

CHAPTER 6

LEVERAGING GLOBAL INNOVATIONS IN FINANCIAL TECHNOLOGY IN AFRICA



Financial technology (fintech) refers to a broad range of technological innovations that enhance or change the way financial services are provided. The innovations typically include crowdfunding, insurance, budgeting software, blockchain (and cryptocurrencies), electronic payments and transfers, and robo-advisors and trading applications. Fintech development has been fuelled by breakthroughs in mobile networks, big data, trust management, mobile embedded systems, cloud computing and data analytic techniques, which have changed service delivery for both personal and commercial finance (Gai et al., 2018).

Fintech seeks to improve speed, security and operating costs to democratize financial markets and reduce information asymmetries in financial markets. Technology such as credit scoring systems can help address these asymmetries.

Fintech has had remarkable influence since the 2008 financial crisis. Before 2008, fintech development was driven largely by traditional financial institutions to support their own operations and promote efficiency. But since then most fintech developments have taken place outside traditional financial institutions, providing alternative sources of finance

and investment to businesses and the public. Fintech operations are now ubiquitous in both developed and developing countries. For instance, large multinational companies have expanded their activities to include a wider range of financial services, such as credit facilities and payment systems.

In Africa, fintech is reducing costs, reducing risk and extending service to unbanked populations. Examples of fintech include paperless banking and insurance services, use of disruptors such as non-bank institutions and mobile network operators, and the introduction of financial exchange platforms (blockchain) and models such as branchless distribution, mobile banking, big data credit scoring and machine-to-machine lending. Africinvest expects the global fintech revolution to triple access to financial services in Africa, creating a new market of 350 million customers. Telecommunication companies also provide mobile money services in several African countries, including Ghana, Kenya, Rwanda, South Africa and United Republic of Tanzania (Africinvest, 2016).

Current and forecast fintech transactions suggest that the global fintech market will double its 2017 transaction values by 2023 (Statista, 2019). For instance, the value of global

transactions in the digital payments market—the largest fintech segment—is projected to grow at an annual rate of 17 per cent, for a projected total of \$8.3 trillion by 2024 (Statista, 2020). In Africa digital payments are the biggest component of fintech transactions, with mobile money transactions accounting for close to 10 per cent of GDP, compared with 7 per cent in Asia and less than 2 per cent in other regions (Sy, 2019). Africa accounts for more than 60 per cent of mobile money transactions in the world—more than \$450 billion in 2019 (Kazeem, 2020).

Although alternative financing is the smallest segment of fintech transactions, its compound annual growth is projected at 11.6 per cent and is expected to total \$9.4 trillion by 2024 (Statista, 2020). Crowdfunding accounts for more than 50 per cent of transactions in the alternative financing market.

With the spread of COVID-19 and its impact on economies, the use of fintech, including mobile money, is expected to increase even more. For instance, one study estimated that the spread of COVID-19 and related government lockdowns have led to a 24–32 per cent increase in the relative rate of daily downloads of mobile finance applications in 74 sampled countries around the world (Fu and Misrah, 2020).

CROWDFUNDING, CROWDINVESTING AND CROWDLENDING IN AFRICA

Africa's financing gap has provided a unique opportunity for fintech development to furnish alternative finance sources and investment mechanisms, particularly for start-ups and micro, small and medium enterprises. Two key fintech activities, crowdfunding and crowdinvesting, grew over 2017–2019 and are projected to keep growing during 2020–2023 (TABLE 6.1). The amount of capital raised in Africa using crowdfunding platforms grew at an average annual rate of 38 per cent from 2013 to 2015 and 118 per cent from 2015 to 2016, is estimated to have doubled from 2017 to 2020 and is projected to grow 13.6 per cent a year from 2020 to 2023 (see TABLE 6.1). Crowd-based microfinance and donation-based crowdfunding contributed to the growth of the crowdfunding market in Africa.

So, growth projections and forecasts for alternative financing and other crowdsourcing instruments in Africa are very promising. But the market faces a major challenge: controlling fraudulent activities. Crowd-based financing for business activities benefits markets only if borrowers and investors trust one another. Establishing binding rules and guidelines is essential to securing that trust. Even so, financial regulation is complex and slows the dynamics of an evolving market.

Crowdfunding is currently more prominent than crowdinvesting in Africa, though Statista (2020a) forecasts that crowdinvesting will surpass crowdfunding in 2022. Crowdfunding raises funds by asking a large number of people to fund a project through an online platform. Crowdfunding has various models (TABLE 6.2). Donation-based and reward-based crowdfunding are non-investment-based funding because no financial return is expected. Other models that provide financial returns to investors or lenders proportional to their contributions are included in investment-based crowdfunding.

Of the 57 crowdfunding platforms operating in Africa, 21 are based in South Africa and 9 in Nigeria (Moed, 2018). Total online alternative finance volume in Africa rose to \$209 million in 2018, with domestic sources accounting for 24 per cent of all alternative finance generated in Africa (Cambridge Centre for Alternative Finance, 2020). Also, 45 per cent of all business funding came from equity-based models, and 52 per cent from debt-based models. West Africa was the leading market, with a market share of 41 per cent in 2016, followed by Southern Africa with 28 per cent and East Africa with 24 per cent. North Africa captured 5 per cent,

TABLE 6.1 ALTERNATIVE FINANCING IN AFRICA, 2017–2023

	2017	2018	2019	2020	2021	2022	2023
TRANSACTION VALUE (US\$ MILLIONS)							
Crowdfunding	11.6	13.6	16.5	20	23	25.7	27.4
Crowdfunding	4.2	6.3	9.4	13.5	18.7	27.1	36.3
Total	15.9	19.9	26	33.5	41.9	52.8	63.7
TRANSACTION VALUE GROWTH (PER CENT)							
Crowdfunding		16.7	21.7	21	15.6	11	6.8
Crowdfunding		49.1	49.6	42.6	39.1	45	33.8
Total		25.4	30.5	28.9	25.1	26.2	20.7
NUMBER OF CAMPAIGNS (THOUSAND)							
Crowdfunding	24.9	27.1	32.9	38.7	41.2	42.3	42.8
Crowdfunding	0.1	0.1	0.2	0.2	0.3	0.3	0.4
Total	25	27.2	33.1	38.9	41.5	42.6	43.2
FUNDING PER CAMPAIGN (US\$)							
Crowdfunding	467	502	502	517	561	607	641
Crowdfunding	41,585	48,106	54,106	59,089	66,394	82,780	100,627

Source: Based on data from Statista, 2019.

and Central Africa 2 per cent. By comparison, Middle East-based businesses raised \$117 million in 2016, twice the capital raised by Africa-based businesses.

In Africa, fintech is also used as an alternative source of lending to traditional institutions. The alternative lending market refers to digital financial services for business customers and private borrowers. The market includes bank-independent loan allocation for SMEs (crowdlending) and for personal loans (marketplace lending, also known as peer-to-peer lending) through private or institutional investors using online platforms, such as OnDeck, LendingClub and Prosper. The market focuses on SMEs, freelancers and private borrowers.

In Africa, crowdlending for businesses rose from \$278 million in 2017 to \$417 million in 2019 (Statista, 2020a). Crowdlending platforms are beginning to use buyer ratings on e-commerce platforms such as eBay and Amazon as alternative

sources of credit information, along with shipping information harvested from DHL and data on utility consumption to verify whether a business seeking funding is as portrayed by the applicant. Crowdlending platforms are also examining data on businesses' social media activities from sources such as Klout Score to gauge the potential success of a fundraising activity. The underlying idea is that if a business has heavy online presence and a wide network, the fund raising drive will succeed. Klout Score provides information on a business's online presence, number of social networking connections and the geographic proximity of these connections. As technology improves and data management costs decline, innovative sources of credit information on SMEs are expected to emerge to aid in credit underwriting. Access to such information sources will enable the use of real-time data in making credit decisions rather than historical data, which is sometimes out of date and thus unreliable.

Uptake of crowdfunding has been slower in Africa than in

TABLE 6.2 MODELS OF CROWDFUNDING

MODEL	DEFINITION
Equity-based crowdfunding	Individuals or institutional funders purchase equity issued by a company
Donation-based crowdfunding	Donors provide funding to individuals, projects or companies based on philanthropic or civic motivations with no expectation of monetary or material return
Crowd-led microfinance	Crowdlenders provide micro-loans to unbanked/low-income borrowers through an online microfinance platform, for zero or low-interest returns
Peer-to-peer consumer lending	Individuals or institutional funders provide loans to consumer borrowers
Real estate crowdfunding	Individuals or institutional funders provide equity or subordinated-debt financing for real estate
Peer-to-peer business lending	Individuals or institutional funders provide loans to business borrowers
Profit sharing	Individuals or institutions purchase securities from a company, such as shares or bonds, and share in the profits or royalties of the business
Reward-based crowdfunding	Backers provide finance to individuals, projects or companies in exchange for non-monetary rewards or products
Balance sheet business lending	The platform entity provides loans directly to a business borrower
Invoice trading	Individuals or institutional funders purchase invoices or receivable notes from a business at a discount
Hybrid	A combination of two or more of the above models

Source: Cambridge Center for Alternative Finance, 2018.

other regions: Africa accounts for less than 1 per cent of global crowdfunding activities. Reasons include low internet penetration rates, high internet service cost and weak regulations and standards (Berndt and Mbassana, 2016). Globally, some of the largest crowdfunding platforms are based in the United States (\$6.6 trillion in transactions in 2019) and China (\$1.5 trillion; Statista, 2020b). Crowdfunding in the United States is focused on the two largest platforms, Kickstarter and Indiegogo, which operate independently, while China’s platforms are generally linked to its e-commerce giants (Alibaba’s Taobao, JD and Xioami). Kickstarter is one of the most successful platforms, with more than 189,000 completed projects as of October 2020. Notable national Africa-based crowdfunding platforms include Yomken (Egypt); M-Changa (Kenya); Farmable.me (Ghana); Give (Nigeria) and Akobobo, FundFind and Thundafund (Uganda). Pan-African crowdfunding platforms include HOMESTRINGS, Lelapa and VC4Africa.

Entrepreneurial social capital such as social networks has a significant impact on crowdfunding performance in the United

States and China (Zheng et al., 2014). Furthermore, crowdfunding projects have generally been more successful when they provide an innovative product or service or an alternative solution to an everyday problem. Among some of the most successful crowdfunded projects are games, technology products and services and design projects. These projects are also generally well-marketed, and in many instances their success spreads through word of mouth or shares on social media.

The new role of information technology, changes in consumer behaviour, evolving financial eco-systems and new regulatory regimes are some of the drivers of alternative financing and lending. In Africa, the large and growing youth population, which is faster to adopt fintech technologies than older populations, and rapid smart phone penetration have been contributing factors. However, the growth of the market is inhibited by fraud and lack of trust, weak law enforcement and regulatory shortcomings.

BLOCKCHAIN AND CRYPTOCURRENCY

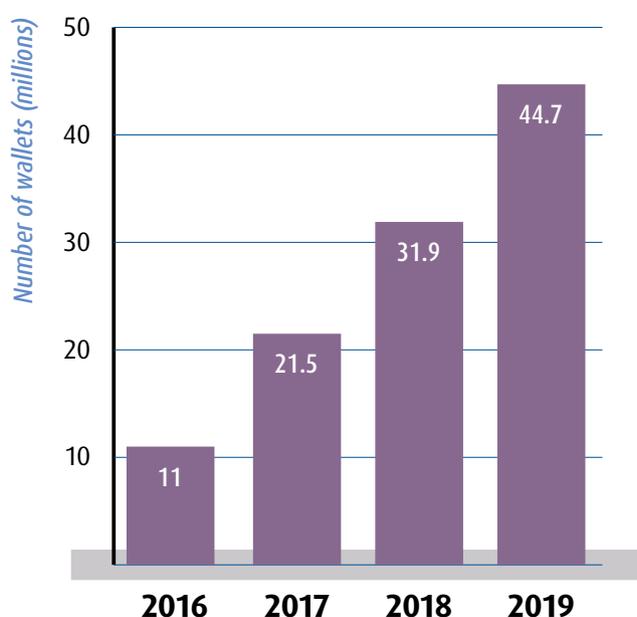
Among the most prominent fintech innovations is blockchain, which has paved the way for cryptocurrencies. Even traditional financial institutions are considering the use of blockchain technology in their operations. One of the biggest hurdles in financial transactions is safeguarding transactions involving fund transfers, which range from credit card purchases to overseas remittances. Blockchain is essentially a public ledger that continually adds transactions that are verified by the network participants in the ledger. The public nature of blockchain means that it is decentralized and thus that data do not reside in a single stored location that is vulnerable to hacking.

A survey by Accenture found that 90 per cent of bank executives are interested in blockchain and its applications in banking (Accenture Mobility, 2016). Many traditional financial

institutions are contemplating the use of blockchain technology to bolster their processes and increase efficiency, particularly in fund transfers, ranging from credit card purchases to overseas transfers. But since blockchain's inception, banks have struggled to take full advantage of it, since its benefits are maximized only when there are enough users to create a network effect.

Even so, blockchain is widely used in cryptocurrency applications, and the number of users has been rising (**FIGURE 6.1**). The top 100 cryptocurrencies together have more than \$169 billion in market capitalization, led by Bitcoin (\$112 billion) and Ethereum (\$14 billion). As of 2019, there were an estimated 44 million blockchain wallet users globally, though estimates vary greatly because some users have more than one blockchain wallet.

FIGURE 6.1 BLOCKCHAIN WALLET USERS HAVE BEEN RISING GLOBALLY, 2016–2019



Source: Statista (2020c).

ELECTRONIC PAYMENTS AND E-COMMERCE

Electronic payments and transfers are financial transactions that take place on digital platforms, including mobile money, and are an important part of the digital economy. Growth in electronic payment systems and platforms has been a major driver of fintech innovation. Electronic payment systems offer fast, convenient, cost-effective and reliable means of making payments and have become the preferred method across the globe. The growth in electronic and digital payments has been driven by the growth of mobile payments (mobile wallets, mobile-based merchant solutions); integrated billing (mobile ordering and payment apps, integrated mobile shopping apps); streamlined payments (geotagging, machine-to-machine payments) and next-generation security (biometrics, tokenization standards). These electronic payment systems capture and store transaction data, which can be used to build the profiles of SMEs, enabling new lending platforms to assess the creditworthiness of SMEs.

Among fintech innovations, mobile money and digital payments are areas where Africa has made significant inroads. Almost half of total global mobile money accounts are in Africa, which had 396 million registered users and 1.4 million agents serving them in 2018. In countries including Kenya and Zimbabwe more than 60 per cent of adults have mobile money accounts, highlighting the importance of mobile money as a financial service that is often a substitute for formal banking (GSM Association, 2020).

As a major component of the digital economy, electronic payment and transfer systems comprise both the firms that host and operate digital platforms for mobile applications and payment services and the produced goods and services embedded in such platforms, which rely on core digital technologies and infrastructures. Electronic payments and transfers provide critical financial services that form an integral part of e-commerce—the sale or purchase of goods or services over computer networks designed for receiving or placing orders.

In 2017, Africa had 21 million online shoppers.

Business-to-consumer e-commerce was worth \$5.7 billion, or 0.5 per cent of GDP, much lower than the global average of 4 per cent (UNCTAD, 2018). Despite this low base, both the number of online shoppers and the value of e-commerce are growing fast. Statista estimates that in 2020 African consumers will spend \$27.6 billion online on major product segments including fashion, electronics, furniture and appliances, toys, and food and personal care. It forecasts that business-to-consumer e-commerce revenue will rise at a compound annual growth rate of 14.2 per cent between 2020 and 2024, reaching \$47 billion by 2024 (Statista, 2020d).

As a result, Africa is now a centre of innovation and experimentation in e-commerce. A 2017 analysis by Disrupt Africa identified 264 e-commerce start-ups active in 23 African markets (Disrupt Africa, 2018). These start-ups enable trade in goods (MallforAfrica, an online marketplace) and services (Vezeeta, a digital healthcare booking platform) and operate either in their home markets alone (Konga in Nigeria) or in multiple markets (Jumia, headquartered in Lagos but operating in 11 African countries). They serve mainly business-to-consumer or business-to-business markets (TABLE 6.3). E-commerce start-ups are not spread evenly across the continent: the vast majority of entrepreneurship teams are based in West Africa (48.1 per cent), Southern Africa (27.3 per cent) and East Africa (18.2 per cent); (Artashyan, 2019). This pattern reflects the preference of businesses to operate close to consumers: more than half of online shoppers in Africa are in just three countries (Kenya, Nigeria and South Africa). Nigeria is the largest e-commerce market in terms of both revenue and number of shoppers (UNCTAD, 2018).

An important subset of cross-border electronic commerce is the digital services trade, sometimes referred to as mode 5. Digital payment platforms have the strongest bearing for digital services trade, since payment transactions are conducted on digital platforms themselves. For example, various services can be sourced via digital platforms (websites, apps, mobile text messaging) and delivered digitally or physically (ECA, 2019).

TABLE 6.3 E-COMMERCE BUSINESS MODELS IN AFRICA

MARKET	GOODS		SERVICES	
	BUSINESS TO CONSUMER	BUSINESS TO BUSINESS	BUSINESS TO CONSUMER	BUSINESS TO BUSINESS
Local	Konga (Nigeria), Takealot (South Africa), Kilimall (Kenya), Jiji (Nigeria)	Twiga Foods (Kenya)	SWVL (Egypt), SweepSouth (South Africa), Gokada (Nigeria), Zezeeta (Egypt)	MaxAB (Egypt), Sendy (Kenya)
Regional	Jumia, MallforAfrica	WasytoCap	GetSmarter, Mubawab	Kobo360

Source: ECA (2020, forthcoming).

The digital payment system in Africa is growing fast, along with e-commerce. Major e-commerce platforms offer multiple payment methods on their websites and apps (TABLE 6.4).

Despite the advance of mobile money, fewer than half of people over age 15 own an account at a financial institution or mobile money operator (Findex Index). Cash on delivery remains the only option for many online shoppers. However, bank and electronic fund transfers through payment gateways, credit and debit cards and mobile/digital wallets are also increasingly used and accepted. Additionally, PayPal is available

on MallforAfrica, a platform that lets African consumers purchase directly from international online retailers in the United States and Europe. In Nigeria, 25 per cent of e-commerce payments are through bank transfers, 24 per cent cash on delivery, 16 per cent credit and debit cards, 10 per cent mobile wallets and the rest other payment methods (African Payment Solutions, 2018). So, while most e-commerce firms operating in Africa are local, a substantial portion of payments processed on these platforms happen on foreign-owned card and payment schemes. This removes the opportunity for African countries to widen their tax base by taxing these

TABLE 6.4 PAYMENT METHODS AVAILABLE ON E-COMMERCE PLATFORMS

PLATFORM	PAYMENT METHODS AVAILABLE
Jumia	<ul style="list-style-type: none"> ▪ Cash on delivery ▪ Credit and debit cards (Visa, Mastercard, Verve) ▪ Mobile money and wallets (JumiaPay, mCash)
Takealot	<ul style="list-style-type: none"> ▪ Cash on delivery ▪ Credit and debit cards (Visa, Mastercard, American Express, Diners Club) ▪ Payment gateways (PayFast, Ozow) ▪ Loyalty programs (eBucks, Discovery Miles) ▪ Non-credit card credit products (Mobicred)
Kilimall	<ul style="list-style-type: none"> ▪ Credit and debit cards (Visa, Mastercard) ▪ Mobile money and wallets (M-Pesa, LipaPay, Airtel Money)
MallforAfrica	<ul style="list-style-type: none"> ▪ Bank transfers ▪ Credit and debit cards (Webcard, Visa, Mastercard, Verve) ▪ Mobile money and wallets (M-Pesa, Orange Money, Paga) ▪ PayPal

Source: Jumia, Takealot, Kilimall, and MallforAfrica websites.

types of transactions, and it widens the digital divide since only a few people are able to use such platforms for payments.

Other private platforms trying to fill the void have included mobile payments applications and tools. Possibly the most important and far-reaching of the fintech revolutions is the migration of banking functions and transactions into the mobile space, anchored by a financial institution's platform or through a telecommunications user account (more common in some African countries). Today, customers in many countries need not head to a physical bank branch to access traditional banking services. In addition to allowing people to access financial services more easily, the migration to mobile and online banking has expanded financial services to people who have long been unserved by financial institutions, whether because they live in an underserved area or because they lack the documentation to open a bank account.

Mobile banking has evolved beyond providing simple transaction services via a mobile or online platform. The rise of e-wallet apps like Venmo and Paypal allows people to send each other money immediately and without a fee, prompting traditional banks in many parts of the world to offer the same service. Traditional banks in Asia, Europe and the Americas are migrating services away from bank branches and now offer remittance services on their mobile banking platforms.

The Development Bank of Singapore is a pioneer in the mobile banking space, encouraging new customers to sign up online and use services via its mobile application without ever having to enter a bank branch office.

As the use of e-wallets has expanded, payment systems have emerged to compete with traditional payment companies. E-wallets offer small and local retailers quick and easy access to payments through credit cards. And as companies adapt to the changing financial landscape, e-wallet apps are becoming more popular, from Starbucks' mobile application to ApplePay and Alipay, which currently has more than a billion users.

Digital payments systems have also emerged to reduce the cost and time associated with cross-border trade. Examples in the private sector include Flutterwave, which connects various types of payments systems (bank transfers, mobile money) to enable cross-border payments. Platforms are emerging for digital-based investments into mutual funds and businesses, which potentially could scale across borders. Mobile money is also partially bridging the digital divide by bringing financial services to those without access to formal banking payment platforms.

In addition to such private endeavours, there have also been regional developments, as described in **BOX 6.1**.

BOX 6.1 REGIONAL DEVELOPMENTS IN E-COMMERCE

To meet cross-border needs for e-commerce, Africa's regional economic communities have been engaged in providing solutions through regional payments systems such as the Common Market for Eastern and Southern Africa (COMESA) Regional Payment and Settlement System, the East African Payments System, and the Southern African Development Community (SADC) Integrated Regional Electronic Settlement System. At a continental level, Afreximbank has been developing a pan-African payments and settlement platform, which is expected to support cross-border payments in which sender and receiver transact in their local currency.

Recognizing the need for continental solutions to digital challenges, in January 2019 the Executive Council of the African Union (AU) directed the African Union Commission (AUC), the United Nations Economic Commission for Africa (ECA) and other stakeholders to develop a comprehensive digital trade and economy strategy. Subsequently, in partnership with the ECA and other institutions, the AUC prepared the Digital Transformation Strategy, which the AU Executive Council adopted in January 2020 (AU, 2020).

The Digital Transformation Strategy seeks to enable African countries to participate in the fourth industrial revolution and facilitate the operationalization of the African Continental Free Trade Area (AfCFTA). Countries are expected to implement the strategy through sectoral implementation plans in such areas as digital trade and digital financial services, which include payments, credit, savings, remittances and insurance. Digital channels identified for financial transactions are the internet, mobile phones, automated teller machines and point of sale terminals, among others.

Facilitating digital trade and finance through supportive infrastructure and platforms is vital to the operationalization of the AfCFTA. The African Trade Observatory of the AU Commission is intended to connect and serve as the interface for national and regional trade portals. Also, the AU Commission and the Universal Postal Union have proposed e-commerce marketplaces to enable cross-border trade.

Cooperation will be essential in multiple areas, including consumer protection, data collection and analysis, taxation and inter-operability of technology systems, to

enable digital work and business and to establish a level playing field for fair competition. Cooperation will ensure that the digital market is aligned with the vision of an integrated continental market. As the Digital Transformation Strategy is implemented, several areas will require regulation to promote cross-border trade in services under the AfCFTA, including taxation, standards, personal data protection, cybersecurity, consumer and worker protection and protection of digital innovations and technology (ECA, 2019). Negotiation of investment, competition and intellectual property rights protocols will be taken up as AfCFTA phase II issues. The development of regulations will need to be aligned with the continental regulations and policies being developed in the context of the Digital Transformation Strategy on aspects such as cybersecurity, privacy and interoperability in order to achieve consistent and integrated frameworks.

INSURANCE

Fintech is also revolutionizing the insurance industry, which suffers from inefficiencies on both the provider and the purchaser sides. Insurance firms spend large sums of money to ensure that the parties they insure offer an appropriate risk, but information asymmetries arise, and insurance firms with lower capabilities struggle to balance the risk and cash flow. For purchasers, information asymmetries may create such inefficiencies as protracted verification periods and denial of insurance to many individuals who may not be true risks, resulting in coverage gaps.

Fintech innovations are enabling insurance companies to use data analytics and artificial intelligence to underwrite insurance products and process claims, for more seamless engagement. New York-based Lemonade, a property and casualty insurance firm valued at \$2 billion in January 2020, uses artificial intelligence to help process its claims. Lemonade leverages behavioural economics to split claims into two groups: those that can be processed automatically and almost immediately, without additional paperwork, and those that require a human decisionmaker. The firm has also introduced a second artificial intelligence routine to tailor and personalize insurance policies within seconds.

In the future, more insurance firms will be adopting fintech innovations to meet customer needs for customization of policies and faster processing of claims. As policies are increasingly personalized, allowing for usage-based insurance to grow, customers will interact more frequently with artificial intelligence and chatbots at all stages.

“Fintech innovations are enabling insurance companies to use data analytics and artificial intelligence to underwrite insurance products and process claims, for more seamless engagement”

FINTECH FOR PRIVATE SECTOR GROWTH

Traditional financial institutions rely on personal trust built over time through longstanding business relationships between banks and customers. Banks accumulate data on transactions and information from different sources, mainly through physical encounters. In the case of SMEs, however, accumulating such information is more costly and therefore unattractive to banks and SME clients, who would have to pay higher costs for services. So, banks have concentrated on larger firms. The emergence of fintech is bridging the resulting financial gap for SMEs, creating opportunities for private sector growth. Fintech and data-driven analysis can inform the creation of risk profiles for SMEs and provide them with access to financial services. Fintech makes data collection and monitoring less costly, and the improved efficiency makes access to finance more inclusive. Moreover, online alternative financing providers use non-traditional information sources to ascertain creditworthiness, to the benefit of SMEs, which rarely have a long credit history.

The emergence of fintech across Africa has opened new avenues of funding for businesses and has led to the emergence of new financial service providers, new financial instruments such as crowdfunding and mobile money services, new currencies such as cryptocurrencies and even new ways of conducting conventional banking such as online banking and electronic payment systems. These changes widen saving, investment and payment avenues for both providers and consumers of financial services.

The African banking sector has developed many innovations to serve its customers, from innovative platforms that reach underserved regions and populations to pioneering credit scoring techniques for customers with little or no conventional banking history. Banks are transforming the way they interact with their customers, offering them digital solutions such as virtual in-branch investment advisors, online and mobile banking products and services, and increased use of social media and data analytics, lowering operational costs (IFC, 2017).

Banks are partnering with telecommunications and fintech companies to reach new customers. For instance, the Commercial Bank of Africa in Kenya partnered with Safaricom to launch M-Shwari in 2012, which combines interest-bearing savings, payment and microloan services. M-Shwari users reached 21 million in 2017, with loan disbursement of 430 billion Kenyan shillings (about \$4.2 billion) since its inception. In 2014 in Nigeria, Diamond Bank partnered with MTN, a South African multinational mobile telecommunications company, to launch Y'ello accounts, a mobile money product, enabling Diamond Bank to reach an additional 12 million customers by 2017. Diamond Bank's financial product offerings include an interest-bearing account, microloans, transfers, deposits, withdrawals and bill payments. These partnerships overcome some of the obstacles that banks face in trying to serve a mass market, such as the cost of deploying an extensive branch network and tellers and the cost of verifying customer information.

The ability of traditional banks to resolve agency problems by establishing close ties with smaller businesses makes it appropriate for them to adopt relationship lending to promote innovative financing for SMEs. According to a survey by McKinsey & Company (2018), African banks have implemented a wide range of innovations for managing credit risk, including advanced analytics and the use of non-bank data. Some banks use social media and telecommunications data in their underwriting. For instance, the Commercial Bank of Africa, Equity Bank and Kenya Commercial Bank have partnered with a telecommunications company to use borrower's mobile data, voice services and mobile money usage data as indicators of their income and ability to repay a loan. By turning to fintech companies, banks were able to digitalize and improve their delivery of financial services. And by providing cheaper and more accessible products and more flexible services tailored to consumer behavioural data, fintech companies are expanding their customer base. Fintech market penetration thus brings easier access to innovative products for savings, insurance, credit and payment transactions to more businesses and large segments of the population.

Fintech has the potential to overcome some of the financial constraints faced by SMEs as a consequence of the complexity of SME financing. In developed economies, the emergence of marketplace lending has increased the participation of institutional investors, creating opportunities to link marketplace lending to capital markets through secondary markets and securitization of loan portfolios. Fintech, including data analytics, is closing the financing gap in the SME sector through innovation in credit appraisal, underwriting, origination and servicing (OECD, 2019).

In Africa, mobile money offers an inclusive and innovative way of banking for SMEs. The mobile money platform M-Pesa has made significant strides in extending finance to women entrepreneurs. Before the advent of M-Pesa, women in rural Kenya needed their husband's consent to open a bank account for themselves and their business (Morawczynski, 2009). M-Pesa has also brought insurance products to smaller-scale farmers in Kenya. Salama, a micro-insurance product, employed M-Pesa to compensate insured small-scale farmers whose crops had failed (Sen and Choudhary, 2011).

Leveraging mobile technology reduces information asymmetries and transaction costs significantly, making it easier to extend credit to small businesses. For example, MTN Ghana,

in partnership with Afb Ghana, launched MTN Owikloan, an innovative financial product that has enabled thousands of small enterprises to access microloans with minimal documentation. **BOX 6.2** gives other examples in Africa of the use of new technologies in the banking sector.

Advanced data-sharing technologies are ushering in a new era in banking called open banking, which promotes competition in the payments and banking industry. Banks transmit customers' transaction data and access to customer accounts to third-party providers, enabling them to make payments on their customers' behalf. Open banking allows the provision of a much richer range of financial services and products. Open banking began in the United Kingdom in 2016, with the nine leading financial institutions developing standardized software to allow customers to securely share data with potential providers of payment and credit services.

To support the growth and spread of open banking, firms and regulators must do more to raise consumer awareness and enable services to reach scale. The creation of a safe and fully functioning cross-industry data-sharing system will take even longer. Although no African country has implemented a regime for open banking, Kenya, Rwanda and South Africa are leading in developing the necessary regulatory frameworks.

BOX 6.2 EXAMPLES OF INNOVATION IN THE AFRICAN BANKING SECTOR

STANDARD BANK OF SOUTH AFRICA

One of the most innovative banks in Africa, Standard Bank extends best-in-class banking technology throughout the continent. Pilot projects have automated several processes, including reporting foreign exchange transactions to the central bank and performing large parts of the extension of credit to existing business clients.

STANBIC BANK UGANDA

With a new holding company structure, Stanbic Bank will have more flexibility in generating non-banking revenue, forming partnerships with emerging fintech companies and optimizing its real estate holdings. The bank operates a business incubator for micro, small and medium-size enterprises that has graduated some 500 entrepreneurs.

ECOBANK GAMBIA

In partnership with retail agencies across the country, Ecobank Gambia has extended services to remote areas of the country. Ecobank's agency banking system enables its customers to deposit or withdraw funds from its accredited agents in their communities. In Togo and elsewhere, Ecobank Omni is an online platform offering a suite of online cash management solutions for corporate clients.

Source: ECA, based on compilation from <https://www.gfmag.com/magazine/may-2019/best-banks-africa-2019>.

CONCLUSION

Financial technology will continue to play a large role as financial institutions and start-ups seek to ease some of the constraints of the financial services sector. Particularly in Africa, where so many people remain unbanked and transaction fees are high for many services, fintech can provide alternatives and revolutionize how people and companies access banking.

Crowdfunding, already popular in emerging market economies, will likely continue to expand in Africa. Further development of the platforms will open pathways for investors from around the world to participate in fundraising for innovative ideas and projects. As blockchain becomes mainstream, traditional financial institutions will be able to enhance the speed and security with which they process transactions and transfer funds across borders.

Africa can deepen and broaden financial markets by supporting the digital payment systems and platforms that underlie electronic payments and transfers through two important continental integration initiatives: the Digital Transformation Strategy and the AfCFTA. Both initiatives promise to streamline policies and regulations on critical aspects of digital

payment systems and platforms and to further open markets to e-commerce, the reason for digital electronic payments and transfers.

As more finance apps are launched for investing and budgeting, financial services will reach new segments of the population, deepening and broadening underdeveloped capital markets in many African countries. The expansion of mobile banking and mobile transactions to difficult-to-reach regions of the continent will provide services to the previously unbanked and integrate them into the formal economy.

Education and telecommunications infrastructure remain critical to greater financial inclusion in Africa. Higher literacy and educational attainment rates will make participation in the financial system easier and more attractive, increasing demand for more variety in financial services. This demand will open space for new entrants and products in the financial services industry. Meanwhile, better connectivity will promote the extension of banking services on mobile and electronic platforms. Africa can leverage current knowledge and development to advance its financial services sector and connect ever-more savers and borrowers.

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