phase (*World Bank Group (2016)*).[29]

29 World Bank Group (2016). Identification for Development Strategic Framework. Retrieved from: *pubdocs.worldbank.org/.../Jan-2016-ID4D-Strategic-Roadmap.pdf*

Technologies like blockchain can also find use in creating digital identity for individuals. Millions of people in Africa lack a legal identity, which precludes them from receiving social benefits and accessing formal financial products. By developing a digital identity using blockchain technology, a permanent, immutable record can be created, which can serve as the main way to identify an individual. The identity data remains under the ownership of the individual. The individual can give permissions on who can see what data for what purpose and for how long. A wide variety of companies, both start-ups and large technology firms, are looking at ways to develop digital identity systems based on blockchain.

An example is *BanQu*, a FinTech start-up active in Africa, which provides an economic identity through blockchain technology to the unbanked and refugees to drive social and financial inclusion. The company first creates an identity for individuals through distributed ledger technology and then allows them to connect with others to perform transactions and effectively build their economic identity. In Kenya, BanQu created digital identity for several hundred refugees and individuals in zones of extreme poverty. The aim of the exercise was to create a long-term, secure economic profile these individuals could make use of to access financial and government services.[30]

2.3 FinTech for financial inclusion

CGAP (2014) reports that financial inclusion generates significant benefits for the poor, the marginalised, and MSMEs, and is also an important engine of economic development.[31] Technological innovations are one of the most important enablers of achieving full financial inclusion.

In 2016, the McKinsey Global Institute[32] highlighted that digital finance has the potential to provide access to financial services to 1.6 billion people in emerging economies by 2025, with more than half of them being women. The report also highlights that the widespread use of digital finance could boost the annual GDP of all emerging economies by USD 3.7 trillion, with the majority coming from increased productivity as a result of digital payments, and the remainder coming from additional investments that customers and MSMEs would make by being part of the formal financial sector. Furthermore, digital finance would unlock USD 2.1 trillion in new credit to MSMEs and reduce government costs by USD 110 million since there would be higher transparency, resulting in lower leakage.

One of the key benefits of the digitisation of financial services is that it can lower the cost of financial transactions by 80% to 90% when compared to traditional financial products from bank branches.

30 BanQu: *www.banquapp.com/platform-extensibility/pilots/*
31 Financial Inclusion and Development: Recent Impact Evidence, CGAP, 2014, *www.cgap.org/sites/default/files/FocusNote-Financial-Inclusion-and-Development-April-2014.pdf*
32 Digital Finance for All: Powering Inclusive Growth in Emerging Economies, McKinsey Global Institute, 2016: *www.mckinsey.com/~/media/McKinsey/Global%20Themes/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx*

According to the McKinsey (2016) report, the total cost of providing traditional financial products for an individual in emerging markets is approximately USD 75 to USD 130 annually.[33] However, the use of digital technologies can reduce the cost to USD 10 to USD 20 annually. Most of the reduction is generated from the cost of supporting money transfers that can be reduced by more than 90%

As can be seen from these examples in Africa, FinTechs can catalyse digital financial inclusion through the use of technology to make products affordable, accessible, and convenient. They distribute product and services using mobile phones, serve customers using chatbots and robo-advisors, assess credit-worthiness using alternative data analytics, manage risks using artificial intelligence and machine learning, lower costs by automating processes, and utilise mobile money to transact.

The table below presents a summary of the enabling role that FinTechs play in promoting financial inclusion.

Table 3: Roles played by FinTechs in promoting financial inclusion

Attributes	Roles played by FinTechs
• Access to financial services • Customer-centric products and services • Usage of financial services	• Appropriate identification and biometric authentication to provide basic digital wallets to unserved or underserved populations • Digital wallets to provide savings, bill payments, and remittance services to the unserved or underserved populations • Credit-scoring using alternative data to provide access to loans to people with no credit report • Enable choice and transparency, and allow comparison of financial services using online marketplace and comparison sites • Micro-insurance products (freemium, low-premium) to the unserved or underserved populations • Consumer education through financial literacy toolkits offered on mobile phones • Mobile money and digital wallet services using agents at the doorstep • Variety of products for the underserved entrepreneurs such as peer-to-peer loans, invoice discounting, factoring, digital working capital loans • Improving the payments infrastructure to enable government-to-person (G2P) payments
FinTechs catalyse financial inclusion by: • Personalising solutions for the end-user • Making products more affordable • Providing convenience and ease of use • Encouraging a better understanding of formal financial services through customer education • Increasing trust and transparency through enhanced disclosure and data privacy	

The African FinTech market is growing quickly, with many of the FinTech business models and products in Africa specifically aiming to promote financial inclusion. The following chapter explores the FinTech landscape in Uganda, highlighting the key segments, business models and user characteristics.

33 Digital Finance for All: Powering Inclusive Growth in Emerging Economies, McKinsey Global Institute, 2016: *www.mckinsey.com/~/media/McKinsey/Global%20Themes/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx*

Chapter 3: FinTech in Uganda

3.1 The FinTech industry in Uganda

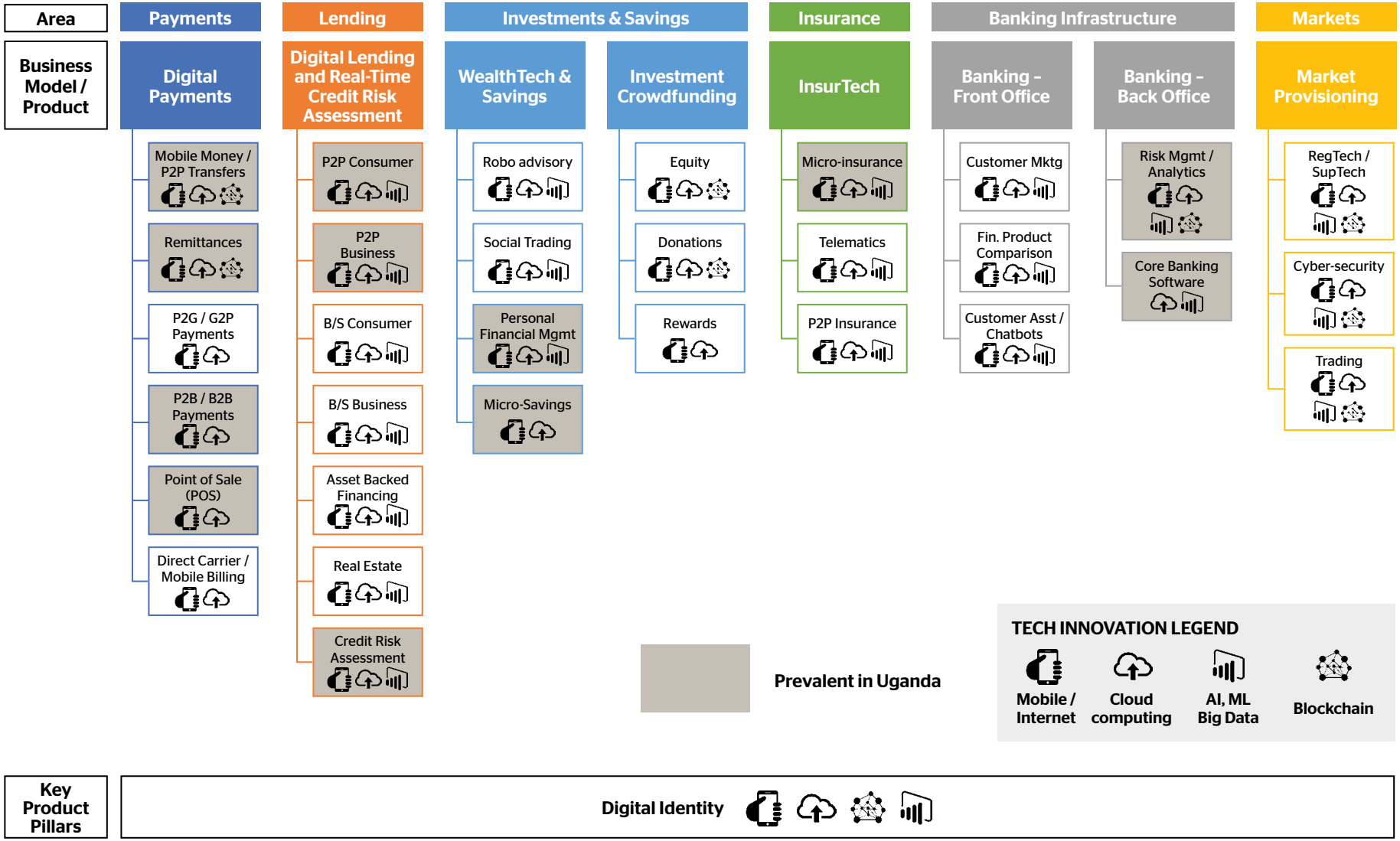
With formal financial inclusion in Uganda standing at just 58%, traditional financial service providers clearly face challenges in extending financial services to the unbanked and under-banked population.[34] FinTech companies have sought to target the gap in access to finance by utilising innovative technology, while simultaneously entering some of the most profitable segments of the financial services value chain. Their unique offerings, coupled with robust and scalable technologies, have the potential to drive significant gains in financial inclusion.

Of the 550 currently and previously listed start-ups in Uganda on *Venture Capital for Africa*, we may consider 71 as FinTechs. The total market volume of the FinTech companies in the defined segments amounted to approximately USD 16 million in 2017[35]. Over the past two years, the average annual growth rate of the FinTechs in Uganda has been approximately 35%[36].

The diagram below highlights the most common areas of FinTech in Uganda, utilising the taxonomy and classification outlined in Section 1.3.

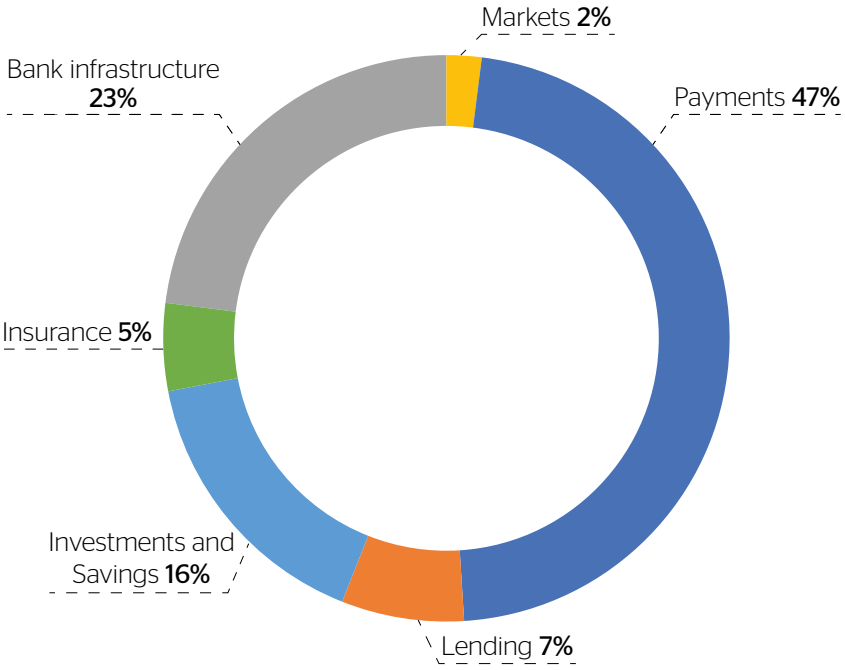
34 FinScope 2018 Study report, FSDU, 2018, *http://fsduganda.or.ug/finscope-2018-survey-report/*
35 Estimations by *MicroSave* based on the publicly available data from Venture Capital for Africa
36 Estimations by *MicroSave* based on the publicly available data from Venture Capital for Africa

Figure 5: FinTech taxonomy and prevalent FinTech models in Uganda



These FinTechs are divided into the segments of the FinTech market as illustrated in Figure 6, with many operating across multiple segments. Payments is the largest area of FinTech in Uganda, followed by banking infrastructure, investment and savings, lending, and markets.

Figure 6: FinTechs in Uganda



Source: MicroSave analysis, 2018

Many of the 71 FinTech companies that were identified could show evidence of a physical operational location. However, a significant number could not be traced. About 60% of FinTechs that operate in Uganda are from Uganda, 21% are more generally focused on Sub Saharan Africa, while the rest are global FinTechs with operations in Uganda. We should note here that FinTechs do not have a defined boundary and they tend to cross borders easily, so the FinTech map of any country is considerably dynamic.

The transaction volume of FinTechs in the payments sub-segment is estimated at UGX 17.6 trillion 2016[37] (USD ~4.7 billion). The market volume of other FinTechs has not been investigated yet in comparable detail in this study because the business models of these FinTechs are diverse and relevant volumes cannot be meaningfully compared or aggregated.

FinTech companies have sought to target the access to finance gap by utilising innovative technology, while simultaneously entering some of the most profitable areas of the financial services value chain. Their unique offering, coupled with robust, scalable technologies, has the potential to drive significant gains in financial inclusion.

As in other developing markets, particularly across Africa, the Ugandan FinTech industry has been riding on the success of mobile

37 Estimations by *MicroSave* based on the publicly available data from Venture Capital for Africa

money. Players have sought to utilise mobile money in their core business, while others have integrated it into their offerings to facilitate payments. It is noteworthy that many of these FinTechs are innovative start-ups that have been outmuscling and competing with banks and telcos. In response, traditional financial service providers have been spending more on technology upgrades for their core banking systems and development of applications to expand, innovate, and increase the automation of end-to-end customer journeys.

With respect to incubation hubs, the technology landscape in Uganda, and in particular in Kampala, is vibrant and has been growing. According to the GSMA (2018), Uganda has 16 active innovation hubs.[38] Some of them are Space Hub, Venture Labs East Africa, Outbox Hub, Design Hub Kampala, Hive Colab, Innovation Village, Afrilab, Techbuzz, and NFT Mawazo. These hubs are social communities that offer facilities, such as shared workspaces, mentoring and knowledge sharing, funding, subject-matter expertise on technology trends, and knowledge and strategic innovation management. The table below sets out illustrative examples of FinTechs that operate in Uganda.

Table 4: Examples of FinTechs from Uganda

Key area	Key examples
Payments	*Xente* is a cross-platform mobile app that allows anyone with a mobile phone and a mobile number to conveniently and securely transact with each other. The use-cases include e-commerce, remittance, and bill payments. It allows prepayment using digital payment methods like mobile money or bank cards. The app also allows customers to buy now and pay later, or pay in instalments. The unique aspect of Xente is its positioning as m-commerce and FinTech firm with a relevant product offering for the consumer and business segments. It provides APIs that businesses may use in their websites or apps to collect money from mobile wallets. *Yo! Payments* provides businesses with a secure and convenient interface through which customers can manage mobile payments from multiple providers. It makes use of various mobile platforms, such as mobile money, SMS, USSD, and IVR to accept mobile money payments through point of sale devices, mobile applications, or the web. Other services offered include: pay bills, collections, points of sale, money transfers, and other e-money services to banks, non-bank corporations, government, and NGOs. *DusuPay* started in 2015. It is headquartered in the United Kingdom. It is a payment gateway that provides payments infrastructure. It enables businesses to accept and make payments in Africa. Its application integrates with MNO payments platforms in many countries in Africa to enable transfer of money for promoting intra-African trade. It is typically a B2B business model that targets forex trading, betting companies, money remittances, e-commerce, and tours and travels. It provides cross-border mobile money transfers for B2B. DusuPay supports over 115 payment methods and is active in over 125 countries in Africa, Europe, America, and Asia. *Ezeemoney* is a payment aggregator that facilitates payments into customer mobile wallets across multiple MNOs and converts to multiple payment instruments, such as mobile wallets and bank account. This allows customers to choose how they wish to receive payments. Other services offered include pay bills, collections, points of sale, money transfers, and other e-money services to banks, non-bank corporations, the government, and NGOs.

38 Hubs in Africa, GSMA, 2018, *www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/03/Africa*

39 Data sourced from official websites, FinTech Africa, and Forbes.com

Key area	Key examples
Lending	*Numida* provides digital loans to entrepreneurs who have outgrown microfinance so that their business can reach its full potential. It uses a proprietary algorithm anchored on cash flow and financial management behavioural data to determine an entrepreneur's credit-worthiness for an unsecured loan. Numida provides financial literacy training for entrepreneurs to enhance their ability to manage finance and business. Entrepreneurs can access credit after only seven days of app use, but the longer and more often they use Numida, the higher loan principals and better terms they are offered. It resolves the key constraints to enterprise finance in Uganda, such as high interest rates, rigid collateral requirements, and confusing fee structures. Loans range from USD 25 to USD 1,500 USD on a one to three-month term, with interest charged at between 5% and 15% per month. *Borrocracy* is a peer-to-peer lending model that links borrowers to lenders. It was registered in October, 2015. Until March, 2018, Borrocracy has disbursed loans to 50 people. It targets youth who are able to meet the necessary requirements. Borrowers apply through its website. The company offers the loans by connecting the borrowers to lenders (that have partnered with Borrocracy). The borrower has to meet certain criteria to be eligible for loans. These include submission of know your customer (KYC) documents, proof of age (18 years and above), residency status (must be a resident of Uganda), proof of a bank account, valid address, and proof of regular income. As with other P2P models, the lenders determine the interest rate for the loans. *Akellobanker* is a social venture that seeks to increase access to affordable credit for rural farmers and small-scale traders. Akellobanker uses an integrated mobile and web-based application that is tailored to the needs of local communities, most prominently through rural financial service providers, especially SACCOs. The system is integrated with the credit-scoring tools that utilise financial and non-financial data for credit underwriting. This enables borrowers who do not have the security needed by financial institutions to access instant loans. Akellobanker has a digital loan fund with MTN and Airtel that targets financially excluded communities in peri-urban and rural areas. The key services offered include loans for tractor hire services, seeds, and fertilisers. The venture also sells SACCO banking software for UGX 5,000,000 (~USD 1,389). The FinTech serves over 49,000 farmers and traders who have enrolled as users. It has disbursed loans worth over USD 350,000 till April 2018. The platform is fully mobile money-enabled and is accessible online through its website at *www.bankit.tech*, over USSD at *270*33#, and through SMS. *JUMO* entered the Ugandan market at the end of 2015 and commenced operations from mid-2016. It had already been operating in other countries prior to coming to Uganda. Across Africa, Jumo has 7 million customers and has disbursed USD 32 million in loans. As it had already proved itself in other markets, Jumo saw a rapid uptake in Uganda. It offers a digital credit product, Wewole, in collaboration with an MNO. The key challenges Jumo faces include loss of money caused by defaulters. This is because the mobile money market is still immature and riskier in comparison to other East African countries. As it takes the risk on account of unreliable credit history, Jumo prices its product at 9% per month to factor in the risk of loss. The maximum loan amount disbursed at the moment is UGX 500,000 (~USD 136). The maximum loan term is one month. Any subscriber with the MNO's registered mobile money user account is eligible for the loan as Jumo relies on data analytics to determine how much one qualifies for. Loan applicants are not subject to a Credit Reference Bureau (CRB) check as the cost is prohibitive in nature. *First Access* Uganda is a subsidiary of First Access Finance that serves a credit-scoring function – that is – building a profile of a borrower that traditional lenders would not lend to. Depending on the predictability of the model, First Access is able to attract other financial institutions or retail investors to lend based on their algorithm to borrowers.

Key area	Key examples
Insurance	*aYo Uganda* is a local subsidiary of South Africa-based *MMI Holdings*. It provides healthcare insurance services. The two micro-insurance products on offer are 'Send with Care' and 'Recharge with Care'. The system works on aYo 'Send with Care' and 'Recharge with Care' to MTN mobile money transfers. In the unfortunate event of death, aYo pays triple the amounts remitted over the last four months to the user's family over a period of one year. In case of hospitalisation, aYo pays triple the amounts remitted over the last four months into the user's MTN mobile money account over a period of one year. *Mazima Retirement Plan* (MRP) offers a retirement savings plan that is especially suited to those who are either self-employed or in the informal sector. The government of Uganda caters to the pension and retirement of formal workers through the National Social Security Fund (NSSF). However, there has not been much effort to develop micro-pension plans for the informal sector aged between 30 and early 40s, who comprise the majority of the working population. MRP makes use of this gap to cater to the retirement plans of those not formally employed. MRP offers individual retirement savings account and provides an interest on savings. MRP invests in treasury bills and bonds among others to generate revenue to offer interest on savings. Interested people complete an application form which they either access at the MRP offices or download the MRP app onto their phones. They then pay UGX 20,000 (~USD 5.4), after which they can start contributing via MTN's and Airtel's mobile money channels. The custody account is in Housing Finance Bank (HFB) but customers can also deposit at Pride Microfinance Bank. MRP has a fund manager – Capital Alliance. The money deposited is credited in real-time. As of April 2018, MRP had 1,107 members with total savings worth UGX 85 billion (~ USD 22.52 million). *WeFarm Limited* is a farmer-to-farmer knowledge sharing network that provides detailed reports to insurance providers based on the millions of farmer interactions on its platform. This allows insurers to gain a better understanding of farmers and the agricultural sector. *Money Duka Services* is an online shop for digital financial products where customers can compare, apply for, and purchase loans, insurance, and other financial products. *Craft Silicon* Uganda alongside *MCash* provides retail micro-insurance solutions through a mobile application. MCash also provides a cost-efficient suite of transaction processing, switching and mobile payments.

Key area	Key examples
Banking infrastructure	*Ensibuuko* started in 2014 and offers a Management Information Software (MIS) called 'MOBIS' to SACCOs, MFIs, and NGOs. The unique feature of this software is that it is cloud-based. Along with Future Link Technologies, Ensibuuko has cloud-based systems that serve lower-tier SACCOs and MFIs in the country. It currently serves over 200 SACCOs and has processed transactions over UGX 2 billion (~USD 600,000) since starting operations. *Hamwe East Africa* started in 2013 as a communications company that aggregates bulk SMS. This was after securing a license for a USSD code-based system from Uganda Communication Commission (UCC). Hamwe West Africa currently operates as a technology solution provider that operates in Uganda, Rwanda, and Burundi. It has plans to open operations in Kenya in the near future. In 2015, the company developed an application solution called 'Mfarmer' for client registration and profiling, transaction records, and secure digital payments for increased access to financial services. *Awamo* is a FinTech that offers a comprehensive, mobile, and easy to use microfinance management solution for microfinance institutions (MFIs) in emerging markets. The solution enables MFIs to digitise credit management, risk management, and portfolio management through the use of mobile phones. It is a cloud-based, secure, and robust solution that enables digital transformation for MFIs and thus decreases transaction cost and risk of default. *Future Link Technologies* (FLT) is a banking software technology firm that offers front- and back-office core banking solution for SACCOs. It presently works with 200 SACCO branches. Apart from the core banking solution, FLT offers banking switch to connect SACCO and MFIs to ATMs, POS, and Mobile Money. FLT offers convenience, lower pricing, and real-time support as the value proposition for its solutions.
Investment and savings	*Xeno Technologies*, a non-financial service provider, offers a platform which considers a user's personal circumstances, financial goals, and risk tolerance to automatically put together a recommended investment portfolio, using a unique risk profiling and portfolio-compiling algorithm.

The core business and operational models of FinTechs in Uganda have the following features:

- **Origin:** FinTechs in Uganda have mixed origins. Some FinTechs are offshoots of successful ventures in East Africa, Southern Africa, as well as other emerging economies with a significant capital base and a proven business and operational model. Indigenous FinTechs have been a recent phenomenon. They are, as a result, comparatively less capitalised and have been still working on finalising their business and operational models.
- **Strategic vision:** A majority of FinTechs in Uganda have a long-term strategic view of their businesses to include aspects of offering more services. Examples include digital lenders that aspire to offer digital savings products. These FinTechs wish to expand the ambit of collaborations from lower-tiered SACCOS and MFIs to commercial banks. They also aim to carry out technological upgrades (offering services on an app and USSD).
- **Target market and segments:** Considering the extent of financial exclusion in the country, most FinTechs in Uganda focus on the low- and middle-income population. Some have invested time and efforts to understand their markets and segments. As a result, these FinTechs focus on specific sub-segments, such as milkmen from Western Uganda, smallholder farmers, and small-scale traders, to name a few.

- **System integration:** FinTechs play on a variety of system integrations. These include mobile and web-based applications that are tailored to the needs of end-users, credit-scoring tools to analyse financial and non-financial data for credit underwriting, API integrations, and linkages with utility and service providers.
- **Mode of operations:** FinTechs offer an improvement over the existing customer experience on account of real-time updates, proactive alerts, agile innovation, digital-first and consumer-centric value proposition, and highly personalised and customised solutions.
- **Pricing:** Most of the FinTechs surveyed have a focus on offering services at significantly lower prices than available from formal financial services. However, presently, they end up offering services at a higher price due to a number of factors. These include system integrations, investors' anticipation of returns, and costs associated with collaborations – such as mobile money fees as in the case of digital disbursement and repayment.
- **Collaborations and partnerships:** FinTechs in Uganda have developed strong collaborations and partnerships with a variety of institutions, such as banks and financial institutions, utility and service providers, technology service providers, academic institutions, advisory and research firms. These collaborations enable FinTechs to derive synergistic value as they deliver customer-centric solutions.
- **Incubation and membership in hubs:** A significant number of FinTechs surveyed do not belong to any hubs as they believe that these hubs are nothing more than glorified shared working spaces. As per the FinTechs, the hubs fail to offer an opportunity to enhance the FinTechs' practice-oriented knowledge base, have a limited understanding of the markets and segments FinTechs work with, and have a limited number of success stories.

3.2 Market and user characteristics for FinTechs

The following is a summary of the typical target customer profile[40] for FinTechs in Uganda across both consumers and MSMEs:

Table 5: Segments of typical target FinTech users in Uganda

Segment 1: Consumers	Segment 2: MSMEs
• Self-employed or wage workers • Highly cost-conscious • Have poor access to formal financial services • Traditionally dependent on informal sources of credit • Lower literacy levels • Millennials who seek financial independence • Active users of mobile phones • Consume mobile Internet for multiple purposes • Value technology and prefer convenience	• Businesses with low- to medium-level turnover • Prefer speed of financial services delivery over cost • Low to medium levels of literacy and numeracy • Relatively higher smartphone penetration than low and middle-income consumers • Require affordable credit for growing business • Willing to explore FinTech solutions if they offer a value proposition • Use smartphones for communication and entertainment purposes

40 Source: *MicroSave* analysis

In Uganda, 11 million adults comprise the low- and middle-income segments[41]. While the rich in Uganda are financially well-served, the low- and middle-income segments are currently unserved or underserved. Of these 11 million people, we estimate that around 6 million people present a viable market for FinTech solutions as of today.

There exist five key personas within the two segments of consumers and MSMEs. The adjoining table elaborates this in detail.

Table 6: Segment characteristics and personas of FinTech users in Uganda

Persona	Characteristics	Share of the low and middle-income population	Adoption of DFS	Adoption of FinTech	Viable market segment for FinTech
Money Hawk	• Urban • Financially independent • Prefer convenience	3%	High	High	Yes
Emergent	• Aspirational • Young and dynamic • Digital natives • Mobile-first • Quick to learn	8%	High	Medium	Yes
Novice	• Smartphone users • New Internet users • Passive DFS users	11%	Medium	Medium	Yes
Drifter	• Floating masses • Late adopters • Prefer assistance	29%	Medium	Low	Yes, with agent assistance
Cynic	• Mostly rural • Prefer cash • Dark on the Internet • Digital aliens • Highly dependent on social security schemes or donor funding • Do not own a feature phone • Reside in areas with limited or no data connectivity	49%	Low	Low	No

Source: *MicroSave* analysis

These personas have various financial needs that remain unmet. These are the needs that technology-enabled innovation could cater to.

41 Source: *MicroSave* analysis based on Uganda National Household Survey (see Uganda Bureau of Statistics (2017), FSDU's FinScope 2018, and FSDA's Credit on the Cusp report, which estimates 10 million people in the cuspers' category with income ranging between USD 2-5, and estimated 6 million people in the middle-income class category.

Table 7: Segment needs for financial services

	Money Hawk	Emergent	Novice	Drifter	Cynic
Payments and Transfers					
Credit					
Savings and Investment					
Insurance					

The low- and middle-income markets in Uganda present significant opportunities for FinTechs, investors, and incumbent financial institutions, in light of a number of factors. The table below highlights these factors in detail.

Table 8: Opportunities for FinTechs in Uganda

Large unmet market	Huge untapped potential	Positive experience of existing players	Ability and willingness to pay for services
Huge unmet market in credit in enterprise finance, digital insurance, savings, and innovative financial services	• Intense competition in non-low and middle-income segment • The growth of the e-tailing business	• Increasing uptake of digital solutions • Better portfolio performance for banks in low and middle-income markets	• The low and middle-income markets favour convenience over affordability • Higher stickiness relative to high-income markets

This viable market of 6 million is likely to increase rapidly in the near future due to a potent combination of ecosystem enablers. Table 9 presents these enabling factors in detail.

Table 9 Enabling factors for FinTech growth in Uganda

Favourable macro-environment	Improvement in infrastructure	Increasing Internet access	Favourable business environment
• A demographic shift towards the millennial population • Rise in income • Enabling policy and regulatory environment	• Rural connectivity to broadband • Access to electricity	• Increase in unique smartphone users, and Internet users • Over 50% of the Internet users will be from rural areas • Reduction in data costs	• Ease of doing business • Affordability of financial services • Availability of funding

3.3 Adoption and impact of FinTech

FinTech adoption and impact

FinTech activities may produce a series of results that contribute to achieving the final intended impact. The framework below ties individual FinTech activities in Uganda to eventual impact and indicators.

Table 10: Framework to assess impact of FinTech in Uganda

Activity	Outcome	Impact	Indicator
Digital credit	Access to credit to low- and middle- income consumers	Smoothens consumption Protects against shocks	Number of loans advanced digitally
Peer-to-peer lending			
Seed capital	Access to funding for small business	Seed capital to start a small business	New start up business among low-income
Social payments	Fast and secure payments	Convenience	The flow of digital money in the ecosystem Efficacy of digital social payments
Person-to-person	Secure avenue of sending and receiving money	Convenience	Increase in remittance
Merchant payments	A fast and secure platform for making payments	Convenience	Increase in digital wallet balances or increase in merchant transactions
Digital currencies	A fast and secure platform for making payments	Convenience, security	Uptake of cryptocurrency
InsurTech	Access to insurance for the underserved	Protects consumers against shocks	Number of people insured
Investment management	Access to investment facilities	Improved yield hence improved living standards	Number of assets or financial instruments

As the FinTech industry in Uganda is still in its infancy, it is currently not possible to provide estimates based on the metrics as on Table 10 yet. However, there exists a huge potential for FinTechs to have an impact on digital financial inclusion through the use of a number of pathways. The following section lists them in detail.

1. **Digital credit and peer-to-peer lending**, which allows low- and middle- income populations to borrow without any hassles and need for collateral. This, in turn, helps them to manage their lifecycle events as well as meet the needs for working capital;
2. **Seed capital**, which allows micro and small enterprises to meet the initial funding requirements to start a business;
3. **Digital social payments, merchant payments, and digital currencies**, which enable the poor to receive and send money at significantly lower costs and with ease. It is also a secure way to send or receive money;

4. **Insuretech**, which helps low- and middle- income populations to afford insurance to protect or secure them and their livelihoods against uncertainties and vulnerabilities.

FinTech collaborations in Uganda

Digital disruption has the potential to shrink the role and relevance of today's banks. It can also simultaneously help the banks to create better, faster, and cheaper services that can render them well-equipped to better serve their customers. In order to best embrace these opportunities, traditional banks have acknowledged the need to overcome institutional complacency and recognised opportunities for synergistic collaboration with FinTechs.

The most common partnerships with respect to FinTech in Uganda are between banks and Mobile Network Operators (MNOs). Currently, 17 out of 24 banks that operate in the country, have incorporated mobile money in their different range of services. One of the most notable partnerships in Uganda is between MTN (an MNO) and Commercial Bank of Africa. These two organisations together offer the savings and borrowing platform offering digital credit, *MoKash*.

FinTechs in Uganda have also collaborated with semi-formal institutions, such as savings and credit cooperatives (SACCOs) to complement their offerings and benefit from the reach and scale of SACCOs. For instance, *Airsave* provides a secure digital financial technological solution and financial literacy programme to community SACCOs. The services provided allows mobile phone users who use Airtel money or MTN mobile money to register digitally to a SACCO on the platform and begin to save, borrow money, and earn interest and commission.

More generally, FinTechs in Uganda have had a mixed experience while attempting to collaborate with incumbent banks and financial institutions. Banks have often perceived FinTechs as competition on account of their flexible operations, reach that extends beyond the usual markets, and disruptive features of the services offered to the market. Some of the core challenges that FinTechs have faced in bank-based collaborations include delays in service, a lack of integrated systems, and the absence of a seamless flow of information. In response, some banks are working on developing technology solutions in response to the FinTech offerings[42].

As the FinTech sector in Uganda grows, the regulatory and policy environment will determine its outreach, scale, and success. The next chapter examines the critical role that the regulatory and policy environment plays in contributing to the responsible development of FinTech.

42 For example DFCU recently upgraded its core banking software at a cost of $20 million (see BankingTech (2017) *www.bankingtech.com/2017/08/dfcu-in-20m-upgrade-of-infosys-finacle-core-banking-system/*, while Centenary Bank has also recently upgraded its core banking system (see Intrasoft International (2017) *www.intrasoft-intl.com/news/profits-core-banking-system-successfully-launched-centenary-bank-uganda*

Chapter 4: FinTech and Regulation

4.1 The economic rationale for regulation

When financial markets work well, they maximise welfare by delivering goods and services which meet consumers' needs at the lowest possible price for a given quality. However, there may be instances where financial markets fail to deliver this outcome which maximises welfare, resulting in society and consumers being less well off than they could be. This is known as a Market Failure.

The presence of Market Failures is a rationale for the regulation of a particular market or sector, with regulation aiming to correct instances where markets fail to bring about optimal outcomes[43]

Financial services markets have typically been one of the most regulated markets, due to the presence of a number of potential market failures. These include information asymmetries/market conduct, market power and systemic risks[44]:

- **Information asymmetries:** This occurs when one party to a contract knows more than the other and exploits this information advantage. This might occur before the contract is made. For example, the consumer does not have the information concerning the essential features of the product. Information asymmetry may also occur afterwards. For instance, a consumer cannot monitor whether a financial adviser they have chosen is truly acting in their interests. This market failure is often more generally defined as **market conduct**.
- **Market power:** This occurs where a provider, or combination of providers, can act to set prices or quality without being challenged in the marketplace by consumers or other providers. In other words, there is a lack of **effective competition** in the market.
- **Systemic risk:** This occurs when the impact of a financial transaction on third parties, such as other providers or the public, are not reflected in the price or other terms of a financial transaction. Systemic risk is linked closely to **financial stability**.

The statutory objectives of regulators around the world are inextricably linked with these market failures. For example, many regulators have an objective to promote financial stability (tied to the systemic risk market failure), protect consumers (tied to the market conduct and information asymmetries market failures) and, increasingly, to promote effective competition (tied to the market power market failure).

43 Jalilian, H., Kirkpatrick, C., & Parker, D. (2003). Creating the conditions for international business expansion: The impact of regulation on economic growth in developing countries – a cross-country analysis. In E. Amann (Ed.), *Regulating development: Evidence from Africa and Latin America*. Cheltenham, UK: Edward Elgar Publishing Limited.

44 Source: Authors analysis based on FCA( ), IMF (2017): *www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/FinTech-and-Financial-Services-Initial-Considerations-44985*

While regulators and regulation exist to try to address these market failures, it is notable that market failures can be exacerbated, or even driven by **regulatory failures**.

Regulatory failures arise when a regulatory intervention distorts the market and leads to poor outcomes for consumers, either in addition to or instead of the desired objective of the intervention. This might occur because regulation increases the barriers to entry in a market, stifles innovation, or restricts access to a financial product or service.

Regulatory failures drive much of the regulatory response to FinTech around the world, and are of particular importance for the case of Uganda, as outlined in the following sections.

4.2 FinTech and market failures

Viewed through the lens of this market failure analysis, it is clear that FinTech is a relevant consideration for regulators around the world, including in Uganda. FinTech can serve both to reduce some of the market failures which regulators are traditionally concerned with but may also raise issues of its own. This will be of relevance to regulators seeking to achieve regulatory objectives such as promoting financial stability, consumer protection, competition, and financial inclusion.

This section outlines how FinTech can have an impact on these market failures, both positively and negatively. This is illustrated using examples from both Uganda and a number of more mature FinTech markets from around the world. Given that the FinTech market in Uganda is still underdeveloped by global standards, it will be important for Ugandan regulatory authorities to consider the future opportunities and risks which FinTech may present, and to act accordingly. In chapter 6 of this report, we provide recommendations on how the authorities in Uganda can ensure an appropriate regulatory approach to FinTech.

Information asymmetries and **market conduct**

The proliferation and growth of technology in many sectors have massively increased the volume of information available to consumers. This has received a push particularly from mobile phones and the Internet (Technology innovation 1 above). In the case of financial services, FinTech has helped to address this market failure in a number of ways.

Firstly, the use of technology has enabled providers to provide more, better, and clearer information to consumers. For example, mobile financial services have not only provided lower costs – and therefore prices to consumers – but are also credited with being easier to use and understand by end users, reducing information asymmetries between consumers and providers. Digital technology can be particularly beneficial in developing markets in this respect

where levels of literacy, financial or otherwise, are low. CGAP (2017)[45] highlights that the use of smartphone interfaces, and in particular icon-driven menus, can help reduce information problems across a wide range of developing markets, including in Uganda[46].

Secondly, the use of technology can enable consumers to compare competing or substitute financial products and services quickly and easily. This can reduce information asymmetries between consumers and providers, and help consumers choose the best product for them at the best price. A number of FinTechs in Uganda have sought to improve the information flow to users. These users may be farmers who seek to understand the best price for their crops or consumers who wish to better understand their retirement savings options.

IMF (2017)[47] notes that the price paid for cross-border payments is typically opaque and slow. It further notes that new FinTech providers are able to provide a faster and more convenient service in a way that is cheaper and more transparent to the end user. Given that payments and remittances are the largest area of FinTech in Uganda, the prevalence of these companies should help improve the flow of information to consumers. Moreover, the growth of price comparison websites in both developed and developing markets has been credited with providing clearer information to consumers.[48]

Technological innovations can also increase the flow of better information to providers, which in turn benefits both consumers and the wider financial markets. For example, the use of Big Data Analytics has helped to automate credit-scoring, lowering information asymmetries and, in turn, costs which can be passed on to consumers. In the case of East Africa specifically, a study in Tanzania found that using non-traditional digital data and Big Data analytics can reduce the delivery costs of microloans by between 20% and 30%.[49] Similarly, peer-to-peer lending platforms have also facilitated the more efficient matching of savers and borrowers by reducing informational problems. It is notable that a small number of peer-to-peer lenders are currently operating in Uganda.

However, FinTech can also present informational problems of its own. Emerging technologies have created vast quantities of information, much of it distributed across networks. These technologies have also raised challenges regarding the appropriate balance between transparency and privacy. For example, the use of Big Data analytics and digital identity requires significant customer financial capability and awareness to ensure the security and safety of personal

45 CGAP: The Power of Smartphone Interfaces for Mobile Money *www.cgap.org/blog/series/power-smartphone-interfaces-mobile-money*
46 CGAP: Swiping Right: Ideo.org Prototypes Mobile Money on Smartphones *www.cgap.org/blog/swiping-right-ideoorg-prototypes-mobile-money-smartphones*
47 IMF: Fintech and Financial Services: Initial Considerations *www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/FinTech-and-Financial-Services-Initial-Considerations-44985*
48 Laffey (2009): *https://link.springer.com/article/10.1057%2Ffsm.2009.15*
49 CGAP (2014): Projecting impact of non-traditional data and advanced analytics on delivery costs [Blog post]. Retrieved from *www.slideshare.net/CGAP/projecting-impact-of-nontraditional-data-and-advanced-analytics-on-delivery-costs?qid=7df1fb03-d46a-4243-a049-7946f335c023&v=&b=&from_search=5*

information. Many consumers may be unaware of the data they provide or the implications of doing so since much of the data is collected passively or inferred through algorithms. In addition, traditional consent forms may either not be relevant or may have limited impact, or both.

As is often the case in FinTech, consumer protection can become more difficult where multiple FSPs are involved in a transaction, for instance, in the case of mobile money. The difficulty can be amplified where there are low levels of financial and technological literacy. The IMF (2017) highlights that technologies, such as distributed ledger technology, make it difficult to assign a "data controller" to an open network. This means that information that consumers would prefer not to share may end up being disclosed.

This is particularly important in the digital identity space, where transparency helps verify consumers' identity and, in turn, promotes financial inclusion, but where the right to privacy is also an important enabler in trust. FinTech raises important questions with respect to data protection, which many regulators around the world are now seeking to address (see section 4.3 below).

The proliferation of mobile money around the world, including in Uganda, can be attributed in part to its convenience and ease of use. However, a number of issues have been identified regarding information asymmetries between providers and consumers, particularly regarding the transparency of fees and charges. For example, in Kenya, the transparency of pricing for mobile money transfers, bill payments, merchant payments, and interest rates has been wholly inadequate.[50] This issue will likely also apply in Uganda given that the same technologies (USSD and STK), which can make the communication of key product features and terms to consumers challenging[51], are commonly used. The recent introduction of a mobile money tax in Uganda may also render it more difficult for consumers to accurately assess mobile money transaction costs.

Market conduct risks have also been raised with respect to digital loan providers in other parts of East Africa. In Kenya, for example, a recent CGAP and Financial Sector Deepening (FSD) Kenya report states that the rise of digital lending has raised concerns about the risk of excessive borrowing and over-indebtedness among the poor and the marginalised.

The survey also shows that many Kenyans have become trapped in a cycle of borrowing - borrowing from one lender to pay another lender. This has been driven by high interest rates on digital loans, a lack of visibility of multiple digital loans for each borrower, "push" loan tactics, and unclear disclosures that result in the customer not understanding what they are agreeing to.

50 CFI: The Competition Authority of Kenya Opts for Pricing Transparency *www.centerforfinancialinclusion.org/the-competition-authority-of-kenya-opts-for-pricing-transparency*

51 CGAP (2016): Competition in Mobile Financial Services: Lessons from Kenya and Tanzania: *www.cgap.org/sites/default/files/Working-Paper-Competition-in-MFS-Kenya-Tanzania-Jan-2016.pdf*

Market power

The disruptive nature of FinTech can reduce market power in a number of ways. Technology lowers the barriers to entry through decreasing the fixed costs of operation, for example through cloud computing or distributed ledger technology. Technology can also provide strong network effects, for instance, the value of the service becomes greater with the number of users. This can increase the number of providers in a market, both FinTechs and otherwise, which can potentially reduce market power.

FinTechs also directly provide increased competition to incumbent financial services providers, both banks and non-banks. This has encouraged incumbents to also adopt these new technologies, improve their business models and service offerings, and reduce prices for consumers. IMF (2017) highlights, in particular, the benefits that increased competition from FinTechs might bring to the international payments or remittances market. It notes that the entry of these new providers can provide cheaper alternatives to consumers. BIS (2017)[52] also notes that new FinTech players have been increasing competition in both retail and commercial banking by providing new lending and borrowing platforms for retail and corporate consumers.

Chapter 3 noted that many FinTechs in Uganda have a strong focus on offering significantly lower prices than available from incumbent financial services providers, as well as a competitive service offering. However, FinTechs may create new competition problems of their own. The use of distributed ledger technology, for example in payment systems, may create strong network effects, resulting in market power for those who are part of the network. As the FCA (2018)[53] has observed, where a central intermediary acts as gatekeeper to a blockchain, they can control who can use it, which may be cause for competition concerns.

In developing markets, the entry of mobile money providers has provided competition for incumbent banks. Yet this has also raised questions regarding the market power and dominance of the mobile money providers themselves. The example of Kenya again provides precedent, with Safaricom's M-Pesa service thought to command around at least an 80% market share of the mobile money market.[54] Based on this, a number of remedies have been proposed to the Communications Authority of Kenya, to increase competition in the mobile money market in Kenya.[55]

52 BFI: The Promise of FinTech – Something New Under the Sun? *www.bis.org/review/r170126b.pdf*
53 FCA: Blockchain: considering the risks to consumers and competition *www.fca.org.uk/news/speeches/blockchain-considering-risks-consumers-and-competition*
54 Telecommunication competition market study in Kenya (2017): *http://ca.go.ke/images/downloads/RESEARCH/Telecommunication%20Competition%20Market%20Study%20in%20Kenya%20(Abridged%20version)-Released%20Feb%202018.pdf*
55 Telecommunication competition market study in Kenya (2017): *http://ca.go.ke/images/downloads/RESEARCH/Telecommunication%20Competition%20Market%20Study%20in%20Kenya%20(Abridged%20version)-Released%20Feb%202018.pdf*

While the mobile money market in Uganda is not as concentrated as in Kenya, it is notable that just two mobile money providers – MTN and Airtel – account for 79% of the market.[56] This may indicate issues of market power in the payments sector in Uganda.

Indeed, Macmillan et al (2016)[57] state that "Both these operators [MTN and Airtel] have built relatively large networks and can thus sustain revenue from their mobile money businesses, by encouraging existing users to remain and transact more on their networks, rather than to compete fiercely against each other for market share. Their similar pricing patterns suggest a lack of significant price competition between the two."

Mobile money transactional data is accessible only to mobile network operators and their partners, as an enabler for alternative credit-scoring methods. The use of this data may also operate as a barrier to entry, as identified by Blechman (2016)[58]. The development of FinTech in Uganda and around the world requires careful consideration from the perspectives of market power and competition.

Center for Global Development (2018) neatly summarises that "Policy regarding the competition of markets must strike a balance between allowing new [Digital Services Providers] to enter financial services markets and ensuring that existing and new financial institutions act prudently; *laissez-faire* entry has rarely delivered a stable financial system over the long run."[59]

Systemic risk

The advent of new technologies in financial services can help to reduce systemic risks in a number of ways. Firstly, new technologies such as Big Data Analytics and alternative data are bring used to calculate credit risks for both consumers and corporates more accurately. This helps to reduce the risks of mispricing and extending credit to those who cannot afford it. Chapter 3 highlighted the growing number of FinTechs in Uganda seeking to both create and use alternative credit scoring data to improve credit scoring for both consumers and businesses and, in turn, promote access to finance.

Secondly, the increased diversification and competition brought about by new technologies can also reduce the concentration of client money and assets among financial institutions, which might also promote financial stability.[60] Thirdly, technology can enable greater efficiency in the operations of financial services providers, thereby promoting more stable business models and efficiency gains in the financial system.

56 Twaweza East Africa: *"Under pressure? Ugandans' opinions and experiences of poverty and financial inclusion."*: *www.twaweza.org/uploads/files/FinalFinancialInclusionBrief27022018.pdf*

57 The "Evolution" of Regulation in Uganda's Mobile Money Sector *http://journals.co.za/docserver/fulltext/afjic_n17_a5.pdf?expires=1532168169&id=id&accname=guest&checksum=4D055C91CDB8FA62504B9E3894B0E925*

58 Blechman (2016): Mobile Credit in Kenya and Tanzania: Emerging Regulatory Challenges in Consumer Protection, Credit Reporting and Use of Customer Transactional Data: *www.macmillankeck.pro/media/pdf/AJIC_Issue_17_2016_Blechman.pdf*

59 Center for Global Development (2018): Financial Regulations for Improving Financial Inclusion: *www.cgdev.org/sites/default/files/CGD-financial-regulation-task-force-report-2016.pdf*

60 It is acknowledged that the interplay between competition and financial stability is debated. See OECD (2011) for a discussion on this: *www.oecd.org/daf/fin/financial-markets/48501035.pdf*

However, FinTech might also increase systemic risks in other ways. For example, spurious correlations from the use of Big Data analytics could lead to the mispricing of credit risk or the extension of credit to those who are unable to afford it. MicroSave (2017)[61] note that the rapid development of digital microcredit products in a number of developing markets, particularly in Africa, has resulted in a high number of drop-outs and defaults, and that in Kenya over 30% of first-time borrowers on these platforms subsequently became negatively blacklisted with the Credit Reference Bureau. With a large number of digital microcredit providers active or emerging in Uganda, as highlighted in Chapter 3, there is a danger that this pattern could repeat in the country.

IMF (2017) observes that emerging technologies may also accelerate both the volume and speed of financial transactions, which could lead to greater instability and volatility. IMF further states that the adoption of algorithm-driven products and technological solutions may increase vulnerabilities to cyber-attacks. Concerns have been raised regarding whether mobile money presents a systemic and fiscal risk, with some citing the case of Kenya as a possible example of this.[62] Digital wallets could expose the payments system to a greater risk of cyber-attack, which could have an impact on the provision of payment services in the wider economy.[63]

The greater use of technology-enabled financial services might also increase the risk of cyber-attacks, particularly given the heightened interconnections between financial services providers. Financial Stability Board (2018) provides further discussion on the implications of financial stability in FinTech, including benefits and risks.[64]

Regulatory failures

Regulators around the world clearly face a delicate balancing act when it comes to FinTech. FinTech can support the achievement of a number of traditional regulatory objectives, with many of the new financial technologies making it possible for large numbers of people to become financially included, promote competition in financial services, and empower consumers. However, it can also present new issues and risks for regulators to consider and mitigate, as outlined earlier.

Policymakers and regulators around the world are seeking to ensure that their frameworks can adapt to the age of technology.[65] In doing so, however, they face a number of significant challenges in determining the appropriate response to FinTech.

61 MicroSave: Digital Credit – Have We Not Been Here Before With Microfinance? *http://blog.microsave.net/digital-credit-have-we-not-been-here-before-with-microfinance/*
62 Kenya's M-Pesa platform is so successful regulators worry it could disrupt the economy: *https://qz.com/873525/safaricoms-m-pesa-has-kenyas-government-worried-what-happens-in-the-event-of-a-crash/*
63 Financial Stability Board (2017)
64 Financial Stability Board (2017): *http://www.fsb.org/wp-content/uploads/R270617.pdf*
65 For an overview of this, see Milken Institute (2017) *FinTech: Considerations on How to Enable a 21st Century Financial Services Ecosystem*: *https://assets1c.milkeninstitute.org/assets/Publication/Viewpoint/PDF/WP-080317-Considerations-on-How-to-Enable-a-21st-Century-Financial-Services-Ecosystem.pdf*

Homer and Michaels (2018) summarise these neatly as:

5. Regulators are not usually technology experts, which renders it difficult for them to assess new FinTech business models and practices;
6. Many new FinTechs are not financial services providers as defined traditionally, and so may not fall neatly under the oversight of regulators;
7. Central banks and regulators are traditionally risk-averse and conservative, valuing stability over innovation;
8. Regulators are typically resource-constrained, with FinTech presenting additional responsibilities;
9. In many cases, the incumbent financial services providers are politically well-connected, which renders it more difficult for regulators to be independent.

There is, therefore, a significant risk of regulatory failure when it comes to FinTech, where regulation fails to address the above market failures or even makes things worse. This can result in poor outcomes for consumers through increased barriers to entry, stifled innovation, and either inadequate consumer protection or low levels of financial inclusion or both.

Other markets have served as early warnings of the consequences of regulatory failures, and how this can lead to market failures. For example, in China, a 2016 report found that poor regulatory oversight had contributed to market conduct issues, such as fraud, in one-third of the 3,000 peer-to-peer lending platforms.[66]

Summary of FinTech and market failures in Uganda

The following table summarises how some of the most common FinTech business models and products in Uganda, as identified in Chapter 3, may be relevant for these different market and regulatory failures.

Note that each segment of FinTech may play a positive or negative role with respect to the market failure. This underlines the importance of ensuring an appropriate regulatory environment for FinTech in Uganda.

66 "One third of China's 3,000 peer-to-peer lending platforms 'problematic': new report", South China Morning Post (SCMP), September 24, 2016; *www.scmp.com/news/hong-kong/economy/article/2022317/one-third-chinas-3000-peer-peer-lending-platforms-problematic*

Table 11: The interaction between FinTech and market and regulatory failures in Uganda

	FinTech Business Models / Products	Potential Relevant Failure			
		Systemic Risks	Market Power/ Competition	Information Asymmetry/ Market Conduct	Regulatory Failure
Payments	1 Mobile Money and Digital Payments	★	★	★	★
	2 Remittances	★		★	★
Lending	3 Alternative Lending / P2P Lending	★		★	★
	4 Credit Risk Assessment		★	★	★
Savings & Insurance	5 Digital Savings	★		★	★
	6 Digital Insurance	★	★	★	★
Enablers	7 Digital Identity		★	★	★

In the context of the Market Failure Analysis framework, there is a particularly high risk of regulatory failure with respect to FinTech in Uganda. The action – or indeed inaction – of the Ugandan authorities risks amplifying the potential market failures. It can simultaneously fail to support the benefits that FinTech can present for regulatory objectives, in particular, the promotion of financial inclusion.

The manifestation of these market and regulatory failures includes a lack of adequate products and services to meet the needs of consumers, inefficient processes, a high cost of delivering products and services, a lack of adequate access points, and inadequate use of existing data to design products or serve customers meaningfully. All of this results in reduced economic and social welfare, most notably through financial exclusion.

Towards a new regulatory approach

How then should regulators balance the need for innovation that benefits the public, financial markets, and the economy with the need for consumer and investor protection and managing the consequent risks? The following section highlights some approaches that regulators around the world have developed and adopted with respect to FinTech. Chapter 5 then turns to Uganda, recommending best practices based on the market failures that have been realised already and those failures that may arise in future.

4.3 Regulatory approaches to FinTech around the world

Regulators around the world face these twin challenges of providing an enabling regulatory environment to support the benefits of FinTech while balancing the risks that emerge from it. Motivated by these challenges, a number of regulators around the world have introduced FinTech-specific initiatives, approaches, and tools. Such approaches have often been driven as much by the perceived risk or reality of regulatory failure, as the market failures outlined above.

This section provides a brief summary of the approaches to FinTech that regulators have taken around the world, including in Africa. These approaches are divided broadly into two categories. The first is regulatory, policy and authorisation reform, which concerns the wider regulatory framework. The second concerns FinTech-specific tools that regulators have put in place either to monitor or support the sector or both.

4.3.1. Regulatory, policy, and authorisation reform

Determining the best regulatory approach for FinTech is challenging, given the multitude of different business models, providers, and products and services. A number of regulators around the world have sought to reform their approaches in light of the development of technology-enabled financial services. The scope and scale of these reforms vary widely, often depending on the size and structure of the FinTech sector, together with the flexibility which the existing framework affords policymakers.

As the IMF (2017) underlines, "[i]n some cases, it will be enough to apply existing regulations. In others, new approaches may be required as new risks—including cybersecurity—emerge and as distinctions between entities and activities break down."[67]

Some markets, such as Mexico, have enacted whole FinTech-specific laws, while others have sought to shore up the frameworks with respect to specific FinTech activities, such as crowdfunding, peer-to-peer lending, and crypto assets or payment services. For example, in the United Kingdom[68] and Mexico[69], new legislation has been created to regulate the new "activity" of crowdfunding, while Australia and Canada have also introduced new crowdfunding rules. Several jurisdictions have also modified their approaches to digital identity, such as more flexible know your customer (KYC) rules and the use of electronic signatures.

67 IMF: Fintech and Financial Services: Initial Considerations *www.imforg/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/FinTech-and-Financial-Services-Initial-Considerations-44985*
68 Source: *GD Knowledge: http://gdknowledge.co.uk/fca-imposes-new-regulation-on-crowdfunding/*
69 Source: *Reuters: www.reuters.com/article/us-mexico-FinTech/mexico-financial-technology-law-passes-final-hurdle-in-congress-idUSKCN1GD6KX*

Data protection

A number of jurisdictions have introduced new data protection frameworks, to give greater protection and rights to individuals with respect to the ownership, handling and sharing of their data. The strongest example of this is in Europe, where the General Data Protection Regulation (GDPR) came into force in May, 2018.[70] This is designed to harmonise data privacy laws across Europe and includes allowing consumers to have easier access to the data which companies hold on them. The GDPR also mandates a responsibility for companies to obtain individual's consent to collect their data and the ability for regulators to fine companies that do not comply..

Competition policy

Across the world, there is an increasing focus on promoting competition in financial services, with many regulators viewing the increased competition to be linked inextricably with the promotion of technology-enabled financial services. While few financial services regulators have a specific mandate to promote competition, the number is slowly increasing. For example, the UK Financial Conduct Authority adopted an objective to promote effective competition in the interests of consumers in 2013[71], while plans are also underway to add a competition objective to the Australian financial services regulator, ASIC[72].

A number of jurisdictions have enacted other policies designed to enhance the pro-competition effects that technology-enabled financial services can bring about. Europe has again led the way, with the recent introduction of the second Payment Services Directive ('PSD2'). This is designed to promote competition in financial services, especially those which are technology-enabled, in a number of ways.

Firstly, PSD2 allows third-party providers to access customer account information, with the customer's consent. This widens the scope of providers with access to data that can be used to provide them with financial products and services. Secondly, with improved access to customer data, third-party providers, such as FinTechs, can provide tailored insights on the financial health of consumers, and offer alternative, rival, financial products based on their specific needs.

4.3.2. FinTech-specific regulatory tools

A number of global regulators have introduced FinTech-specific initiatives in their markets. These typically have the twin aims of increasing regulatory understanding of FinTech while simultaneously promoting the sustainable development of the sector. The following subsection summarises the most prominent of these initiatives, highlighting the benefits to both innovators and regulators.

70 European Commission (2018): *https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en*
71 FCA (2018): *www.fca.org.uk/about/promoting-competition*
72 See Australian Government (2018): *http://kmo.ministers.treasury.gov.au/media-release/030-2018/*

4.3.2.1 Regulatory sandboxes

A number of regulators around the world have recently created regulatory sandboxes.[73] A regulatory sandbox is a framework that facilitates the testing of new technologies, products or services in a controlled environment, overseen by the relevant regulator(s). The creation of regulatory sandboxes has been driven by a number of perceived regulatory barriers to innovation and entry in financial services markets.

Firstly, financial services providers are generally required to hold a licence or other authorisation to provide products and services to consumers. Obtaining this licence involves demonstrating to the regulator(s) that the provider can meet the conditions to operate in the market, such as having the requisite people, processes, and systems. This typically results in a period of time awaiting a licence to operate, while the regulator assures itself that the provider meets these conditions. However, this also results in providers being unable to ascertain the viability, commercial or otherwise, of their proposed product or service until they obtain the licence to operate. The duration of this period can be the difference between success and failure for many providers, especially those which are start-ups with few resources.

From the regulator's perspective, innovative ideas present a particular challenge. As outlined previously, regulators must, in turn, determine in which jurisdiction(s) the prospective provider falls into, the regulations that apply, and then whether the provider meets these. These challenges can also contribute to delays in the licencing process, potentially reducing innovation in financial markets.

Regulatory sandboxes can help mitigate these barriers to innovation and entry, through the creation of an environment where new innovations can be quickly tested and prototyped. For innovators this confers the advantages of reduced time and cost of bringing innovative ideas to market and increased engagement with regulators to better understand their regulatory obligations. Regulatory sandboxes can also confer a number of advantages for regulators, such as working with innovators to ensure that appropriate consumer protection safeguards are built into new products and services, Regulatory sandboxes have also been utilised by regulators to test new new regulations in a controlled environment and at a small scale.

Insights from the earliest regulatory sandboxes to launch around the world have been encouraging. For example, in the first cohort of the UK FCA's regulatory sandbox 75% of FSPs accepted successfully completed testing, while 90% of FSPs continued to a wider market launch. 40% of FSPs received investment during or following their tests.[74] In Malaysia, Bank Negara Malaysia has also utilised a

73 See CGAP (2017) "Regulatory Sandboxes and Financial Inclusion" for a summary of regulatory sandboxes around the world: *www.cgap.org/sites/default/files/Working-Paper-Regulatory-Sandboxes-Oct-2017.pdf*

74 Source: Financial Conduct Authority (2017): *Regulatory sandbox lessons learned report*: *www.fca.org.uk/publication/research-and-data/regulatory-sandbox-lessons-learned-report.pdf*

regulatory sandbox to develop a new regulatory framework that facilitates the use of electronic Know Your Customer (eKYC) checks.

4.3.2.2 FinTech Offices

A number of financial services regulators have established FinTech Offices. These in-house teams aim to both promote regulatory understanding of FinTech and reduce regulatory barriers to entry. The scope of these varies by jurisdiction but generally, FinTech Offices are charged with:

- The identification of gaps in the regulatory perimeter, issues of regulatory arbitrage and unclear regulation;
- Supporting the move from a regulatory environment that is reactive in nature to the development of a proactive regulatory regime, which evolves over time with the evolution of the sector, including from physical to digital infrastructure;
- Providing information and evidence to the supervision and enforcement functions of the regulator regarding issues, risks and breaches of regulation;
- Providing clarity and certainty to FinTechs regarding their regulatory requirements, thereby reducing regulatory barriers to entry and uncertainty;
- Supporting the exploration of the technological solutions which may support the functions of the regulator.

Countries that have established Innovation Hubs include the UK, Australia, France, Korea, Japan, Singapore, Canada, the Netherlands, the USA, Thailand, Indonesia, Hong Kong and Japan.

4.4 Regulatory approaches to FinTech in Africa

As FinTech markets in Africa are still relatively nascent by global standards, regulatory approaches to the sector are typically underdeveloped. However, the regulatory authorities in the largest financial services markets in Africa have begun to explore a number of different approaches towards the sector. This section summarises current regulatory developments with respect to FinTech in Kenya, South Africa and Nigeria.

Kenya

While no specific FinTech regulation has been developed in Kenya, the regulatory authorities have been active in the promotion of consumer protection and competition in a number of financial services markets. For example, the Competition Authority has mandated interoperability between mobile money providers, following an earlier ban on agent exclusivity. Furthermore, the Competition Authority has launched a competition enquiry into the use of alternative credit information, such as mobile money transactional data, in the provision of digital credit. Kenya has also

recently announced a Data Protection Bill[75] and is exploring the creation of a regulatory sandbox framework.

Efforts are also underway to ensure that the regulatory structure in Kenya is fit for purpose in the 21st century. The Government of Kenya has proposed the creation of a consolidated Financial Markets Conduct Authority, in order to ensure effective consumer protection, and promote competition and innovation in financial services.[76] It is hoped that this "...initiative to reduce the number of regulatory bodies all working in the same field... [will] make doing business in Kenya easier than it has ever been." [77]

A number of other regulators, including the UK and South Africa, have recently adopted this so-called 'Twin Peaks' mode of financial regulation. This is seen as a response to the broadening mandate of financial services regulators, the risk of regulatory failure, and the need for strengthened consumer protection mandates. In this model, there are two consolidated financial services authorities across all financial markets. One authority, typically the central bank, is responsible for ensuring the prudential soundness of firms, and the overall stability of the financial system. The other authority, typically a newly created consolidated regulator, is responsible for ensuring market conduct, consumer protection and, in some instances, promoting competition.

South Africa

South Africa is the top destination for FinTech start-ups in Africa. There are no FinTech-specific laws or regulations in the country. However, financial services legislation in South Africa is wide enough to apply to most FinTech products and services. The country has recently launched a FinTech programme to strategically assess the emergence of FinTech in a structured and organised manner, and to consider its regulatory implications.

South Africa has also recently adopted the 'Twin Peaks' model of financial regulation, through the creation of two new regulators. The Prudential Authority is responsible for the oversight and maintenance of financial stability while the Financial Sector Conduct Authority is responsible for the management of business conduct and consumer protection. Some of the proposed benefits of the Twin Peaks approach in South Africa include a focused remit of separate regulators, greater certainty for financial institutions as to who has authority over them, regulatory staff specialisation, and improved financial inclusion and consumer protection outcomes for consumers.[78]

75 Parliament of Kenya: Senate Bills *www.parliament.go.ke/the-senate/house-business/senate-bills*
76 National Treasury, Government of Kenya (2018) – Public Notice, The Draft Financial Markets Conduct Bill, 2018: *www.treasury.go.ke/media-centre/news-updates/484-the-draft-financial-markets-conduct-bill-2020.html*
77 Source: Official website of the President of Kenya: *www.president.go.ke/2017/04/06/cabinet-approves-bill-to-merge-functions-of-financial-regulatory-bodies/*
78 See EY: How should South African financial services firms prepare for change? *www.ey.com/za/en/industries/financial-services/ey-twin-peaks-regulation-in-south-africa*

In 2015, the South African government introduced a new Socio-Economic Impact Assessment System (SEIAS), whereby all cabinet memoranda that seek approval for draft policies require an impact assessment study. The government hopes that this will help support the development of FinTech in the country through ensuring proportionate regulation for the sector.

Nigeria

Mobile banking, mobile lending, and personal finance are the most prevalent FinTech activities in Nigeria. Similar to South Africa, there are no specific legislations on FinTech regulation in Nigeria. However, the Central Bank of Nigeria (CBN) and the Nigeria Securities Commission are currently considering a roadmap for the policies and guidelines required to support FinTech in the country.

Payments are the most regulated activity in the economy. The CBN's 'Guidelines on mobile payments services in Nigeria' divide mobile money services into two models: bank-led model (banks as a lead initiator for monitoring and providing services) and non-bank led model (licensed corporate organisations as the lead initiator). Mobile Network Operators (MNOs), on the other hand, are precluded from licensed for mobile money services (though this is currently subject to revision[79]). This may have led, among other reasons, to the relatively unsuccessful penetration of mobile money in Nigeria, resulting in lower levels of financial inclusion.[80]

Concluding comments

Generally, then, there are no bespoke FinTech regulations in the top FinTech markets in Africa, with their activities usually regulated under existing frameworks. However, a major development has been the proposed revision to the structure of financial regulation in Kenya and the implementation of revision to the structure of financial regulation in South Africa. These revisions are designed to enhance consumer protection and provide increased regulatory certainty for financial services providers.

Both Kenya and South Africa are also developing principles-based, rather than rules-based, approaches while considering new regulations that might apply to FinTech. For example, the regulatory sandbox consultation document in Kenya states that "regulatory nimbleness, flexibility and responsiveness provided by principle-based regulation is even more important in the FinTech sector where thriving innovation is the lifeline of a vibrant business enterprise".[81]

79 Source: Techpoint.ng – *"CBN okays telecom operators for payment system in new MoU"*: *https://techpoint.ng/2018/04/11/cbn-okays-telecom-operators-for-payment-system-in-new-mou/*

80 See IFC (2018): *www.ifc.org/wps/wcm/connect/aa5e09c7-121e-4588-803a-52ef56b846b2/201805_Digital-Access_The-Future-of-Financial-Inclusion-in-Africa_v1.pdf?MOD=AJPERES*

81 Capital Markets Authority, Stakeholders' Consultative Paper on Policy Framework for Implementation of a Regulatory Sandbox to Support Financial Technology (FinTech) Innovation in the Capital Markets in Kenya

Chapter 5: FinTech and regulation in Uganda

The previous chapters explained the relevance of FinTech for financial regulators around the world, including in Uganda, through the framework of a market failure analysis. The potential market failures which FinTech may either mitigate or exacerbate were highlighted, together with the role which regulatory failures might play in failing to address these or indeed making them worse. This chapter builds on this market failure analysis for the specific case of Uganda, highlighting the relevance of the market and regulatory failures in the sector for Ugandan authorities. Five best practices are in turn recommended to address these market and regulatory failures.

5.1 Financial sector regulation in Uganda

Regulatory structure

Financial regulation in Uganda is broadly conducted along sectoral lines. Distinct financial sector regulators regulate and supervise a specific set of financial institutions or financial markets. For example, Bank of Uganda oversees the banking and credit sectors. The Capital Markets Authority is responsible for promoting, developing, and regulating the capital markets industry. The Insurance Regulatory Authority is responsible for ensuring the effective administration, supervision, regulation, and control of the insurance sector.

There are also separate regulators for retirement benefit schemes (the Uganda Retirement Benefits Regulatory Authority), microfinance (the recently formed Uganda Microfinance Regulatory Authority) and to combat money laundering activities (the Financial Intelligence Authority). The telecommunications regulator, the Uganda Communications Commission, is also relevant for the FinTech sector given its responsibility for telecommunications regulation.

There are also a number of policymakers that interact with the financial services, and FinTech, industry. This includes the Ministry of Finance, Planning and Economic Development, which includes a dedicated Financial Services Department, and the Ministry of ICT that is charged with overseeing the information and communications technology sector. Given the broad definition of FinTech, a technology-enabled financial services provider may fall under the jurisdiction of multiple regulators depending on the nature of the company, or indeed product or service being offered.

The following table sets out the authorities which have jurisdiction over the respective FinTech segments set out in Chapter 1, together with their core objectives:

Table 12: Authorities in Uganda and their jurisdictions with respect to FinTech

Authority	Objective/Mandate	Year formed	Authorising Legislation	Payments	Lending	Investment and savings	Insurance	Banking Infrastructure	Markets	Digital Identity
Bank of Uganda (BOU)	Foster price stability and a sound financial system	1966	The Bank of Uganda Act	✓	✓	✓	×	✓	×	×
Ministry of Finance, Planning and Economic Development	Formulate sound economic policies, maximise revenue mobilisation, ensure efficient allocation and accountability for public resources	1995	Constitution of Uganda	×	×	✓	×	×	✓	✓
Capital Markets Authority (CMA)	Development of all aspects of capital markets, creation of a system in which market participants are self regulatory to maximum extent, protection of investor interests, operation of compensation fund	1996	Capital Markets Authority Act	×	×	✓	×	×	✓	×
Insurance Regulatory Authority of Uganda (IRAU)	Ensure effective administration, supervision, regulation and control of the business of insurance in Uganda	1997	Insurance Act	×	×	✓	✓	×	×	×
Uganda Retirement Benefits Regulatory Authority (URBRA)	Regulating establishment, management and operation of retirement benefits schemes, and supervising institutions which provide retirement benefits products and services	2012	Uganda Retirement Benefits Regulatory Authority Act	×	✓	✓	✓	×	×	×
Financial Intelligence Authority	Combating money laundering activities	2014	Anti-Money Laundering Act	✓	✓	✓	✓	✓	✓	✓
Uganda Communications Commission (UCC)	Developing a modern communications infrastructure in Uganda, regulating, facilitating and promoting the sustainable growth and development of Uganda's communications sector	1998	Uganda Communications Act	✓	✓	✓	✓	✓	✓	✓
Ministry of Information and Communications Technology and National Guidance	Providing strategic and technical leadership, overall coordination, support and advocacy on all matters of policy, laws, regulation and strategy for the ICT sector, ensuring sustainable, efficient and effective development, harnessing and utilization of ICT in all spheres of life	2006	Unclear	✓	✓	✓	✓	✓	✓	✓
National Identification and Registration Authority	Create, manage, maintain and operationalise National Identification Register by registering all citizens of Uganda, non-citizens who are lawfully resident in Uganda, births and deaths, assigning a unique National Identification Number to every person registered and relevant identification cards to all registered persons	2015	Registration of Persons Act	✓	✓	✓	✓	✓	✓	✓
Uganda Registration Services Bureau	Responsible for business registration, official receiver in liquidation of companies and bankruptcy matters, intellectual property rights, civil registration and collection of non-tax revenue	2004	Uganda Registration Services Bureau Act	✓	✓	✓	✓	✓	✓	✓
Financial Markets Development Committee	Steer development of financial sector and ensure that it maximises contribution to economy; coordinates reforms across the banking, capital markets, insurance and pension sectors			✓	✓	✓	✓	✓	✓	✓
Uganda Microfinance Regulatory Authority	Protecting the savings of depositors, limiting predatory lending and unethical practices, and building confidence in the system to promote financial inclusion	2017	The Tier 4 Microfinance Institutions Act and Money Lenders Act	×	✓	×	✓	×	×	×
National Information Technology Authority	Coordinate, promote and monitor information technology developments in Uganda within the context of national social and economic development	2011	The National Information Technology Authority, Uganda Act, 2009	✓	✓	✓	✓	✓	✓	✓

Regulatory approach

The current regulatory framework in Uganda is fairly centred on institutions or products. For example, the Bank of Uganda follows a "tiered approach" for the regulation of banking and credit institutions, which determines which regulator has jurisdiction over these "traditional" banking and credit institutions. The table below presents this in detail.

Table 13: Supervision of banking and credit institutions in Uganda

Tier	Type of institution	Under jurisdiction of	Enabling legislation
1	Commercial banks	Bank of Uganda	Financial Institutions Act 2004
2	Credit institutions	Bank of Uganda	Financial Institutions Act 2004
3	Micro-finance deposit-taking institutions	Bank of Uganda	The microfinance deposit-taking institutions act 2003
4	• SACCOs, • Non-deposit taking microfinance institutions • Self-help groups, • Community-based microfinance institutions • Moneylenders	Uganda Microfinance Regulatory Authority	The Tier 4 Microfinance Institutions Act and Money Lenders Act, 2016

The approach to financial regulation in Uganda is typically rules-based, which, as the name suggests, follows a set of detailed rules that governs the behaviour of financial service providers and *what* they should do. This contrasts with the principles-based approach that a number of other markets have adopted, which defines a set of desired outcomes and provides more flexibility for financial services providers to decide *how* they should achieve these.

5.2 FinTech and financial regulation in Uganda – opportunities, challenges, and best practices

By global standards, the FinTech sector in Uganda is small. However, the fast-paced nature of technological developments in the sector and their uptake by consumers means that regulators should consider the risks to their regulatory objectives and the appropriate response at an early stage. This is all the more important given that the policy and regulatory space tends to move much more slowly than innovation in the sector.

This section sets out the market and regulatory failures with respect to FinTech in Uganda. Recommended best practices to address the problems follow each of them. These best practices can enable the regulatory authorities in Uganda to balance the mitigation of the potential market failures that may arise in the FinTech sector in Uganda with seizing the opportunities and benefits which FinTech can offer Uganda. These opportunities include increased financial

inclusion, investment, and growth in both the financial sector and the wider economy. These best practices are based on the examples of other leading financial services regulators around the world, as well as the unique characteristics of the financial services market in Uganda.

Information asymmetries and market conduct

Chapter 4 highlighted the various implications which FinTech can have for both market conduct and information asymmetries. FinTech can serve to reduce information asymmetries between consumers and financial services providers, but may also create market conduct issues of its own. These might include data protection concerns, questions surrounding the transparency of key product terms and conditions, and the exploitation of vulnerable consumers. For example, in the digital credit space, ill-informed consumers may borrow money using products they do not understand, including the implications of failure to repay.

Participants in this study have highlighted the underdeveloped nature of the consumer protection and data privacy framework in Uganda with respect to FinTech. In addition, the National Financial Inclusion Strategy draws particular attention to the limited protection of the rights of consumers for non-bank entities, such as microfinance institutions, SACCOs, insurance companies, pensions funds, and mobile money service providers.

Best practice 1:
Development of a comprehensive consumer protection framework, including data privacy

The development of a comprehensive and robust consumer protection framework in Uganda would support both the development of the FinTech sector and mitigate some of the market failures which may subsequently arise. Consumer protection regulation can help address how technology-enabled financial services providers interact with consumers, including ensuring the effective disclosure of pricing and other terms and conditions of products and services.

This would ideally incorporate data protection and privacy legislation, which would promote trust in financial services and, in turn, enhance the uptake and usage of technology-enabled financial services. The forthcoming Data Protection and Privacy Bill[82] provides an excellent opportunity to develop a data protection framework. The development of this consumer protection framework could make use of the existing work activities under the National Financial Inclusion Strategy, which proposes "[conducting] a review of consumer protection practices for all financial service providers, including digital financial services.[83]

82 NITA: Data Protection and Privacy Bill *www.nita.go.ug/publication/data-protection-and-privacy-bill-published*
83 NFIS Gap #19: Limited Protection of Consumer's Rights

CGAP (2011) underlines the importance of a well-developed consumer protection regime: "Consumer protection and financial literacy can contribute to improved efficiency, transparency, competition, and access in retail financial markets by reducing information asymmetries and power imbalances between providers and users of financial services."[84] Developing a forward-looking regulatory framework calls for creativity, flexibility, and new expertise. The examples of other countries around the world can provide examples of best practice for the authorities in Uganda.

Kenya and South Africa serve as illustrative examples of consumer protection frameworks, with both exploring the creation of dedicated consumer protection regulators, together with a move towards more principles-based, rather than rules-based, regulation. This has also received a push from a broadening mandate with respect to technology-enabled financial services. The European Union has also led the way in the development of data protection and sharing legislation, such as through the General Data Protection Regulation (GDPR).[85]

Systemic risk

Potential systemically important segments of FinTech in Uganda include the provision of digital credit and alternative lending channels. These segments are currently at low volumes. However, the speed of growth of the sector in other parts of the world indicates that this may not remain the case for long. As Macmillan (2016) observes, "there are no indications that mobile credit [in Uganda] is of a sufficient scale to make prudential regulation of currently unregulated lenders...an urgent concern, though this may need to be reassessed in the future." Uganda, therefore, has the opportunity to pre-empt any systemic risks that may arise in the FinTech sector.

Best practice 2: Address priority areas which FinTech presents for systemic risk

Given the potential systemic risks and financial instability that FinTech may present, the authorities in Uganda might consider implementing a pre-emptive approach to mitigation. By way of best practice, the Financial Stability Board (FSB) has proposed three priority areas to support the efforts of regulatory authorities to safeguard financial stability while fostering more inclusive finance.

84 CGAP (2011): *www.cgap.org/sites/default/files/CGAP-Consumer-Protection-Laws-and-Regulations-in-Deposit-and-Loan-Services-Jan-2011.pdf*
85 European Commission (2018): *https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en*

These are:

1. **Managing operational risks from third-party service providers**. As has previously been identified, many third-party providers, such as cloud computing and data services, may fall outside the regulatory perimeter in Uganda. Given that many FinTech providers rely on third-parties to deliver their services, the authorities in Uganda could ensure that current oversight frameworks for these are appropriate.

2. **Mitigating cyber risks**. The recent increase in cyber-attacks around the world serves as a warning to technology-enabled financial services providers around the world, including in Uganda. The FSB highlights that contingency plans for cyber-attacks, information sharing, and monitoring can help lower the probability of adverse effects on financial stability. This again maps closely to the National Financial Inclusion Strategy in Uganda. It underlines that authorities should ensure that financial services providers comply with the National Information Security Policy and that security risks exist for consumers, payments, and digital financial services providers.

3. **Monitoring macro-financial risks**. The FSB warns that there is limited availability of data on the implications of FinTech for financial stability. This is certainly the case in Uganda, with authorities professing to have little information, statistics or data on the size of FinTech in the country, or the implications of this for financial stability. When it comes to credit risk specifically, the National Financial Inclusion Strategy identifies limited coverage by Credit Reference Bureaus (CRBs), slow connections, and high costs for data provided by the CRB.

Market power

Competition in financial services generally represents a positive force that can ensure financial services providers provide value for money products and services, and in time promoting consumer protection and financial inclusion. The disruptive nature of FinTech presents a particularly powerful mechanism to promote competition in financial services. However, FinTech can also present competition issues of its own. In Uganda, an early example of this may be the concentrated nature of the mobile money sector, reinforced by strong network effects and significant barriers to entry.

There is a danger that, in the words of Macmillan et al (2016)[86]: "Continued light-touch regulation may result in an entrenched concentrated market structure, with a dominant leader in the form of MTN Uganda and a smaller follower in Airtel Uganda. This has

86 Macmillan et al (2016): *http://journals.co.za/docserver/fulltext/afjic_n17_a5.pdf?expires=1532168169&id=id&accname=guest&checksum=4D055C91CDB8FA62504B9E3894B0E925*

the risk of stifling innovation by other potential rivals who offer new and improved services and undermining competition in mobile money as a whole." The National Financial Inclusion Strategy also acknowledges that "Weak competition in financial services has led to high prices and insufficient customer experience."

The nature of some technologies has characteristics similar to public utilities, through which they might be considered essential services in Uganda. For example, payment systems form a vital part of the financial system and underpin the services that enable money to be transferred between consumers and institutions. Access to payment systems is essential to enable competition and innovation in financial services in the country. Similarly, channels for accessing financial services via the mobile phone, such as via USSD, might also be considered to be utility-like in nature.

The competition framework with respect to financial services in Uganda is generally underdeveloped, as there is no competition regulation regime or competition authority in place.[87] The only authority with any jurisdiction or tools with respect to competition issues in the financial sector is the telecommunications regulator, the Uganda Communications Commission (UCC).

Best practice 3:
Develop a robust and comprehensive approach to promoting competition in financial services

FinTech represents a huge opportunity to promote competition in financial services in Uganda and, in turn, promote financial inclusion and indeed further innovation. At the same time, new technology-enabled financial services providers will stress existing legislation and place greater emphasis on competition law. The development of a comprehensive approach to promoting competition in financial services would support the responsible development of FinTech in Uganda, while also supporting the mitigation of other market failures given their strong links with market power.

The draft competition bill would be complementary to this while the National Financial Inclusion Strategy also advocates for "either structural changes or rules or both that could further promote competition". One option which could be explored in this context in Uganda is the adoption of utility-style regulation, whereby key channels (such as USSD or payment systems) are regulated as essential public utilities. In this context, the UK has recently introduced utility-style regulation for Payment Systems, based on concerns regarding a lack of competition and innovation in payment systems.[88]

87 It was first proposed in 2006 that Uganda required a competition policy and law, together with the establishment of a competition commission. Uganda Law Reform Commission (2006): *www.ulrc.go.ug/sites/default/files/ulrc_resources/Competition%20law%20body_0.pdf*

88 UK Government: Designation of payment systems for regulation by the Payment Systems Regulator *www.gov.uk/government/consultations/designation-of-payment-systems-for-regulation-by-the-payment-systems-regulator/designation-of-payment-systems-for-regulation-by-the-payment-systems-regulator*

Regulatory failures

The innovative and disruptive nature of technology-led financial services has resulted in a rapid pace of change in financial services markets and has thrown a challenge to policymakers and regulators around the world to keep up.[89] Uganda is no exception to this, with many of the FinTech products, services and business models described in the chapters above emerging over the last few years. It is therefore understandable that regulatory failures may arise. In Uganda, these have taken two specific forms.

Regulatory failure 1: Limited regulatory understanding of FinTech

Policymakers must respond and move quickly to understand FinTech – only by doing so can the appropriate regulatory responses evolve (see Regulatory Failure 2). As Homer and Michaels (2018) note, "Building knowledge about FinTech and digital finance among regulators is essential to effective supervision."[90] However, levels of awareness levels and understanding of FinTech are currently low among policymakers and regulators in Uganda. Almost all the authorities interviewed admitted this, while participants from the industry confirmed it.

More specifically, there is little knowledge of, and data on, the number of FinTechs operating in Uganda. There is little data available on which sectors the FinTechs operate in, their business models, and the products that they offer.[91] Consequently, there has been little assessment of the opportunities and risks that may consequently arise.

There is a particular concern among authorities regarding the relative lack of understanding of crypto-assets and the use of distributed ledger technology, with almost all of the regulators interviewed professing that this was the most significant blind spot in their understanding of the sector. There is also generally low awareness and understanding of the potential that technology holds to enable regulators to undertake their roles more effectively, through RegTech solutions. Only one or two regulators professed an understanding of this. Many regulators are also capacity-constrained, and many are also newly-formed, leaving little resource to devote to monitoring and understanding this fast-moving sector.

Despite this, it is clear that there is a great desire among policymakers and regulators to learn more, and understand FinTech. Indeed, every single authority interviewed expressed a strong interest in strengthening their knowledge of the sector, in order to best inform their regulatory approach to FinTech.

89 For example, see AFI (2017): FinTech: What's in it for financial inclusion? *www.afi-global.org/blog/2017/12/FinTech-whats-it-financial-inclusion*

90 Source: Homer and Michaels (2018),: Homer and Michaels (2018): Regulation and Supervision in a Digital and Inclusive World, published in "Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1" page 341: *www.sciencedirect.com/science/article/pii/B9780128104415000142*

91 The exception to this is mobile money, which was first introduced in 2009. A basic regulatory framework for mobile money has also been introduced, with the Bank of Uganda issuing mobile money guidelines in 2013.

Best practice 4:
Up-skill regulators on FinTech

Given the regulatory knowledge gap with respect to FinTech, up-skilling regulators on the subject will be important to ensure the appropriate regulatory framework and responsible development of the sector. There are a number of options to support this:

1. Greater engagement between authorities and the industry would be mutually beneficial in providing greater understanding and clarity on both sides. The Uganda FinTech Association – FITSPA can play an enabling role in this by providing a unified and clear voice to represent the industry.

2. The opportunity to learn from the experience and example of other global regulators should not be underestimated. Organisations such as the Alliance for Financial Inclusion (AFI) provide suitable platforms for regulators to share their experiences, lessons learnt, and best practices.

3. FinTech-specific regulatory initiatives, such as innovation hubs or regulatory sandboxes provide a channel through which regulators can engage with and learn more about technology-enabled financial services providers and their implications for financial regulation.

4. Training and other educational opportunities can provide the opportunity for regulators to up-skill on FinTech.

Regulatory failure 2: Unclear regulatory framework with respect to FinTech

Just as the rapid pace of innovation has challenged regulators to maintain their knowledge of the latest developments, so it has challenged existing regulatory frameworks, approaches, and tools. This is particularly the case, given that FinTech straddles both finance and technology sectors, prompting uncertainty on if and how to regulate these providers.

Chapter 3 highlighted that FinTechs in Uganda often operate across more than one market, offering multiple products and services to consumers. Furthermore, many of them are not financial institutions as traditionally defined. The central bank, the Bank of Uganda, is the main regulator for financial services. However, depending on the nature of the business, a FinTech in Uganda may be subject to oversight by at least eight different authorities across the financial, securities, telecommunications, and insurance industries (see Table 12). A number of these regulators have recently been formed and are consequently in the process of developing their regulatory framework and tools.

Furthermore, while a FinTech may carry out many of the same functions as other types of regulated financial institutions, many of them remain unregulated as they are not registered as, or do not identify as a "traditional" financial institution. Many of the Ugandan FinTechs interviewed were aware of the importance of regulation but lacked clarity regarding under whose authority they fall and, consequently, which regulations apply.

Examples of the ambiguity of regulatory jurisdiction include:

- FinTechs that provide micro-pension services are regulated by the Uganda Retirement Benefits Regulatory Authority. However, it is understood that this only applies to the provision of pension services to the formal sector[92] under the URBRA Act 2011, the Trust law 1938, and the NSSF Act.
- FinTechs that offer platforms to conduct financial transactions are not covered under the ambit of any regulation. These platforms include, for example, linking individual borrowers with lenders – such as peer-to-peer lending.
- FinTechs that interact with mobile money or receive loan repayments in the form of mobile money through their platform believe that the money is technically at the MNO. Hence, they are not clear if the Bank of Uganda should regulate them. Were this to be the case, there is a lack of clarity on the guidelines and thresholds that would apply.
- FinTechs that provide insurance are unclear if they should be regulated as an insurance company or as an agent if they collaborate with an insurance company to provide insurance services.
- It is currently not clear which regulations, if any, apply to FinTechs. So, other existing laws such as the recently enacted SACCOs, MFIs and moneylenders Act, UCC Act and BOU mobile money guidelines indirectly regulate many FinTechs.

It is clear that the authorities in Uganda are aware of the unclear regulatory framework with respect to FinTech. At least half of the authorities interviewed as part of this study professed significant uncertainty concerning how much jurisdiction they had over the emerging FinTech sector, with much of this driven by an individual interpretation of the existing regulatory framework.

At a higher level, the National Financial Inclusion Strategy observes that "(There is an)...inappropriate policy and regulatory framework and ambiguity for mobile money"[93] and the National Development Plan of 2015 that "[t]he challenges facing Uganda's [Science, Technology and Innovation] Sector include: *Outdated laws that make it difficult to address contemporary issues ...*"[94]

92 70% of the Ugandan labour force is currently employed in the informal sector. Source: Cities Alliance: *www.citiesalliance.org/sites/citiesalliance.org/files/PB_Uganda_WEB.pdf*

93 National Financial Inclusion Strategy (2017), page viii: *www.bou.or.ug/bou/bou-downloads/publications/special_pubs/2017/National-Financial-Inclusion-Strategy.pdf*

94 Second National Development Plan (2015), page 159: *http://npa.ug/wp-content/uploads/NDPII-Final.pdf*

This adds up to an uncertain and unclear regulatory environment for financial services providers to operate in. This is particularly challenging for FinTechs, which often have limited human, financial, and temporal resources to navigate complex regulatory frameworks. The manifestation of this lack of clarity and uncertainty will be reduced competition, potential consumer protection issues, and increased barriers to innovation and entry – for example, in the form of challenging licensing processes. In other words, the market failures outlined above.

Best practice 5:
Clarify the regulatory approach to FinTech

The uncertain and unclear regulatory environment for FinTech in Uganda poses a barrier to innovation and entry in the financial services market. The development of technology-enabled financial services in Uganda would receive support in the form of clarifying the regulatory approach to the sector. There are a number of options which would serve to support this:

1. Greater regulatory coordination
Given the number of different authorities that play a role in financial services regulation in Uganda, particularly in the case of FinTech, enhanced regulatory coordination would provide increased clarity and certainty on the regulatory framework as it applies to FinTechs. The creation of the Financial Markets Development Committee provides the ideal forum to bring together the various policymakers and regulators in Uganda, in order to better coordinate their respective regulatory frameworks and approaches to FinTech.

2. Functional-based regulation
Institution or product-based regulatory frameworks can have a number of consequences. It is possible that companies which provide financial products and services via new channels like technology may be regulated differently or not at all compared to companies that provide these products or services via more "traditional" channels. These traditional channels include a branch or an agent. One approach to ensure the consistent, certain, and clear approach to regulating financial services providers is to regulate based on the activity or "function" that the provider undertakes, rather than on the "type" of institution that provides the product or service.

By way of example, under functional-based regulation a company that provided credit to consumers would be regulated in the same way regardless of whether it was a bank providing a loan to a customer in a physical bank branch, a "SACCO" providing a loan to a member of the cooperative, or

a "FinTech" that provides a credit product to consumers using a smartphone or online. The forthcoming National Payment Systems Policy Framework is an early example of a functional approach to regulation.[95]

3. Principles vs rules-based regulation

The current regulatory framework in Uganda is mainly rule-based, with regulations prescribing the exact way in which providers should comply with the regulation. This leaves little room for flexibility and innovation in how financial services providers comply with the regulation. The National Financial Inclusion Strategy makes clear that "...traditional regulatory rules also will not necessarily work for new products – and could even stifle innovation."[96]

A principles-based approach may enhance the consumer protection environment while allowing financial services providers (of all kinds) the space to innovate. Principles tend also to be more technology-neutral, ensuring flexibility for those with different products, services, and business models. For example, a rule might stipulate that customers should be given all terms and conditions of a product in physical form, which might result in dozens of pages of small print. However, a principle might simply state that customers should receive relevant information in a way that is clear and fair.

4. FinTech-specific regulatory initiatives

FinTech-specific regulatory initiatives, such as innovation hubs or regulatory sandboxes provide a channel that regulators can utilise to develop the regulatory framework. These initiatives can simultaneously reduce regulatory uncertainty for technology-enabled financial services providers. The National Financial Inclusion Strategy also envisions the development of a regulatory sandbox to "provide a regulatory framework that promotes innovation".[97]

95 Bank of Uganda, Proposed National Payment System (NPS) Policy Framework, 20 October 2017
96 National Financial Inclusion Strategy (2017), page 33: *www.bou.or.ug/bou/bou-downloads/publications/special_pubs/2017/National-Financial-Inclusion-Strategy.pdf*
97 National Financial Inclusion Strategy (2017): *www.bou.or.ug/bou/bou-downloads/publications/special_pubs/2017/National-Financial-Inclusion-Strategy.pdf*

Table 14 below maps the best practices above to the relevant market and regulatory failures that they are designed to address. It is notable that each best practice can address multiple market and regulatory failures, given their inter-related nature.

Table 14: Map of best practices to relevant failures

Best practice	Relevant Failure			
	Systemic Risks	Market Power/ Competition	Information Asymmetry/Market Conduct	Regulatory Failure
1 Consumer protection framework		★	★	★
2 Address priority areas for systemic risk	★			★
3 Develop approach to promoting competition	★	★	★	★
4 Up-skill regulators on FinTech		★	★	★
5 Clarify regulatory approach to FinTech		★	★	★

Chapter 6: Conclusion

The financial services industry is undergoing rapid and far-reaching transformation, underpinned by new and emerging technologies. This intersection is commonly referred to as FinTech. From mobile payments, to credit, to insurance, to providing the infrastructure critical to the functioning of the global financial institutions, FinTech is impacting markets around the world. This transformation offers enormous potential to drive positive change in Uganda. FinTech can support a range of policy and regulatory objectives in the country, such as promoting financial inclusion, financial sector deepening and wider economic growth.

While FinTech brings opportunities, it also presents challenges for policymakers and regulators. Authorities around the world are grappling with the new business models, risks and uncertainties which FinTech presents, and must finely balance promoting innovation with other objectives such as protecting consumers and maintaining financial stability. This has manifested in a range of regulatory responses to both support the sector and mitigate potential downsides, such as the exacerbation or creation of risks to consumer protection, financial instability and effective competition. Global regulatory responses include regulatory and policy reform, and the development of FinTech-specific tools such as regulatory sandboxes and FinTech Offices.

Policymakers and regulators in Uganda also face this delicate balance between the opportunities and challenges of FinTech. As FinTech continues to grow in the country, the Ugandan authorities must grow with it. The best practices set out in this report focus on putting in place the core building blocks to the effective regulation of the sector, while simultaneously promoting inclusive financial innovation. These best practices proposed are also complementary to the current National Financial Inclusion Strategy.

Key to the responsible development of FinTech in Uganda will be the timely and proactive engagement of the various Ugandan authorities with the sector. The authorities will be required to coordinate closely and work together pragmatically to embrace the opportunities while addressing the challenges. As Christine Lagarde, Managing Director of the IMF asserts, "One thing seems certain: we shouldn't put off action until the answers become completely clear. Instead, we must begin to consider the regulatory framework of the future. We must do so in a manner attuned to the rapid pace of change, and with the awareness that unexpected new opportunities and risks may emerge."[98]

98 IMF (2018): *www.imf.org/external/pubs/ft/fandd/2018/06/how-policymakers-should-regulate-cryptoassets-and-fintech/straight.htm*

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