



POLICY BRIEF

FINTECH AND DIGITAL FINANCE FOR FINANCIAL INCLUSION

DEFINING FINTECH / DIGITAL FINANCE

The world is experiencing unprecedented increases in connectivity and global data flows. This is underpinning the so-called fourth industrial revolution, which is characterized by end-to-end digitization of all assets and integration into a digital ecosystem.

Financial technology (fintech) refers to broad range of technological innovations in the financial sector that enhance or change the way financial services are provided (Philippon, 2016). The innovations typically include crowd-funding, insurance, budgeting software, blockchain (and cryptocurrencies), electronic payments and transfers, and robo-advisors and trading applications, helping to reduce costs and risks, as well as extending and broadening services to unbanked populations.

A new financial industry that uses technology to improve the delivery of financial services, fintech is utilized to help businesses and consumers better manage their financial operations, processes, and lives through specialized software and algorithms and has use-cases across nearly every industry, geographical market and business model.

- ⇒ **Banks:** use fintech for both back-end processes and consumer-facing solutions such as behind-the-scenes monitoring of account activity and checking account balances on customer apps.
- ⇒ **Businesses:** rely upon fintech for payments processing, e-commerce transactions and accounting as well as seeking assistance with government assistance programs like the Payroll Protection Program.
- ⇒ **Individuals:** use fintech platforms for tasks such as depositing checks, accessing money overseas or applying for financial aid as well as more intricate concepts like peer-to-peer lending or crypto exchanges.

Digital finance refers to the delivery of traditional financial services digitally, through devices such as computers, tablets and smartphones. Digital finance has the potential to make financial services accessible to underserved populations in areas that lack financial infrastructure and offer wider choice and increasing efficiency of operations – provided that such populations also have access to the required digital technologies.

Digital financial services are financial services (e.g., payments, remittances, and credit) accessed and delivered through digital channels, including via mobile devices. These technological opportunities have proven extremely valuable, particularly during health-related crises¹, and certainly more so at times of the COVID-19 pandemic.

Fintech has disrupted traditional banking. There is a new generation of consumers who are always online, to undertake the range of services including managing payments, money transfers, loans, fundraising and even asset management through mobiles gadgets, which has created new markets, new jobs, and new services, all delivered digitally. Banks are running fintech programmes to capture this new wave of financial innovation.

OPPORTUNITIES FOR FINTECH

Businesses of all sizes can gain from adopting fintech in a variety of ways:

- ⇒ Firms can save 25 billion hours of labour by switching from cash to digital payments for example around 800 working days per month were saved by the Ebola response workforce, helping them save lives during the pandemic in Sierra Leone.
- ⇒ Digital payments create a data trail allowing ready access to sales records, better inventory management and enables lenders to assess the creditworthiness of even micro-enterprises offering alternative data sources for credit scoring.

Financial service providers also have a big opportunity from fintech:

- ⇒ They can cut costs by up to \$400 billion annually by adopting digital strategies.
- ⇒ Financial services companies can also expand their customer base at relatively low cost to collect more than \$4 trillion in new deposits—money that can be converted into loans, adding more activity and liquidity to the economy. The case of agent banking.

Governments experience many benefits from adopting fintech in their operations:

- ⇒ Digital payments can improve government finances by reducing opportunities for corruption, targeting

spending more precisely, and improving tax collection equating to a gain of \$110 billion per year by digitizing payments, Sierra Leone made cost savings of up to US \$10.7– an equivalent of funding Sierra Leone’s Free Health Care Program catering for 1.4 million children and 250,000 pregnant women annually².

- ⇒ Key government services such as education and healthcare can also be improved through fintech.
 - ➔ For example, Côte d’Ivoire in 2011 introduced mobile money payments for school fees. By 2014, nearly all school fees were paid digitally, and parents no longer had to worry about corruption – with more money making it into school budgets. Mobile money providers got new transactions, plus fees from the government. The education ministry saved money and gathered more and better student information.

Yet, it is important to acknowledge threats. While firms can save billion hours of labour by adopting fintech, this can potentially result in unemployment incase displaced labour is not able to find occupation elsewhere. Illegal activities may tap into fintech’s potential as moving “dirty money” and cyber-crime could be made easier. Also, the lack of mass financial literacy, may perpetuate fraud and indebtedness by unaware consumer. Its therefore important for governments, the private sector, and international organizations to work together to develop policy frameworks, infrastructure and operating guidelines for digital financial services.

TRENDS AND PATTERNS IN THE EVOLUTION OF FINTECH/DIGITAL FINANCE

For more than half a century, the U.S. was the center of global innovation for financial technology, inventing credit cards, ATMs, and online banking (Harvard Business Review, 2021). Now, however, it’s falling behind, as China has become a leader of mobile payments. Africa is a region that deserves special attention, considering it still has scope for development and this can be pushed by the opportunities that Fintech offers. East African countries, for example, are making huge strides with familiar technologies such as mobile phones and SMS-style messaging, and rapidly expanding the circle of financial inclusion. Fintech is observed to have evolved along four periods, commencing in the 1800s, to date.

Table 1: Evolution of Fintech

	FINTECH 1.0	FINTECH 2.0	FINTECH 3.0	FINTECH 3.5
Geography	Global/Developed	Global/Developed	Developed	Developing
Key Elements	Infrastructure/Computerization	Internet Services	Mobile Platforms	Mobile Platforms
Market Development	Improve Linkages	Digitalization	Smartphone	Last Mover Advantage

Source: The Evolution of Fintech: A New Post-Crisis Paradigm?, 2015 www.researchgate.net/publication/313365410_The_Evolution_of_Fintech_A_New_Post-Crisis_Paradigm

FINTECH 1.0 (1886-1967) – INFRASTRUCTURE

This era started with technologies such as the telegraph, railroads and steamships that allowed for the first time, rapid transmission of financial information across borders.

Key events in this period included:

- ⇒ **The Transatlantic cable (1866)** – providing near instant communication between Europe and America.
- ⇒ **Fedwire in the USA (1918)** – the first electronic fund transfer system which relied on technologies such as the telegraph and Morse code.
- ⇒ **Credit Cards (1950s)** – helping ease the burden of carrying cash. Diner’s Club credit card introduced to the US market in 1950.

FINTECH 2.0 (1967-2008) – FINANCIAL INSTITUTIONS

The second Fintech era marks the shift from analog to digital and was led by traditional financial institutions. The launch of the first handheld calculator and first ATM installed by Barclays bank marked the beginning of the period in 1967.

- ⇒ The early 1970s saw significant fintech developments such as the establishment of NASDAQ, the world’s first digital stock exchange. Furthermore, the establishment of SWIFT (Society for Worldwide Interbank Financial Telecommunications) in 1973 created a communication protocol between financial institutions helping facilitate large volumes of cross border payments.
- ⇒ During the 1980s and 1990s, the use of bank main-frame computers helped facilitate online banking and the e-commerce business model, bringing about a shift in how money is perceived and the relationship between people and financial institutions.
- ⇒ At the beginning of the 21st century, banks had fully digitised their internal processes, interactions with outsiders and retail customers.

FINTECH 3.0 (2008-CURRENT) – START-UPS

The Global Financial Crisis in 2008 caused significant public distrust of the traditional banking system. This led to the emergence of new companies seeking to disrupt and upend the market position of existing financial institutions.

- ⇒ The creation of Bitcoin in 2009 signalled a major impact on the financial sector and paved the way for the launch of the new asset class of cryptocurrencies with uses such as facilitating online payments to trading unique digital assets.
- ⇒ The mass-market adoption of internet-enabled smartphones also helped facilitate new technologies allowing people to use their phones for transactions such as Google Wallet (2011) and Apple Pay (2014).

FINTECH 3.5 - FINTECH IN EMERGING MARKETS

The use of smartphones has signaled a change in consumer behavior with internet access being the main division between consumers in developed and developing markets. As such, Fintech 3.5 can be used to explain fintech developments across developing countries. Due to not having had the time to adopt legacy financial infrastructure seen in western countries, many developing nations have significant fintech market penetration with China (69 per cent) and India (52 per cent) recording the highest levels of fintech usage, well above the global average of 33 per cent (Figure 1).

Figure 1: Global Fintech Adoption Rates



Source: Authors, adopted from e-zigurat.com

THE STATUS OF FINTECH TODAY

Fintech was one of the most explosive fields of the past decade. Venture capitalists, traditional finance firms, govern-

ments, and even the average smartphone user each had a hand in the massive acceleration of its growth. The IMF cited estimates of over \$50 billion invested in the field during the first half of the 2010s, with triple-digit year-over-year growth being the norm.

Despite their common depiction as competitors, banks and fintech start-ups will need to cooperate in the future to enhance the adoption of fintech products and services.

There exists a symbiotic relationship between fintech start-ups and banks, with the former having taken funding from banks and often relying on banking, insurance, and back-office partnerships to deliver their core products. Meanwhile, banks have acquired/invested in fintech start-ups to leverage new technology to upgrade their existing operations and offerings.

Unlike previous waves, which had relied on technologies at the forefront of their times, the African Fintech wave is being built on mobile phones, whose adoption in the continent accelerated around the turn of the millennium.

TYPES OF FINTECH

BLOCKCHAIN AND CRYPTOCURRENCY:

Among the most prominent fintech innovations is blockchain, which has paved the way for cryptocurrencies. 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 data do not reside in a single stored location that is vulnerable to hacking. Many traditional financial institutions are contemplating the use of blockchain technology to bolster their processes and increase efficiency, but 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.

- ⇒ Cryptocurrency exchanges including Coinbase and Gemini, which connect users to buying or selling cryptocurrencies like Bitcoin, are a hallmark example of fintech in action.
- ⇒ Blockchain services including BlockVerify help reduce fraud by keeping provenance data on the blockchain.

It is however important to note the impact of cryptocurrencies on traditional banking. On the one hand, the exclusive right to issue (and/or regulate) money has almost always been a prerogative of central banks (somehow backed by governments, depending on the specific institutional set up) with commercial banks creating money (mainly M1 to M3) but acting within a legal framework and under the control of central banks. On the other hand, cryptocurrencies have the

potential to shift monetary sovereignty from states to private entities that are not being so clearly defined.

ELECTRONIC PAYMENTS AND E-COMMERCE:

Among fintech innovations are mobile money and digital payments. Everyone with a smartphone could send payments in a global mobile payment market recording over \$1 trillion in 2019. Payment apps such as Venmo use technology to allow consumers to exchange money on mobile devices.

The value of payments associated with digital commerce in Emerging markets and developing economies, rose from \$1.2 trillion in 2017 to \$1.3 trillion in 2018 and reached \$1.5 trillion in 2019—an increase of approximately 8 per cent and 15 per cent, respectively.

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 2017, Africa had 21 million online shoppers, and business-to-consumer e-commerce was worth \$5.7 billion, or 0.5 per cent of GDP – value which is still much lower than the global average of 4 per cent (UNECA, 2020).

The use of mobile money has grown exponentially over the past 10 years, making Africa the global leader in mobile money innovation, adoption, and usage. M-Pesa services are now offered in countries as diverse as Albania, D.R. Congo, Egypt, Ghana, India, Kenya, Lesotho, Mozambique, Romania, and Tanzania. Prospective agreements with MTN Group will allow both Orange Money and M-Pesa services to cover an even larger number of countries across Africa.

Sub-Saharan Africa is the only region in the world where close to 10 per cent of GDP in transactions occur through mobile money. This compares with just 7 per cent of GDP in Asia and less than 2 per cent of GDP in other regions.

INSURANCE:

Fintech innovations are enabling insurance companies to use data analytics and artificial intelligence to underwrite insurance products and process claims, for more seamless engagement. Insurtech platforms cover everything from car insurance to home insurance and data protection. Insurance startup Oscar Health secured \$165 million in funding in March 2020 - at a \$3.2 billion valuation.

From a regional integration standpoint, 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.

INVESTMENTS:

Fintech platforms are enabling retail investors to access more opportunities for investment both within their domestic markets and abroad. One of the most popular innovations in the fintech space has been the development of stock-trading apps where individuals can buy and sell stocks at the tap of a finger on their mobile device. Robo-advising, for example, has disrupted the asset management sector by providing

Box 1: Examples of Fintech Companies

Affirm: Affirm seeks to cut credit card companies out of the online shopping process by offering a way for consumers to secure immediate, short-term loans for purchases. While rates can be high, Affirm offers credit services to poor quality borrowers and a way for consumers to build their credit histories.

Better Mortgage: Better Mortgage seeks to streamline the home mortgage process and bypass traditional mortgage brokers with a digital platform providing a verified mortgage pre-approval letter within 24 hours of applying.

GreenSky: GreenSky links home improvement borrowers with banks, helping consumers avoid entrenched lenders and save on interest by offering zero-interest promotional periods.

Tala: For consumers with no or poor credit, Tala offers microloans to poor credit quality consumers in the developing world by analyzing data on their smartphones for their transaction history and other factors such as what mobile games they play. Tala provides consumers better options than local banks, unregulated lenders and other microfinance institutions.

Upstart: Loan originator Upstart wants to bypass FICO credit rating by using different data sets to determine creditworthiness including employment history, education, and whether a would-be borrower knows their credit score to decide on whether to underwrite and how to price loans.

Ellevest: Ellevest is a digital platform to address the fact that women live longer with unique savings requirements, tend to earn less than men and have different salary curves which leave less time for savings to grow.

Zoona: a money transfer business operating in Zambia and Malawi.

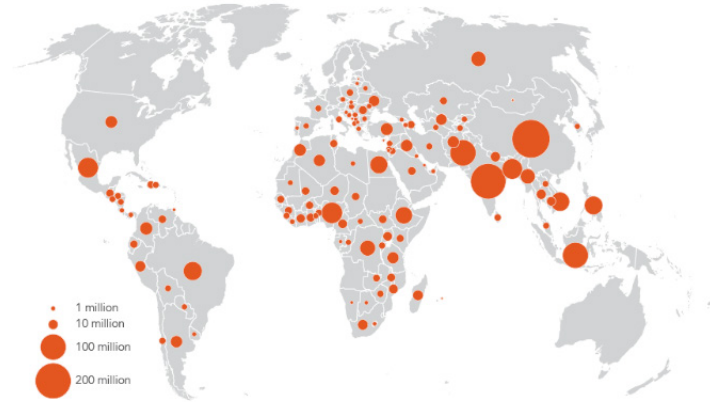
Rainfin: a Cape Town-based lending platform focusing on SMEs.

Live Stock Wealth: also from South Africa, allows customers to invest in cattle and get a return on their investment by selling the offspring.

Source: Authors, adopted from Deloitte, 2020.

Figure 2: Account access varies dramatically according to location and gender.

Globally, 1.7 billion adults lack an account
Adults without an account (%), 2017



Source: Global Findex database.

Note: Data are not displayed for economies where the share of adults without an account is 5 per cent or less

Source: Authors with data, and adapted from World Bank Global Findex Database 2017.

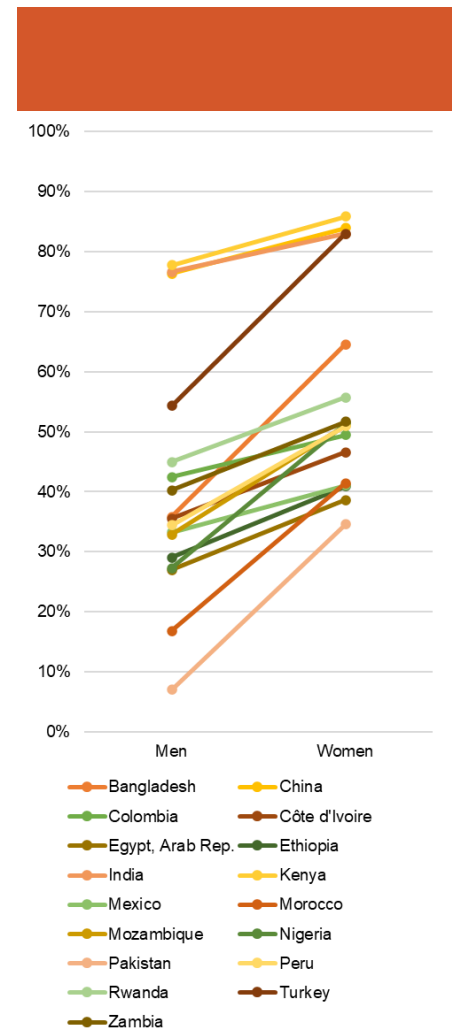
algorithm-based asset recommendations and portfolio management services that increase efficiency and lower costs. These new platforms have emerged which have opened up the possibilities for users around the world to purchase and hold securities, mostly in advanced markets. Although this has the potential to improve the effectiveness and efficiency of investment and provide safe assets to investors with fragile domestic markets, it has also put financial markets in developing countries in direct competition with those in advanced economies. This will have implications for financial sector development in developing countries.

BUDGETING APPS

Budgeting apps allow consumers to efficiently keep track of their income, expenses and revolutionize the way consumers think about their money such as Mint.

FINTECH AND FINANCIAL INCLUSION

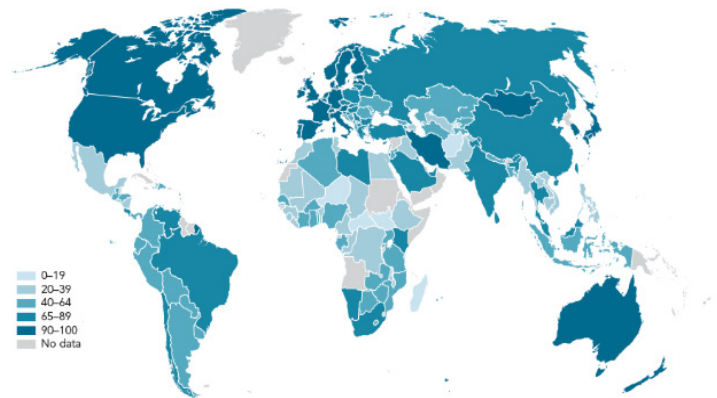
A significant share of the world's population remains unbanked, disproportionately affecting women and youth (UNDESA, 2021). A total of 1.7 billion adults (or 31 per cent globally) do not have access to a bank account, with inclusion strongly influenced by wealth and income disparities. In higher-income countries, 94 per cent of adults have a bank account, while in developing countries only 63 per cent do. The gender gap also remains considerable: While 72 per cent of adult men globally have a bank account, only 65 per cent of women do; and almost half of the world's young people (aged from 15 to 24) do not have access to formal financial services. Additionally, small- and medium-sized enterprises (SMEs) (95 per cent of companies worldwide) provide employment to more than 60 per cent of workers, yet struggle to access finance (IMF, 2020a).



Source: Global Findex database.

Source: Authors with data, and adapted from World Bank Global Findex Database 2017.

Today, 69 per cent of adults around the world have an account
Adults with an account (%), 2017

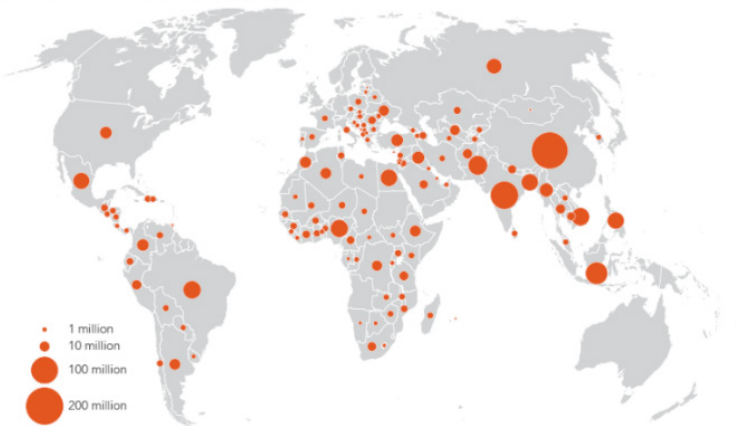


Source: Global Findex database.

Source: Authors with data, and adapted from World Bank Global Findex Database 2017.

Figure 3: Bank account access is largely concentrated in developed markets

Two-thirds of unbanked adults have a mobile phone
Adults without an account owning a mobile phone, 2017



Source: Global Findex database; Gallup World Poll 2017.
Note: Data are not displayed for economies where the share of adults without an account is 5 per cent or less.
Source: World Bank Global Findex Database 2017

However, in the last two decades the availability and affordability of mobile phone access has increased significantly. Mobile cellular subscriptions have³ increased globally from 12 per 100 people in 2000 to 109 per 100 people in 2019, with over 90 per cent of the world now covered by at least 3G services⁴. In this environment, fintech (technological innovation in the financial sector) is creating significant opportunities.

Fintech firms target areas in the financial sector where traditional institutions are not providing services or are providing them poorly, perhaps due to regulatory challenges. This is especially so during this digital age, when financial services can be digitalized, with fintech improving speed, efficiency and operating costs, helping to democratize and reduce information asymmetries in financial markets.

Fintech lowers the cost of providing financial services, with digital accounts costing as little as \$10 annually per customer, 90 per cent less than conventional bank accounts,

making it profitable to provide accounts for over 1.6 billion low-income individuals and businesses across developing countries, more than half being women. Fintech companies can then loan out the new balances providing up to \$2.1 trillion in capital for individuals and micro, small and mid-sized businesses. Improving access to financial services could add \$3.7 trillion to the GDP of emerging economies by 2025 and create up to 95 million new jobs with lowest-income countries adding as much as 10-12 per cent to their GDP.

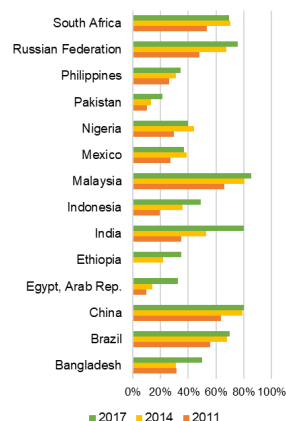
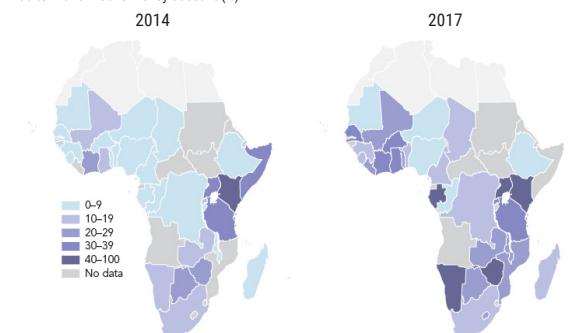
Fintech developments have been fueled by breakthroughs in mobile networks, big data, trust management, mobile embedded systems, cloud computing and data analytic techniques (Gai, Qiu and Sun, 2018). By leveraging mobile technology, they can significantly reduce financial market imperfections associated with banking for microenterprises (such as information asymmetries and transaction costs), making it easier to extend credit to the previously unbanked.

Financial inclusion, resulting from digital financial services can boost economic growth as more players are integrated into the economic system. For poor people, especially women, access to and use of basic financial services can raise incomes, increase resilience, and improve their lives. Governments can tax and redistribute revenues more efficiently and transparently. Fintech financing has increased, helping to maintain economic activity during the COVID-19 pandemic.

A study (IMF, 2020) finds that digital finance is increasing financial inclusion and is associated with higher GDP growth. Digital finance is increasing financial inclusion, complementing or substituting traditional finance. While digital financial services are still small relative to traditional services, they are growing rapidly and at varying speed across regions and countries. In the 52 countries covered in the study, digital financial inclusion increased between 2014 and 2017, even where traditional financial inclusion was stalling or declining. Digital financial inclusion is evolving from “spend” to “lend,” and tends to fill a gap: both pay-

Figure 4: Mobile Money Account Usage Across Sub-Saharan Africa and other Developing Countries

Mobile money accounts have spread more widely in Sub-Saharan Africa since 2014
Adults with a mobile money account (%)



Source: Authors with data, and adapted from World Bank Global Findex Database 2017

ments and lending develop where the traditional delivery of financial services is less present.

Africa and Asia lead digital financial inclusion, but with significant variation across countries. In Africa, Ghana, Kenya, and Uganda are front runners. In comparison, the Middle East and Latin America tend to use digital financial services more moderately. In some countries, such as Chile and Panama, this likely reflects a relatively higher level of bank penetration.

Africa and Asia have seen the largest increase in digital payments, with East Africa, China, and India taking the lead (IMF 2020). In Africa, fintech has taken the form of mobile money—impressively cutting the cost of sending remittances by 50 per cent (GSMA 2016, using the World Bank's Remittance Prices Worldwide database). It originated in Kenya and is rapidly expanding to the rest of the continent (Box 2). In China and India, online payments and messaging apps prompted the development of fintech services. In all cases, the development of digital money was spurred by systemic

actors, such as M-Pesa in Kenya, Alipay and Wechat Pay in China, and Paytm in India. As Figure 2 indicates, mobile phone ownership is widespread among both men and women, even though it is less for the latter.

In most countries digital payments services are evolving into digital lending, as companies accumulate users' data and develop new ways to use it for credit worthiness analysis. Marketplace lending, which uses digital platforms to directly connect lenders to borrowers doubled in value from 2015 to 2017. While so far concentrated in China, the United Kingdom, and the United States, it appears to be growing in other parts of the world, such as in Kenya and India.

The value of mobile money transaction now constitutes a substantial part of the financial system. eMoney accounts are not only growing much more rapidly in low- and middle-income countries than in the rich ones but are now also more numerous. Africa (Figure 5), in particular, is leading the way.

Box 2: Fintech in Kenya

Kenya has seen skyrocketing mobile penetration rates, with subscriptions surpassing the total population amount by 12 per cent, and fintech innovations have followed Kenya houses in about 150 fintech companies. Market leader, M-Pesa, which contributed 5 per cent of the country's GDP, was formed in 2007 and currently has a market share of about 65 per cent. M-Pesa money transfer service, functions much like a limited mobile bank but without the need for an Internet connection. M-Pesa combines Safaricom's mobile infrastructure with an agent model; Safaricom stores their balance and customers can go to one of 110,000 agents throughout the country to conduct transactions in person. The whole system runs on technology similar to text messaging and has expanded to seven countries.

Equitel, with a 22 per cent share of the Kenyan fintech market, a mobile virtual network operator competing with Safaricom's M-Pesa, is pushing boundaries for financial inclusion even further by offering a full suite of banking services on mobile devices. Conceived equally through ingenuity and necessity, Equitel is a new type of hybrid firm: a telecommunications company born from a bank. Parent company Equity Bank collaborated with international telco Airtel to give users a product coming from two longstanding companies. It sent agents throughout the country, even to remote areas where other banks and telcos had not ventured, to demonstrate usage. Equitel grew to capture 22 per cent of the mobile money market in just five years through this locally-focused strategy.

These companies have vastly expanded financial inclusion in the country. In 2017, Kenya became the first country in the world to sell government bonds via a mobile app (M-Akiba). Between 2015 and 2019, Kenya has recorded year on year growth in mobile money transactions. While financial inclusion in Kenya was at just 26 per cent in 2006, today 83 per cent of the population has access to at least basic financial services, according to the 2019 FinAccess Household Survey. Besides simply becoming exports, these innovations have become models for other African countries. Twenty-four countries have committed to a Digital Economy Blueprint following Kenya's example. Results are spreading – the GSMA estimates that West Africa's mobile penetration has doubled over the past decade, with mobile payments and banking driving development in its 15 member states. By the end of 2018, the region saw an increase of 23 million mobile money accounts from the previous year. Women, the rural poor, and the displaced are especially benefiting by the use of FinTech as their gateway toward empowerment.

Major lessons emerge:

i) **Bundled and personalized feature delivery:** Equity Bank shot ahead of competitors, from 66th to 2nd, due to its one-stop shop appeal. That consumers prefer the lower search and implementation costs related to bundled services is not specific to the African market – in the U.S., over 50 per cent of product searches start on Amazon, where 44 per cent of all online purchases occur. The trend toward universal solutions extends as much to fintech as it does to retail.

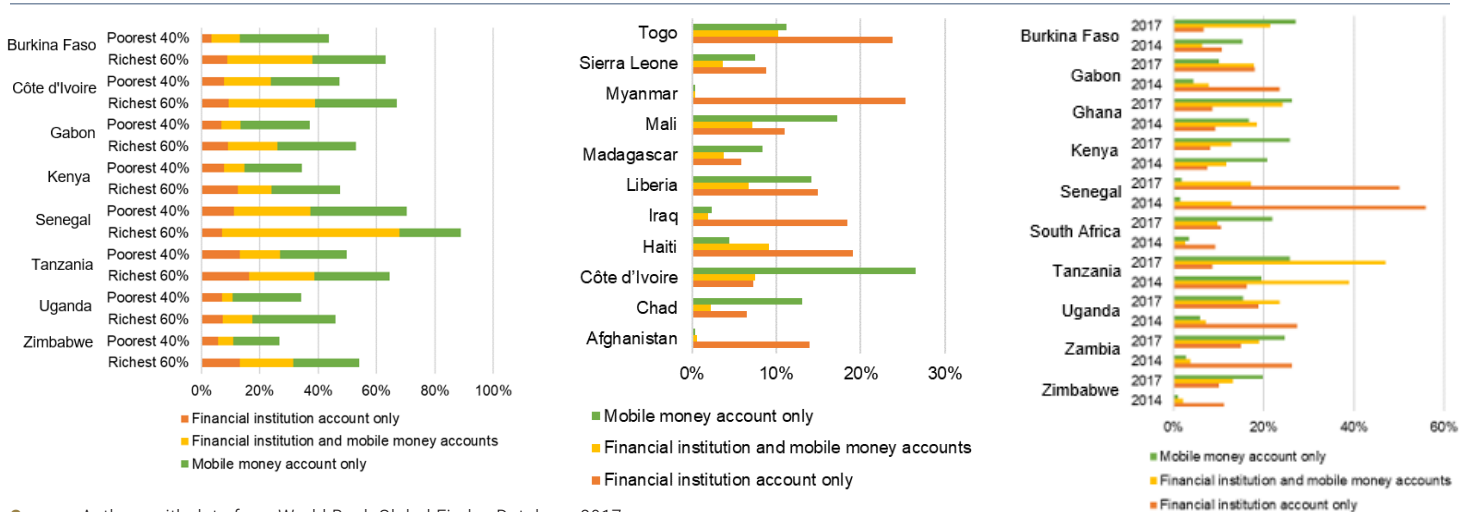
ii) **Finance is about trust:** Young fintech firms, have combined trusted and emerging brands. Kenya favored a telecom led regulatory model. Telcos work with financial regulators to build financial instruments for the populace. These telcos have large market shares and allow most payment users to operate on a single platform. Traditional brands with many years of working with their consumers have a great opportunity to offer financial services in the financial space to their clients. As a result, Kenya's fintech success is based on the citizens' deep trust in its telco-fintech hubs. Equitel, a hybrid firm, was able to flourish by borrowing consumer trust from the long-established brands Equity Bank and Airtel.

iii) **Technology enablers:** These are often salvaged from dying or outdated models. For example, Safaricom's use of in-person and widely spread agents to kick start M-Pesa ended up being the product's key multiplier, alongside financial literacy. Telcos also have broader agent networks; in Kenya, there are about 700 mobile money agents per 100,000 people, compared to nine ATMs and five bank branches per 100,000 people. Telcos manage the mobile network infrastructure.

iv) **Enabling environment:** Kenya's business and regulatory environment has enabled fintech to thrive in Kenya's 60 million market. Kenya is in the process of introducing a regulatory fintech sandbox which sets the conditions for early stage fintech regulation. The Capital Markets Authority (CMA) will use the sandbox to create a conducive environment to unlock the potential of the fintech space.

Source: Authors, adapted from Harvard Business Review, 2021; African Business, 2020.

Figure 5: Fintech in general, or in terms of the potential inequality it can generate and increase financial inclusion and account ownership in LDCs.



Source: Authors with data from World Bank Global Findex Database 2017

Transactions in Cambodia, Ghana, and Zimbabwe, are seen reaching more than 75 percent of GDP in 2018 (IMF 2020a).

The global fintech revolution is expected to triple access to financial services in Africa for example, creating a new market of 350 million customers. 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-size enterprises.

Two key fintech activities, crowdfunding and crowd-investing, grew from 2017 to 2019 and are projected to keep growing from 2020 to 2023 (UNECA, 2020). Crowdfunding platforms including Kickstarter, Patreon, GoFundMe allow internet and app users to send or receive money from others on the platform helping individuals or businesses to pool funding from a variety of sources, all in the same place. Instead of having to go to a traditional bank for a loan, it is now possible to go straight to fans/investors for support of a project or company.

The amount of capital raised in Africa using crowdfunding platforms grew at an average annual rate of 38 per cent from 2013 to 2015, 118 per cent from 2015 to 2016, is estimated to have doubled from 2017 to 2020 and is projected to grow by 13.6 per cent a year from 2020 to 2023 (UNECA, 2020).

Crowdfunding is currently more prominent than crowd-investing in Africa. Crowdfunding raises funds by asking a large number of people to fund a project through an online platform. Donation based and reward-based crowdfunding are non-investment-based funding because no financial return is expected. Out of the 57 crowdfunding platforms operating in Africa, 21 are based in South Africa and 9 in Nigeria. 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.

The fintech market also includes bank-independent loan allocation for Micro, small and medium-size enterprises (crowdlending) and for personal loans to freelancers and private borrowers (marketplace lending, also known as peer-to-peer lending) through private or institutional investors using online platforms, such as OnDeck, LendingClub and Prosper. In Africa, crowdlending for businesses rose from \$278 million in 2017 to \$417 million in 2019 (UNECA, 2020).

From a sectoral standpoint, fintech opens the possibility for capital ownership and economic inclusion for smallholder farmers in rural areas and overall, in agriculture, with is key to avoid a more significant technological divide. In many low- and middle-income countries, the manufacturing, agrifood and service sectors are themselves undergoing capital intensification through the adoption of information technologies (robotics, digitalization and artificial intelligence) that reduce the need for workers. Participation in capital ownership through cooperatives or company stocks is required⁵. Increasing capital intensity in the downstream segments of food value chains limits labour demand in processing and distribution. In addition, the mechanization/digitalization of primary production lowers profits for farmers who do not or cannot appropriate new capital assets. Young farmers, possibly more inclined to adopting digital technologies and other innovations, can increase their capital ownership only if they have access to finance, training and capacity development⁶. Fintech can support this; although it will be critical to build human capacity, including investments to scale digital skills, particularly to absorb displaced labour and promote adoption⁷. And although “big data” applications can be highly beneficial in the agriculture and food sectors, new and emerging issues of data ownership, concentration, control and privacy must be addressed⁸ through fintech governance.

EMERGING LESSONS FOR SCALING UP FINTECH/DIGITAL FINANCING OPPORTUNITIES

A. ENTREPRENEURSHIP

Delivery of digital financial services is evolving with various models of interaction between incumbents and disruptors. Fintech companies are frequently at the source of the innovation.

Entrepreneurs have been at the forefront of innovating enabling technologies that can meet consumer needs, usually armed with expertise in data analysis, programming, user-interface design, and development speed. Through fintech, the entrepreneurs aim to enhance cheap, instant and widely accessible financial services. Entrepreneurs continue to innovate in key areas of financial inclusion, including lowering fees and increasing limits on mobile money transactions.

Entrepreneurship remains central for innovation as there exists huge potential in holistic financial services that integrate consumers' financial needs and behaviors, such as healthcare. Integrating payments and other financial products into health services requires government authorities to modernize existing patient data laws whilst respecting privacy concerns. Additionally, partnering with nonfinancial services firms, such as retailers in the "tailfin" space, could have potential such as the innovative partnership between Walmart and PayPal.

Fintech entrepreneurs have learned to: i) bundle services (e.g. banking and cellular as one offering); ii) enhance trust in financial services, and trusted companies can lend their credibility to newcomers with promising offerings; iii) work with technology that can enable mass adoption or expansion even if it may be old and not cutting edge. However, continuous experimentation with innovations is making the difference.

B. IMPORTANCE OF DIGITAL INFRASTRUCTURE

Technology and service providers have driven the fintech industry. Adequate digital infrastructure in key, including access to electricity, high-quality internet coverage and mobile connectivity, and also Digital ID, communication services that facilitate access to the Internet and mobile connectivity.

While access to traditional banking services remains unreachable for most Africans, the near-universal availability of mobile phones has allowed millions to access mobile money services. Mobile money accounts now surpass bank accounts in the region and greater financial inclusion has benefited large swathes of the population that remain unbanked including the poor, the young, and women.

Most African users now rely on mobile payments to send and receive money domestically. Increasingly, they are taking advantage of new services to also send and receive money internationally. In addition, they use mobile money to pay their bills, receive their wages, and pay for goods and services.

C. STRENGTHENING POLICIES GOVERNING DIGITAL FINANCING

Accelerating growth of digital financial services presents financial stability risks if their regulation and supervision does not keep pace with technological changes in fintech to ensure consumer and data protection, cybersecurity and interoperability across users and national borders. There is need to put in place legal and regulatory requirements that enable digital financial services, including allow the use of third-party agents to facilitate access to digital financial services, and develop a strong network of local agents, establish a risk-based and proportionate anti-money laundering (AML) framework, foster interoperability and competition.

The swiftly evolving benefits of fintech also calls for awareness of risks, policy implications, and related tradeoffs. The diverse forms of digital money have implications on i) the stability of the international monetary system. Digital money must be designed, regulated, and provided so that governments maintain control over monetary policy to stabilize prices, and over capital flows to stabilize exchange rates. These policies require expert judgment and discretion and must be taken in the interest of the public. Payment systems must grow increasingly integrated among countries, not fragmented in regional blocs. And it is essential to avoid a digital divide between those who gain from digital money services and those left behind. Moreover, the stability and availability of cross-border payments can support international trade and investment.

ii) There are also implications for domestic economic and financial stability. The public and private sectors should continue to work together to provide money to end-users, while ensuring stability and security without stifling innovation. Banks could come under pressure as specialized payment companies vie for customers and their deposits, but credit provision must be sustained even during the transition. And fair competition must be upheld—not an easy task given the large technology companies entering the world of payments. Moreover, governments should leverage digital money to facilitate the transfer of welfare benefits or the payment of taxes. Scope even exists to bolster financial inclusion by decreasing costs to access payment and savings services.

D. ENABLING INSTITUTIONAL INCENTIVES

Enhancing supervision and regulation, however, should not occur at the expense of innovation. Through strategic partnerships across a broad ecosystem of players—including

There is need for all institutions in the fintech industry to establish a common vision for the future, including of the international monetary system; to strengthen international collaboration, and to enact policies and establish legal and regulatory frameworks that will drive innovation for the benefit of all countries while mitigating risks. Traditional financial services providers for example, should not be crowded-out, as their experiences could offer information on best practices. Incentives for local adoption and the existence of a national ID system can also facilitate the development of digital financial services that meet consumer needs and demands.

E. FACILITATING ACCESS TO FINANCING

As new players make banks less relevant for the financial system, central banks may need to adjust their monetary policy implementation toolbox, potentially allowing nonbanks access to liquidity lines and incorporating them in their operations, taking into consideration new monetary policy transmission channels.

Additionally, smaller fintech companies may face challenges of access to financing, rise in non-performing loans, decline in transactions and credit demand. In a highly rapidly innovative sector, widespread consolidation and retrenchment of start-ups would lead to greater concentration in the sector and could set back inclusion. This calls for accelerating the creation of governance frameworks for big fintech companies.

F. SKILLS AND CAPACITY AND TALENT DEVELOPMENT

Fintech is rapidly evolving and tapping into the usually highly regulated industry of money. In order to avoid pitfalls, there is need to deepen expertise, widen skillsets and increase resources in enhancing know-how of the industry, including as tech-coders, software developers, programmers, regulators, and supervisors. Regulators, for example, need to keep up with the pace of potential operational risks of fintech, including criminal activity, cybersecurity, competition policy especially for large digital platform, and consumer privacy.

G. SENSITIZATION OF USERS

Fintech involves the use of technology by consumers to meet their financial needs.

Millions of unbanked adults around the world still receive regular payments in cash — for wages, from the government, and for the sale of agricultural products. Digitizing

such payments is a proven way to increase account ownership (Global Findex, 2017)

While efficient, consumers need to be made aware of some of the risks of fintech including fraud. Control of fraudulent activities is a major challenge for the fintech market. Crowd-based financing for business activities benefits markets only if borrowers and investors trust one another. Therefore, establishing binding rules and guidelines is essential to securing that trust. New forms of money must remain trustworthy. In Indonesia, the Financial Services Authority has recently closed more than 1,000 illegal peer-to-peer lenders that were offering prohibited financial services or operating without a proper license. They must protect consumers' wealth, be safe and anchored in sound legal frameworks, and avoid illicit transactions through enhanced financial integrity and consumer protection. This involves interventions in financial literacy.

Sensitization on risk with regards to credit will also be important as new consumers without experience with credit can be roped into financially repressive debt problems. As fintech platforms expand into underserved markets, these issues of predatory lending and debt trap schemes will need to be addressed.

FINTECH AND COVID-19

IMPORTANCE OF FINTECH DURING COVID-19

Digital financial inclusion has played an important role in mitigating the economic and social impact of the ongoing COVID-19 crisis, further supporting more inclusive recovery. Despite causing significant uncertainty, the COVID-19 pandemic represents new opportunities for the fintech industry. For example, pandemic induced social-distancing measures have facilitated a marked increase in the use of e-commerce and digital financial services.

Due to social distancing accelerating customers' use of online channels to view and manage their finances, many fintechs are specifically tailored to offer presentation, onboarding, underwriting, and data visualization helping provide the right context for transactions. These capabilities will likely become more relevant in the future as a greater number of financial transactions are conducted online.

Fintechs have the unique advantages of being unencumbered by legacy practices and are able to create new ways of providing value and position themselves in the market, such as:

- ⇒ Adept at harnessing and analysing data such as credit and life insurance underwriting data.
- ⇒ Unburdened by complex legacy systems ensuring the

use of cloud-native platforms that take advantage of the application program interface (API) ecosystem.

- ⇒ Focused on seamless and delightful digital customer experience.
- ⇒ Comfortable with partnering with existing financial services companies.

The current global pandemic has expanded the use of fintech, including mobile money. The fintech market has continued to help expand access to financial services during the COVID-19 pandemic—particularly in emerging markets—with strong growth in all types of digital financial services except lending, according to the Global COVID-19 FinTech Market Rapid Assessment Study (World Bank, 2020).

The Study which gathered data from 1,385 FinTech firms in 169 jurisdictions from mid-June to mid-August, showed

most types of fintech firms reporting strong growth for the first half of 2020 compared to the same period in 2019, which was prior to the pandemic. On average, firms in areas including digital asset exchanges, payments, savings, and wealth management, reported growth in transaction numbers and volumes of 13 per cent and 11 per cent, respectively. Digital lending slumped eight per cent by volume of transactions, while also suffering a nine per cent jump in outstanding loan defaults (World Bank, 2020).

By reducing or eliminating the need for physical interactions and the need for cash, fintech is helping governments reach—quickly and securely—people and businesses with various forms of income and liquidity support (IMF, 2020). In Nigeria, 54 per cent of customers increased their financial technology (fintech) usage over the past six months (UNDESA, 2021). In countries where access to banking networks

How Fintechs are Harnessing their Strengths to Respond to the COVID-19 pandemic

Fintechs have responded to the COVID-19 pandemic by providing relief to individuals and businesses including:

- *PayPal* waiving fees on chargebacks and instant funds transfers from PayPal business accounts to bank accounts.
- *Lending Club* adding new hardship plans, waiving late fees and allowing eligible borrowers to make interest-only payments or skip up to two monthly payments.
- *Square* waiving software subscription fees for Square Payroll customers.
- *Stripe* fast-tracking support for telemedicine platforms.
- *Flock*, a drone insurance provider, allowing its commercial customers to pause their policies when no work is being conducted.
- *Kabbage* working with other fintechs like Lendio, Finix, and Fundera to launch a platform allowing consumers to buy gift certificates to support local small businesses during the coronavirus crisis.
- *Nomo*, a platform that assists freelancers in managing their accounting, taxes, and invoices, providing free temporary access to its new customers.
- *Chord*, the company behind the BondDroid AI engine that generates prices for corporate bonds, temporarily offering its services free of charge.
- *Revolut*, with other fintechs introducing a charitable-giving feature so that customers can donate funds to those affected by COVID-19.

Furthermore, many fintechs have innovated to create new products addressing the COVID-19 economic environment:

- UK fintech companies, *Trade Ledger*, *Wiserfunding*, *Nimbla*, and *NorthRow* formed a business-lending taskforce to provide a turnkey origination and underwriting platform allowing banks, alternative lenders, and private debt lenders to virtually deploy funds to businesses during the COVID-19 outbreak.
- Israeli fintech company *Innovesta* launched the COVID-19 Resilience Innodex, using proprietary artificial intelligence technology to assign risk scores based on a business' ability to withstand the effects of pandemic such as COVID-19.
- *Iwoca*, an online lender developed the platform *OpenLending* allowing Fintechs and banks to extend *Iwoca's* lending capabilities to more than two million UK businesses.
- US-based fintech companies have worked to facilitate the financial relief provided under the CARES Act:
 - *nCino* has developed a new solution to optimize the PPP loan process.
 - *ODX*, developed a product especially configured to the CARES Act.
 - *Lendio* worked to enable small businesses to apply for PPP loans.
 - *Unqork* developed a small business digital lending platform.
 - *Numerated*, a digital lending platform, is seeing an increase in banks' interest in using its technology to handle the rise in loan demand.
 - Companies like *Biz2Credit* set up dedicated websites offering information about Small Business Administration (SBA) Economic Injury Disaster Loans (EIDL) and other types of funding for businesses in need of working capital during the COVID pandemic.

Source: Authors, adapted from Deloitte, 2020.

is limited, mobile money networks are being used to deliver government transfers (e.g., Namibia, Peru, Uganda, Zambia). Information from data garnered from mobile payments is connecting governments to informal workers outside formal benefits programs. In Togo, for example, a new program was introduced targeting informal workers, in which transfers are made through mobile money and with a top-up for women recipients (IMF 2020). Tax authorities are encouraging use of online platforms for filing tax returns (Kenya, Namibia, and Nigeria). Some fintech lenders are also responding quickly to the liquidity needs of SMEs affected by the pandemic (e.g., China), taking advantage of the real-time data and online processes. Many fintech companies, big and small, are offering flexibility in loan repayments for impacted borrowers (e.g., India, Kenya, and United Kingdom). This will help mitigate the economic fallout and potentially strengthen the recovery (IMF, 2020).

Regionally, the Middle East and North Africa saw strongest growth, up 40 per cent, and sub-Saharan Africa and North America, both up 21 per cent. In general, emerging markets and developing countries experienced faster growth than developed markets.

FINTECH ADAPTING DURING COVID-19

Due to the COVID-19 pandemic, fintech companies may be forced to reexamine their mission and business models and adapt to the new business environment. Many fintech companies have experienced significant business disruption due to the COVID-19 pandemic causing many, including insurtech and proptech companies, to shore up their funding from investors and implement cost-saving measures, including workforce reduction. Furthermore, as many fintech companies have transaction and volume-based revenue, a priority strategy is ensuring as many expenses as possible that are variable and fixed expenses are minimized.

Many fintech companies have also sought to maintain operational resilience, with the pandemic causing a spike in customer requests for forbearance and relief, as well as for help in accessing aid programs such as the Payroll Protection Program (PPP) in the US.

Another important development from the COVID-19 pandemic for fintechs is the acceleration of partnerships with financial institutions which combine the benefits of capital, distribution access, and compliance infrastructure of legacy companies with (the) digital solutions of (the) new competitors. For example, Blend, an established digital mortgage software provider has recorded a strong increase in partnership requests from legacy banks that do not have digital mortgage-lending solutions.

Due to the COVID-19 pandemic, fintechs could also look for partnership opportunities with other fintechs, bigtechs,

and nonfinancial services firms, including white-labeled fintech solutions. However, this requires the active involvement of government through endorsing flexible open banking and banking-as-a-service regulations and initiatives.

Furthermore, Payment-focused fintechs have responded to the COVID-19 pandemic by bolstering their infrastructure and expanding capacity to withstand higher transaction volumes. Investing in additional capacity could be especially challenging for fintechs that rely on transaction volumes for revenue.

Additionally, insurtechs are likely to find it harder to attract end-users as insurers shift to expense management in response to the COVID-19 outbreak.

Current market conditions and social distancing practices have also affected proptechs' business growth, with real-estate tech companies forced to pause their activities until they are sure they can sell properties. Other proptechs, have introduced discounts and attractive retention offers to maintain their customer base.

Meanwhile, online lenders have responded to the COVID-19 pandemic by tightening their underwriting standards to retain their balance sheet quality and mitigate a potential rise in defaults. In addition, lending companies may find that historical data used for underwriting could be less reliable due to a COVID-19 induced shift in market conditions, and as such, will have to adjust their models accordingly.

CONCLUSIONS

Fintech has been transformative, especially for emerging markets and in the developing world, leveraging digitalization. Rapid technological innovation is ushering in a new era of public and private digital money. Payments will become easier, faster, cheaper and more accessible, and will cross borders swiftly. These improvements could foster efficiency and inclusion, with major benefits for many people.

But existing concerns also need to be addressed. Financial services are increasingly becoming 'Jobless', thus contributing to shifting upward capital intensity, as in many other sectors. The value added of the financial services is going to be increasingly distributed through profit channels, i.e., as remuneration of capital. This may contribute to income concentration and thus potentially perpetuate inequalities in income distribution and asset ownership. Thus, it will be critical to build human capacity, including investments to scale digital skills, particularly to absorb displaced labour, promote adoption of technologies, and increase capital ownership.

Digital money must be designed, regulated and provided so that countries maintain control over monetary policy, financial conditions, capital account openness, and foreign

exchange regimes. Payment systems must grow increasingly integrated, not fragmented, and must work for all countries to avoid a digital divide. Moreover, reserve currency configurations and backstops must evolve smoothly.

The pandemic shows that the trend towards greater digitalization of financial services is here to stay. To build inclusive societies and address rising inequalities during and after the ongoing crisis, global and national leaders must close the digital divide across and within countries to reap the benefits of digital financial services. This means finding the right balance between enabling financial innovation and addressing several risks: insufficient consumer protection, lack of financial and digital literacy, unequal access to digital infrastructure, and data biases that need action at the national level; as well as addressing money laundering and cyber risks through international agreements and information sharing, including on antitrust laws to ensure adequate competition.

Regulators and supervisors across countries have recognized the need to adapt regulatory approaches that strike the right balance between enabling financial innovation and addressing challenges and risks to financial integrity, consumer protection, and financial stability.

In addition, policymakers should aspire for international agreements on data privacy, cybersecurity, digital identification, cross-border digital currencies, and regulation of Big Techs to ensure that the fintech landscape remains sufficiently competitive in the post-COVID era.



Endnotes:

- ¹ See, for example, <https://www.betterthancash.org/news/new-united-nations-study-finds-digital-payments-to-ebola-response-workers-saved-lives-and-10-million>
- ² https://btca-production-site.s3.amazonaws.com/documents/186/english_attachments/BTCA-Ebola-Case-Study.pdf?1502739794
- ³ <https://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>
- ⁴ <https://unstats.un.org/unsd/cdb/>
- ⁵ Future of Food and Agriculture (FOFA) <http://www.fao.org/3/i8429EN/i8429en.pdf>
- ⁶ FAO's Strategic Framework 2022-31, page 9 and 10 <http://www.fao.org/3/ne577en/ne577en.pdf>
- ⁷ FAO's The State of Food and Agriculture 2022. <https://www.fao.org/documents/card/en/c/cb9479en>
- ⁸ REPORT OF THE SECRETARY-GENERAL ON POPULATION, FOOD SECURITY, NUTRITION AND SUSTAINABLE DEVELOPMENT (E/CN.9/2021/2), paragraph 76

References:

- African Business, 2020. Available at: African Business, 2020 <https://african.business/2020/02/economy/is-fintech-in-kenya-too-successful/>
- Alper, E., and M. Miktus. 2019. "Digital Connectivity in Sub-Saharan Africa: A Comparative Perspective." <https://www.imf.org/en/Publications/WP/Issues/2019/09/27/Digital-Connectivity-in-sub-Saharan-AfricaA-Comparative-Perspective-48692>
- Boston Consulting Group, 2020. "Five Strategies for Mobile-Payment Banking in Africa" <https://www.bcg.com/en-gb/publications/2020/five-strategies-for-mobile-payment-banking-in-africa>
- Consultative Group to Assist the Poor (CGAP). 2014. "Electronic G2P Payments: Evidence from Four Lower Income Countries." <https://www.cgap.org/sites/default/files/Focus-Note-Electronic-G2P-Payments-April2014.pdf>
- Consultative Group to Assist the Poor (CGAP). 2015. "Digital Financial Inclusion: Implications for Customers, Regulators, Supervisors, and Standard-Setting Bodies." <https://www.cgap.org/sites/default/files/BriefDigital-Financial-Inclusion-Feb-2015.pdf>
- Consultative Group to Assist the Poor (CGAP). 2018. "Basic Regulatory Enablers for Digital Financial Services." <https://www.cgap.org/research/publication/basic-regulatory-enablers-digital-financial-services>
- Davidovic, S., E. Loukoianova, C. Sullivan, and H. Tourpe. 2019. "Strategy for Fintech Applications in the Pacific Island Countries." APD Departmental Paper, International Monetary Fund. <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2019/08/21/Strategyfor-Fintech-Applications-in-the-Pacific-Island-Countries-46862>
- Deloitte, 2020. "Beyond COVID-19: New Opportunities for Fintech Companies." Available at <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-beyond-covid-19-new-opportunities-for-fintech-companies.pdf>
- e-zigurat.com available at: <https://www.e-zigurat.com/innovation-school/blog/evolution-of-fintech/>
- GSMA. 2018. "Enabling Rural Coverage: Regulatory and Policy Recommendations to Foster Mobile Broadband Coverage in Developing Countries." <https://www.gsma.com/mobilefordevelopment/resources/enablingrural-coverage-report>
- GSMA. 2019a. "The State of Mobile Internet Connectivity." <https://www.gsma.com/mobilefordevelopment/wpcontent/>

[uploads/2019/07/GSMA-State-of-Mobile-Internet-Connectivity-Report-2019.pdf](#)

GSMA. 2019b. "State of the Industry Report on Mobile Money." <https://www.gsma.com/sotir/wpcontent/uploads/2020/03/GSMA-State-of-the-Industry-Report-on-Mobile-Money-2019-Full-Report.pdf>

GSMA. 2020. "Mobile Money Recommendations to Central Banks in Response to COVID-19." <https://www.gsma.com/mobilefordevelopment/resources/mobile-money-recommendations-to-centralbanks-in-response-to-covid-19>

Harvard Business Review, 2021. Available at: <https://hbr.org/2021/02/kenya-is-becoming-a-global-hub-of-fintech-innovation>

IMF, 2021. "Making the Digital Money Revolution Work for All." <https://blogs.imf.org/2021/07/29/making-the-digital-money-revolution-work-for-all/>

IMF. 2021. "The Rise of Digital Money" <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/07/28/The-Rise-of-Digital-Money-462914>

IMF. 2020a. "The Promise of Fintech : Financial Inclusion in the Post COVID-19 Era" <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/06/29/The-Promise-of-Fintech-Financial-Inclusion-in-the-Post-COVID-19-Era-48623>

IMF. 2020b. "Digital Financial Services and the Pandemic: Opportunities and Risks for Emerging and Developing Economies" <https://blogs.imf.org/2020/07/01/digital-financial-inclusion-in-the-times-of-covid-19/>

KPMG, 2020. "The pulse of fintech." Available at: <https://home.kpmg/xx/en/home/insights/2021/02/pulse-of-fintech-h2-20-fintech-segments.html>

Mckinsey, 2016. "What digital Finance Means for Emerging Economies." Available at <https://www.mckinsey.com/mgi/overview/in-the-news/what-digital-finance-means-for-emerging-economies>

Organisation for Economic Co-operation and Development (OECD). 2019. "Enhancing Access and Connectivity to Harness Digital Transformation." <https://www.oecd.org/going-digital/enhancing-access-digitaltransformation.pdf>

UNDESA. 2021. Financing for Sustainable Development Report. New York: New York. https://developmentfinance.un.org/sites/developmentfinance.un.org/files/FSDR_2021.pdf

UNECA. 2020. Economic Report on Africa. Addis Ababa: Ethiopia.

World Bank. 2017. Global Findex 2017. Available at: <https://globalfindex.worldbank.org/>

World Economic Forum (WEF). 2014. "Delivering Digital Infrastructure: Advancing the Internet Economy." http://www3.weforum.org/docs/WEF_TC_DeliveringDigitalInfrastructure_InternetEconomy_Report_2014.pdf

Organisation for Economic Co-operation and Development (OECD). 2019. "Enhancing Access and Connectivity to Harness Digital Transformation." <https://www.oecd.org/going-digital/enhancing-access-digitaltransformation.pdf>

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