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## The Role of African Founded Firms in the Growth of the Digital Economy

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### 3.1 Introduction

The COVID-19 pandemic created unprecedented socio-economic challenges with widespread lockdowns that led to the closure of schools, businesses, and even entertainment venues. Digital technology has been critical in responding to these disruptions especially in the developed countries. The World Bank noted that the COVID-19 pandemic showed the crucial role in the digital technologies now play in mitigating unforeseen shock. To a large extent, the digital technologies has allowed businesses to continue operating despite the lockdown caused by the pandemic (World Bank, 2021).

The impact of the pandemic on Africa has been particularly devastating, as the majority of the countries of the region lack the technological infrastructure to swiftly respond to the challenges of Covid 19. The

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pandemic ushered in a new reality of tele-working, tele-conferencing, and an increased reliance on tele-medicine, distance learning, and e-commerce became part of a “new normal” that is still changing every day. At the centre of the shift in the digital economy are firms like Amazon, Netflix, Zoom, Alibaba, and Google.<sup>1</sup>

In Africa, the effect of Covid 19 has been particularly excruciating as the continent lags behind every region of the world in the development of digital technology and the digital economy it supports (Broadband Commission, 2016). The response to the challenge and opportunities presented by the pandemic has nevertheless been robust. Propelled by policy initiatives of African governments, African entrepreneurs have been at the heart of creating new solutions to address the challenges of Covid 19. According to the World Bank, there have been 191 digital policy responses to COVID 19 recorded for 31 countries in the period March–July 2020 (World Bank, 2021).

When addressing digital economy in Africa, it is important to consider the barriers and obstacles prevalent on the continent such as access to electricity, internet connectivity, infrastructure, policies and regulations, and the ability of people to use the digital solutions (Eziakonwa, 2020). Despite these challenges, the digital economy has grown significantly in Africa, with incubators, start-ups, and IT activities spreading across the continent. Using technology and experience, Africans have created many digital solutions to provide immediate help for the pandemic (Eziakonwa, 2020).

African Founded Firms are also taking the lead in the provision of digital services. African Founded platforms make up 85% of digital platforms on the continent (Johnson et al., 2020). They also lead in the provision of services like e-commerce and ride hailing (The International Trade Centre and Amsterdam University of Applied Sciences, 2020). African Founded Firms have also played a pivotal role in the growth of mobile money services in Africa (GSMA, 2020). Meanwhile, Fintechs and payment solution providers like Interswitch and Flutterwave, have

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<sup>1</sup> Tech giants are getting creative to manage the COVID-19 crisis. <https://www.theverge.com/interface/2020/3/17/21181691/google-verily-trump-website-trials-amazon-hiring-covid-19-response>.

facilitated the growth of e-commerce, mobile banking, and mobile insurance (GSMA, 2019), while healthtech start-ups have provided innovative solutions as Covid 19 has focussed attention on healthcare systems around the world (World Bank, 2021).

This chapter aims to chart a course of the involvement of African Founded Firms in expanding digital economy on the continent. This chapter points out the contributions of African firms to the growth of the digital economy in Africa. The emphasis is to show that African economic and business entities have been at the heart of the growth of the digital economy. The chapter does not seek to understate the role of foreign investors in the digital economy space, nevertheless, the role of African firms is not often given the same prominence it deserves by scholars and policy makers. This may be due to paucity of research and case studies on the contributions of African Founded Firms in the economic development of the continent.

The need for studies that highlight the contributions of African Founded Firms is made more imperative by a recent report by Google and IFC highlighting the future of the digital economy in Africa (Google & IFC, 2020). In a travesty of facts, the highly cited and circulated report focussed on proposed submarine cables by Facebook and Google in Africa while ignoring the huge investments by several African Founded Firms that has given the continent a robust submarine cable network.<sup>2</sup> Misrepresentations like these are being addressed by some authors who chronicle the contributions of African Founded Firms and multinationals to the economic development of African (Ibeh et al., 2018).

This chapter is an expository analysis of the role that African Founded Firms, some of which are today multinationals, played in putting the investments that have spurred a vibrant digital economy on the continent (Verhoef, 2017). Even then, a proposition asserting a significant role by African Founded Firms in the digital economy needs to stand on some facts that give an indication of their role. Measures of the relative size of African Founded Firms in Africa's digital economy are

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<sup>2</sup> These contributions are recorded annually by Steven Song in the African Infrastructure Report. <https://manypossibilities.net/2020/01/africa-telecoms-infrastructure-in-2019/>.

inferred from the size of their investments across the digital economy value chain, which includes investments in infrastructure that enable the digital economy, like mobile networks, fibre optic networks broadband, submarine cables, data centres. These investments have propelled the growth internet penetration to 40% in Africa today. African Founded Firms like MTN, Econet, GLO, Telcom and Sonatel, Maroc Telecom have been significant investors across Africa (Amungo, 2020).

This chapter is an industry and firm-level look at most of the actors whose investments, innovation, and other ancillary know-how, helped engender the birth, growth, and expansion of the digital economy in Africa. The first part of the chapter discusses the definition, size, and components of the digital economy. The second section addresses the digital economy in Africa by highlighting the investments in digital infrastructure that enabled the birth, growth, and expansion of the digital economy. The third section examines the impact of the digital economy in Africa. Finally, the fourth part discusses issues affecting the digital economy in Africa.

## 3.2 What Is the Digital Economy?

The internet is now a significant part of the socio-economic fabric of many countries transforming the very nature of human societies. Across the world, economies are being driven by this digital transformation across several sectors and digital technology is playing a greater role in people's daily lives. The critical role of these changes towards digitalisation is amplified by target 9.c of the United Nations Sustainable Development Goals (SDGs) which seeks universal access to information and communication technologies (ICTs) as an enabler of several services needed to achieve universal identification, more efficient delivery of government services, financial inclusion, and job creation (Broadband Commission, 2016). Digital technology has transformed the economic landscape across the world. It impacts key sectors of the economy such as health, agriculture, education, and trade, among others.

The term digital economy describes all economic transactions that take place on the internet. It is also known as the internet economy or the

web economy (Bukht & Heeks, 2017). The internet has enabled access to information and technology, a key component of accelerating the pace of the digital economy and connecting markets. Today the digital economy is global, propulsive, foundational, and characterised by very large, global firms (Atkinson, 2021).

Firms like Amazon, Facebook, Netflix, Alibaba, PayPal, are integral parts of present-day economic realities. These firms offer services that range from e-commerce, ride hailing, media content delivery to payment solutions (UNCTAD, 2019). In China, Xinhua News agency reported the influence of digital firms when it said “WeChat (owned by Tencent) has more than one billion active users and, together with Alipay, an Alibaba company, its payment solution has captured virtually the entire Chinese market for mobile payments. Meanwhile, Alibaba has been estimated to have close to 60% of the Chinese e-commerce market.”<sup>3</sup>

Empirical studies on the digital economy have focussed largely on technology infrastructure, IT and communications sector investment, e-Commerce, and broadband penetration rates to determine the size of the digital economy. However, new thinking has expanded the size of the digital economy to include spillovers from the use of digital technology (Huawei & Oxford Economics, 2017).

In a report published by Accenture Strategy, Knickrehm et al. (2016) believe that the digital economy has three levers which consist of a number of broad and specific indicators. These include digital skills, which measures factors such as the information, communications, and technology expertise in the workforce. The second lever is digital technologies, which includes access to the broadband connectivity and the economy’s ability to utilise the Internet. The third lever relates to digital accelerators which include the environmental, cultural, and behavioural aspects of the digital economy that support digital entrepreneurship or activities (Knickrehm et al., 2016).

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<sup>3</sup> Xinhua News agency China’s digital economy sees robust growth amid pandemic. [http://www.xinhuanet.com/english/2021-04/26/c\\_139907279.htm](http://www.xinhuanet.com/english/2021-04/26/c_139907279.htm).

### 3.2.1 The Size of the Digital Economy

The contribution of digital economy to total economic output has been increasing in several countries. A study by Oxford Economics and Huawei found that it has grown 2.5 times faster than global GDP over the past 15 years (Huawei & Oxford Economics, 2017). UNCTAD in a report noted that China and the United States of America are the two dominant players in the global digital economy as they both account for 75% of all patents that relate to blockchain technologies, 50% of global spending on Internet of Things, and more than 75% of the world market in public cloud computing. The two countries also account for 90% of the market capitalisation value of the world's 70 largest digital platforms. Europe's share is just 4% while Africa and Latin America together account for only 1% (UNCTAD, 2019).

Huawei and Oxford Economics believe the digital economy worldwide was worth US\$11.5 trillion in 2016, or 15.5% of global GDP when spillovers from the digital economy are considered (Huawei & Oxford Economics, 2017). China's digital economy enjoyed a robust 9.7% growth rate in 2020 despite the pandemic and global economic downturn. China's digital economy was estimated to be worth 6 trillion U.S. dollars, accounting for 38.6% of the GDP.<sup>4</sup>

Besides the developed countries, the level of digitalisation of the economy taking place in some developing economies is also increasing. While the digital economy ranges in size from 10 to 35% of GDP in advanced economies it represents 2–19% of GDP in developing economies. Malaysia, Chile, and China match advanced economies in their use of digital assets (Herbert & Loudon, 2020).

## 3.3 The Digital Economy in Africa

Africa's digital economy has been growing rapidly over the past two decades. The growth is spurred by a number of factors that include

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<sup>4</sup> Xinhua News agency China's digital economy sees robust growth amid pandemic. [http://www.xinhuanet.com/english/2021-04/26/c\\_139907279.htm](http://www.xinhuanet.com/english/2021-04/26/c_139907279.htm).

increased investment in digital infrastructure that has led to increased access to the internet, an expanding urban population, increase in digital skills, and a booming start-up ecosystem (Google & IFC, 2020).

In a bid to increase the role of the digital economy in Africa, 48 African governments have enacted 48 ICT policy documents (Friederici et al., 2017). The aim of policy makers is to use ICTs and the Internet to speed up the economic development of countries, level the playing field, bridge previous structural and infrastructural deficiencies, increase productivity and employment (Solomona & van Klytonb, 2020). Propelled by enabling policies from governments, several African Founded Firms have played important roles in the birth and growth of Africa's digital economy through their investments in digital infrastructure and by kickstarting the start-up ecosystem on the continent. Huge investments in mobile networks, submarine cables, data centres, fibre optic networks by African Founded Firms have increased access to the internet for a lot of Africans while some African Founded Firms provide digital services through establishment of internet platforms, fintech, healthtech, media and entertainment, e-commerce, e-mobility, e-logistics, and other ancillary digital services (Amungo, 2020).

Africa now has a plethora of digital start-ups that are driving innovation and providing solutions across several sectors (Jacques et al., 2013). These start-ups are increasingly contributing to the GDP of several African countries (Google & IFC, 2020). International Finance Corporation, IFC, noted that young talented digital entrepreneurs are driving African Internet opportunity by establishing start-ups that are solving some of Africa's most challenging issues, such as access to healthcare for remote populations, employment opportunities for women, and the ability to securely send and receive money. The report added that "Advanced technologies—tailored to data-driven, scalable, and pan-African approaches—are providing new ways for Africans to conduct business and earn income" (Google & IFC, 2020).

Indication of the innovativeness of African Founded Firms was their response to the Covid 19 and subsequent constraints caused by the pandemic. In one example, Flutterwave, a Nigerian digital payment solutions provider, was able to rapidly set up digital storefronts for 20,000 customers, when pandemic lockdowns hit brick-and-mortar businesses

in Africa, throwing them a lifeline at a time when most countries were in lockdown.<sup>5</sup> Companies like Flutterwave, MTN, Globacom, and Econet have been the drivers of digital economy through their investments in digital technology and infrastructure as well as providing the digital services.

The involvement of these African Founded Firms in Africa's digital economy is a function of exigency and opportunity. Exigencies because a lack of interest in investments on the continent from foreign investors have created gaps in the market. And opportunity because many African firms have been founded with the aim of providing goods and services to fill these gaps (Amungo, 2020).

A regional comparison of the flow of foreign investments shows Africa lagging in all measures of investment from most of the countries driving the digital economy or even the companies that offers services in this economic space. Repeatedly, World Investment Report from UNTAD has over the past decade revealed Africa's poor showing as an investment destination for both developed and emerging economies multinationals (UNCTAD, 2020). An analysis of the investments spending of the largest firms driving the global digital economy shows Africa's stark position as an investment blackhole. For this reason, African Founded Firms were created to fill gaps in the market. With their presence across the whole gamut of the digital economy value chain, African Founded Firms played significant roles in kickstarting the digital economy on the continent through their investments in digital technology and infrastructure.<sup>6</sup>

### 3.3.1 Investments in Digital Technology in Africa

The transformation into the digital age in Africa has been slow, hampered by myriad issues including the low investment in the enabling infrastructure (Broadband Commission, 2016). Even then, Africa's breakthrough

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<sup>5</sup> Time Magazine: Flutterwave Powering retailers. <https://time.com/collection/time100-companies/5949986/flutterwave/>.

<sup>6</sup> African Infrastructure Review 2021: Steven Song runs a website that publishes a review on African Telecommunications infrastructure since 2014. There are details on investments on mobile network operations, submarine cables and data bases and fibre optics. <https://manypossibilities.net/2020/01/africa-telecoms-infrastructure-in-2019/>.



into the digital age can be said to have been kickstarted between 1990 and 2000 as African governments enacted policies to deregulate, liberalise, and privatise the telecommunications sectors (Gutman et al., 2015). Governments then called for bids from the foreign and domestic investors for mobile network licences (Sepulveda, 2016). As has been the case in other sectors. A few countries like Egypt, Morocco, South Africa, and Kenya were able to attract investments from foreign firms like Vodafone and Orange. But a large swathe of Africa could only attract investments from African founded mobile network operators. African multinational telecoms operators like Orascom Telecom, Sonatel Mobile, Econet Wireless, Maroc Telecom, and MTN were often duelling against each other or against telecom multinationals like Vodafone, Orange, and Millicent Telecoms at various licencing rounds across the continent.

Nigeria, Africa's largest and most profitable market was only able to attract these two African Founded Firms, MTN and Econet and a local competitor, GLOBACOM for its mobile licence bid rounds in 2000.<sup>7</sup> Today, Africa's largest network operators include MTN, Maroc Telecoms, Globacom, Econet Wireless, and Vodacom. Between them, they have more than 250 million subscribers on the continent (Amungo, 2020) (Fig. 3.1).

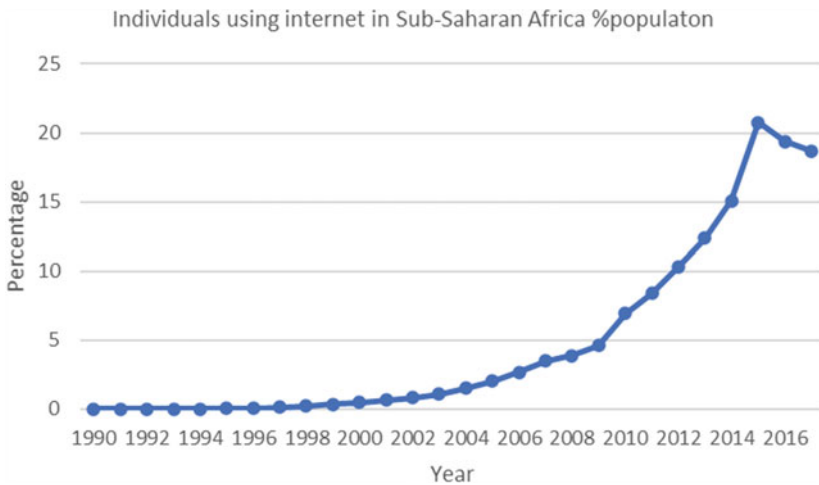
Amungo (2020) noted that African multinational telecoms operators have also been the main investors in smaller African countries like Rwanda, Benin, Lesotho, Zambia, Ghana, Côte d'Ivoire, and Cameroon effectively redistributing capital that they had been able to raise in their bigger more profitable markets as they expand their networks across the continent.<sup>8</sup>

Investments in submarine cable networks have improved connectivity between Africa, Europe, Asia and also increased access to the internet on the continent. There are now 16 submarine cable systems between Africa and Europe, Asia, America, and South America and most of them are owned by consortia of African Founded Firms. These include GlobaCom, MainOne, SEACOM, ESSY, and WAC. Other African

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<sup>7</sup> ASOKO INSIGHTS Africa's Top Mobile Telco Operators. <https://www.asokoinsight.com/content/market-insights/africa-top-mobile-telco-operators>.

<sup>8</sup> The term African Lions is used by Amungo (2020) to describe African founded Multinational Enterprises.



**Fig. 3.1** Individuals using internets in Sub-Saharan Africa (Source World Bank Development Indicators)

Founded Firms are the main providers of other value added downstream and midstream services like data centres, and internet service gateways as well as other broadband services. Notable among these is South African firm, Telkom, which has 38 subsidiaries across Africa. Liquid Telecom, a subsidiary of Econet Wireless, which provides value added services across East, Central and Southern Africa including laying an extensive fibre optic network across Africa. The quest for efficiency in the telecom sector spurred the formation of companies that manage base stations and towers. The most prominent being IHS Towers and Helios Towers (Amungo, 2020).

As the digital economy expands, there is increased demand for data centres. The African Founded Firms leading investments in data centres include Vodacom/Safaricom, MTN, MainOne, Rack Centre Nigeria, Africa Data Centres and Teraco. It is estimated that African Founded Firms own more than 95% of data centre capacity in the region (Fig. 3.2).<sup>9</sup>

<sup>9</sup> Why Hasn't Africa Gone Digital?. <https://www.scientificamerican.com/article/why-hasnt-africa-gone-digital/>.



45% of the population of SSA, were subscribed to mobile services at the end of 2019 (GSMA, 2020).

### 3.3.2 Digital Services in Africa

Africa's digital service landscape is dominated by digital platforms, mobile money and fintech services, and burgeoning healthtech, edtech, and agricultural services. Digital services providers across the continent are implementing solutions within the constraint and limitations found in Africa using the following digital tools.

#### 3.3.2.1 Platforms

Digital platforms create space for different economic or social actors to interact online. Platforms create a digital space where service providers and consumers interact. The service providers may be public or private entities. Digital platforms reduce friction in markets by aggregating suppliers and improving access to buyers, which in turn encourages competition, transparency, and better-quality services. Digital platforms use data-driven business models that facilitate transactions. This model is in most cases disrupting existing traditional industries in their wake (David-West & Evans, 2016). After a detailed study published by Cenfri, it was found that there has been robust growth in digital platforms in Africa. A total of 365 unique operating platforms were identified in 2019. African digital platforms that match online shopping, freelance, and e-hailing activities represent the majority of platforms (Johnson et al., 2020).

Another study by Makuva et al. (2018) found that more than 80% of the digital platforms operating in Africa were founded by home grown firms. The remainder of the platforms primarily originates from North America (7.8%), Europe (6.8%) and Asia (1.4%). The study also found that 37 platforms operate in more than one African market.

### 3.3.2.2 Retail and e-Commerce

Ecommerce is growing in Africa even though it still is the continent with the smallest transactions globally (Google & IFC, 2020). A study by The International Trade Centre and Amsterdam University of Applied Sciences in 2019, found that there were 631 online marketplaces in Africa managing 1,900 websites in 58 countries and territories (The International Trade Centre and Amsterdam University of Applied Sciences, 2020).

Five African countries accounted for most marketplace web traffic in 2019. South Africa led marketplace web traffic in Africa, with a 30% share. Four major Arabic-speaking countries in North Africa—Algeria, Egypt, Morocco, and Tunisia—together accounted for 41%. Other countries with relatively high shares were Nigeria (12%) and Kenya (5%). The study noted that most of these platforms were founded in Africa by African entrepreneurs. The listed top 10 African marketplaces in 2019 were Jumia, Ouedkniss, Gumtree, Souq, OLX, Takealot.com, Jiji, Avito, Cars.co.za, and Autrader.co.za. which collectively generated about 64% of all online traffic in Africa.<sup>10</sup>

The largest e-commerce marketplace in Africa is Jumia. Jumia operates in 12 African countries with Egypt and Nigeria its largest markets. Jumia was responsible for almost 24% of web traffic in 2019. The platform had 6.7 million customers as of the third quarter of 2020.

### 3.3.2.3 Healthcare and Healthtech

There has been a spirited response to the healthcare challenges engendered by COVID-19 pandemic in Africa. An analysis by the World Health Organisation<sup>11</sup> found that the pandemic catalysed the development of more than 120 health technology innovations that were piloted or adopted in Africa. The study found that Africa accounted for 12.8% of the innovations following the analysis of 1000 new or modifications of existing technologies that were developed worldwide to target

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<sup>10</sup> The International Trade Centre and Amsterdam University of Applied Sciences, 2020.

<sup>11</sup> <https://www.afro.who.int/news/covid-19-spurs-health-innovation-africa>.

different areas of the COVID-19 response. These response areas included surveillance, contact tracing, community engagement, treatment, laboratory systems, and infection, prevention and control. However, even before the pandemic, African Healthtech innovators and health focussed platforms have sought to tap into all aspects of healthcare delivery in Africa as the pharmaceutical market worth \$14 billion faces challenges such as sprawling supply chains, low order volumes, and exorbitant prices (Conway et al., 2019). Some healthcare providers are using digital solutions to address this challenge.

The prominent platforms include Lifestores Healthcare, a Lagos-based three-year-old start-up, is focussing its efforts on primary healthcare delivery by targeting thousands of local pharmacies and small-scale chemist shops by improving efficiencies in their supply chain. South Africa Udok runs a Connected Care Platform using an innovative software they developed in-house. mPharma, a Ghanaian health tech start-up that manages prescription drug inventory for pharmacies. It specialises in vendor-managed inventory, retail pharmacy operations, and market intelligence serving hospitals, pharmacies, and patients.

Ilara Health, a Kenya-based healthtech firm uses a platform to distribute medical devices to clinics across Kenya. Some firms find solutions to the perennial problem of fake drugs in Africa. MPedigree uses text messages, among other simplified solutions, to root out fake goods in the market. Other notable health tech firms include Medsaf which buys pharmaceuticals directly from the manufacturers at fair prices, and distributes them to hospitals, clinics, and pharmacies. Helium Health 82, a Nigerian start-up that gives healthcare providers a comprehensive suite of technology solutions to improve their healthcare delivery. 54gene83, a start-up building the first pan-African commercial Genetics BioBank.

### 3.3.2.4 Logistics

Africa's logistics start-up space is getting very competitive and has been attracting multi-million-dollar investments with global backing. African Founded Firms like Kenyan company Sendy has an on-demand platform that connects clients to drivers and vehicles for goods delivery.

Nigerian trucking logistic start-up Kobo360 provides a digital platform connecting drivers to cargo that needs distribution.

Lori Systems—a Nairobi-based logistics start-up started by a South African, Kenyan, and Togolese is also another African Founded Firms that is attracting capital and increasing digital access to logistics. Lori System's tech-enabled and operations-driven marketplace connects transport to cargo.

### 3.3.2.5 Mobile Money

Mobile money has been described as “a digital payment platform that allows for the transfer of money between cellphone devices.”<sup>12</sup> It is driven by technology that is installed in the SIM card of mobile devices. The main feature of mobile money is that users can receive, withdraw, and send money without being connected to the formal banking system. No bank account is required to facilitate the transaction.

The adoption of mobile money has made Africa the enduring epicentre of the service. In the 2020 edition of its annual report on the mobile economy, GSMA noted that two-thirds of total global mobile money transactions were driven by users in sub-Saharan Africa (SSA). In all, there were 548 million registered accounts in the region, over 150 million of which were active on a monthly basis (GSMA, 2020). The massive adoption of mobile money services in Africa has helped financial inclusion across the region.

The key to the success of mobile money adoption in the continent is the adaptation of technology firms to the African reality. According to an article in The Africa Report,<sup>13</sup> the technology driving mobile money growth is the Unstructured Supplementary Service Data (USSD) and Short Messaging Service (SMS). These two technologies are the backbone of feature phone communications. Feature phones are still prevalent in sub-Saharan Africa so companies have adopted the use of

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<sup>12</sup> Africa's Mobile Money Boom. <https://www.forbes.com/sites/ilonalimonta-volkova/2020/12/07/mobile-money-in-africa/>.

<sup>13</sup> The Africa Report Three reasons why African mobile connectivity is misleading. <https://www.theafricareport.com/14567/three-reasons-why-african-mobile-connectivity-is-misleading/>.

USSD/SMS to reach end-users. USSD channels allow digital platforms to reach mobile subscribers who do not have internet access in rural areas where mobile internet adoption is lower.

Kenya is a leader in mobile payment technology. Kenyan mobile network operator, Safaricom pioneered a mobile money service called Mpesa which facilitates mobile to mobile payments via SMS. It is estimated that there are 16m Mpesa transactions a day. MTN Group is another big firm expanding its mobile money offering. The company opened its Mobile Money API programme in 2019 across seven countries to foster innovation and enhance financial inclusion. So far, 3,700 developers have already registered to the programme that is now driving millions of digital transactions (GSMA, 2020).

A report published by McKinsey noted the diversified nature of mobile money operations in Africa. In the report, the authors noted that Fintechs are increasing their influence in the market and share of mobile banking customers. However, mobile network operators have been the dominant providers of mobile money services in Africa for the past decade (Chironga et al., 2017). The report categorised mobile money service providers to include;

1. *MNO-dominant* model where the MNO is responsible for most steps of the value chain. A bank usually acts as the deposit holder. Examples are M-Pesa with 26 million registered users in Kenya, and MTN Mobile Money, with 41 million registered customers across 15 countries.
2. *MNO-led partnerships* where a banking partner supports the MNO in providing products beyond payments such as small consumer loans and deposits. An example is M-Shwari in Kenya, a partnership between Safaricom and CBA, a mid-sized bank in Kenya.
3. *Bank-led partnerships with MNOs*. This service allows customers to conduct banking transactions from their accounts. An example of this model is Equitel, a partnership between Equity Bank and Airtel in Kenya.
4. *Bank models that include banking apps for smartphones and text-based money transfer services using basic handsets*. For these services, the sender needs to be a customer of the bank providing the service. It is,



however, not required for the recipient to be a bank customer. This is the predominant model in Nigeria with banks like GTBank, Access Bank, and First Bank offering various code-based banking services through leading Telcos including MTN, Glo, and Airtel.

5. *Fintech solutions.* These include services provided by firms like Chipper Cash, Flutterwave, and is Paga. These firms provide payments solutions that allow customers to send money via their phones and pay for online purchases on merchant websites.<sup>14</sup>

### 3.3.2.6 FinTechs

As the digital economy is growing in Africa, payment solutions have become imperative and burgeoning start-up industry of financial technology companies are flourishing in Africa today. These fintechs are finding solutions to Africa's poor integrations into global financial markets. The demand for these payment solutions has spawned innovation among Africa's technology-skilled youths who are developing a plethora of apps and platforms. Overall, there has been significant growth in mobile payments and money transfer platforms which indicates strong demand for and adoption rates of these services. Through their investments and innovation African Founded Firms like Inter-switch, Flutterwave, Chipper, and Paga are facilitating payments between African merchants and consumers.

Chironga et al. (2017) observed that "FinTechs in Africa have launched a number of mobile-first solutions that are building momentum." These solutions cut across several financial services sectors like insurance, credit and loans, and remittance. One significant fintech is Inter-switch which has helped transform the payment infrastructure for the banking system in Nigeria, and has operations across 23 other countries.

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<sup>14</sup> Chironga, M., De Grandis, H., & Zouaoui, Y. (2017). *Mobile financial services in Africa: Winning the battle for the customer.* McKinsey & Company.

Other major players include JumiaPay as well as Savings and lending fintechs like M-Shwari, Fuliza, and KCB M-PESA. BIMA offers mobile-based insurance services in four African countries while Jumo uses telco data to underwrite credit for clients across Africa (Table 3.1).

African founded Fintechs are also providing solutions for remittance payments by Africa's growing diaspora. International remittances processed via mobile money increased by 65% in 2020 (GSMA, 2020). According to the World Bank migrants from SSA remitted US\$48 billion in 2018. Fintechs like Sasai Remittance service and Afriex provides instant, zero-fee transfers to Africans at home and in the diaspora.

### 3.3.2.7 EdTech and e-Learning?

Education was one of the sectors most impacted by Covid 19. Schools were closed and some countries migrated to online learning using education technology. Thus, digital technology and the internet has thus enabled education at all levels to continue. Education technology used innovative learning techniques to facilitate teacher and student interaction. In several African countries the migration to online learning has been facilitated by technologies developed mainly by local start-ups. This has involved building the right infrastructure and providing the right hardware and software to facilitate the teaching and learning process.

Some of the notable providers of edtech services include Eneza Education which operates in Kenya, Ghana, and Ivory Coast. Eneza delivers tailored educational content either online, via applications, or basic feature phones. Co-founded by Kenyan technologist Kago Kagichiri and educator Toni Maraviglia, Eneza Education has over 800,000 users.<sup>15</sup> Method-based mainly on SMS, users pay for the service by airtime and the payment is integrated within all major mobile network operators.

Chalkboard Education is a Ghanaian platform that offers low tech software and services for institutions to create and track training programmes on mobile phones, without the internet. O'Genius Priority, Rwanda; O'Genius Panda is an educational platform where students

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<sup>15</sup> EdTech: how technology is changing education in Africa. <https://www.worldremit.com/en/stories/story/2019/11/14/edtech-africa>.

Table 3.1 Some of the largest Fintechs in Africa

Name	Founders	City and country founded in	Year founded	Amount raised from investors by April 2021	Services
Flutterwave	Iyinoluwa Aboyeji, Olugbenga Agboola	Lagos, Nigeria	2016	\$234.7M	Business-to-business gateway systems
Chipper Cash	Ham Serunjogi, Maijid Moujaled	San Francisco, USA <sup>a</sup>	2018	\$152.2M	Peer-to-peer mobile payments services using text message
Jumo	Andrew Watkins-Ball	Cape Town, South Africa	2015	\$156.7M	Banking services through the Jumo digital app
Paymob	Alain El Hajj, Islam Shawky, Mostafa Menessy	Cairo, Egypt	2015	\$18.5M	Payment and banking gateway for merchants and consumers
Fawry	Ashraf Sabry, Mohamed Okasha	Cairo, Egypt	2007	\$122M	Electronic payment network
Interswitch	Charles Ifedi, Mitchell Elegbe	Lagos, Nigeria	2002	\$210.5M	Digital payments
PalmPay	Transsion	Lagos, Nigeria	2019	\$106M	P2P transactions, mobile payments
DPO group	Eran Feinstein, Offer Gat	Nairobi, Kenya	2006	\$15M	Online payments processing

(continued)

Table 3.1 (continued)

Name	Founders	City and country founded in	Year founded	Amount raised from investors by April 2021	Services
Cellulant	Bolaji Akimboro, Ken Njoroge	Nairobi, Kenya	2004	\$54.5M	Multinational digital payments
Yoco	Bradley Wattrus, Carl Wazen, Katlego Maphai, Lungisa Matshoba	Cape Town, South Africa	2013	\$23M	Point-of-sale payments provider for small businesses in Africa
Paga	Jay Alabraba, Tayo Oviolu	Lagos, Nigeria	2009	\$36.7M	Mobile payment
OPay	Opera	Lagos, Nigeria	2018	\$170M	Mobile payment service

Note <sup>a</sup>Chipper Cash was founded by two African immigrants Ham Serunjogi and Majid Moujaled in San Francisco  
Source Compiled by the author with information from the websites of the companies and multiple online sources including Crunchbase (<https://www.crunchbase.com>)

use computers to perform laboratory experiments equipping them with experiential and practical scientific knowledge.

### 3.4 The Impact of the Digital Economy in Africa

There is a well-documented contention that digitalisation creates economic growth and several studies have sought to measure the impact of the digital economy in Africa.<sup>16</sup> Some scholars have argued that a measure of the digital economy should reflect the economic returns being made to digital investments. However, other scholars contend that the full economic returns of investment in technology are greater than that. Some scholars posit those digital investments lead to knock-on effects throughout the economy, which amplify their final impact (GSMA, 2020).

Studies have suggested that the impact of ICT policy and investment in Africa has not been as promised and projected (Solomona & van Klytonb, 2020). Despite investment efforts, African countries have faltered in reaping the expected economic prosperity associated with digitalisation because of a persistent digital divide, including digital skills shortages, deficits in ICT infrastructure, and high-cost structures (Banga & Willem te Velde, 2018). Some scholars believe that despite the grand promise of economic growth of ICT and the internet, the vision has not been realised in Africa. Some studies on the other hand have reported positive impact on the growth of digital economy in Africa (Friederici et al., 2017).

Nevertheless, Abendin et al. (2021) concluded that digitalisation has had a positive impact on international trade and has thus spurred economic growth in Africa. In a study of the impact of the digitalisation on the Kenyan economy, Banga and Willem te Velde (2018) found that Kenyan firms with internet are more productive and have a higher share

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<sup>16</sup> Bukht R., & Heeks R. (2017). Defining, conceptualising and measuring the digital economy. <http://www.informatics.manchester.ac.uk/news/latest-stories-updates/defining-conceptualising-and-measuring-the-digital-economy/> [Google Scholar] [Ref list].

of skilled workers than firms without access to the internet (Banga & Willem te Velde, 2018).

These empirical studies have, however, failed to acknowledge the nominal growth in the digital economy in Africa and the impact this has had on a broad spectrum of economic activities. In their report, Google and IFC strike a positive note on the growth and impact of the digital economy in Africa. The report believes that “Africa’s internet economy is transforming development on the continent by fostering economic opportunities, creating jobs, and providing innovative solutions to complex challenges, including access to health care, education and finance.” Google and the IFC estimate that the Gross Value Add of Africa’s “internet economy was \$100 billion in 2019, or 3.9 per cent of GDP” (Google & IFC, 2020).

The World Bank also believes that mobile broadband and the internet has had a positive impact on welfare and poverty reduction in Africa. Using data from Nigeria, the World Bank asserted that mobile broadband usage when sustained for a year increases consumption by 6%. The effect on consumption rises to 8% after two years of coverage. The World Bank noted that “The proportion of households below the extreme poverty line drops by about 4 per cent after one year of gaining mobile broadband, and by about 7 per cent after 2 or more years of mobile broadband coverage” (World Bank, 2021).

GSMA estimates that mobile technologies and services generated 9% of GDP in Sub-Saharan Africa in 2019. This amounted to \$155 billion of economic value added. The mobile ecosystem also sustained 3.8 million jobs (directly and indirectly). There was also substantial benefit to governments as the mobile ecosystem contributed to public sector funding, with \$17 billion raised through taxation (GSMA, 2020).

The IFC believes investments like the ESSY submarine cable have improved access to the internet for more than 250 million people across Africa. It is also their belief that greater access to affordable and faster Internet has spawned the growth of new industries. This has invariably led to the creation of new jobs, increasing employment in some areas by as much as 10%. The report believes that improved internet access

is responsible for a 14% increase in East Africa's gross domestic product since 2009.<sup>17</sup>

### 3.5 Key Issues Affecting Digital Economy in Africa

There are a number of factors impeding the development of the digital economy in Africa and these include (1) weak digital infrastructure; and (2) a lack of digital skills among workers and consumers. Despite the remarkable growth, the internet is still not available to three-quarters of people of the continent's population. Moreover, it is comparatively costlier to access the internet in Africa than in advanced economies and the reliability and speed of internet connections are generally much worse (Solomona & van Klytonb, 2020). Notwithstanding, the advances in digital access to the internet are still beyond the reach of most Africans, with only 22% reporting access in 2017 (World Bank, 2021). Digital start-ups still have the problem of access to funding. Even then, adoption of digital technologies and platforms to boost productivity and sales by businesses is still slow. Policy initiatives by governments to develop digital infrastructure, services, skills, and entrepreneurship are not in tandem with the physical and institutional realities challenging African youths and entrepreneurs.

#### 3.5.1 Digital Infrastructure

Despite the investments in telecommunication, Africa still lags behind in the availability of essential Digital infrastructure. As the world transitions to 5G, the adoption of this technology is the lowest in Africa. Statistical evidence has determined that improved telecommunications infrastructure is important for economic growth. Digital infrastructure and access to the internet are also important to the success of entrepreneurs.

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<sup>17</sup> IFC. [https://www.ifc.org/wps/wcm/connect/news\\_ext\\_content/ifc\\_external\\_corporate\\_site/news+and+events/news/cm-stories/cm-connecting-africa#page3](https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/cm-connecting-africa#page3).

Africa still needs vast investment in digital infrastructure to improve internet access. A report by The Broadband Commission estimates that Africa needs \$100 billion investments that would include the construction of 250,000 new 4G base stations and at least 250,000 kilometres of new fibre across the region to achieve universal access to broadband connectivity by 2030 (Broadband Commission, 2016).

### 3.5.2 Lack of Digital Skills

There is an increased need for skilled personnel to power the growing digital transformation across Africa but the continent lags behind in the availability of Tech talents. It is estimated that most countries across the continent have workforces that are severely lacking in digital skills and are only half that of the global average.

While appraising the availability of digitally skilled youths in Africa Google & IFC (2020) estimated that there 700,000 professional developers on the continent. Fifty per cent of them are concentrated in five countries, Egypt, Kenya, Morocco, Nigeria, and South Africa. Nevertheless, the proportion of people lacking basic digital skills is much higher in Africa than in the advanced economies. High-level digital skills, such as coding, are rare in Africa. Google and IFC found that the digital skills with the highest penetration among youths are social media and graphic design, digital literacy, and web development. It was observed that advanced topics such as artificial intelligence, scientific computing, and human–computer interaction remain relatively unpenetrated (Google & IFC, 2020).

Initiatives to improve basic digital skills and to build a cadre of highly skilled workers is being undertaken through several policy initiatives by governments and multilateral development partners (Herbert & Loudon, 2020). Additionally, African Founded Firms and edtech start-up have also been involved in the push for digital proficiency among Africa's youth. Moringa School, Andela, Gebeya, Decagon, Semicolon, and Umuzi are promoters of this new wave of education and training.



### 3.5.3 Regulatory Hurdles

Traditional financial services providers are pushing back in some countries against the growing incursion of FinTechs and money market providers into their market. Banks and insurance companies have long enjoyed the privilege of being the main purveyors of financial services but, MNOs and FinTechs are disrupting traditional models of finance and banking in Africa and indeed across the world. This has led to increased regulatory scrutiny and intervention in some African countries including Nigeria, Ethiopia, and Morocco.

In Nigeria different regulatory moves from some of the country's financial bodies have been targeted towards payments, crypto, and wealth tech start-ups.<sup>18</sup> While these regulators claim to foster the interests of the Nigerian public and protect consumers, their moves reek of innovation stifling and jurisdictional play.

## 3.6 Conclusion

The Covid 19 pandemic has shown the vibrancy resilience and relevance of digital technology. Digital economy is now a significant contributor to GDP. For Africa, the birth and growth of the digital economy has been driven mainly by African Founded Firms. Their investment in the digital technology and digital infrastructure was the foundation on which entrepreneurs have built on to set up digital service firms.

The contribution of the digital economy to GDP is still relatively small in Africa. This is due to poor internet penetration and lack of digital skills. But the rate of growth of the digital economy is one of the fastest in the world and this has triggered optimism. Investments in digital infrastructure are increasing as African Founded Firms are expanding their digital infrastructure. Additionally, Google, Facebook, and other foreign multinational firms are involved in different submarine cable projects to

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<sup>18</sup> Nigeria's Biggest Bank Targets 30% Profit Outside Home Market. <https://www.bloomberg.com/news/articles/2021-02-19/nigeria-s-biggest-bank-targets-30-profit-outside-home-market>.

enhance broadband connectivity on the continent. Mobile telecom operators are also increasing internet access by rolling out 5G and fibre optics networks. The adoption of smartphones continues to rise in Africa and has reached 50% of total connections.

Indeed, the optimism regarding the prospects of the digital economy can be inferred from the increasing ability of African start-ups to raise capital. Increasingly, Africa's flourishing start-up ecosystem is attracting venture capital investment from American, Chinese, and European investors. This increase in investor confidence is fuelled by ongoing changes on the continent that include improved macroeconomic indicators, rapid urbanisation, improved business environments, and a large youth population. Meanwhile African governments are promoting better cooperation between regions through instruments like the African Continental Free Trade Agreement.

According to figures released by Partech Ventures Africa, African tech start-ups attracted \$2.02 billion in investments in 2019. This represents 74% year on year growth. These investments were in deals that took place across 18 countries, with Nigeria, Kenya, Egypt, and South Africa as the major investment destinations.

Meanwhile the digital economy is shifting the investing landscape in Africa by creating new economic linkages. With a combined size of 70% of the digital economy between them, investments and technology from America and China are driving the growth of Africa's digital boom. Ironically, investors from European countries, including those that have had a long-established historical, trading and financial relationships with Africa, have contributed less to Africa's growing digital economy.

Investments in digital technology, and the internet economy that it enables, is growing in Africa and African Founded Firms and start-ups are playing a leading role in that growth. The obvious implication of these findings for policy makers is that African governments should develop strategies and enact policies that support the ability of African Founded Firms to continue to invest and expand their operations across the continent.

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