



Partnership for **FINANCE**
in a **DIGITAL AFRICA**

Learning Advances in Digital Finance 2017



**Caribou
Digital**

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The views presented in this paper are those of the authors and the Partnership, and do not necessarily represent the views of the Mastercard Foundation or Caribou Digital.

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ABOUT THE PARTNERSHIP

The Mastercard Foundation Partnership for Finance in a Digital Africa (the "Partnership"), an initiative of the Foundation's Financial Inclusion Program, catalyzes knowledge and insights to promote meaningful financial inclusion in an increasingly digital world. Led and hosted by Caribou Digital, the Partnership works closely with leading organizations and companies across the digital finance space. By aggregating and synthesizing knowledge, conducting research to address key gaps, and identifying implications for the diverse actors working in the space, the Partnership strives to inform decisions with facts, and to accelerate meaningful financial inclusion for people across sub-Saharan Africa.

www.financedigitalafrica.org

www.mastercardfdn.org/financial-inclusion-program/

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Summary

This document focuses on a series of “learning advances” identified throughout the first year of the Mastercard Foundation Partnership for Finance in a Digital Africa. It introduces two key concepts to help frame the challenge of financial inclusion in sub-Saharan Africa: Meaningful financial inclusion (involving not only access, but also the effective use of a suite of financial services products), and the pursuit of these goals against the backdrop of an ongoing “shift to digital” both in financial services and in the broader economy. Digital, we argue, is not simply an opportunity to pursue existing business models—at better or lower costs—but an opportunity and an imperative to reexamine the critical role of financial services in enabling participation in the broader economy. To illustrate and explain these points the document is structured as three interconnected chapters which operate at the levels of the Partnership’s **Theory of Change**: client-level insights on “effective use,” institutional level business models, and the growth of open APIs in the ecosystem. This document is best suited for practitioners, policymakers, and researchers in the digital finance community (especially those with an interest in financial inclusion), but given its modularity, elements of it can be read by anyone with an interest in client learning, emerging digital finance business models, or the suitability and promise of APIs in the African digital finance landscape.

Introduction

For more than a decade, a large and diverse community has promoted financial inclusion to improve the lives of people living in sub-Saharan Africa. As digital technologies from “mobile money” to biometrics have emerged over that period, advances in financial inclusion have become intertwined with broader questions of digital inclusion and participation in the global economy. The path of financial inclusion in Africa is increasingly digital because Africa’s economy is increasingly digital.

Across all the regions of Africa, a basic phone with a mobile money option on a USSD menu can serve as the connection between a farmer or a household and a variety of evolving, interconnected financial services and marketplaces. Behind the simplicity of the user interface lie a host of interconnection and innovation. Even the simplest cash in/cash out money transfers are facilitated by new digital interfaces, structured by new cloud services, and tied into monetary flows that are a part of the global economy.

With these new services come demands for new technical skills, business models, interconnection agreements, and innovative products and services. Meanwhile, in the broader economy, digitization continues to transform every sector—from agricultural value chains to manufacturing—separating information from products, privileging information processing and creating new modes of value creation.¹ These “shifts to digital” in financial services and the broader economy are not complete, nor are they unfolding in the same way (or to the same degree) in each sector or country in Africa. However, they are, overall, happening. Thus the push for meaningful financial inclusion and the shift to digital is inexorably linked. On the one hand, the spread of digital financial services creates clear opportunities for new economic

advances, and new ways to expand and deepen use of financial services. But on the other hand, the shifts in the broader economy create imperatives for the broad-based use of digital financial services. Digital financial services aren’t a convenience, or a nice-to-have; they are instead becoming a necessity for participation in increasingly digital economies and societies.

The key, of course, is to ensure that these transformations benefit everyone and exclude no-one, particularly the economically disadvantaged. Promoting an understanding of this duality of new opportunities and new imperatives is at the core of the Mastercard Foundation Partnership for Finance in a Digital Africa, a new multi-year program within the Foundation’s Financial Inclusion Program.² This inaugural document from the Partnership outlines several “Learning Advances” made in 2017 by Partner Institutions in the Foundation’s financial inclusion program, and by other institutions in the digital finance community—a community we expansively define as “all actors interested and/or involved in providing digital financial services to resource-constrained users in the Global South.” It is both our mission and our pleasure to share some of these findings with the digital finance community in the hopes that they will promote best practices, highlight effective business models, inspire new entrants, and redoubled activities in this important space.

¹ Evans and Wurster, *Blown to Bits: How the New Economics of Information Transforms Strategy*; World Bank, “World Development Report 2016: Digital Dividends.”

² Mastercard Foundation, “Financial Inclusion Program.”

Further progress is required to achieve meaningful financial inclusion

The World Bank suggests

Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit and insurance—delivered in a responsible and sustainable way.³

This definition remains an excellent North Star for the industry and digital finance community if we keep two points in mind:

First, it is important to reiterate that “products and services” is *plural*. The World Bank’s mapping into Transactions, Payments, Savings, Credit and Insurance serves as a good enumeration of the core elements of financial inclusion. The idea of a “full suite”⁴ of services underscores the idea that meaningful financial inclusion should be understood as more than access to person-to-person (P2P) transfers; it involves individuals, households, and small enterprises who are: saving for the future; protecting against shocks and risk; managing complex inflows, outflows, and inventories; borrowing to take advantage of opportunities or to manage cash flow; and even investing to put money to work for themselves, their families, and their communities in the same ways that prosperous people have come to take for granted.

The idea of a suite also demands specificity when discussing impacts and/or business models. “What works”, “how”, and “with whom”, varies dramatically across the suite. The digital finance community should be careful and systematic in how the lessons it gleans from the variety of pilots, projects, products and services are deployed across the field.

Second, to metrics such as “access”, “affordability”, and even “usefulness,” we should add a focus on the extent to which individuals, households, and small enterprises *actually and effectively use*⁵ the technologies, products, and services to which they have increasing access. For example, gaps have emerged over the years between the proportion of populations with access to digital financial services and those who use them. And, while the overall number of mobile money users in Africa may be impressive—half of them have no other formal account—most use digital financial services infrequently and only for very specific purposes

(e.g., sending money to other people far away).

Many other financial needs, however, have not been addressed.

An optimistic interpretation might suggest that “access” to the services has been provided, but it is important to stress that the journey to meaningful financial inclusion is still underway and will be until the gap between access and effective use has been narrowed not only for transfers or payments, but for the other elemental financial services as well: credit, savings, and insurance. Bluntly, this requires a shift in the mindset of the digital finance community. Meaningful financial inclusion is not achieved simply through “access to” or “the ability to use” these services. It is achieved through the effective use of these services, that is, to make people and households—especially those at the base of the economic pyramid—healthier, happier, and more prosperous.

Digital technologies are a means to achieve more meaningful financial inclusion

Each year more steps are taken in the long journey of connecting the poor to more relevant financial services, through banks, microfinance, and other financial services providers. The Consultative Group to Assist the Poor (CGAP) offers a helpful framework that illustrates how digital technologies are increasingly central to these efforts. They identify a set of “digital attributes”⁶ (such as real-time customer interactions, remote sensing, person to person (P2P) social connections, and digital data trails) which, when catalyzed by millions of internet enabled phones in the hands of millions of clients, have the potential to support high usage of financial services, especially among the financially disadvantaged.

Looking back over the past decade, Kenya’s M-PESA and other digital wallet advances have blazed a trail by decoupling financial services from physical bank branches. Additional businesses in the financial services suite, from credit, to insurance, to bank processing, follow in the wake of digital transfers and digital wallets. Such businesses make use of digital attributes to enable targeting of new customers and new servicing of customer needs at a fraction of the cost imaginable before the advent of mobile telephony and other digital technologies.

Many of these innovations will take advantage of smartphones—building on improved user interfaces,

3 World Bank, “Financial Inclusion.”

4 Center for Financial Inclusion, “Our Definition of Financial Inclusion.”

5 Hargittai, “Second-Level Digital Divide: Differences in People’s Online Skills”; Gurstein, “Effective Use: A Community Informatics Strategy beyond the Digital Divide.”

6 CGAP, “The Global Landscape of Digital Finance Innovations.”

on-board storage, sophisticated imaging, and processing to deliver experiences that make complex financial transactions and concepts as simple and accessible as possible.⁷ However, we must stress that “digital” and “smartphone” are far from synonymous. Other promising examples of innovation illustrate what is possible when even basic phones are in the hands of customers. Juntos Finanzas in Columbia have coupled the use of basic messaging (SMS) with more advanced machine learning on the back-end; this builds relationships with clients on behalf of banks (resulting in 33% higher active usage rates) and reinforces their savings behavior (with 50% higher average savings balances).⁸ In Kenya, over 19 million⁹ people access mShwari, now the nation’s largest bank by number of accounts, via the M-PESA menu on their phones (whether basic, feature or smart). mShwari uses machine learning and big data analytics—including call behavior on the Safaricom network—to establish credit scores for borrowers. That such leveraging of digital attributes can happen behind the scenes, beyond the feature phone interfaces, underscores the conclusion that it is the advances in (digital) business processes, rather than strictly in devices, that are fueling innovation.

...and create new imperatives for why meaningful financial inclusion must be achieved

Yet the development of better user experiences and new efficiencies are only part of the challenge. It is important to note that financial inclusion *itself* is changing, because the world is changing. From media to manufacturing and healthcare, “shifts to digital” are pervasive. Even in countries and contexts where agriculture plays a larger role in employment and in the economy, digitization is changing the nature of markets, and raising the bar for meaningful participation in increasingly digital economies and societies. From new value chains for farmers to new ways of finding even informal employment, digitization is transforming every economy on the planet, including those in sub-Saharan Africa.

Linking the financial inclusion agenda to these broader shifts towards a more digital, more information-based economy is important because the context for participation in livelihoods, civil society, and even social settings is transforming quickly. For example, Chat and messaging platforms like WhatsApp and WeChat mediate everything from

prayer groups to emergency disaster response and, of course, buying and selling, trading and saving, the building blocks of financial transactions. It is critical to investigate how quickly financial services providers can leverage and synchronize with these broader digital shifts in everyday life.

Thus, it is appropriate to speak of digital not as a means to an end, but as an imperative because economies and societies are increasingly digital. Financial services providers have a critical and unsubstitutable role to play in creating the conditions under which all people interact with and participate in these broader digital shifts—to be digitally included, not simply financially included. People in our target communities will increasingly need to use digital tools, in finance and beyond, to participate as employers/workers, as producers/consumers, as officials/citizens, even as writers/readers. Meaningful financial inclusion would make these activities more possible for people in every strata of income leaving nobody behind based on skills, resources, languages or literacies, or access to digital devices and financial services.

The role of learning in the shift to digital...

Returning to these twin themes, treating digital as both an opportunity for progress and as an imperative for new action defines our learning agenda. The Partnership for Finance in a Digital Africa was launched to explore, research, codify, and accelerate how digital innovations will transform the Mastercard Foundation’s long held commitment to advance meaningful financial inclusion in sub-Saharan Africa.

This is a document about the future of digital financial services in Africa – how *digital* infrastructures, business models, services, and devices can best be leveraged (and guided) to bring about significant advances in financial inclusion, empowering people, families, and communities to participate and prosper in a changing economy. The Partnership sees the shift to digital as not simply something to predict, but as something to be shaped through investment, advocacy, and knowledge generation so as to maximize the benefits of the digital shift while minimizing or mitigating its potential disruptions.¹⁰

7 Fiorillo, “3 Customer Insights for Better Mobile Money UI/UX in Pakistan.”

8 Valenzuela and Holle, “How Juntos Finanzas Engages Customers to Use Digital Finance.”

9 Cook and McKay, “Banking in the M-PESA Age: Lessons from Kenya (Working Paper).”

10 World Bank, “World Development Report 2016: Digital Dividends.”

...and this document

In this sense, the rest of the document will mirror some of the ways in which the Partnership views the financial inclusion landscape. We offer three chapters by experienced members of the Partnership team. Each chapter addresses a distinct topic in the financial services environment, as articulated in the Partnership's [Theory of Change](#).¹¹ At each level, we focus on specific areas in which the state of learning has moved most significantly and recently. We complement these areas with relevant discussions with Portfolio Partners (some captured in videos, embedded or linked throughout) adding up-to-date and informed input to the analyses.

The first chapter examines the issues of inclusion at the **client** level, discussing advances in the understanding of user needs, and how digital technologies and digital attributes can meet those needs. We transition then to an analysis of inclusion at the **institutional** level by looking at the development, refinement, and broad deployment of business models that take advantage of new digital opportunities and reply to these new digital imperatives. Finally, we look at Open Application Programming Interfaces (Open APIs) to discuss ongoing transitions at the **ecosystem** level, in which various institutions—with different and sometimes competing business models—can evolve to better serve a broader variety of customers and customer needs. The ecosystem involves supporting players, from research institutions to industry partnerships, and critically involves interoperability and other elements at the core of more digital ecosystems.

We close the discussion of each level with the identification of learning imperatives confronting the community in the year ahead. A brief concluding section synthesizes these learning imperatives, connecting each activity to the issue of the impact for clients, and how we can enable meaningful financial inclusion.

¹¹ Partnership for Finance in a Digital Africa, "Theory of Change."

Client

Responding to Emerging Digital Practices

Annabel Schiff

This chapter illustrates how the digital finance community’s understanding of client needs has broadened. Access to, or basic use of, a small set of digital financial services is no longer enough. To advance meaningful financial inclusion, the community needs to expand the breadth, depth, and frequency of use, shifting from singular to plural offerings that answer a range of needs, solve a variety of problems, and lead to healthier, happier, and more prosperous individuals. Advances in digital technologies are diversifying the digital ecosystem and driving the actual and effective use of financial services. While the shift to digital presents new opportunities for meaningful financial inclusion, there are still many challenges to overcome in the process.

The shift to digital is contributing to an expansion in offerings

For the past decade the financial services sector in sub-Saharan Africa, as with many other less developed markets, has leveraged digital technology to help underserved clients interface with financial products and services from which they were previously excluded. For several years there had been little product diversification beyond digital payments and transfers. Lately, however, the broader shift to digital is leading to more modes of engagement, tools, and offerings and ultimately contributing to an expansion in the pool of use cases.

— *More modes of engagement*

Users are now able to interact with financial services via various digital channels of engagement. Modes of engagement range from the original USSD mobile money services, accessed through feature phones, to services accessible through smartphone apps and social messaging platforms.

With 55% of sub-Saharan Africa’s network connections forecasted to come through smartphones by 2020,¹² there is no doubt that the face of digital finance is changing. Increased smartphone adoption has led many local FinTechs (such as Branch, Tala) as well as banks and MNOS (such as Eazzy Bank, Tigo Pesa) to offer their services through apps either in conjunction with, or as a substitute for, a USSD service.

Hints of greater shifts—such as the use of social messaging apps as an interface for financial services—

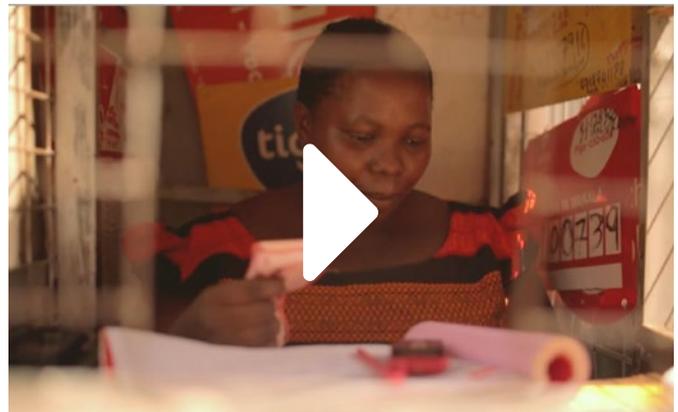
are visible outside the continent. In January 2017 WeChat, the leading social messaging platform in China, reported 300 million active users on their [WeChat Pay](#) service.¹³ Similar innovations are expanding into developing markets. In June 2017, the chat app Hike launched P2P payments in India¹⁴ ahead of the expected launch of similar products by Google, and Whatsapp (Facebook).¹⁵ While sub-Saharan Africa has seen less disruption to date from social messaging platforms, this is likely a temporary delay. Increased use of social media and messaging groups as functional tools evinces the movement of many interactions online.¹⁶ In Kenya many farmers use Facebook groups to buy, sell, and get advice on various agricultural ventures.¹⁷ Research from Ghana, Kenya and Tanzania also found social messaging sites being used for job seeking, self-promotion and advertising purposes.¹⁸

— More tools

In tandem with more modes of engagement, providers are leveraging advanced digital capabilities—what CGAP calls “digital attributes”¹⁹—to enhance the functionality and use of these services. These attributes range from data analytics to smart user interfaces and two-way communication with customers. Digital data trials are increasingly employed to find new customers, deepen customer relationships, and deliver improved offerings by tailoring products to users’ needs.²⁰ Meanwhile, real time customer interaction is being leveraged to tackle financial literacy challenges, encourage positive financial behaviors, and reduce the cost of in-person communication.²¹

— More offerings

Innovations within the digital technology space are helping to broaden the ecosystem of digital finance offerings. While digital payments and transfers still remain the products of choice,²² providers are offering more nuanced, niche services to their end customers, often by leveraging new modes of engagement and innovative digital attributes.²³ Advances in the ecosystem of offerings range from pay-as-you-go solar,²⁴ education,²⁵ and water²⁶ services, to e-commerce,²⁷ bundled financial and non-financial agri-products,²⁸ alternative loan offerings,²⁹ and innovative linkages to savings, credit and insurance.³⁰ Additionally, improved and tailored offerings are contributing to improved incentives for customers to adopt and regularly use these services.



- 13 Chao, “How Social Cash Made WeChat The App For Everything.”
- 14 Malik, “Chat App Hike Launches UPI Payments, Wallet.”
- 15 Donkin, “Google, WhatsApp, Facebook Prepare India Payments.”
- 16 *The FIBR Experience – Social Media, Smartphones and Chatbots.*
- 17 Wills, “Why We Think Chatbots for Farmers in Kenya Isn’t as Stupid as It Sounds.”
- 18 Caribou Digital, “Digital Lives in Ghana, Kenya and Uganda.”
- 19 CGAP, “The Global Landscape of Digital Finance Innovations.”
- 20 Chen and Faz, “The Potential of Digital Data: How Far Can It Advance Financial Inclusion?”
- 21 Juntos Global, “The Tigo Pesa – Juntos Partnership: Increasing Merchant Payments through Engaging SMS Conversations.”
- 22 Airtime top up and P2P accounted for 81% transaction volume and 74% value in 2016. GSMA, “State of the Industry Report on Mobile Money: Decade Edition: 2006–2016.”
- 23 *The FIBR Experience – Small Businesses and Digital Superpowers.* and *The Accion Venture Lab Experience – Using Data to Close the MSME Financing Gap.*
- 24 Faz and Waldron, “Digitally Financed Energy: How Off-Grid Solar Providers Leverage Digital Payments and Drive Financial Inclusion”; Waldron, Faz, and Muench, “Access to Energy and Finance: An Integrated Approach.”
- 25 Braniff, “Digital Finance and Innovations in Financing for Education.”
- 26 Waldron and Sotiriou, “Digital Finance and Sustainable Water Service for All.”
- 27 Pasti, “Integrating Mobile Money and E-Commerce: What Are the Challenges to Overcome?”
- 28 *Mercy Corps Agrifin Accelerate – DigiFarm.*
- 29 Accion Venture Lab, “Bridging the Small Business Credit Gap through Innovative Lending.”
- 30 FIBR, an action research project, seeks to demonstrate how small businesses and smartphones can “accelerate and deepen financial inclusion in developing countries.” From a savings product offered to parents through school administrators to advanced credit offered to Ghanaian cocoa farmers through their Purchasing Clerks, FIBR and its partners are experimenting with offering more than simple digital payments and transactions to their customers.

With opportunities come new challenges

Access, while still a significant barrier, is a necessary but not *sufficient* condition for the spread of digital financial services. As the shift to digital accelerates, the digital finance community must become as concerned with use as with access. Emerging evidence suggests that converting occasional users into active users may be as big a challenge as converting non-users to occasional ones. Further, even active users may not be leveraging financial services in ways that ultimately contribute to meaningful financial inclusion. In this section, we briefly describe how access, use and “effective use” remain problematic as financial inclusion is undergoing the shift to digital. We draw the term “effective use” from the field of Community Informatics (CI): *“The challenge with ICTs is not simply to provide passive ‘access’ to the technology but rather to provide the means by which individuals in their communities can find ways of making ‘effective use’ of these technologies for productive, wealth creating, and transactional as well as other processes.”*³¹

— *Stubbornly persistent differences in access*

Access now means much more than proximity to a cellphone tower. Clients will increasingly need smartphones and reliable data to leverage the new opportunities available to them. While predictions of digital inclusion appear positive—with half of the global population anticipated to be online by 2020³²—access to such digital necessities is not pervasive.

Issues surrounding access to basic mobile phones persist, especially among the more excluded sectors of society. In 2016, women in sub-Saharan Africa were 17% less likely than men to own a mobile phone, and less than a fifth of under-16 year-olds (who account for more than 40% of the population in most countries in the region) had a mobile subscription.³³

The cost of internet-enabled *smartphone* handsets reveals further access divides. GSMA reports that an average priced smartphone in India can cost up to 16% of income for poor and low income groups living on less than US\$1 per day.³⁴ In Kenya, the average smartphone price is estimated to drop only marginally in the next three years from \$118 in 2017 to \$109 in 2020.³⁵ Smartphone use will therefore likely remain

concentrated among the more affluent members of society. With FinTech providers such as Tala and Branch offering their services exclusively to those with android smartphones, individuals who lack access to such digital tools are currently excluded.

Reliable mobile data networks add another component to the digital access challenge. Although the number of mobile broadband connections is gaining momentum, the spread of such services is far from ubiquitous. While 4G reaches three-quarters of the South African population, in poorer countries such as Burundi, CAR and South Sudan mobile broadband penetration sits at less than 5%.³⁶ The accessibility and cost of handsets, mobile data, and even battery charging, are all impediments to access.

— *Widening challenges with use*

While barriers to access remain a challenge, the nature of use is of equal concern. GSMA data shows that of the 556 million registered mobile money accounts in 2016, only 118 million (21%) were active on a 30-day basis.³⁷ That is, for the majority of those who have signed-up for a digital finance service, enrollment has failed to translate into regular use.

While technical innovation and development presents exciting opportunities for increased engagement with financial services, it adds a new means of exclusion. Just as the digital divide conversation has moved on from access to use, so can the discussion of financial inclusion. The notion of “secondary digital divides”³⁸—which highlight disparities in Internet users’ online skills—can be very helpful in understanding this new challenge.

A research study analyzing a group of Kenyans’ digital practices over a year revealed the multifaceted, secondary digital divides faced by low-income, first-time smartphone users.³⁹ The study identified 53 digital skills users need in order to leverage smartphones and adopt new digital products with *“confidence, agency, and competency.”* Without these skills, individuals were found to be more vulnerable to fraud, scams and other risks thus affecting their adoption of these services.⁴⁰ Moreover, as the majority of internet content is still text based, illiteracy and low education levels also present a significant

31 Gurstein, “Effective Use: A Community Informatics Strategy beyond the Digital Divide.”

32 Gemalto, “Infographic: The Number of Internet Users by 2020.”

33 GSMA, “The Mobile Economy Sub-Saharan Africa 2017.”

34 GSMA, “Accelerating Affordable Smartphone Ownership in Emerging Markets.”

35 Ibid.

36 GSMA, “The Mobile Economy Sub-Saharan Africa 2017.”

37 GSMA, “State of the Industry Report on Mobile Money: Decade Edition: 2006-2016.”

38 Hargittal, “Second-Level Digital Divide: Differences in People’s Online Skills.”

39 de Reynal and Richter, “Stepping into Digital Life.”

40 Millicom, “How a Mobile Money Solution Is Born.”

challenge to access and use of online content.⁴¹ The competency gap identified in the research explains the exacerbated divide between access and use in the shift to digital. ITU reports that although 84% of the world's population is covered by mobile-broadband networks, only 47.1% are Internet users.⁴² Similarly, the GSMA found that many smartphone users (in some countries more than 1 in 5) had never used the Internet.⁴³ A gap in skills, knowledge, and understanding appears to be thwarting the leap from access to use.⁴⁴

Beyond skills, the challenge in making UX (user experience) across digital finance platforms serve low-literacy, low-tech, resource-strained individuals further contributes to the gap in usage. GSMA suggests poor user experience with mobile money enabled e-commerce payments—such as complex and multi-step payment processes—is one factor that leads customers to opt for cash on delivery over digital payments. Products that struggle to accommodate low literacy and numeracy skills⁴⁵ or multiple local languages further exacerbate the challenge of use.

— *Emerging risks thwart effective use*

Even for those that use digital financial services (DFS) on a regular basis, it is becoming apparent that they are doing so in ways that may expose them to risks and harmful situations. A 2017 report found 19 digital credit providers in Kenya, many offering real-time loans to their customers.⁴⁶ This increased access to and choice of multiple credit solutions, however, is not matched with an adequate understanding among consumers of the risks and responsibilities associated with them. Consequently, a growing number of Kenyans have defaulted on their loans and been blacklisted by the credit bureau. In the last three years, 2.7 million Kenyans (10% of the population)⁴⁷ have been negatively listed on the CRB, 400,000 of these for amounts less than US\$2. In South Africa 10 million people are said to have impaired credit records.⁴⁸ With roughly 55 million people in the country, this represents even higher default rates than Kenya and suggests what could happen if the industry

continues to promote easy access to credit without a commensurate development in the understanding of responsible practices.

A further example of the potentially ineffective and undesirable use of digital financial services, is the use of mobile money to facilitate the gambling habits arising in many African markets.⁴⁹ In the first six months of 2016, a 20% growth in the cash moving through mobile money platforms in Kenya was attributed to mobile-based sports betting and gambling.⁵⁰ Safaricom's CEO noted that "*sports betting is using M-Pesa a lot,*" and the CEO of Airtel Kenya stated that "*betting transfers have been among the leading Airtel Money transactions.*"⁵¹ Research from the Mozilla Foundation found that one-third of smartphone users within their Kenyan sample use their phones for betting.⁵² To discourage the rise in gambling in the country and its associated impact on low-income households' finances,⁵³ the Kenyan government imposed a uniform 35% tax rate on all gambling revenue in June 2017.⁵⁴ Although likely incentivised as a means to capture some of this revenue, the government explained this as a way to discourage gambling among youth and vulnerable members of society.

Expanding the digital finance ecosystem to include more offerings, such as real-time credit, gives users who currently find such services irrelevant on an irregular basis, additional opportunities and incentives to use the service more regularly. However, without effective consumer protections and responsible finance practices in place, these offerings may obstruct efforts to promote meaningful financial inclusion.

41 "With 716 million illiterate adults globally, this challenge is especially skewed towards marginalised groups such as women" – Vishal Mathur (Head of Connected Society, GSMA), interview.

42 ITU, "Measuring the Information Society Report."

43 Smith, "Beyond Access: The Need for Deeper Thinking about Driving Usage and Adoption of the Mobile Internet."

44 The FIBR Experience – Digital Divides.

45 Valechha et al., "Digital Wallet Adoption for the Oral Segment in India: Concept Development for MOWO (Mobile Wallet for Oral)."

46 Wright et al., "Where Credit Is Due – Customer Experience of Digital Credit in Kenya."

47 Wright, "Key New Year Resolutions for the Success of Digital Financial Services."

48 "Infographic: Debt in SA."

49 Quartz reports Kenya as the third largest gambling market on the continent after South Africa and Nigeria. Kuo, "Smartphones Are Making Kenya's Gambling Problem Even Worse."

50 Herbling and Mwaniki, "Betting Craze Powers Mobile Money to 20 per Cent Growth."

51 Ibid.

52 de Reynal and Richter, "Stepping into Digital Life."

53 Gachoka, "From the Statements: Gambling Behaviour."

54 PSCU, "President Kenyatta Signs 9 Bills into Law Including Finance Bill and Division of Revenue."

Responses to enable effective, widespread use

While advances in technology are the driving force behind these additional risks and challenges, they may also be part of the solution. From chatbots to pay-as-you-go financing models, new digital technologies support more effective and widespread use of financial services.

— Chatbots

The majority of real time technology-to-person innovation currently resides in automated messaging and interactive SMS through technology providers such as [Juntos](#) and [Arifu](#). Two-way SMS messaging has been successfully used to build confidence and trust,⁵⁵ deliver financial literacy training,⁵⁶ and motivate both increased saving⁵⁷ and positive borrowing behavior.⁵⁸ Gamification techniques have also been employed to improve user experience and engagement.⁵⁹ The next shift in digital customer engagement is likely to fall within the chatbot space. While innovation in the space is in the nascent stages of development, we expect significant growth in the coming years. To date, notable finance-related chatbots include Kudi.ai enabling seamless payments in Nigeria, ABSA Chatbanking authorizing instant transactions through Facebook or Twitter in South Africa, Susu.ai helping customers save in Nigeria, and MrFinanceBot delivering financial education in Myanmar.

More sophisticated real time interactions through chatbots present an incredible opportunity for providers to engage with their customers and, ultimately, facilitate more meaningful financial inclusion.⁶⁰ Chatbots can act as “*guides, advisers, and advocates*” to low-income people navigating complex digital financial systems,⁶¹ such as DoNotPay’s robot lawyer which is available in more developed markets.⁶² A bot could also help a customer effectively use a digital loan by explaining the terms and conditions, interest rates, and repayment periods. Additionally, bots could be utilized to provide alerts to users ahead of default, build awareness around how to access and use smartphone applications, and protect personal privacy and security.

— Pay-as-you-go (PAYG) Financing

PAYG solar providers have developed innovative financing mechanisms to enable low-income clients to access fundamentals such as energy, water, and education. The next generation of innovation in this space has seen providers leverage the collection of digital data to improve customer segmentation and payment behavior⁶³ as well as finance additional assets. Kenyan PAYG solar provider M-Kopa⁶⁴ now offers a range of additional micro-credit services to their clients from cash-back into a customer’s M-PESA account to televisions. In October 2016 more than 70,000 customers had brought an additional product from them, with high repayment rates.⁶⁵ These PAYG solutions, while expanding credit offerings, have also helped drive the adoption and use of financial services. Recent CGAP and FIBR research in Ghana, carried out in partnership with solar provider PEG Africa and Tigo Cash, demonstrated that PAYG customers are more active mobile money customers.⁶⁶ The survey results showed PEG customers generating 122% more revenue per active user for Tigo Cash than non-PEG customers in their sample.

PAYG is a clear illustration of the duality of opportunities and imperatives created by the digital shift. On its face, the solar industry has little to do with financial inclusion. However, the expansion of reliable, affordable electricity in low resource communities demands alignment with an innovative financial services component. Without the “digital attributes” afforded by the mobile money infrastructure, M-KOPA would likely not be able to service this market as effectively.

55 Huntzinger, “Leveraging Social Cues to Encourage Digital Payments”; Vidal Fernandez et al., “How SMS Messaging Can Change Financial Behaviors.”

56 Mazer, “Interactive SMS Drives Digital Savings and Borrowing in Tanzania.”

57 Valenzuela, Holle, and Noor, “Juntos Finanzas – A Case Study.”

58 Mazer, “Interactive SMS Drives Digital Savings and Borrowing in Tanzania.”

59 Koning, “Let’s Gamify to Empower the Customer!”; Koning, “Customer Empowerment through Gamification Case Study: Absa’s Shesha Games”; Gerhard, “How Absa Bank Empowered Its Customers through Games.”

60 Widjaja, “Can Chatbots like Siri Advance Financial Inclusion?”

61 DFS Lab, “Chatbot Challenge: Creating Digital Advocates for the Poor.”

62 Liao, “‘World’s First Robot Lawyer’ Now Available in All 50 States.”

63 FIBR, “Briefing Note PayGo Solar: Lighting the Way for Flexible Financing and Services.”

64 M-KOPA, “Digital Insights Build Trust and Enable Growth.”

65 Ibid.

66 Waldron and Wolvers, “Daily Energy Payments Powering Digital Finance in Ghana.”

A Learning Agenda for Addressing Access, Use and Effective Use Challenges at the Client Level

The chatbots and PAYG examples illustrate how the “shift to digital,” and the technological innovations it brings, create new opportunities to interact with financial services on a regular basis. While these digital developments present exciting steps for meaningful financial inclusion, they introduce their own risks and challenges. To continue down the right path to progress, as an industry we need to be aware of both opportunities and challenges at the client level.

— *Recognize and address existing primary digital divides faced by low-income users*

There is growing excitement in the industry regarding the opportunities for engagement with financial services—through smartphones, apps and social messaging platforms—in terms of user experience, product innovation and the applicability of digital attributes. The success of large internet platforms in markets such as China, illustrates the potential future of sub-Saharan Africa.⁶⁷ While innovation must not be dampened, we encourage providers to ensure that they have laid strong foundations for a digital ecosystem before seriously considering next generation technology solutions. In terms of primary access such foundations include driving down the costs of smartphones, the cost of data, and the reach of reliable data networks. These must be addressed in conjunction with pre-existing access challenges such as lack of appropriate identification, access to agent networks, low literacy and education, and the impact of social and cultural standards.⁶⁸

— *Identify secondary digital divides across markets and among demographics*

Secondary digital divides present a more complex challenge. Effectively educating users and building the skills needed to navigate and manage fully digital accounts will heavily influence the transition between access and use. While Mozilla’s research identified the skills necessary to leverage smartphone use in Kenya, more research is needed to understand how these skills differ from market to market and among distinct demographic groups. We must also take steps to understand which teaching methods are

most impactful in developing digital confidence and competency. Each demographic group and market is likely to face its own challenges in terms of usability, relevance, and training. We encourage the sharing of best practices among partners, such as a recent GSMA blog which highlighted a number of approaches to reducing the digital literacy divide in East Africa.⁶⁹

— *Ensure responsible finance practices keep abreast of the expansion of ecosystem offerings*

Responsible finance practices must keep abreast of the shift to digital. Organizations such as CGAP⁷⁰ and Smart Campaign⁷¹ have laid out some of the potential risks—and risk mitigation strategies—confronting financial services providers. The digital ecosystem brings with it new players, new modes of access, new functionalities, and increased choice. Continued exploration and the demonstration of responsible finance practices and consumer protection strategies will help protect customers while maximizing the potential for digital ecosystem growth.

— *Increase investment and experimentation of how to use digital attributes to enable effective, widespread use*

Although the “shift to digital” presents problems, the solution itself is likely digital. The use of digital attributes to address some of the issues mentioned above—gaps in access, challenges in secondary digital divides, and the revision of responsible finance practices—may help mitigate risks and accelerate impact. While data analytics and chatbot innovations provide exciting opportunities to address some of these challenges, more research, experimentation and sharing of best practices is needed to understand how best to approach the use of such attributes.

67 Bankable Frontier Associates, “Inclusive Digital Ecosystems of the Future (Working Paper).”

68 Bin-Humam and Ayes, “How Social Norms Affect Women’s Financial Inclusion.”

69 Heaphy, “Reducing the Divide of Digital Literacy and Innovators in East Africa.”

70 Katharine McKee, Michelle Kaffenberger, Jamie M Zimmerman, “Doing Digital Finance Right: The Case for Stronger Mitigation of Customer Risks.”

71 Arenaza, “Potential Risks to Clients When Using Digital Financial Services: An Analysis Report to Inform the Evolution of the Client Protection Standards.”

Institutions

Understanding and Developing Innovative Business Models

Marissa Dean

This chapter describes how the shift to digital has been both disruptive and enabling for the financial services sector. The advent of mobile money and digital wallets expanded the financial services ecosystem to an entirely new set of actors, but, more importantly, it laid foundational rails to cost-effectively deliver financial services to anyone with a mobile phone. Now, digital technology is fueling the disaggregation of the retail banking business model, meaning an explosion of “alternative providers”⁷² are emerging along the value chain.

The institutional ripple effect of the shift to digital

Digital attributes—advanced characteristics of digital, particularly mobile, that enable digital financial services beyond a basic mobile wallet—are enabling the transformation of the business model to be personal, convenient, and relevant.⁷³ While smartphones allow for the full spectrum of digital attributes (e.g., digital data trails, P2P social connections, smart and rich user interfaces, real-time customer interaction, instant verification, and remote sensing), even feature phones avail some of these attributes. At the same time, backend advances like cloud, artificial intelligence (AI), and distributed ledger technologies (DLT) are impacting cost and scale dynamics across all sectors but especially financial services. Digital attributes and backend advances combined are now enabling both traditional and alternative financial services organizations to reach customers, automate interactions, and aggregate previously undocumented information in order to better understand customers and cost-effectively deliver appropriate financial services.

While they acknowledge the opportunities and imperatives afforded by the shift to digital, the effect of this disaggregation has made many banks and MNOs in sub-Saharan Africa wary of each other and cautious about integrating with alternative players. At

⁷² The term “alternative providers” amalgamates a very broad set of actors, including solar home energy companies, eCommerce platforms, non-banking (e.g. non-deposit taking) online lenders, and credit scoring FinTechs, among others.

⁷³ CGAP, “The Global Landscape of Digital Finance Innovations.”

the extreme, some view local FinTechs as a competitive threat. More progressive players view FinTechs as opportunities, especially where they may lack the ability to innovate or move quickly themselves. Meanwhile large internet platform companies, such as Facebook, Google, and Alibaba, are “frenemies” that raise further concerns as smartphone adoption levels in sub-Saharan markets accelerate. This is because the number of active users on the internet platforms’ various channels⁷⁴ makes them ideal for marketing their own services that compete with both MNO’s communications and bank’s financial services, and could eventually render MNO’s voice and messaging channels redundant.⁷⁵ If or when this shift happens, internet platform providers will have superior data about customers and ownership of critical channels for customer engagement. This is the over the top (OTT) threat about which both banks and MNOs are rightfully concerned.

Facing this shift, MNOs face new revenue pressures

Total revenue growth has been trending downwards for sub-Saharan MNOs since the start of the decade and is expected to continue to be subdued.⁷⁶ Markets within sub-Saharan Africa are at various stages of commoditization. However, the undercurrent of rising smartphone adoption and increasing mobile broadband penetration is pulling individuals onto popular internet platforms for communications and social networking, cannibalizing traditional voice and messaging revenues. This is resulting in a highly competitive environment, particularly in countries such as Nigeria, Ghana, and Kenya, where smartphones are already more prevalent.⁷⁷

MNOs are addressing the threats to their core business in a number of ways. Several MNOs are choosing to consolidate, particularly in fragmented markets. Bharti Airtel is seeking to reduce its exposure through stake reductions or mergers in six less profitable African markets (Rwanda, Niger, Chad, Republic of Congo, Kenya, and Tanzania).⁷⁸ In April 2016, Orange acquired Tigo DRC, doubling its share in the market.⁷⁹ In February 2017, Airtel and Millicom

entered into an agreement to merge their respective units in Ghana, creating the second largest MNO in the country.⁸⁰

In addition, MNOs are diversifying revenue streams by adding new non-GSM business models, many of which build on their mobile money infrastructure. Direct revenues from mobile money—and the digital finance ecosystem around mobile money—are now strategically important for MNOs. Whereas indirect benefits such as churn reduction and ARPU increases were previously tracked as key indicators of success, direct revenues from customers and corporate transaction fees are now the most important aspect of the business case.⁸¹ This is putting pressure on MNOs to build an ecosystem around digital wallets and establish a more open strategy around partnering with banks and FinTech players who can deliver a wider variety of digital financial services.⁸²

MNOs are investing in adjacency markets for good reason—the more valuable a mobile wallet becomes to a customer, the stickier it becomes.⁸³ Moreover, direct profits from mobile money are dependent on growth in active customers, but more importantly, less use of cash in/cash out and more use of the electronic platform.⁸⁴ *Thus, individuals’ effective use of financial services—not simply access—is key to institutions’ profitability.* With only 35 of 270+ mobile money deployments currently having more than 1 million 90-day active accounts in December 2016,⁸⁵ expanding wallet integration and wallet use cases is strategically critical for most deployments. Safaricom, who has already leveraged the success of M-PESA to launch savings and credit products, is now exploring further afield in adjacency markets. The MNO launched Little Cab in partnership with Craft Silicon to go head to head with Uber in 2016,⁸⁶ and, in July 2017, announced that it will launch an eCommerce portal—dubbed Masoko—in early 2018.⁸⁷

MNOs are also taking lessons from India where basic P2P transactions have been commoditized due to competition, regulation, and government mandated interoperability and infrastructure.⁸⁸ This is why operators with a clearly dominant position today, like Safaricom, are future proofing to remain competitive and profitable down the road.

74 For example, Facebook’s channels include Facebook, Facebook Messenger, WhatsApp, and Instagram.

75 Bankable Frontier Associates, “Inclusive Digital Ecosystems of the Future (Working Paper).”

76 GSMA, “The Mobile Economy Sub-Saharan Africa 2017.”

77 Boniecki and Marcati, “Winning the Rush for Data Services in the Middle East and Africa.”

78 “Bharti Airtel Identifies African Consolidation markets—Mobile World Live.”

79 GSMA, “The Mobile Economy Sub-Saharan Africa 2017.”

80 “Airtel, Millicom Ink Pact to Merge in Ghana.”

81 GSMA, “State of the Industry Report on Mobile Money: Decade Edition: 2006-2016.”

82 The Mercy Corps Experience – Partnering to Grow the Ecosystem.

83 Almazan and Vontron, “Mobile Money Profitability: A Digital Ecosystem to Drive Healthy Margins.”

84 Kumar and Mino, “Drivers of Mobile Money Profitability.”

85 GSMA, “State of the Industry Report on Mobile Money: Decade Edition: 2006-2016.”

86 “Safaricom Launches Little Cab to Rival Uber in Kenya | VentureBeat.”

87 Mtshali and Mtshali, “The World’s Top Mobile Money Operator Will Launch an E-Commerce Store next Year.”

88 GSMA, “The Business Case for Payments Banks in India.”

While competition from MNOs increases and an influx of alternative players have emerged, the banking sector in Africa has lacked purposeful innovation at scale and is cautious about how to move forward

Formal financial institutions in Africa continue to lag behind other regions in the development of digital innovations targeting the unbanked. Some of the larger financial institutions are making strides, but the majority have not adequately invested in digital strategies that will carry them through the next 10 years, let alone reach new segments. The fact that banks still wield competitive marketplace power in some markets partially explains the foot dragging. But bank culture is also a barrier to innovation. Many banks are not convinced that they can profitably lend to low income segments. A limited appetite for risk makes substantial transformation of the business model a difficult task.⁸⁹



Uncertainty about when and how competition will impact banks' business model also partially explains innovation hesitance, particularly slow moving partnership deals. Like MNOs, banks are concerned about being left behind by the shift to digital. As a result banks are reluctant to share information or open APIs. In contrast, some banks view the disaggregation of the business model as an imperative to become platforms themselves. KCB launched a new unit in June 2017—called KCB FinTech—to focus on partnering with different players such as Alphabet,

TenCent, Facebook, and Alibaba.⁹⁰ Through this effort, the bank wants to double the number of customers that use its mobile platform by the end of 2017.

Some progress has been made through bank/MNO collaborations, and there is now evidence that savings and microloan products can be profitable for banks, even on low balances. M-Shwari, a combined savings and loans product launched through a collaboration between Commercial Bank of Africa and Safaricom, had disbursed 20.6 million in loans to 2.8 million borrowers by the end of 2014, with a non-performing loan rate of 2.2% (after 90 days).⁹¹ Scale helped CBA achieve profitability quickly, breaking even after 11 months, and had fully paid back initial investment and recurrent costs within 17 months. However, microloan collaborations with MNOs such as M-Shwari should be considered quick wins for the bank rather than signs of a substantial shift in strategy. We must also consider whether the product is reaching the underserved and whether there is too much easy credit (at high interest rates) being pushed into the market.⁹²

Ultimately banks first need a strategy and leadership support to target and serve the needs of mass market, resource-constrained customers. Then technology that enables the institution to cost-effectively serve this demographic can be put in place.⁹³ Technology, no matter how predictive, is never going to transform the risk department single handedly.

There are banks, particularly in highly competitive markets with strong digital wallet adoption, that do seem to be on a path to transformation. Equity Bank and EFL partnered in 2013 to develop a predictive psychometric credit scoring tool that an Equitel Eazzy Loan applicant can use on a feature phone. Combined with transactional/internal behavior scores, the proof of concept with psychometric scores boosted acceptance rates by 20% without the bank needing to take on additional risk. To properly integrate new sources of information—like psychometric scores or new processes—into the business model requires significant organizational change. To this end, Equity Bank recently announced that the bank is reorganizing its business model to run on digital channels and freezing the opening of new branches as a result.⁹⁴ Within the microfinance sub-sector, FINCA Microfinance Bank recently announced a multi-year strategy to move its processes to digital in order to enable more efficient credit scoring and overall loan

89 The FIBR Experience – Willingness for Banks to Take Risk.

90 PYMNTS, “KCB Group Turning To Facebook, Apple, Alibaba On Digital Payments.”

91 FSD Kenya, “The Growth of M-Shwari in Kenya—A Market Development Story Going Digital and Getting to Scale with Banking Services.”

92 Only 30% of M-Shwari users were below the poverty line at the end of 2014. Ibid. Microfinance annual interest yields (which slightly underestimates APRs) in sub-Saharan Africa were about 32% in 2011. Many of the digital loans available in Kenya have APRs that are 5 to 10 times that rate. Kaffenberger and Chege, “Digital Credit in Kenya.”

93 The FIBR Experience – Banks and Financial Inclusion.

94 Ngugi, “Equity Halts Branch Expansion as It Banks on Digital Services – Business Daily.”

processing and servicing.⁹⁵ The organizational change for FINCA is substantial, touching every aspect of the business. In such examples, where true digital transformation is happening, the organization unlocks a tremendous opportunity to grow the business—acquiring new customers and cultivating the ecosystem—by partnering with external organizations to better deliver services.

New business models are gaining traction and new types of players are starting to gain scale and attract investment

The shift to digital is driving both volume and variety of use cases for digital transactions. In turn this is creating unique opportunities for a variety of non-banking entities, like PAYG energy companies⁹⁶ and merchant transaction providers,⁹⁷ to leverage the information they capture internally on transactions, as well as their existing integration with digital wallets, to expand into financial services offerings.

Accordingly, Accion Venture Labs has invested in more than a dozen FinTech companies that make finance available to micro, small and medium enterprises (MSMEs) that have long struggled to borrow from traditional institutions⁹⁸. Their recent investment in SME lender LulaLend speaks to this. While online lending is not a new concept, even in LulaLend's market in South Africa, LulaLend's ability to streamline the loan approval process and better underwrite has meant that the company can offer loans to businesses that would traditionally be turned away by banks. Another investee, Umati Capital, has turned the tables on credit rating within agricultural value chains, providing invoice discounting and factoring based on traditional and alternative-data underwriting. The organization built their business by risk profiling off-takers (against receivables and credit reference bureau data), but is now starting to screen suppliers (using bank statements and sales histories) and is looking to add additional alternative data to their algorithm.

The progress in the B2-MSME⁹⁹ space in the last few years has been exciting. Now there are a number of alternative lenders tapping into the emerging digitization of small business practices and increasing digital data trails. An increasing number of new B2B FinTechs are leveraging “data assets”¹⁰⁰ to provide alternative data credit scoring and risk management for insurance or lending products.¹⁰¹ Early partnerships were forged between MNOS and FinTechs that provided the data analytics capacity that many MNOS did not have in-house. Increasingly banks, MFIs, and even non-banking entities are experimenting with alternative data FinTech providers. While initially providers focused on an analytics product, increasingly the offerings are becoming a platform solution for business intelligence alongside the analytics, and in some cases providers are offering loans on their own balance sheets.

For example, First Access provides a platform for financial service providers to credit score, digitize their customer acquisition processes, and use analytics to become more data-driven in their operations and portfolio management. Tiaxa partners with mobile operators and financial institutions to build initial credit scoring based on mobile money and GSM behavior into a product that offers airtime balance advances and nano-credits (small cash advances into mobile money accounts). Lendable has launched the first technology-enabled deal platform designed specifically for alternative lenders in Africa. The platform provides analytics and connections to sources of capital. Tala is a data science and technology company that is opening up financial access, choice, and control for underserved people globally by using alternative data for credit scoring and providing instant credit based on an individual's digital interactions on their smartphone.

InsureTech is also hitting its stride in sub-Saharan Africa. Traditional insurance players and alternative providers now offer “on demand” insurance for particular use cases, such as only during the hours when driving a taxi, or PAYG microinsurance for hospitalization, life, or crop insurance needs.¹⁰² Moreover, as noted by microinsurance specialist Inclusivity Solutions, the bundling of insurance and

95 Mirondo, “Finca Now Goes Digital on Loans and Accounts.”

96 In sub-Saharan Africa, Fenix International was the third largest bill pay account by transaction volumes for MTN Uganda (Shah, “Fenix International.”) while PEG in Ghana has become the biggest biller for MTN Mobile Money, outside of key government services and urban utilities (“PEG Ghana.”). See also, FIBR briefing note on PAYGO Solar (FIBR, “Briefing Note PayGo Solar: Lighting the Way for Flexible Financing and Services.”), M-Kopa white paper Digital Insights Build Trust and Enable Growth (“Digital Insights Build Trust and Enable Growth.”)

97 Of all the payment transaction types, merchant payment volumes grew the fastest in 2014 (58.5%) and experienced the highest global increase in value transacted (78.6%). GSMA, “State of the Industry Report on Mobile Money: Decade Edition: 2006-2016.”

98 IFC, “Alternative Data Transforming SME Finance.” See also Accion Venture Lab, “Bridging the Small Business Credit Gap through Innovative Lending.” The Accion Venture Lab Experience – Using Data to Close the MSME Financing Gap.

99 “B2-MSME” refers to a commercial relationship where a financial services organization is providing a service to micro, small and medium sized businesses

100 As a working definition, a “data asset” is individualized or aggregated information, including financial data trails, product usage data trails, demographic information, geolocation information, etc. that is stored, analyzed and used to help an organization find new clients, deepen customer relationships, or manage risk.

101 For a critical analysis, see Chen and Faz, “Hype or Hope?”

102 An example is BIMA's Family Life Product. “PAYG Insurance | BIMA.”

non-insurance products is on the rise in emerging markets.¹⁰³ Holistic offerings that bundle information services, teledoctor services, and other more immediate benefits with insurance, help to address a mismatch in emerging markets' consumer needs. By marrying future focused products such as insurance with present focused products such as telemedicine, emerging consumers can simultaneously address their day-to-day needs and reduce their exposure to future risk.¹⁰⁴

The institutions addressing financial inclusion could shift

Sub-Saharan African FinTechs are emerging as important players that are helping to diversify the digital finance landscape in Africa beyond payments: as a channel for engaging customers, as information and technology providers to existing players, and as providers of essential DFS infrastructure. However, FinTechs in the African market will not disrupt markets in the same way that they have in the US and Europe where entrepreneurs are solving for problems of customer convenience (e.g., how seamlessly and easily can people make payments or conduct transactions). Rather, FinTechs in Africa need to provide solutions that will help providers transform their businesses so that they can deliver financial services to vast populations that have seasonal and unpredictable cash flow management needs and a need to discretize money for various priorities.¹⁰⁵

Even FinTechs that provide financial services directly to the consumer often still rely on foundational infrastructure provided by MNOS, other digital wallets offered through banks or MFIS, or balance sheet financing from retail or investment banks. Thus for Africa, even as the shift to digital is resulting in disaggregation of the retail banking business model, it is happening in a manner that will ultimately help the financial services sector to “grow the pie.” The financial services sector can cultivate such growth helping traditional finance organizations to cost-effectively meet mass market customer needs and helping MNOS to diversify into adjacent sectors. So long as feature phones (or energy access/affordability issues) predominate, MNOS will remain a primary channel for reaching mass market customers digitally.

Something that remains to be seen is the role that internet platform players will have in the African market. Lessons from markets such as China¹⁰⁶ and India that are slightly ahead of sub-Saharan Africa in their development of DFS ecosystems are informative in illustrating internet platform players operating at scale (outside of North America and Europe) in the digital finance space.¹⁰⁷ Alibaba seized the opportunity to satisfy previously unmet payment needs at the same time as the shift to digital was permeating China.¹⁰⁸ The power (and wealth) that Alibaba now wields stems from the large, active user base that it built through network effects in its B2B eCommerce, C2C (Taobao) and B2C (Tmall) marketplace. Alibaba eventually leveraged the transaction information (frequency, amounts, seasonality, etc.) flowing through its system to develop merchant financing solutions—similar to models that KopoKopo and other merchant transaction providers are currently developing in Africa. In another example, PayTM—now the top digital payment firm in India—is exploring adjacent use cases for payments, likely due to mobile payments being commoditized in India and influenced by their lead investor Alipay. The organization announced plans to expand into P2P communication, games and other mobile content, increasing the likelihood that PayTM could become an Indian version of internet platform player TenCent.¹⁰⁹ It is also likely, at least in India, that dominant local players will eventually face material competition from Facebook and Google. Google's September 2017 launch of Tex, a free mobile wallet in India that enables P2P transfers via audio QR codes, lends further plausibility to this hypothesis. Additionally, Facebook's WhatsApp announced in April 2017 that WhatsApp plans to use India Stack's UPI¹¹⁰ to enable payments between users within the next six months (i.e., by November 2017).¹¹¹

There is no guarantee that Google, Facebook, Alibaba, PayTM or something homegrown will prevail across the currently fragmented African market. There are a variety of market dynamics at play, including (a) slower adoption of smartphones; (b) regulators that are more proactive at intervening in digital financial services, although not necessarily in a way that leads to open data; (c) challenges with interoperability stemming from infrastructure, walled garden

103 “Microinsurance Trends: A Review of Our 2016 Predictions – Inclusivity Solutions.”

104 “Making Inclusive Insurance Work” Webinar Series: Health (part 1): Telemedicine, Insurance and Universal Health Coverage | The ILO's Impact Insurance Facility.

105 Ignacio Mas discussing the mentality of FinTechs coming from the US and other Western markets versus the needs of people living in poverty. Mas, “India Stack.”

106 Bankable Frontier Associates, “Inclusive Digital Ecosystems of the Future (Working Paper).”

107 The Mastercard Foundation's financial inclusion portfolio focuses on sub-Saharan Africa, however, several developments in digital financial services can also be discovered outside the region. In particular, China and India are fruitful domains for research and demonstration.

108 For more on the rise of Alibaba, see Shrader, “Microfinance, E-Commerce, Big Data and China.”

109 Russell, “Paytm, India's Top Digital Payment Firm, Plans to Rival WhatsApp with Messaging and Games.”

110 “IndiaStack – Technology for 1.2 Billion Indians.”

111 Russell, “WhatsApp Will Reportedly Launch Peer-to-Peer Payments in India within 6 Months.”

strategies, or regulation; (d) and the challenge of connecting multiple digital wallets per country across 40 different markets in sub-Saharan Africa. The critical lessons from China and India, and even Facebook and Google, are that *it takes an ecosystem around wallets and payments to drive effective use*. In turn, effective use unlocks real value for people living in poverty by helping them address their money management needs, not just new means of moving cash.

A learning agenda for furthering innovative business models in sub-Saharan Africa

As momentum builds around new business models and FinTechs continue to enter the market and scale, we, as an industry, need to ensure that we stay grounded in actionable steps for organizations based on real data and experience, as well as continue to push business models towards meaningful inclusion.

— *Convert learning around alternative data into actionable steps for African institutions toward understanding and implementing digital strategies that will unlock opportunities for meaningful inclusion*

Organizations are at various stages of exploring digital strategies, and there is a healthy degree of optimism and skepticism regarding the use of alternative data. We need to encourage candid discussions about what is working and where barriers exist. IFC¹¹² and Accion¹¹³ have produced helpful frameworks and guides in the past year; we need to continue to practically address the business model transformation knowledge and capacity gaps¹¹⁴ that institutions have in order to utilize alternative data and digital technology effectively.

— *Continue to support action learning to digitize new sectors*

To enable *effective use* we need to continue to grow the digital finance ecosystem, expanding use cases and

work towards a system that supports digital money, not just digital payments. To this end, BFA's FIBR project,¹¹⁵ MercyCorp's AgriFin Accelerator,¹¹⁶ and UNCDF's digitization work in Uganda¹¹⁷ have been tremendously informative action research projects. Continued exploration of digital pathways to financial inclusion is needed along with the translation of lessons learned into case studies that can be trialed in other markets.

— *Research how regulation should approach issues around data and new business models*

The advances in back office technology means that data about individuals, previously sitting in bank paper or mainframe records, will inevitably be stored in the "cloud." This has implications for data sovereignty, data privacy and security, as well as ethical uses of data. Some sub-Saharan countries are already passing well intentioned regulations that constrain where and what types of data can be stored digitally. In the case of Rwanda, this is hampering cloud-based business models that were established prior to the regulations,¹¹⁸ as well as the development of new services. The digital finance community needs to better understand both the issues and the regulatory responses. Further, we need to promote a secure customer-centric view of data ownership and data provision among regulators and the business community.¹¹⁹

— *Research the impact internet platform players will have on digital finance*

Increasing interest from internet platform players coming from Silicon Valley and China might affect the landscape of digital finance in Africa. Facebook has 170 million African users, and its userbase is growing.¹²⁰ Already, financial service providers in sub-Saharan Africa use Facebook as a channel to market services, and they are increasingly embracing Facebook's family of messaging applications (Messenger, WhatsApp) as customer engagement tools and digital delivery channels. Because of widespread adoption among mobile users, WhatsApp and Messenger present tremendous opportunities as a delivery channel

112 IFC, "Data Analytics and Digital Financial Services Handbook."

113 Accion Global Advisory Solutions, "Unlocking the Promise of Big Data to Promote Financial Inclusion."

114 For elaboration on the capacity gap of using big data, see Inclusion, "Financial Inclusion 2020 Progress Report," chap. Addressing Customer Needs.

115 FIBR's partners have included IT Consortium (saving for school fees), Farmerline (cash advances for cocoa farmers), Nomanini (merchant nano-loans for airtime float), Off-grid Electric (PAYG Solar energy company), PEG (solar home kit and accessory distributor), and Sokowatch (on-demand ordering and delivery for small retailers).

116 Mercy Corps' Agrifin Accelerator program has been piloting DigiFarm, a bundled AgriFin service with Safaricom services (including savings, loans and merchant payments), Arifu (eLearning), iProcure (alternative channel farm inputs and assets distributor leveraging retailer-level e-commerce solutions) and FarmDrive (lending using alternative data for farm inputs and links to iProcure). Integrating FarmDrive is still under development, with expected launch by end of 2017.

117 UNCDF have been working to digitize value chains in Uganda, including cash transfers and government pensions. In Nepal and Senegal, UNCDF are working to digitize government pensions.

118 Nuwagira, "MTN Rwanda, RURA Agree on \$8.5 Million Fine Payment Plan."

119 Concept of a "secure customer centric view of data ownership and data provision" needed with regulators raised by EFL. Klinger, interview.

120 Shapshak, "Facebook Has 170 Million African Users, Mostly On Mobile."

for the digital finance community. This is especially relevant given the expected rise of messaging and natural language processing bots. While high levels of smartphone adoption are some years down the road, we need to begin exploring the impact consolidated channels may have on both digital finance business models and financial inclusion. For example, important considerations will be the potential impact of new business models on the ability of providers to deliver services cost-effectively, issues around user data and who owns the customer, and use of customer data for other purposes.

Ecosystem

Advancing the Potential of Open APIs for Financial Inclusion

Jessica Osborn

This chapter details how opening financial services infrastructure to new players via APIs has been heralded as a key to increasing the variety and relevance of financial services and thus better serving user needs. The hypothesis is that smaller third parties, such as FinTechs, are more effective engines of innovation than the banks and MNOs that currently dominate the market because they precipitate new technology, a level of agility that is more responsive to market demands, and a culture and structure that encourage disruption.¹²¹ However, these entities are limited in their ability to bring their innovative products to market because they lack access to bank and MNO-controlled transaction systems, mobile infrastructures, and the data on which their solutions depend.¹²²

Banks and MNOs are starting to open their APIs

There is a recent trend towards providers opening their platforms to third parties, via “open APIs”—publicly available application programming interfaces that allow different software programs to “talk to” one another and exchange information.¹²³ Safaricom, Vodacom Tanzania, Vodafone Ghana, MTN Zambia and Orange Money have all opened APIs.¹²⁴ Similarly, other MNOs, such as MTN Uganda, Tigo Ghana and Tigo Rwanda, are providing access to APIs via aggregators—organizations working in the background to provide integration (e.g., payment instrument integration) and value-added-services (e.g., notification of successful payments). While established banks have seemed reluctant to open up, there has been some recent momentum. Equity Bank and Absa have launched open API programs¹²⁵ and CGAP is working with Barclays on an open banking marketplace using APIs to allow FinTechs with alternative SME scoring models to provide risk scores and find funders.¹²⁶

Several external factors influence the increase of bank and MNO openness, most notably competition, as traditional markets and customer segments become

¹²¹ Mas and Almazán, “Product Innovations on Mobile Money.”

¹²² Morawczynski and Hanoucholga, “Riding the ‘Rails’: Unlocking Innovation with Open APIs,” 8.

¹²³ Meka, interview. Bruett, interview. and The Mercy Corps Experience – MNOs Embracing External Innovators.

¹²⁴ GSMA, “APIs: A Bridge between Mobile Operators and Start-Ups in Emerging Markets,” 3.; Martin, “Orange Money APIs in Africa – Orange Partner”; Orange, “Orange Money Web Payment.”

¹²⁵ “Kenya: Equity Bank’s APIs Are Now Open to Developers”; Malinga, “Absa Introduces API Platform for SMEs.”

¹²⁶ “LIVE CHAT: Innovative Financial Solutions to Reach Low-Income Customers.”

saturated.¹²⁷ Opening APIs is seen as a way to compete by diversifying a product portfolio and accessing a new customer base. This is gaining importance in light of looming potential competition from major international players such as Facebook, Google and Alipay.¹²⁸ Open APIs can give providers first mover advantage in exchange for working with local start-ups to secure their strength in brand and distribution.¹²⁹

Banks and MNOS also look to open APIs as their traditional revenue streams become less profitable. Historically, banks have not recognized a need to work with external innovators—nor have they considered low income clients a target demographic¹³⁰—because they have had alternative, less risky revenue sources such as government bonds, commercial banking and recurring account fees from middle income customers. However, in markets such as Ghana, where the interest rate on bonds has collapsed,¹³¹ banks are now looking more seriously to riskier segments and taking on greater credit risks. Likewise, since Kenya capped interest rates on lending,¹³² banks have become increasingly risk-averse in their credit strategies which has made them more seriously consider working with FinTechs to diversify their business.¹³³ Innovative banks are realizing that they do not need to own every customer and there is value in white label solutions that enable others to leverage their core banking infrastructure, license, and balance sheet.¹³⁴

Slowing growth from traditional services has similarly encouraged MNOS to open up. Average mobile growth was just 4% in SSA this year (down from 11% in 2013) and is predicted to fall to just 2% in 2018. As SMS and voice revenue has come under increasing pressure from competition, price wars, and cannibalization from IP-based services such as WhatsApp,¹³⁵ MNOS have looked to external innovators to help them diversify their revenue streams.¹³⁶

Opening APIs is a journey

While there has been a lot of discussion around providers' efforts to open their platforms, few APIs shared to date are truly open.

Fully open APIs are self-service and widely available, and include high quality, openly shared online documentation and an easily accessible sandbox to permit innovators to inexpensively test the platform's capabilities.¹³⁷ Open APIs also have transparent, standardized commercial and contracting processes.¹³⁸ Many of these attributes are missing from the DFS APIs currently shared. Access to test servers and documentation is still tightly controlled by providers,¹³⁹ documentation is usually basic and ahead of reality,¹⁴⁰ and pricing structures remain opaque.

The incomplete openness of most provider platforms suggests that APIs do not fit within a simple binary of open or closed. Opening structures is a journey; there is a spectrum of openness that APIs can support, contingent on what is exposed, to whom, and for what purpose. Full openness of all assets is not necessarily what is most conducive to innovation at this stage. The very controlled manner in which APIs are currently shared has facilitated a decent level of experimentation in the ecosystem and a gradual approach may better sustain long term innovation. An incremental progression towards openness enables risks and benefits to be weighed at each step;¹⁴¹ providers can meter access while taking into account the evolution of their business models in order to support the shift towards digital, the realities of their competitive environment, and their learnings about how to most effectively support third parties.

Providers seem cognizant of the shortfalls of current API offerings and have demonstrated their intention to transition to full openness as evidenced by Safaricom and Orange's commitment to release more

127 Leesa Shrader explains from Kenya: "Safaricom and KCB are now very focused on farmers and are competing with others to be the platform that runs money for this low income demographic," Shrader, interview. UNCDF highlight: "Tigo saw opening up as a competitive advantage and that's why they were the first open API project – they saw this as a strategic way to take on Orange. Recently Orange has passed Tigo investing in innovation labs to promote innovation that can drive usage." Bruett, interview.

128 In June 2017 Alipay revealed plans to launch in South Africa. Owens, "Facebook: The New Game Changer for Mobile Payments & Remittances"; Anderson, "Alibaba's Alipay Lands in South Africa | Payment Week."

129 GSMA, "APIs: A Bridge between Mobile Operators and Start-Ups in Emerging Markets," 10.

130 In UNCDF's experience, banks "still view themselves as having a dominant position. They have yet to seriously target the poor in part because of the lack of clear business case. The evidence is on their side – low usage, low value accounts are not statistically profitable for banks," Bruett, interview. Mercy Corps has found that banks in particular tend to shun the need for external innovation, "believing that they can build products best themselves and so in fact they divert from their core business by trying to do everything," Shrader, interview.

131 Treasury bill rate dropped from 22% in May 2016 to 12% in June 2017.

132 Lending rates are now capped at four percentage points above the central bank's benchmark rate, which is 10.5%. Some banks were previously charging above 18% for loans. Aglionby, "Kenya to Cap Interest Rates on Bank Loans."

133 Widjaja, interview.

134 Hanouch, interview.

135 GSMA, "The Mobile Economy Sub-Saharan Africa 2017," 18.

136 Jackson, "There's a Growing Pressure on African Mobile Operators to Become Innovators."

137 Hanouch, interview.; Moszczynski and Korenblum, "Why Open APIs Matter: Tech Partnerships Power Development"; GSMA, "APIs: A Bridge between Mobile Operators and Start-Ups in Emerging Markets," 16–17.

138 Morawczynski et al., "Digital Rails: How Providers Can Unlock Innovation in DFS Ecosystems Through Open APIs."

139 Morawczynski, "Just How Open Is Safaricom's Open API?"; "Orange Money Web Payment FAQs."

140 Monadjem, interview.: "Although MNOS and banks talk a good talk about open APIs, they often don't actually really work; gaining access to a test server can take months and basic documentation is often well ahead of reality."

141 Bankable Frontier Associates, "Payment APIs: What, Why, and for Whom? An Introduction to Payment Interfaces & the Kenyan Market," 4.

holistic and open mobile money APIs.¹⁴² The benefits for innovation of a fully-open DFS ecosystem are now clear, but achieving this is a process that will take time.¹⁴³

Barriers to banks and MNOs fully opening APIs

Despite the well-documented potential advantages, there are a number of barriers hampering providers' journey to opening APIs.

Perhaps the biggest hurdle that MNOs and banks are grappling with is how openness is situated within the broader transformation of their business in the emergence of a digital economy. Digital affords types of engagement that fundamentally and permanently change how providers extract value and how customers interact and consume. It shifts power and points of control, creating opportunity for some and disruption for others. Companies must think critically about how open APIs help or hinder their long-term sustainability within this digital shift. Consequently, incumbents are at varying degrees of readiness for the process of becoming the "rails" for innovative third parties.

Even as organizations become increasingly bought into the longer term benefits of opening up, key knowledge gaps hinder the execution.¹⁴⁴



First, there is lack of confidence in the business case. Opening up marks a significant departure from the traditional business models of MNOs and banks that have been rooted in owning customers, data, and the full value chain. They fear competition from external innovators and are concerned about the cannibalization of revenues from their own existing or future products. With so little precedent for sharing platforms and data in DFS,¹⁴⁵ providers find it difficult to conduct rigorous analysis for a solid business model. For many, this commercial tension is further compounded by the fact that mobile money and agency banking services are not yet profitable in many countries. Additionally, traditional revenue streams are under pressure, further discouraging the serious investment that opening up requires.¹⁴⁶ For most banks and MNOs opening up APIs is a question of timing. There is tension between the benefits that open APIs can afford them in the long term as the industry becomes fully digital and the financial and opportunity costs of opening up in the short term.¹⁴⁷

Second, there are knowledge and skills gaps around the technical architecture required to support APIs.¹⁴⁸ Banks are encumbered by legacy platforms with functional complexity that is over-engineered for their requirements, making the exposure of simple APIs unnecessarily complex and requiring skills that are scarce. MNOs' core systems require upgrades in order to be technically capable of interfacing, a process which is beginning but takes time.¹⁴⁹ Therefore, many banks and MNOs continue to rely on core platform providers for APIs, increasing the cost and time investment to a point which is not always commercially viable.¹⁵⁰

142 Wainaina, "Safaricom Planning to Release Holistic M-Pesa API for Developers"; Bankable Frontier Associates, "Payment APIs: What, Why, and for Whom? An Introduction to Payment Interfaces & the Kenyan Market"; "Orange MEA Digital Ecosystem Strategy."

143 Mercy Corps has had a positive experience with this incremental approach, explaining that Safaricom would ultimately see Digifarm as operating within an API environment but that they want to cultivate it first, being very selective in order to make the offering strong before fully automating it.

144 "APIs Workshop." The Mercy Corps and UNCDF Experience – Barriers to Opening APIs.

145 "Both mobile money and agency banking services are reticent to share data and find a way to monetize their data. Opening would most likely necessitate data sharing with partners so this must also be addressed," Bruett, interview.

146 Ibid.

147 "Do you open up and start to cannibalize your own revenue or do you try to ride the current business model as long as you can and make innovations happen on the side but not significantly upset the status quo to avoid eating into your own revenue? And at what point do you jump ship from your current model? If you jump too early you could be giving up revenue for no reason but if you jump too late you could be dead." Hanouch, interview.

148 "APIs Workshop."

149 Half of all GSMA's SOTIR 2014 respondents had completed or were in the process of completing platform migrations in 2015.

150 Meredith, interview.

Third, there are reputational risks for providers enabling third party access. For instance, there are unknowns around how to manage risks to consumer privacy arising from data sharing¹⁵¹ and appropriate redress protocol if, for instance, an external application pursues fraudulent or unethical ends.¹⁵²

Fourth, lack of bandwidth and motivation of key personnel can hinder openness.¹⁵³ For instance, the segregation of product houses and the company structure of banks means that innovation often simultaneously benefits one department and jeopardizes the revenues of another, impacting personal KPIs and bonuses. Therefore, strategic-level support for openness can fail if incentive structures are not adapted accordingly.¹⁵⁴

Finally, the regulatory environment may be actively hindering institutions' openness.¹⁵⁵ The rapid rate of FinTech innovation, combined with the fact that DFS necessitate overlapping regulatory frameworks which take time to develop,¹⁵⁶ means that regulation lags behind the evolution of the industry.¹⁵⁷ Consequently, in the absence of regulation for specific product types, high-level policy documents are often used for principles-based guidance which bind new innovations by parameters that may be unnecessarily and unintentionally prohibitive. Ambiguity around regulator stances on specific FinTech models also discourages entrepreneurs, as is happening in Ghana, owing to unclear regulation for alternative credit models.¹⁵⁸

African regulators are also not promoting the exposure of provider assets through policy, leaving

banks and MNOS in control of moderating access, which could be stultifying the development of a competitive ecosystem.¹⁵⁹ Regulators even in more developed markets, such as the EU¹⁶⁰ and India,¹⁶¹ have had to use policy to proactively challenge traditional banking models to make room for disruptive FinTechs. This approach may be relevant for SSA.¹⁶²

Open APIs alone are not a silver bullet for financial inclusion

APIs promise to grow the number and variety of products, thereby increasing the adoption, stickiness and impact of DFS. However, it is important to recognize that APIs alone cannot solve the problem of financial inclusion.

First, the right APIs need to be exposed. The APIs opened to date are mostly those which increase integration efficiency for low risk use cases with clear monetization strategies (e.g., bulk payment and interoperability).¹⁶³ Looking beyond commodity APIs to expose other functionality would likely result in a broader array of solutions.¹⁶⁴ However, to a large extent, ecosystems have already worked around the challenge of limited access to payment APIs: workaround solutions have enabled some access¹⁶⁵ and OTT players have capitalized on increasing smartphone prevalence to extract provider data and functionality.¹⁶⁶ While there are undoubtedly quality and efficiency benefits to be gained

- 151 UNCDF attributes some of the reluctance of banks to open APIs to risk aversion, such as banks fearing bank to wallet integrations to avoid any security risk to their core banking platforms. "For MNOs they worry about being held liable for a partner's action for simply facilitating payment," Bruett, interview. Mercy Corps has found these to be considerable barriers for providers: "MNOs are very aware of the value of their brand, which makes them terrified about the potential risk of partnering with a start-up, particularly since scale is needed from the get go," Shrader, interview. See also Alliance for Financial Inclusion, "Digitally Delivered Credit: Policy Guidance Note and Results from Regulators Survey."
- 152 Faz, "Are Open Platforms Smart Business for Payments Providers?"
- 153 As FIBR explains based on their experiences supporting third party innovators in Ghana: "lack of bandwidth and internal motivation are two of the barriers to creating strategies for APIs," Meka, interview. CGAP's project supporting open APIs with an MNO in East Africa also faced this challenge. Although it initially had committed backing from a strong team, the project eventually folded because the head of Mobile Money left the company and a new CEO, who was unfamiliar with DFS, was introduced. At the same time the company migrated to a new mobile money platform and the new team simply did not have the bandwidth to support an innovation project – Hanouch, interview.
- 154 Hanouch, interview.
- 155 In fact Accion Venture Lab believes that it is highly unlikely that banks would ever be permitted to open APIs even if they wanted to, given how heavily regulated they are, Widjaja, interview.
- 156 C. Leigh Anderson, "Digital Credit Regulation in Selected Countries Pierre Biscaye, Kirby Callaway, Melissa Greenaway, in Africa and Asia Daniel Lurchick-Seymour, Max McDonald," 22.
- 157 Ibid., 2.
- 158 FIBR, "The Environment for 'FIBR FinTech' in Ghana," 3.
- 159 ITU, "Digital Financial Services: Regulating for Financial Inclusion (GDDFI Discussion Paper)."
- 160 The EU's Revised Payment Service Directive obligates banks to provide third party access to their customers' accounts via open APIs, therefore enabling bank customers to use third party providers to manage their finances. There are likely some relevant learnings from PSD2 on how to strike an appropriate balance for encouraging open innovation in a way that protects consumers. EVRY, "PSD2 – the Directive That Will Change Banking as We Know It"; Weiss, "PSD2 and Data Protection (2/2): Consent Is (the) Key."
- 161 Mauldin, "India's Tech Revolution Has Already Left The West Behind—It's The Best Investment Opportunity Now." and Bull, "India Has Built the Rails — Will Passengers Climb Aboard?"
- 162 Bull, "Four Drivers of Change for Financial Inclusion in 2017."
- 163 For instance GSMA's Harmonization work GSMA, "GSMA Mobile Money API."
- 164 Payments APIs which are not currently reliably exposed but which would facilitate development of a broader array of solutions include: fully automated funds and information transfer, automated invoicing, payment flow customization, business and end-user transaction history, automated refunds and reversals, in-app payments and data which helps third party innovators monitor and iterate upon their solutions. Hanouch, interview.; Bankable Frontier Associates, "Payment APIs: What, Why, and for Whom? An Introduction to Payment Interfaces & the Kenyan Market," 16.
- 165 Such as www.pesapi.com. As FIBR has hypothesized: "Opening payment APIs would likely result in only incremental change. Payment aggregators or national switch systems have resolved issues related to transactional access in many of the ecosystems we've worked in," Meka, interview.
- 166 For instance, Mercy Corps has worked with Esoko who is building an API on top of M-Pesa. Other solutions such as Tala and Branch scrape mobile money transaction data from SMSs on users' phones.

from direct access to provider platforms—aggregator revenue share¹⁶⁷ and the clunky user interfaces of hacked solutions would be eliminated—the overall impact on product proliferation may be incremental rather than transformational. It is possible, then, that the real value lies in exposing APIs *beyond* payments (such as customer and agent geolocation data), for deeper innovations that use FinTech for vertical solutions and not just horizontal financial solutions.¹⁶⁸

Second, opening APIs must be situated within a broader open innovation effort.¹⁶⁹ Going open involves navigating a more complex operating environment. In addition to serving traditional end-users, open platforms must also serve a new customer—the developer community—with technical, commercial, and operational implications.¹⁷⁰ Providers must engage and actively support promising innovators in order to realise tangible impact from open APIs.¹⁷¹ Indeed some providers are trying to integrate their API programs with a broader collaboration effort. Orange engages and mentors start-ups via its Entrepreneur Club, has a crowd innovation platform, an investing arm, and runs an annual Developer Challenge to incubate the best ideas leveraging its APIs. MTN Zambia accelerated its outreach through partnership with a leading local tech hub.¹⁷² Safaricom has a venture capital arm to provide financing to the most promising innovators. Realizing the potential benefits of open APIs will require more initiatives like those of Orange, MTN Zambia, and Safaricom.

Third, there are just a handful of countries in which openness can have a transformative effect because **open APIs do not solve the customer adoption problem**¹⁷³ which requires infrastructure and customer sentiment shifts that cannot be solved by technology changes alone.¹⁷⁴ Continued innovation around delivery channels and user education is thus integral to the full utilization of open APIs.¹⁷⁵



Being cognizant of these limitations will help ensure that opening APIs is recognized as one of many inextricably linked transformational pathways that DFS providers should explore to support the shift to digital.

167 As demonstrated by the discontinuance of FIBR's project with InCharge in Ghana owing to lack of profitability, transactional margins are typically extremely thin in DFS. Therefore, sharing these revenues with an aggregator can put severe or insurmountable strain on the third party's business model or make the proposition significantly less appealing to the end customer, onto whom the additional cost is inevitably pushed, Monadjem, interview.

168 Morawczynski et al., "Digital Rails: How Providers Can Unlock Innovation in DFS Ecosystems Through Open APIs," 28.

169 Open Innovation is "a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and nonpecuniary mechanisms in line with the organization's business model." Open innovation includes creative consumers and communities of user innovators in a firm's innovation landscape. Examples of open innovation strategies in DFS include incubating FinTech start-ups on-site, sharing consumer data, assisting start-up partners with product distribution, and opening APIs. Chesbrough and Bogers, "Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation."

170 Faz, "Are Open Platforms Smart Business for Payments Providers?"

171 "CGAP has found that to ensure discoverability and uptake providers must evangelise the APIs among the developer ecosystem, inspiring developers to use them by demonstrating how they can be leveraged to generate revenue and presenting some example use cases," Hanouch, interview. Some providers' "lack of regular open interaction with the developer community means that API solutions they release fall short of what is actually needed," Meka, interview; also GSMA, "APIs: A Bridge between Mobile Operators and Start-Ups in Emerging Markets," 16–17.

172 GSMA, "APIs: A Bridge between Mobile Operators and Start-Ups in Emerging Markets," 18.

173 Open APIs are likely "less helpful in countries where mobile money has not played a stronger role," Monadjem, interview. "Customers still need to be convinced that storing money digitally is safe and convenient," Widjaja, interview.

174 "APIs don't solve problems around customer adoption which a techie sitting in the proverbial garage cannot solve, but they might open the garage door to those that can," Bruett, interview.

175 The UNCDF Experience – APIs Enable Broader Access But Not a Silver Bullet.

A Learning Agenda for APIs

While there has been progress towards openness in the past year, it is clear that we need to keep working as an industry to realize the potential new wave of DFS growth and innovation:

— *Plug knowledge gaps and create demonstration cases for open APIs*

We need to continue to promote a continued evolution towards openness by plugging the knowledge gaps that currently deter providers.¹⁷⁶ The last year has seen great progress in documenting and socializing the benefits of opening up APIs. However, with no clear precedent, providers continue to struggle with *how* to execute this shift. The industry needs a number of demonstration cases to increase learning around successful paths and pitfalls¹⁷⁷ and inspire providers and innovators to accelerate the momentum around shared assets.¹⁷⁸

— *Explore horizontal integrations between smaller players*

To date, attention has focused on the top-down opening of large DFS provider platforms to smaller third parties. However, the past year has seen some interesting cases of integrations between smaller players, such as Eko India.¹⁷⁹ Therefore, a hypothesis that makes room for the exploration of the impact of horizontal connections may reveal pertinent learnings.

— *Research how regulation should support the transition to openness*

More investigation into how regulation can support openness is needed. Financial services provided by third parties “raise new risks to consumers and shift responsibility for managing other risks to new parties who operate outside of regulatory oversight.”¹⁸⁰ Because non-bank and internet-based financial companies are largely unregulated in sub-Saharan Africa at present (although some countries, such as Ghana, are currently attempting to licence them)¹⁸¹

we need to develop creative regulations that will protect consumers and businesses without hampering openness.

There would be value, for instance, in an exploration of how to balance data protection with data ownership and empowerment in open platforms. That is, how can providers ensure user transparency and control over how their data is used by third parties?¹⁸² Different data management and privacy regulations may be needed to address the unique nature of companies using provider data as criteria for financial decisions. Existing regulations may need to be amended to specify which types of third party business models are approved and under what terms.¹⁸³ Approaches such as regulatory sandboxes could help regulators balance risk and innovation by working closely with startups to better understand industry developments and create appropriate regulations as the space evolves.¹⁸⁴ Regulators could also promote innovation by mandating platform opening, such as has been the case with PSD2 in the EU. There are a number of potential roles regulators could play in this transition and more research is needed here.

¹⁷⁶ Hanouch, interview.

¹⁷⁷ CGAP will be working on open API demonstration projects with a range of provider types in different markets. “Partner with CGAP to Open APIs.”

¹⁷⁸ To this end, CGAP will be creating a financial inclusion API dashboard which monitors the key features and functionality of APIs opened so far, the extent to which they have been used, and the new product creations they have enabled. The ability to easily see the proliferation of innovation that open APIs can propagate will hopefully motivate other providers and third parties to follow suit

¹⁷⁹ Hanouch, interview. For an example of a third party innovator opening up see Sinha, “Open APIs in Digital Finance: We Opened Up, Here’s What Happened.”

¹⁸⁰ Alliance for Financial Inclusion, “Digitally Delivered Credit: Policy Guidance Note and Results from Regulators Survey.”

¹⁸¹ C. Leigh Anderson, “Digital Credit Regulation in Selected Countries Pierre Biscaye, Kirby Callaway, Melissa Greenaway, in Africa and Asia Daniel Lunchick-Seymour, Max McDonald,” 4.

¹⁸² Hanouch, interview.

¹⁸³ C. Leigh Anderson, “Digital Credit Regulation in Selected Countries Pierre Biscaye, Kirby Callaway, Melissa Greenaway, in Africa and Asia Daniel Lunchick-Seymour, Max McDonald,” 4.

¹⁸⁴ Ibid., 3.

Conclusion

In this report, we started by briefly introducing two overarching concepts that we will bring into the Partnership's work in the years ahead: *meaningful financial inclusion and the shift to digital*. Then, each of the report's three complementary chapters addressed a different intersection of these concepts, at the client, institution, and ecosystem levels.

We argued that meaningful financial inclusion demands a shift in the way the community has tended to frame success. The time is approaching when it will no longer be sufficient to talk about achievements in financial inclusion in terms of *access* to any *singular* financial services product. Instead, we emphasized the need to pursue business models that promote the uptake and use of a broader suite of financial services products, including transfers/payments, savings, credit, and insurance. And, just as importantly, we emphasized that metrics around access and even uptake must be complemented with an increasingly nuanced and rigorous attention to the *effective use* of that suite of products. In other words, we assert that meaningful financial inclusion demands that individuals, households, and small enterprises are able to use the products and services on offer in ways that substantially and positively impact their prosperity and well-being. Thankfully, as we have illustrated, recent advances in strategies (at the business model level) and open APIs (at the ecosystem level) are helping to expand use cases, and to create suites of products that will enable meaningful inclusion. Facilitating effective use is not only SDGs and donor driven initiatives—it can be at the core of good business strategy.

Further, we argued that the shift to digital entails more than simply replacing conventional or analog modes of doing business with more efficient electronic ones. We framed the shift to digital, instead, as both an opportunity for a host of new business models to

emerge and as an imperative to do so. Digital shifts in the broader economy, from agricultural value chains, to new ways of selling electricity and consumer electronics, require that individuals, households, and small enterprises have the wherewithal, the capacity, and the skills to participate in these new more digital economic structures. Consequently, a broader agenda to promote socioeconomic inclusion in a digital age will have a digital financial inclusion component. Our analyses of emerging business models (including the ongoing interrelationships and alternate framings between banks, telcos, and FinTechs) and the challenges of developing open APIs at the ecosystem level illustrate how the shift to digital is scrambling and challenging conventional modes of providing a suite of financial services to resource constrained would be customers in sub-Saharan Africa.

It is an exciting and important time for financial inclusion in sub-Saharan Africa; digitization (e.g., the shift to digital) is one of the primary ways in which scale and sustainability is likely to be achieved. The journey is far from complete, as are the digital shifts currently underway, but part of the enthusiasm we hope to convey in this document is about the diversity and strength of the research and practice community working in this area. Throughout all three chapters we have highlighted recent learnings from other institutions in the Partnership for Finance in a Digital Africa and from the broader digital finance community.

A learning agenda

We have chosen to frame many of the developments in the industry as learning opportunities —as opposed to simply shifts in the competitive landscape— because the financial inclusion community benefits from the cross-pollination of ideas, demonstration of best practices, and synchronization of new research.

Each chapter contained a set of thematic recommendations for learning agendas for the future.

At the client level, we recommended that the community

- Recognize, and address, existing primary digital divides faced by low-income users
- Identify secondary digital divides (in use rather than access) across markets and among demographics
- Ensure responsible finance practices keep abreast of the expansion of ecosystem offerings
- Increase investment and experimentation around how digital attributes can help enable effective, widespread use

At the institutional level, the community should

- Convert learning around alternative data into actionable steps for African institutions to take in order to better understand and implement digital strategies that will unlock opportunities for meaningful inclusion
- Continue to support action learning to digitize new sectors
- Research how regulation should approach issues around data and new business models
- Research the impact internet platform players will have on digital finance

And, at the ecosystem level, the community must

- Plug knowledge gaps and create demonstration cases for open APIs
- Explore horizontal integrations between smaller players
- Inspire providers and third parties to integrate and innovate
- Research how regulation should support the transition to openness

Looking at these recommendations as a set, it is easy to see that there are a variety of ways to convert these thematic areas into action, depending on where in the community you, as a reader, may sit. Within the Partnership we will continue to catalyze, synthesize, and evangelize insights from our Portfolio Partners and their Implementation Partners. Your role may be more specific to any one of these learning priorities, depending on the needs of your organization. But regardless of which agenda you might end up pursuing, we would implore you to make the community stronger by sharing knowledge, testing, and collaborating around these ideas. We are eager to hear from you in the year ahead.

Linking effective use and meaningful digital inclusion to impact

Ultimately the reasons we are engaged in this space include the accumulating evidence that digital financial services can have a significant impact on individual, household, and community level well-being. It is important to track this evidence on client-level impact on an ongoing basis. Another major output of the first year of the Partnership is the “[Evidence Gap Map](#).”¹⁸⁵ We have more evidence about payments and transfers than about other new services, and more evidence from East Africa than anywhere else. It is important for the community, as the digital shift accelerates, to push its evidence gathering activities into services that are taking full advantage of digital attributes, including bundling, real-time targeting, API sharing and blended offerings, etc. This gap map, which we will update over time, can serve as a valuable resource for coordinating and guiding future research activities.

The shift to digital is broad and multifaceted, equal parts of promise and disruption. Financial services for the poor is only one element in a much wider societal shift, but clearly one wherein there is great potential to help set the terms on which most of the people in sub-Saharan Africa will interact with (and prosper in) an increasingly digital global economy. It is anything but unimaginable to project a few years in the future to a time when most Africans, like most people around the world, will be able to manage their financial activities confidently, affordably, and productively, via their personal devices and supported by industry and broader economic structures that are configured to include and empower rather than exclude or exploit. These outcomes, though not unimaginable, are also anything but assured. The work of this digital finance

community, from research to pilots to projects of the most massive scale, is at the core of this vision.

We hope the themes explored in these chapters help redefine, catalyze, and set the tone both for the work we will do and the work that we hope you will do as well. The digital finance community is broad and diverse, including investors and regulators, product managers and data scientists, development anthropologists and economists. Collectively it works across different levels, for different reasons, but crosscutting learning advancements like the ones outlined in this report are available thanks to the talent, efforts, and enthusiasm of the community of which we are all a part. We hope you will draw on these learning advancements, and join us in putting these insights into practice.

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