GSMA

October 2024

Driving Digital Transformation of the Economy in Ethiopia

Opportunities, policy reforms and the role of mobile

GSMA
The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events. We invite you to find out more at www.gsma.com
Follow the GSMA on Twitter/X: @GSMA

Through Line Advisors
Through Line Advisors was created in 2022 to bring together a group of expert advisors who – although they come from different fields - are all committed to delivering the highest quality of work for clients. The company includes expertise in economics, finance and strategy across a very wide range of sectors and situations. Everyone who works at Through Line has a single-minded focus on delivering the best possible advice to clients.
Email: info@throughlineadvisors.com
Phone: +44 (0) 203 813 0976

85 Great Portland Street
London W1W 7LT

Authors:
Matthew Harrison Harvey, Through Line Advisors
Daniel Pate, Through Line Advisors
Gaia Penteriani, Through Line Advisors
Mark Williams, Through Line Advisors
Angela Wamola, Head of Sub-Saharan Africa, GSMA
Caroline Mbugua, HSC, Senior Director, Public Policy and Communications, GSMA
Linus Melly, Senior Policy Manager, Sub-Saharan Africa, GSMA

Contents

1. Executive Summary and Key Messages

The digitalisation of the economy is a key driver of economic growth and government revenue. It also supports socio-economic development and offers a path towards shared prosperity. By leveraging digitalisation opportunities, the Government of Ethiopia can achieve sustainable economic growth and structural changes.

Adoption of digital technologies across both public and private sectors can impact on economic growth. It can increase agricultural productivity, improve access to global value chains (GVCs) and increase efficiency of government and public services. Access to emerging technologies such as artificial intelligence (AI) and cloud computing are desirable as drivers of digital and financial inclusion which in turn supports human development.

Digitalisation, including the telecommunications sector reform programme and the introduction of mobile money,[1] is a key part of the Ethiopian government's Homegrown Economic Reform Agenda (HGER)[2] since 2019 and implemented under the 2021-2030 Development Plan, the Digital Ethiopia 2025 strategy, the Communications Service Proclamation No. 1148/2019 and the National Bank of Ethiopia's (NBE) strategic plans.

In the five years since the launch of Digital Ethiopia 2025 and the start of the telecommunications reforms, the number of people covered by 3G networks has increased by 50%, while coverage of 4G networks has increased by 8 times. This study identifies further opportunities and quantifies the economic value of adopting digital technologies across Ethiopia's economy. It determines how these opportunities can be unlocked through policy reforms, particularly focusing on the key role that the mobile telecommunications sector and mobile money services plays in supporting the process of digitalisation.

1 The term Mobile Financial Services is often used to refer to broad set of financial services provided over mobile networks, including mobile money. For simplicity and consistency, the term "mobile money" is used throughout this report to refer to mobile financial services. In Ethiopia, mobile money and mobile financial services are licensed by the NBE under the Payment Instrument Issuer Directive.

2 Phase 1 from Government of Ethiopia, 2019, 2019/2020: Federal Democratic Republic of Ethiopia, A Homegrown Economic Reform Agenda: A Pathway to Prosperity, March 2020; Phase 2 from July 2024

Ethiopia has rolled out 2G and 3G networks, with investment during the past 5 years focused on advanced 4G network coverage and 5G launches in Addis Ababa and 4 regional cities. **With the country's HGER, digital strategy, telecommunications reforms, and investment made by Ethio Telecom (the former monopoly telecommunications operator) and Safaricom Ethiopia (the second unified telecommunications operator licensed in 2021),[3] mobile telecommunications coverage has greatly improved in recent years. Ethiopia now has the potential to accelerate its development through digitalisation.**

This report identifies a series of policy recommendations that, if implemented, will accelerate the mobile sector's contribution to Ethiopia's digital objectives. These policies would result in 30 million more Ethiopians being connected to the internet - an increase of 70% compared to today's levels.

The priority policy reforms include:

1. **Progress to a conclusion, fair and timely implementation of the telecommunications reform agenda,** including supporting regulations to ensure efficient outcomes of market liberalisation and fast-tracking of administrative procedures.
2. **Support industry sustainability and development through investment incentives,** including reducing or removing customs duty and other costs on mobile devices to improve affordability, as well as tax incentives.
3. **Continue to commit to affordable and predictable licensing, spectrum and regulatory fees** to encourage investment and densification of the existing mobile telecommunications network, rollout of new generation networks and improve service affordability.
4. **Ensure fair and justified taxation on emerging mobile money services** to prevent instances of punitive and distortive taxation, and continue implementing regulatory reforms to enable digital financial strategy and inclusion objectives.
5. **Support demand by continuing to implement digital government and digital ID programmes, which will incentivise the adoption of digital technologies** by consumers, particularly women and rural populations, and firms.

If adopted, these policy recommendations can enable the mobile and digital sector to significantly contribute to Ethiopia's HGER objectives. This includes economic transformation across important sectors such as agriculture and manufacturing, and in public services for Ethiopians. The potential macroeconomic impacts are summarised below in Figure 1.

Figure 1: Sectoral impact of increased digitalisation of in Ethiopia following telecommunications policy reforms

	Agriculture	Industry	Transport	Trade	Healthcare	Government
Digital Value Add (ETB bn)	134	108	24	27	4	22
% of sector GDP	3.1%	3.7%	4.6%	1.5%	5.5%	2.2%
% of Total GDP	1.1%	0.9%	0.2%	0.2%	0.0%	0.2%
Employment	1,500,000	180,000	130,000	150,000	20,000	-
Tax Revenue (ETB bn)	11	9	2	2	0.4	-

Source: Authors' calculations. See separate methodological document that accompanies this report.[4]

3 In this report we refer to the Unified Telecommunications Services Licenses as "Licensees", "mobile operators", or "MNOs"
4 GSMA, Driving digital transformation of African economies: Evidence and methodology document, May 2024

2. Digital Economy Framework

A. INTRODUCTION

Ethiopia's digital strategy and telecommunication reforms creates pathways for economic transformation and the objectives contained in the HGER. The Government of Ethiopia, through the 2021-2030 Development Plan, the Digital Ethiopia 2025 strategy, Communications Service Proclamation No.1148/2019, NBE strategic plans, and other government/regulatory programmes, continues to pursue a path of economic growth and transformation, recognising the role of digital technologies in the diversification of economic activities and a more inclusive and equitable distribution of the benefits.

Policymakers are often faced with competing objectives such as the need to increase domestic revenues and reduce poverty and inequality, while at the same time boosting private sector development, attracting foreign investment and driving economic growth. **Digitalisation could drive Ethiopia's economic transformation in a way that supports these objectives.** The digitalisation of the economy is a driver of both economic growth and socio-economic development. The mobile telecommunications sector, together with mobile money, is the backbone of this digitalisation process. A growing sector is an essential pre-requisite of a national digital transformation programme.[5]

B. HOW DOES THE DIGITAL ECONOMY DRIVE DEVELOPMENT?

The process of digitalisation is continuing across Ethiopia. Digital services, primarily using mobile telecommunications networks, are becoming more widely available, and their usage is increasing. As they do so, the mobile telecommunications sector and the digital sector contribute more broadly to the economy and public services in Ethiopia. Widespread adoption of digital technologies across the public and private sectors enables better interactions between individuals and a more efficient use of resources, thereby raising productivity and supporting innovation.[6]

Therefore, most of the mobile technology's economic impact is realised outside of the mobile sector itself through its positive impact on productivity in sectors (such as agriculture, manufacturing, and retail) and in public services (such as government administration, education and healthcare).

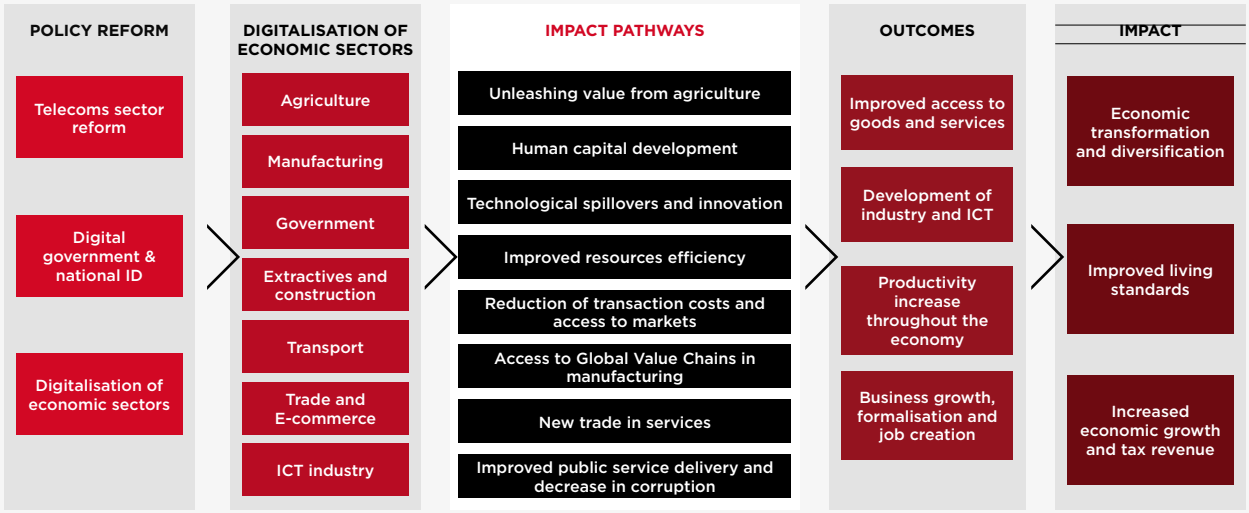
The adoption of digital technologies across economic sectors and public services can unlock important pathways for inclusive digital transformation. This is experienced, for example, through increasing value from existing agricultural resources, improving access to GVCs, enhancing education and healthcare provision, reducing transaction costs and improving the efficiency, transparency and governance of government-to-business and government-to-citizen services. Access to emerging technologies such as AI, big data and cloud computing, as well as services such as mobile money drive increased digital and financial inclusion. The use of these technologies, in turn, supports human development.

As digitalisation progresses through each sector of the economy, the resulting effects include improvements in productivity, job creation and formalisation of the economy. This in turn leads to increased standards of living, higher economic growth, and greater availability of public resources.

5 Throughout this study, the term digitalisation is used to denote the adoption of new technologies by consumers, businesses and governments across economic sectors. Digital transformation is the economic transformation resulting from such adoption. The digital economy encompasses the actors and exchanges taking place in the economy as a result of digitalisation.

6 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document

Figure 2: Digital pathways to economic transformation



Source: Authors' synthesis based on literature, government strategy documentation, and discussion with stakeholders. See also: GSMA, Driving digital transformation of African economies Evidence and methodology document, May 2024.

C. THE ROLE OF THE TELECOMS SECTOR IN THE DIGITAL ECONOMY

The mobile telecommunications sector provides the digital connectivity that forms the foundation on which the digital transformation process is built. This is recognised by the Government of Ethiopia and reflected in the Digital Ethiopia 2025 strategy and the government's development plans.[7]

The digitalisation of the economy is a key driver of economic growth and government revenue. It offers new pathways to growth, job creation and diversification of the economy. The internet economy is projected to reach 5.2% of the GDP in Africa by 2025 and the development of the digital ecosystem has been shown to add up to 1.9% in GDP per capita in SSA. [8,9] In BRICS countries, the contribution of the digital economy to GDP has been estimated to account for 2% in South Africa, 4% in the Russian Federation, 6.9% in India, 7.8% in China and 22% in Brazil.[10]

Mobile telecommunications, together with mobile money, is the most common means of access to broadband and financial services in Africa and is essential to the realisation of this potential economic impact. For example, a 10% increase in mobile internet penetration is estimated to increase GDP per capita by up to 2.5% in Africa.[11] A previous study by GSMA found that mobile money adoption in Ethiopia could increase real GDP by 0.7-2.5% by 2030, which is equivalent to USD 1.5 billion to USD 5.3 billion in 2022 prices or ETB 69-251 billion.[12]

7 Government of Ethiopia, Digital Ethiopia 2025: A digital strategy for Ethiopia inclusive prosperity. Government of Ethiopia, 2020, 10 Years Development Plan 2021-2030.
8 Accenture Africa, iGPD forecast
9 ITU, 2019, Economic contribution of broadband, digitization and ICT regulation: Econometric modelling for Africa.
10 International Trade Centre (ITC), 2022, BRICS Digital Economy Report 2022
11 Ibid.
12 GSMA, 2023, Mobile Money in Ethiopia: Advancing financial inclusion and driving growth

Digitalisation is the process of technological change through adoption of digital technologies across a range of economic activities. Such emerging technologies are enabled by telecommunications and internet access, and range from AI to cloud computing, from smart grids and Internet of Things (IoT) to blockchain. These have the potential to reduce production costs, make trading of goods and services more efficient, and allow ideas and knowledge to spread, thus promoting further innovation and growth.

The most significant impact is realised through the productivity increase outside the Information and Communications Technology (ICT) sector,[13] via adoption in agriculture, manufacturing, retail and other sectors of the economy. The increase in productivity of firms is a key component of the impact of digitalisation, with higher technology adoption associated with labour productivity increases of up to 2% in Ghana, Kenya, Malawi and Senegal. A significantly higher benefit was found for informal firms.[14] Understanding how technological changes impact a sector makes it possible to identify those innovations that create jobs and enhance productivity by creating new tasks and efficiencies per worker rather than eliminating jobs through automation.[15]

The adoption of 5G alone is expected to benefit most sectors of the economy, adding almost 0.37% to GDP in 2030.[16] The wide area coverage enabled by low band 5G will be essential in driving the digital transformation of the agricultural and manufacturing sectors, enabling IoT applications such as smart farming solutions, smart factories, smart cities and smart grids.[17] For the economy to realise these gains, the policy and regulatory environment must be sufficiently supportive.

There is an opportunity to leverage the mobile sector in Ethiopia further through policy and regulatory actions that can sustain future overall investment in mobile infrastructure and cement the gains already achieved in digital and financial inclusion. If bold policy reforms are implemented, the mobile sector can support a more significant economic impact through increased access, adoption and usage of digital technologies.

13 ICT has been a commonly used term over the last 2 decades. More recently, the term “digital” is used to refer to both ICT and the broader set of digital technologies and businesses.

14 Cirera X., Comin D. and Cruz M., 2022, Bridging the Technological Divide: Technology Adoption by Firms in Developing Countries

15 Acemoglu D. Johnson, S., 2023, Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity

16 GSMA, 2023, Mobile Economy Africa.

17 GSMA, 2023, Socio-Economic Benefits of 5G: The importance of low-band spectrum.

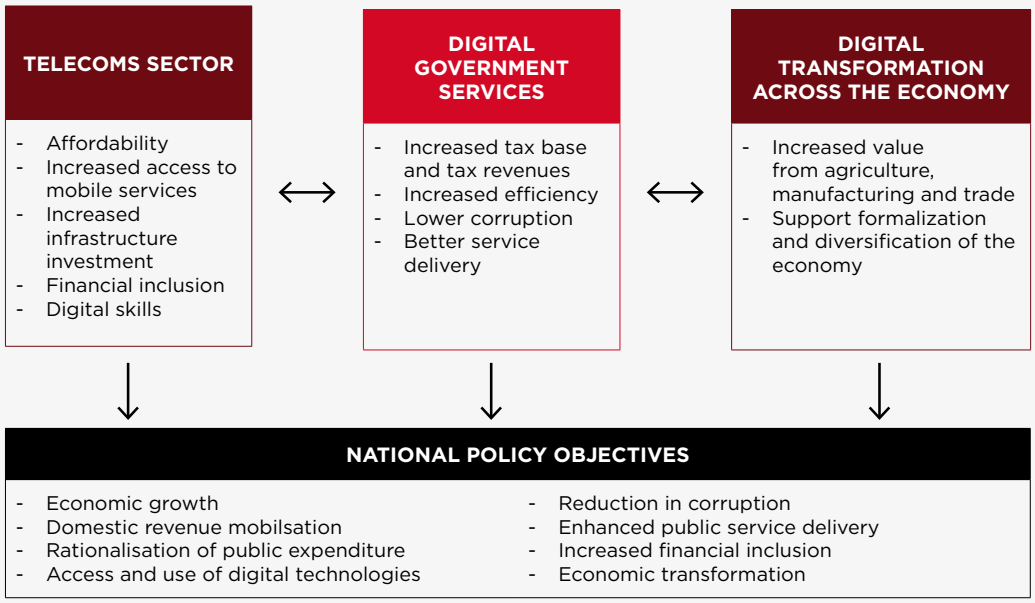
D. THIS STUDY

This study examines the role of digital technologies in Ethiopia's economic transformation. The starting point is an analysis of how digital technologies can drive socio-economic development through enhanced productivity and job creation, as well as how they can improve the efficiency of government and public services.

It identifies opportunities and quantifies the economic value of adopting digital technologies across specific sectors of the economy. It explains how these can be unlocked through policy reforms, recognising the mobile telecommunications sector's role in supporting digitalisation.

These policy reform scenarios are used to model the potential quantitative impacts of digitalisation on each sector. The impact on adoption and usage flows through to the other sectors of the economy. This is summarised in Figure 3 and more details are provided in Section 5 of the report.

Figure 3: Digital Economy links to policy



Source: Authors' synthesis

The sections that follow consider how digitalisation affects outcomes in some of the key sectors of the economy. It is organised as follows:

- Section 3 discusses the digitalisation of Ethiopia's economy and explores how it can positively impact productivity, economic growth and job creation. The potential economic impact of digitalisation is estimated for each sector, based on the policy reforms detailed later in the report.
- Section 4 focuses on the mobile telecommunications sector, assessing how its performance in terms of infrastructure, access, and adoption of digital services and mobile money. It identifies some important policy challenges and quantifies the impact of each policy reform scenario.
- Section 5 summarises the policy and regulatory reforms that the government, the Ethiopian Communications Authority, NBE and other relevant authorities could undertake to support the development of mobile telecommunications, mobile money and the wider digital transformation process.

3. Digital Transformation Across the Economy of Ethiopia

A. ETHIOPIA COUNTRY SNAPSHOT

Ethiopia has a population of approximately 127 million people and is one of the fastest growing economies in the world.[18] The government's objective is to reach lower middle income country status by 2025.[19] Ethiopia's state-led and public-investment-intensive development model supported annual growth rates of nearly 10% between 2004 and 2018, driving significant gains in poverty reduction. In recent years, the country has experienced macro-economic imbalances and multiple shocks that have slowed growth and renewed focus on structural transformation and productivity growth. In July 2024, the government secured a substantial package of loans and grants with the IMF and World Bank. The government announced, at the same time, significant economic reforms in the financial sector, trade and in fiscal policy.[20]

Table 1: Ethiopia – key indicators 2023

Gross Domestic Product (ETB)	8.7 trillion
Gross Domestic Product (USD)	164 billion
GDP growth (annual)	6.5%
GNI per capita (Atlas method, current USD)	1,130
Infant mortality rate (per 1,000)	34*
School enrolment, primary	85.5%
Life expectancy (years)	66*
Population, of which % rural pop	127 million, 77%
Net ODA received (% of GNI)	3.9%*
Number of 3G+ connections	40 million
3G and 4G network coverage (% pop)	98% and 33%

Data for 2023, except 2022 if marked *.

Source: World Bank World Development Indicators, GSMA Intelligence.

Digital and mobile technology have already delivered significant economic and social benefits in Ethiopia. Mobile internet access has greatly improved in the past 10 years, with 3G networks covering 98% of the population in 2023 and 4G coverage at 33%.

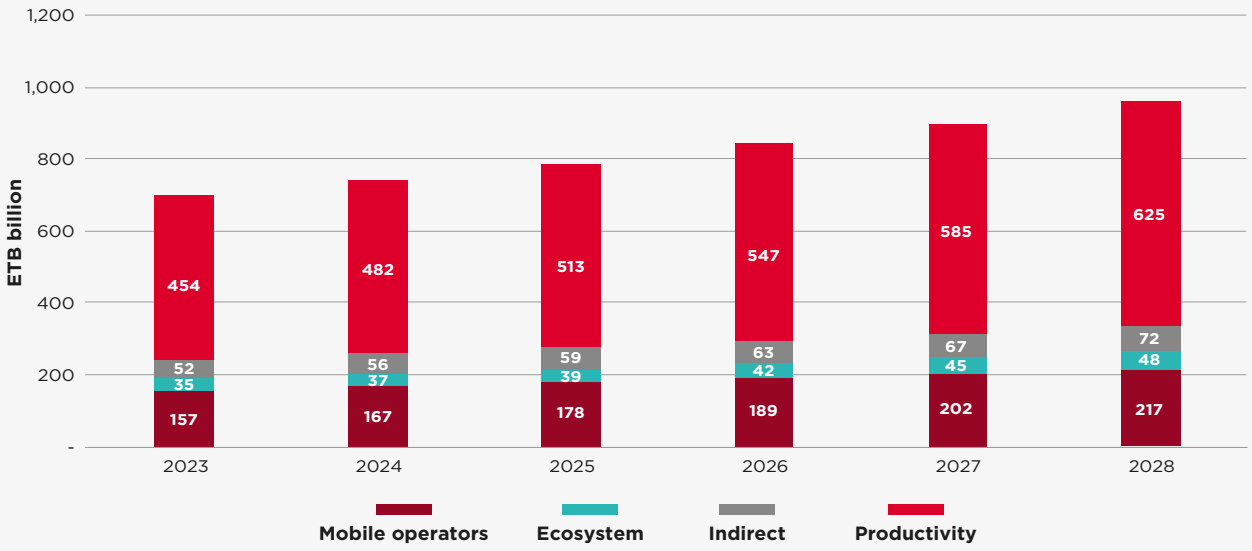
In 2021, Ethiopia had a 46% penetration of financial accounts across the population, driven by a relatively high penetration of traditional financial institutions.[21] **Mobile money services were launched more recently than in many other countries in the region. Mobile money penetration is therefore still relatively low but is growing.**

In the five years since the launch of Digital Ethiopia 2025 and the start of the telecommunications reform programme, the number of people covered by 3G networks has increased by 50%, while coverage of 4G networks has increased by 8 times.

As a result, the mobile sector makes a significant contribution to the Ethiopian economy. It is estimated that, in 2023, the telecommunications sector contributed close to ETB 700 billion (8% of GDP) to the Ethiopian economy when the ecosystem, indirect and productivity impacts are taken into account. Moreover, this generated ETB 57 billion in taxes.

18 World Bank World Development Indicators. Note, the Ethiopia Bureau of National Statistics reports slightly lower figures.
19 UNDP, December 2022, Ethiopia 2030: A Country Transformed? Options for A Next Generation of Reforms.
20 National Bank of Ethiopia, July 2024, Foreign Exchange Directive No. FXD/01/2024.
21 World Bank, 2021, Global Findex Database.

Figure 4: Direct, indirect and productivity impacts of mobile in Ethiopia, 2023-2028, ETB

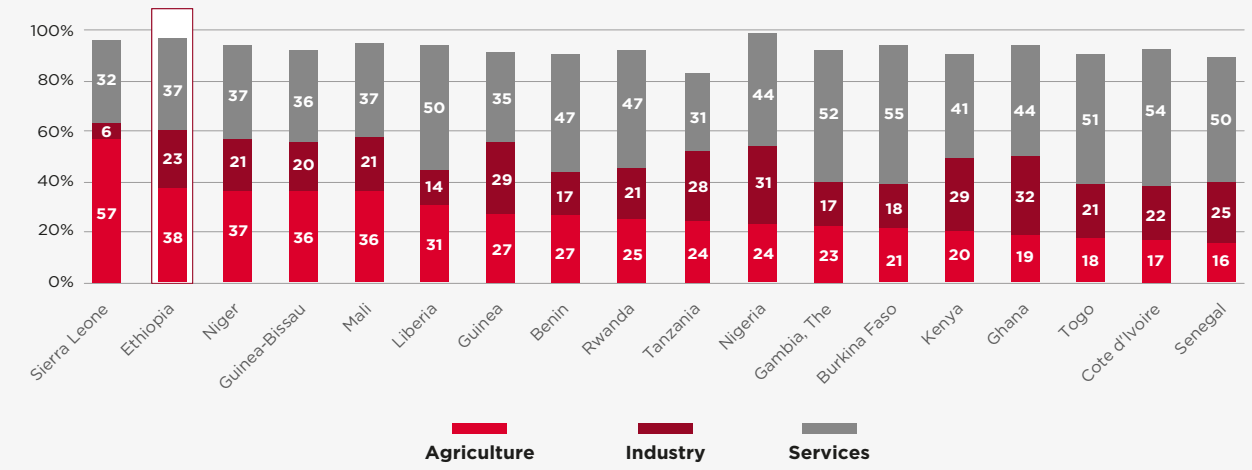


Source: GSMA Mobile Economy SSA, IMF WEO, Ethiopia National Bureau of Statistics, Economic Survey 2023 and authors calculations.

B. THE ECONOMY OF ETHIOPIA

Agriculture remains the backbone of the economy in Ethiopia, contributing over 37% of GDP and employing 63% of the population. Most of Ethiopia's exports are agricultural products, with coffee, tea and spices comprising close to 50% of exports, followed by other agricultural exports such as vegetables, fruits and plants.22 Manufacturing and industry account for 22% of GDP, while services contribute to over 36% of GDP.

Figure 5: Composition of GDP by sector in Ethiopia and other countries in sub-Saharan Africa, 2022 value add as a % of GDP

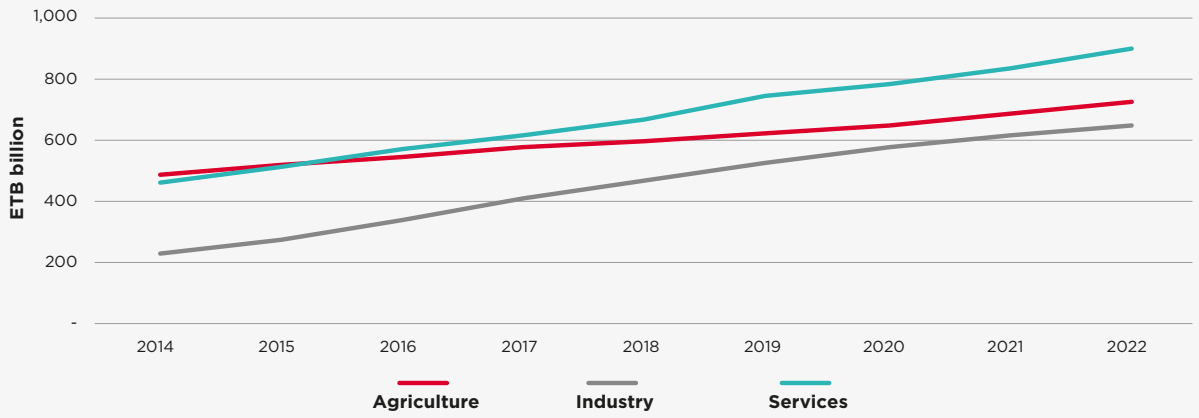


Source: Central Statistics Agency

22 Trading Economics.

Ethiopia has a larger share of agriculture in GDP than most other countries in sub-Saharan Africa. However, the agricultural value add growth has been slowing compared to industry and services in the past 10 years.

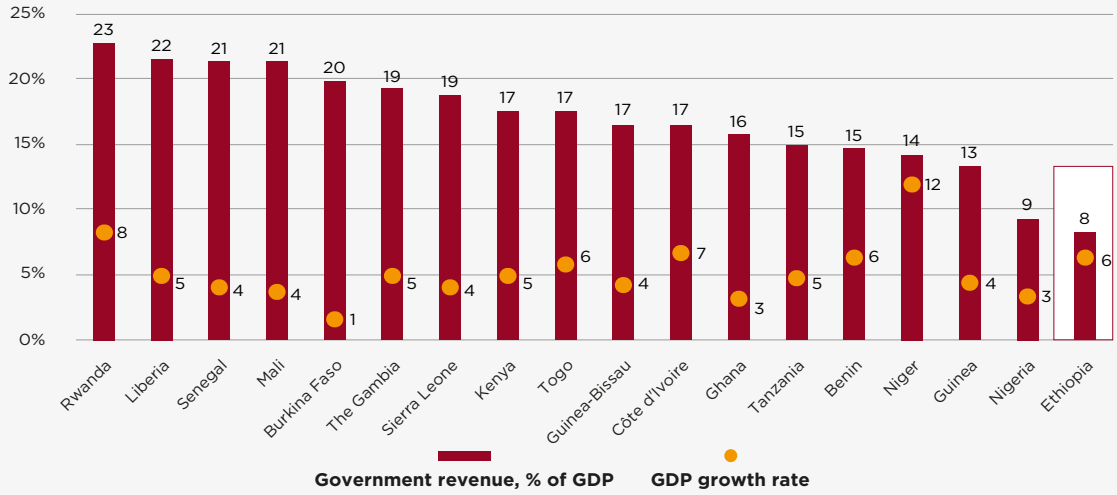
Figure 6: Evolution of value add in Ethiopia by sector, 2014-2022



Source: World Development Indicators. Constant 2015 ETB.

The Ethiopian economy achieved a much higher growth rate of GDP than most sub-Saharan African countries in the 10 years to 2019, averaging 10% Growth in the 5 years to 2023.[23] However, this growth depended on a high level of reliance on external sources of finance. Government revenue has continued to be very limited, at only 8% of GDP. Accordingly, the government's 10-year plan aims to reform tax policy and regulations, modernise the tax system and administration, and reform the tax structure to raise gross domestic revenue from ETB 395 billion to ETB 3.9 trillion.[24]

Figure 7: Government revenues and GDP growth in Ethiopia and other countries in SSA, 2023



Source: World Development Indicators.

23 IMF, 2024, World Economic Outlook.

24 Government of Ethiopia, 2020, 10 Years Development Plan 2021-2030.

C. ETHIOPIA ECONOMIC AND DIGITAL STRATEGIES

The Government of Ethiopia has adopted a series of key economy and developmental strategy and programmes, notably:

(a) **The HGER which commenced in 2019** (Phase 1) and has since been updated in July 2024 (Phase 2):

- To establish a modern and sound macroeconomic policy framework that supports and ensures stability, resilience, and sustainability
- To transform the investment and trade environment to boost competitiveness and promote innovation and entrepreneurship
- To expand productive capacity and productivity growth by increasing investment and unlocking economic growth potential
- To improve public sector capability that enhances the government's capacity to ensure quality and efficiency in service delivery

(b) The **10-year Development Plan (2021 to 2030)**, which provides a roadmap to improve society's welfare by improving the standard of living and quality of life for Ethiopians.

The HGER and 10-year Development Plan both cover several measures to increase macroeconomic stability, some of which have already been implemented such as the foreign exchange reform,[25] as well as other structural reforms including expanding the role and participation of the private sector in the economy and the privatisation of large state-owned enterprises. At the level of sectoral reforms, raising agricultural and manufacturing productivity are key priorities, together with initiating mining development and increased tourism promotion.

By focusing on enhancing growth and reducing poverty, the government aims to rebalance the quality of growth from public sector-led investment to more dynamic private sector-led growth, and reduce reliance on external sources of financing such as debt and aid.

25 National Bank of Ethiopia, 29 July 2024, Press release: The National Bank of Ethiopia announces a reform of the foreign exchange regime with immediate effect.

Both the HGER and 10-year Development Plan have the digital economy as a key pillar, providing reforms and targets as summarised below:

Government of Ethiopia HGER Phases 1 and 2; and 10-year Development Plan 2021 - 2030 - Summary of digital economy measures	
Home Grown Economic Reform Phase 1 (2020)	A key pillar is ICT and Digital Economywith key reform measures: • E-Government • Using ICT to boost Ease of Doing Business and expand service delivery (e.g. education, health, agricultural extension services) • e-commerce and digitization of the financial and logistic sectors, including digital payment's eco system and promote e-transactions • Expand ICT infrastructure throughout the country and ensure it is accessible, including expediting the telecom reform agenda, digital ID system and ICT-park • Investing on ICT literacy and advanced trainings • Pro-innovation and ICT regulatory and business environment, including sandbox regulatory approaches, facilitate access to alternative financing sources and risk capital for technology start-ups • Promote the export of IT-enabled services and BPO Implementation lead and overseen by Ministry of Finance, coordinating through Macro-Economic Committee reporting to the Prime Minister.
Home Grown Economic Reform Phase 2 (2024)	Digital technology sector and government reforms: • Complete the roll-out of the National Digital ID scheme • Continue to diversify and enhance coverage and quality of digital payment systems • Improve digital skills and infrastructure development • Conduct a coordinated and centralized assessment of Ethiopia's cybersecurity • Develop an enabling policy and regulatory environment for digital startups, and promote financing for digital startups and firms • Leverage digital platforms to match skilled workers with businesses • Enhance the policy and regulatory environment for tech startups to offer their services internationally • Establish an enabling environment for offshore outsourcing to Ethiopia, including data and call centers • Establish an enabling environment for e-commerce • Promote the adoption of digital tools by MSMEs through targeted incentives and initiatives • Rollout strategic e-government initiatives to bring efficiency and effectiveness to public service delivery • Building Digital Civil Service System
10 Year Development Plan 2021 - 2030	10 year development plan and roadmap, overseen by the Ministry of Planning and Development, to achieve improved welfare of the society by improving the standard of living and quality of life. Technology Capability & Digital Economy is one of 10 pillars, with 8 goals including: food and agriculture, health, education, economic growth and inclusion, resilient infrastructure and innovation, reduce inequality, and sustainable development. As part of the innovation and research development plan, sets targets including: • Expand infrastructure • Build capacity and service delivery • Build human resource capacity • 95% public institutions covered by government electronic network system, increase the types of electronically delivered public services from 176 to 2,500 • Raise the number of institutions that utilize electronic marketing service to 3,500 by increasing the electronic service coverage from 2% to 85% • increase access to mobile and internet services from 37.2% and 18.6%, respectively, to 100% • To expand and strengthen innovation and technology development enterprises • Raise the share of private sector jobs in the areas of technology and digitalization grom 50% to 80%

Source: Authors' summary of relevant digital economy sections of the HGER Phases 1 and 2, and the 10 Year Development Plan 2021 – 2030.[26]

26 Mofed

In 2020, the government published the **Digital Ethiopia 2025 strategy**, which identified 4 digital pathways and short, mid and long-term projects as summarised below:

Digital Ethiopia 2025 summary		
Digital Pathways	**Pathway 1: Unleashing value from agriculture** • Build digital agriculture platform • Support and incentivize ag-tech entrepreneurism **Pathway 2: The next version of global value chains in manufacturing** • Enable adoption and creation of new communication technologies in industrial parks • Enhance digitally enabled logistics management	**Pathway 3: Building the IT enabled services** • Providing infrastructure to high potential talent centres • Reframing and operationalizing IT Park to attract leading Business Process Outsourcing **Pathway 4: Digital as the driver of tourism competitiveness** • Set up a tourism digitalization task force • Targeted tourism digital marketing strategies • Build digital capacity of tourism SMEs
Priority short term projects (18 months)	**Unlock the digital economy by strengthening existing connectivity infrastructure** • Liberalization of the telecommunication sector and telecommunication sector reform • Deregulate the mobile phone assembly and manufacturing market to increase accessibility and ensure affordability • Build a government backbone and upgrade/ modernize WoredaNet • Implement Universal Access, and set up the universal access fund **Develop enabling systems that further enhance the digital economy** • Introduce a National Digital ID • Strengthen Cyber Security: accessing the current status and developing awareness campaigns and trainings • Develop regulations for mobile money	**Facilitate digital interactions among government, private sector and citizens** • E-Governance - human centred approach to designing portals, piloting e-transactions • E Commerce enactpolces and regulationsto enable electonic tansactions ands launch digital payment pilots in E-Commerce **Strengthening the Digital Ecosystem** • Digital literacy and digital skills programmes - schools, university, government • Policy & regulatory reform - promote Incubator services and formalize government engagement with ICT private sector
Mid to long term projects (3 - 5years)	**Unlock the digital economy by strengthening existing power infrastructure** • Improve power reliability and create environment to facilitate private sector investment •Fully operationalize the EEA: To regulate the power sector • Adopt operation Code 2016: to guide and provide rules to private sector participation in the power sector **Develop E-Commerce logistics through policy measures, attracting infrastructure investments and building sector capacity.**	**Strengthen the Digital Ecosystem** • Improve Regulatory Environment Impacting investment • Facilitate investment in IT sector • Develop an Ethiopian Stock Exchange

Together the HGER and the 10-year Development Plan have provided a guiding framework for the government for digital economy policy, regulatory reforms and programmes. A key part of this has been the promulgation and implementation of the Communications Service Proclamation No 1148/2019, which:

- **Introduced a new regulatory framework for the telecommunications sector consistent with international standards**, including directives covering licensing, spectrum, numbers, interconnection, competition, wholesale, retail tariffs, consumer protection,
- **Established the Ethiopian Communications Authority** (ECA) - an independent regulator separate from the Ministry of Information and Communications and Ethio Telecom,
- **Opened up the sector to competition and foreign investment through the granting of new unified technology neutral licenses** to Ethio Telecom (the former monopoly licensee which is planned to be partially privatised) and Safaricom Ethiopia, the second licensee awarded by auction process to an international consortium – the Global Partnership for Ethiopia - in July 2021
- Introduced new **universal access and service policy and fund.**[27]

This is complemented and enabled by the **Ethiopia Digital Foundations Project (2021 – 2026), a USD 200 million project financed and supported by the World Bank**, and implemented by the Ministry of Finance and Economic Development (MFED), and the Ministry of Innovation and Technology (MinT). Project components include:

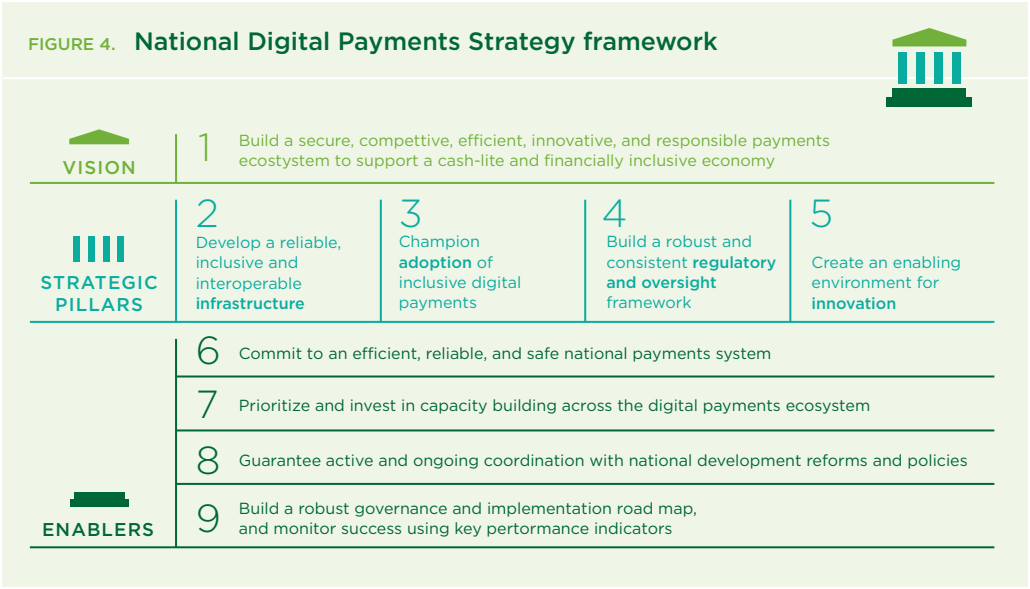
- Digital Economy – strengthening the enabling legal and regulatory environment, including the partial privatization of Ethio Telecom, strengthening the ECA, supporting MinT digital economy policy development and a digital ID program,

27 Communications Service Proclamation No. 1148-2019.

- Digital government and connectivity - including the digital government portal, digital government skills, targeted broadband connectivity for public and education institutions,
- Digital business and entrepreneurship including grants and co-investment grants to startups, support to MinT with digital transformation strategy 2025 implementation.[28]

In the financial services sector, consistent with HGER, NBE has adopted a **digitalisation agenda for financial inclusion and payments as a key pillar in strategies and plans in recent years, including the national digital payments strategy 2021 – 2024** as summarised below:

FIGURE 4. **National Digital Payments Strategy framework**



Source: NBE

The reforms includes **licensing Telebirr (Ethio Telecom's mobile money service) and M-Pesa (Safaricom Ethiopia's mobile money service) with Payment Instrument Issuer (PII) licenses in 2021 and 2023** respectively.

The current NBE Strategic Plan 2023 – 2026 continues this with its third strategic objective - Financial Inclusion, Deepening and Digitization, including completing the implementation of the National Digital Payments Strategy, the use of regulatory sandboxes, and the setting of targets to increase the volume and value of digital payments and financial services from a baseline of 750 million to 6 billion transactions and from ETB 4 trillion to ETB 17.5 trillion.[29] Other strategic objectives, aligned with HGER Phase 2, are leading to significant macro-economic and financial services reforms including foreign exchange and the planned opening up of the banking sector to international investors.[30]

D. THE POTENTIAL ECONOMIC IMPACT OF DIGITALISATION IN ETHIOPIA

This section estimates the macroeconomic impacts of increased digitalisation in Ethiopia for each key sector of the economy based on academic and policy research together with data on the economy of Ethiopia. These impacts reflect digital pathways to economic transformation and are mapped onto the government's strategic objectives, as articulated in the 10-year Development Plan and in Digital Ethiopia 2025.

The policy objectives, impacts of digitalisation by sector and their relationships are shown in Table 2, as well as the evidence used to quantify them. The separate methodological document accompanying this report contains more details on the methodology and evidence review.[31]

28 See current status - World Bank Document implementation and status report May 2024
29 National Bank of Ethiopia, 2023, Delivering on Our Stability Goals: NBE's Strategic Plan For 2023-26.
30 Reuters, June 14 2024, Ethiopia to allow foreign banks to set up local subsidiaries
31 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

Table 2: Mapping digitalisation to policy objectives and estimating the impact

Sector	Policy objectives	Outcomes of digitalisation	Impact relationship	Evidence rule
Agriculture	Agricultural development and agricultural productivity, access to markets, increase and diversify production	Precision agriculture, targeted information, better access to markets	Access to technology by farmers→ productivity, profits	Access to technology and precision agriculture increase crop yields between 10.5% and 20%, and profits up to 23%
Manufacturing	Diversify and develop manufacturing, attract FDI, increase technology exports	Expand manufacturing capabilities, diversify production, increase FDI and exports	Adoption of new technologies by firms →productivity, GDP, exports	Application of industrial IoT and Industry 4.0 increases value add between 15-25%
Transport	Improve trade links, infrastructure for transport and logistics, strengthen competitiveness of ports	Reduce transaction and logistics costs, border delays and tax leaks. Increases productivity and integration into. Global Value Chains (GVCs)	Digital platforms and infrastructure → increase productivity, port capacity, GDP	Transport upgrades increase incomes by 10%. Digitising ports reduces logistics costs by 15-25%. Digital customs increases revenue by 54% in 5 years
Trade	Economic diversification, strengthen trade and exports	Improves trade flows, growth of E-commerce and exports of ICT services and digitally delivered services	Digital trade→ increased integration in AfCFTA, E-commerce and service exports	Potential to increase E-commerce value to 15% GDP and ICT exports value to 7% GDP
Healthcare	Increase access to healthcare, improve well-being, increase productivity of healthcare sector	Telemedicine, digital health records, digital payments for insurance contributions increase access to health services and productivity	Digital health → increased access to health services and productivity	Digital health solutions enable doctors to increase visits by 30%
MSMEs	Strengthening competitiveness and formalisation of MSMEs	Improves profits of MSMEs. Facilitates business registration, access to finance, formal contracts	Access to digital by MSMEs→increased incomes and formalisation	Technology adoption is associated with labour productivity of 2-4% for small firms
Government	Strengthen domestic revenue mobilisation, prevent corruption, improve services delivery	Increases tax revenue and provides saving in public expenditure through better targeting, transparency and reduction of corruption	Mobile money, P2G, G2P adoption → increase GDP, tax revenue, reduce leakage	Mobile money adoption increases tax revenue by 12% on average. Digital ID for social protection decreases leakage by 41-47%

Note: For details and references see separate methodological document that accompanies this report.[32]

Impact of digitalisation on the agricultural sector in Ethiopia

Increasing productivity and boosting agricultural production are key priorities for the government, given agriculture remains the largest contributor to the Ethiopian economy, employing over 60% of the country's workforce.[33] Key priorities identified in Digital Ethiopia 2025 strategy for agriculture include building a digital agriculture platform and supporting and incentivizing ag-tech entrepreneurship.

Digitalisation can support diversification of food crop production, as well as improving agricultural productivity. Both of these can be enhanced through information and training tools online, real time information on crops and weather patterns and precision agriculture delivered with digital tools. Recent progress allows more effective advice to be delivered to farmers through the use of big data, GPS, drones and high-speed communication. It has been shown that information combined with access to fertilizer increases agricultural yields by 20% and profits by 23%.[34]

32 GSMA, May 2024, Driving digital transformation of African economies Evidence and methodology document.
33 World Development Indicators.
34 Arouna et al. 2020, One Size Fits All? Experimental Evidence on the Digital Delivery of Personalized Extension Advice in Nigeria.

In Ethiopia, Safaricom has launched a product to provide smallholder farmers with data-driven input financing bundled with insurance in partnership with Green Agro-Solution PLC. The product, also known as "Lersha", enables smallholder farmers to purchase agricultural inputs to increase productivity and income. Lersha also provides digital services to enable smallholder farmers to access farm inputs, hire mechanisation services and receive advice, credit and insurance through their in-house call centre, mobile app and agents.[35]

The policies described in Section 4 would increase access and adoption of mobile technology by farmers, especially small scale, and therefore positively effect the level of digitalisation of agricultural value chains. We estimate that an additional 30 million people adopting mobile technologies would increase agricultural productivity as the applications described above become more utilised and therefore **have the potential to add ETB 130 billion to agricultural value add,** equivalent to 3.1% of the sector's total value add by 2028. This would result in additional employment in agriculture of around 1.5 million people by 2028 and ETB 11 billion in additional tax revenues generated by the sector.

Table 3: Potential impacts of increased digitalisation of agriculture in Ethiopia in 2028

Digital agriculture value add (ETB billion)	134
% Sector GDP	3.1%
% of GDP	1.1%
Employment	1,500,000
Tax revenue (ETB billion)	11

Constant 2023 ETB. See separate methodological document that accompanies this report.[36]

Impact of digitalisation on industry in Ethiopia

The manufacturing subsector in Ethiopia is largely agro-based and there is large potential to grow it through diversification, increasing industrial production, increasing R&D and promoting local processing and value-addition. Furthermore, digital technologies can support the government's plans to increase manufacturing exports from 13% in 2019 to 48% in 2030.[37]

The mobile telecommunications sector is supporting the development of advanced manufacturing capabilities in Ethiopia. Ethiopian firms could benefit from Industry 4.0 technologies by adopting advanced digital technologies, such as cloud computing, 3D-printing, big data analytics and AI. Factory automation with cellular IoT technology optimises manufacturing processes with increased efficiency, fewer human errors, increased reliability and safety and reduced downtime. Expanded manufacturing capabilities can lead to greater integration into GVCs, reduced concentration of products and markets and strengthened links to specialised markets.[38] Across a wide range of sectors, implementing Industry 4.0 technologies has achieved 30-50% reductions in machine downtime, 10-30% increases in throughput, 10-30% improvements in labour productivity, and 85% more accurate forecasting.[39] The application of IoT devices in the manufacturing alone could increase manufacturing productivity by 10-25% and value add by 20%.[40] The extractives industries can increase mineral yields by up to 10% through the adoption of IoT, remote sensors and other digital technologies.[41]

35 GSMA.
36 GSMA, Driving digital transformation of African economies Evidence and methodology document, May 2024.
37 Government of Ethiopia, 2020, 10 Years Development Plan 2021-2030.
38 World Bank, 2020, World Development Report.
39 McKinsey, 2022, Capturing the true value of Industry 4.0.
40 European Parliamentary Research Service, September 2015, Industry 4.0: Digitalisation for Productivity and Growth.
41 McKinsey, 2023 – see methodology review.

Foreign companies have an important role in strengthening industrial capacity and accelerating growth in local production. They are attracted by countries with strong connectivity infrastructure and a thriving digital ecosystem. Ethiopia has been successful in mobilising FDI flows compared to other countries in sub-Saharan Africa in recent years. **However, it could attract more investment through championing digital transformation in the industrial sector and ensuring that the manufacturing sector has access to a greater availability of digital technologies and associated skills.**

The policies described in Section 4 would increase the level of digitalisation of the manufacturing sector. It is estimated that an additional 30 million people having access to mobile technology would **increase the adoption of more advanced technologies in the manufacturing sector. This can potentially add ETB 108 billion in industry value add,** equivalent to 3.7% of the subsector's total value add by 2028. This would result in additional employment of about 180,000 people by 2028 and ETB 9 billion in additional tax revenues from the increase in value addition to the economy.

Table 4: Potential impacts of increased digitalisation of industry in Ethiopia in 2028

Value add (ETB billion)	108
% Sector GDP	3.7%
% of GDP	0.9%
Employment	180,000
Tax (ETB billion)	9

Constant 2023 ETB. See separate methodological document that accompanies this report. [42]

Impact of digitalisation on the transport and logistics sector in Ethiopia

The transportation and logistics subsector is one of the key enabling subsectors for Ethiopia's manufacturing industry. It is also an essential input into the agricultural sector and supports greater integration into GVCs. Digitalising the transport backbone and border procedures would facilitate logistics, trade and enhances the connectivity of international trade flows.

Digital innovation can also play an important role in delivering efficient and effective transport and mobility systems in cities. This includes GIS systems that support the development of multi-modal transit systems to real-time collection and analysis of traffic information, to smart traffic signage and automated fare collection for parking and public transport.

The policies described in this report would increase transport sector's digitalisation, speeding up supply chains and lowering transaction costs. This potentially could add ETB 24 billion to transport value add, equivalent to 4.6% of the subsector's total value add by 2028. This would result in additional employment in transport of 130,000 people by 2028 and ETB 2 billion in additional tax revenues from the increase in value addition to the economy.

Table 5: Potential impacts of increased digitalisation of transport in Ethiopia in 2028

Digitalisation of transport value add (ETB billion)	24
% Sector GDP	4.6%
% of GDP	0.2%
Employment	100,000
Tax (ETB billion)	2

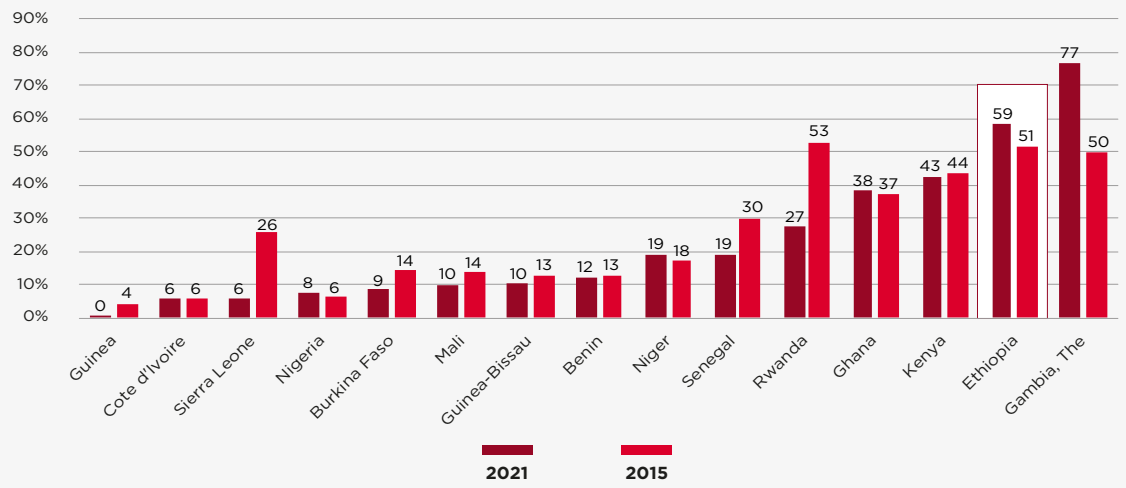
Constant 2023 ETB. See separate methodological document that accompanies this report.[43]

42 GSMA, Driving digital transformation of African economies Evidence and methodology document, May 2024.
43 GSMA, Driving digital transformation of African economies Evidence and methodology document, May 2024.

Impact of digitalisation on trade and services in Ethiopia

The development of the trade sector is an important part of Ethiopia's strategy for economic diversification, and is part of the government's plans to further diversify its exports from agricultural products to services and manufacturing goods. Adopting new technologies can further expand the tradability of some services and growth in digitally delivered services. Moreover, the digitalisation of logistics and trade-related services can significantly improve flows and productivity along trade routes.

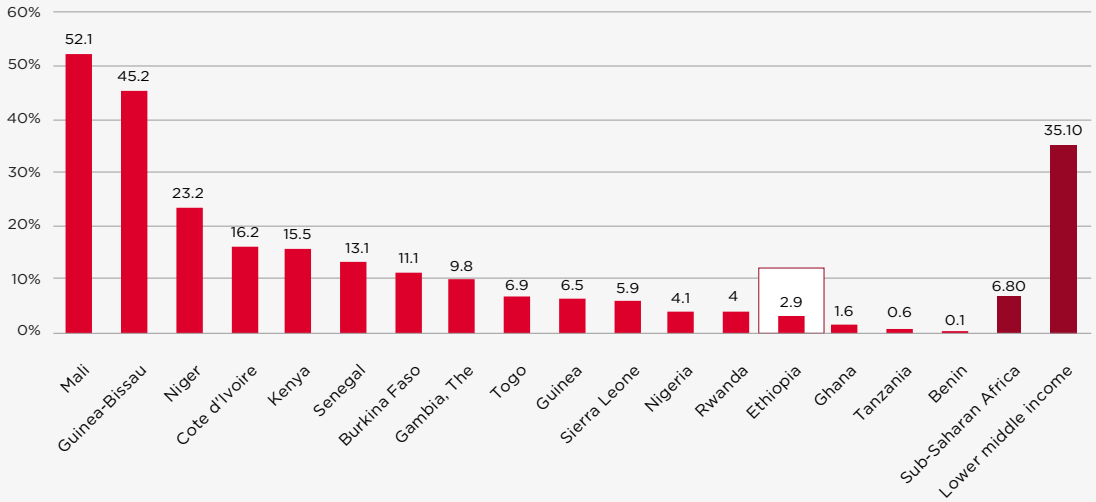
Figure 8: Exports of services, % of total exports



Source: World Development Indicators.

Ethiopia has great potential to increase its trade in services, such as ICT, financial, professional, and technical services. These subsectors tend to be knowledge-intensive, can often be traded using digital technologies and many of them form important inputs to other sectors. Ethiopia's ICT services exports account for only 3% of Ethiopia's total services exports, much lower than other countries in sub-Saharan Africa.[44]

Figure 9: Information and communications technology exports as % of total services exports, 2020



Source: World Development Indicators

44 World Bank, 2023, World Development Indicators

Through growth in digital payment services, e-commerce and the reduction of barriers to cross-border digital trade, Ethiopia can also **take advantage of digital trade opportunities arising from the African Continental Free Trade Area (AfCFTA).** This will further support diversification of the economy and deepening of economic cooperation in the region. To enable such growth and the tradability of digital services regionally, the regulation of cross-border data flows will need to be carefully considered and localisation requirements will need to be set to the minimum necessary to achieve essential policy objectives and in ways that minimise restrictions to trade.[45]

Mobile money can provide an effective platform to scale up merchant payments and e-commerce. For example, Ethio Telecom has developed an e-commerce platform that enables merchants to trade their products. This platform will launch soon and potentially expand the digital ecosystem, particularly around logistic companies.[46]

The policies described in earlier in the paper would increase the digitalisation of the trade sector. An additional 30 million people adopting mobile technologies would result in more demand for e-commerce by consumers, as well as additional adoption by service firms and expansion of digitally delivered services. This can potentially add ETB 27 billion in value add, equivalent to 1.5% of the subsector's total value add by 2028. This would result in additional employment in trade by almost 150,000 people by 2028 and ETB 2.3 billion in additional tax revenues from the increase in value addition to the economy.

Table 6: Potential impacts of digitalisation of trade in Ethiopia in 2028

Digitalisation of trade value add (ETB billion)	27
% Sector GDP	1.5%
% of GDP	0.2%
Employment	150,000
Tax (ETB billion)	2

Constant 2023 ETB. See separate methodological document that accompanies this report.[47]

Impact of digitalisation on healthcare in Ethiopia

Digital solutions for healthcare can deliver better health outcomes through improved access to healthcare services, and contribute to the economy via cost savings and increased productivity. Digital healthcare applications range from telemedicine consultations, which allow doctors to consult with patients over a digital voice or HD video, to electronic health records, which enable more accurate diagnoses and reduce administrative costs.

In Ethiopia, around 62% of the population have some form of health insurance, virtually all being public health insurance from either Community Based Health Insurance (CBHI) or regular Social Health Insurance (SHI).[48] Digital payments and digital insurance penetration can improve processes for insurance claims and facilitate contributions to and enrolment in national health insurance schemes. For example, in Ghana a mobile money payment system for membership renewal and premium payments led to enhanced enrolment and retention rates in a health insurance programme. This resulted in an increase in the proportion of mobile renewals to total renewals from 67.4% to 82.3% in one year.[49] If a similar increase in enrolment were to materialise in Ethiopia, **adoption of digital health insurance might result in 20% more people having health insurance, bringing insurance coverage to nearly 75% of Ethiopians.**

45 WTO, IMF, 2023, Digital Trade for Development
46 Interview with Ethio Telecom
47 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.
48 Odipo et al., Lancet Glob Health, 2024, The path to universal health coverage in five African and Asian countries: examining the association between insurance status and health-care use.; and Ministry of Health, Government of Ethiopia
49 Addae-Nketiah A., 2022, Factors influencing subscribers' use and adoption of the NHIS mobile renewal service.

The policies described in this report would increase the use of mobile technology for digital health applications by patients and health workers, improve connections between patients and doctors and drive efficiencies in service delivery. **Digitalisation of the healthcare sector has the potential to add ETB 4.4 billion to value add**, equivalent to 5.5% of the subsector's value add by 2028. This would result in additional employment in healthcare of 20,000 people by 2028 and ETB 370 million in additional tax revenues from the increase in value addition to the economy. This would be equivalent to 15% of the required annual health expenditure in Ethiopia.[50]

Table 7: Potential impacts of digitalisation of healthcare in Ethiopia in 2028

Digitalisation of healthcare value add (ETB billion)	4
% Sector GDP	5.5%
% of GDP	0.0%
Employment	20,000
Tax revenue (ETB billion)	0.4

Constant 2023 ETB. See separate methodology Document that accompanies this report.[51]

MSMEs, fintech and the innovation community in Ethiopia

The MSMEs subsector cuts across all sectors of the Ethiopian economy and is an important contributor to employment. The government aims to encourage the growth of small businesses, particularly MSMEs, and support the formalisation of businesses and their linkages to other parts of the economy.

Access to ICTs and digital services are essential to support the startup ecosystem. This access has been associated with benefits for MSMEs ranging from better access to information and markets, to increased productivity and job creation. For formal firms, higher technology adoption is associated with labour productivity of up to 2%, reaching 4% for informal firms.[52]

As part of this, **digital entrepreneurship provides new job and skills creation opportunities.** Fintech has proved a growing sector in Ethiopia, with several start-ups emerging in recent years, providing innovative financial services from savings to credit to payments and remittances.[53]

Ethiopia has several advantages for startup companies, including its large population and market size, a skilled and talented workforce trained at its many universities and research institutions, as well as various supporting initiatives by the government such as the Startup Act, the Science, Technology and Innovation (STI) policy and advances in digital connectivity. However, access to capital and the business environment could be improved, with 25% of agri-tech and health-tech startups rating the environment as very good. In comparison, nearly 30% of startups rated it as average and 20% rated it as bad.[54] Mobile operators are supporting efforts to upskill and train MSMEs and youth. In partnership with MinT and the Japan International Cooperation Agency (JICA), Safaricom Ethiopia launched an online learning platform called Safaricom Talent Cloud in partnership with Gebeya Inc, which empowers 10,000 young people for upskilling by the middle of 2025.[55]

50 A World Bank report estimates that MoH spending required spending on enhancing digital health at USD 349.7 million. Reference from British International Investment, 2024, Impact of investment in the Ethiopian telecommunications market – the story so far.
51 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.
52 Cirera, Comin, and Cruz, 2022. Also: Bhattacharya, 2019 and Mothobi, Gillwald, and Aguera, 2020.
53 Shega, 2024, List of FinTech Startups in Ethiopia
54 Ministry of Innovation & Technology, JICA, Project Ninja, 2023, Startups Ecosystem Report: Ethiopia – Addis Ababa.
55 Safaricom Ethiopia, Ministry of Innovation & Technology, 19 July 2023, Safaricom Ethiopia, Ministry of Innovation & Technology, Sumitomo Corporation & JICA sign memorandum of cooperation to contribute jointly to Digital Ethiopia 2025.

Fostering innovation in SME finance

Ethiopian start-ups are using cutting-edge technology to bridge the credit and market access gap and fostering financial inclusion, also thanks to the regulatory reforms that have been promoting an enabling environment for innovation.

Kifiya is a digital finance and payment services that offers fintech, agri-tech, and mobility solutions. Through innovative AI-powered digital financial services infrastructure, including credit scoring, Kifiya empowers MSMEs, smallholder farmers, and low-middle-income consumers by providing uncollateralized credit, connecting them to larger markets, and digitizing critical sectors such as agriculture. Their innovative technology builds and enables distribution channels that make financial and non-financial services affordable and accessible. Since its launch in 2014, it has reached 158,000 MSMEs with access to financing and provided USD 47 million in uncollateralized digital credit.

Arifpay was launched in 2021 after obtaining the first payments platform licence. It offers various digital payments solutions to small businesses, ranging from in-store, mobile, or self-service solutions. They are helping address the issue of lack of physical POS machines or other payments methods across the country.

Similarly, Chapa Financial Technologies is on a mission to revolutionize digital payments in Ethiopia and empower businesses to thrive in the global marketplace, providing a secure and user-friendly online payment gateway using online payments, QR codes, and offline tools, therefore bridging the gap in fragmented payment options for sectors ranging from agriculture to tourism and trade.

Sources: kifiya.com; arifpay.net; and chapa.co.

Impact of digital government in Ethiopia

The UN E-Government Digital Index (EGDI) 2024 ranks Ethiopia as having "Middle EGDI" at 169 of 192 UN Member States, which is similar to many African countries, but is behind "high EGDI" African or BRICS countries including Brazil, Ghana, India, Kenya, Rwanda, and South Africa.

Since the data collected for the previous EGDI 2022, the government has identified digital government and public services as key components of the HGER and the Digital Strategy 2025. The implementation of these plans has improved Ethiopia's EGDI ranking by 10 places. Implementation is being supported by the World Bank's Digital Foundations Project (2021 – 2026) with:

- USD 50 million dedicated to (i) developing a government ePortal accessible by citizens and firms, (ii) improving government facilities for remote working, (iii) designing an overall enterprise architecture for IT within government, and (iv) building the digital skills of government officials.
- USD 65 million dedicated to broadband connectivity to targeted public institutions.
- USD 18 million dedicated to broadband connectivity for selected education institutions, in partnership with EthERNet, Ethiopia's National Research and Education Network (NREN), part of the Ministry of Education.
- Technical advisory support of implementation of the National Digital ID program, including the establishment of the legal framework for data protection and data protection agency.[56]

56 World Bank, 19 September 2019, Ethiopia Digital Foundations Project: Project Information Document (PID), pages 12-15

Examples of digital government and related programmes underway include:

E-government service strategy	MinT is due to submit an e-Government Service Strategy and Enterprise Architecture 2024-2029 document to the Ethiopian Digital Transformation National Council for approval. MinT plans to make 2,500 eServices available to citizens and businesses by 2030.[57] In the interim, different government entities are successfully implementing digital online services, integrated with banking payments, such as e-passport and visa, and the customs trade portal.
Ministry of Revenue	The Ministry of Revenue is prioritising use of digital technologies and in the last year introduced the Integrated Tax Administration System (ITAS), which includes a pilot e-invoice system. It also plans to start collecting income taxes, private pension fees and federal tax payments digitally.
Digital ID	The Digital ID Proclamation was passed in April 2023. The National Digital ID "Fayda" Agency has a target of 90 million registrations by 2028 and had reached 7.2 million by June 2024. Since December 2023, the Fayda ID is being integrated with the Ministry of Revenue's taxpayer identification number (TIN) registration process. The Ministry announced that 128,000 new TIN registrations had been completed with Fayda ID by May 2024. In April 2024, a partnership was established with Ethio Telecom to provide 160 registration centres for Fayda ID. As of October 2024, there were 750 registration centres with digital ID kits and 2.55 million registrations have been completed through the Ethio Telecom centres.
Digital payments for government services and subsidies	MinT are working on the government e-services portal, which will be integrated with digital payments for users to pay for services and the government to disperse social welfare benefits and subsidies. In the interim, an example demonstrating the benefits and efficiencies of digital payment to disburse subsidies is the national fuel subsidy scheme disbursed by Telebirr.[58]
Ethiopia's Productive Safety Net Program (PSNP),	Disbursement of cash transfers via mobile money will provide improved targeting and reduced leakages for the PSNP, especially once digital ID will be in place with good coverage across the population.
E-procurement	E-Procurement system that has been introduced and is viewed as one of the most important digital innovations in public service delivery. The system has moved government purchasing and procurement online.
Data Protection	A new personal data protection proclamation was passed on April 2024, and new data protection commission is to be established.

Deep dive on fuel payments scheme

Since July 2022, customers at gas stations have been able to pay for fuel through Telebirr and other digital payments methods, including Central Bank of Ethiopia CBE Birr. Customers that are using coupons to pay for subsidised fuel are required to use digital means of payment in place of cash. This has been mandated by the government to prevent illegal activities, fuel wastage and promoted digital payments adoption.

The scheme has been successfully rolled out, with Telebirr being the prevalent platform used. As of October 2024, more than 1,600 gas stations are participating in the scheme with 141,000 vehicles paying through Telebirr with the subsidy transaction and 1.1 million vehicles paying without the subsidy. The total transaction value through the scheme was ETB 255 million, of which 52% were transactions with the subsidy.

It is estimated that this has generated a saving for the government on the monthly cost of fuel subsidies from ETB 7 billion to ETB 188 million, a reduction of over 95% of the cost of the subsidy to the government.

Sources: Ethio Telecom and stakeholder interviews.

57 Shega, 13 July 2024, Ethiopia Gears Up for Interoperable Digital Government

58 Ethiopian Monitor, 25 April 2023, Gas Stations in Addis Start Digital Fuel Transactions ahead of Nationwide Rollout

Deep dive on Fayda Digital ID

Digital identification is recognised as a priority of the Digital Ethiopia 2025. In March 2023, Ethiopia passed the Digital Identity Proclamation Bill sanctioning the transition to a digital ID called Fayda ID, which will replace the current form of identification, the Kebele ID. It is expected that the Fayda ID will reach many more than the 36% of the population aged 18 and older who currently are estimated to lack a Kebele ID.

The Fayda ID program has been funded by the government, with additional support of USD 350 million from the World Bank to purchase digital ID registration kits. It uses an open source platform, similar to the system that has been successfully deployed in India, as opposed to smart cards, which are less efficient and costly. The enrolment process is designed to collect the minimum information necessary from users, protecting privacy and avoiding reference to ethnicity. It collects biometric data and issues a Fayda ID with a unique 12-digit number.

The program is set up to facilitate the creation of an environment of trust between citizens and the service providers (both government and private sector). For instance, it is now incorporated into the Telebirr Superapp of Ethio Telecom.

As of H1 2024 there were already 7.2 million people enrolled and the programme is targeting 90 million registrations. The program adopts an enrolment strategy that uses 3 channels – firstly, the programme's own network of agents and staff, secondly partners such as Ethiotel, Safaricom and Banks, and finally Super Agents who are selected through government tenders and are provided with commercial incentives.

The programme is expected to have wide ranging benefits for citizens and for the efficiency of the public sector. For example, Minister of Revenue is already using the ID, instead of relying on the legacy TIN, which was not unique and would impede tax collection. Beyond improved tax collection, other use cases include: facilitating access to financial services and therefore financial inclusion, improving targeting and disbursements of social protection programmes (for example Ethiopia's Productive Safety Net and pension programmes) and supporting public service delivery from healthcare to education.

The programme is estimated to generate USD 210.1 million in net value over 10 years.

Sources: World Bank, Project appraisal document – Ethiopia digital ID for inclusion and services, November 20, 2023; British International Investment, Ethiopia report, 2024; interviews with World Bank and staff at the Ethiopia National ID Office; World Bank, Ethiopia National ID Program - Use case report, Supporting emerging use cases, November 2021.

Digital government services provide significant benefits to citizens and governments, notably when integrated with digital payments. By encouraging electronic transactions, digital payments bring more economic activity into the formal sector, making regulation and taxation easier. Digital payments create clear transaction records, reducing opportunities for tax evasion and non-compliance. Digital systems automate compliance processes, easing the burden on taxpayers and ensuring regulatory adherence.

This has been documented by research and analysis of the effects of digital transformation in the public sector. For example, studies have found that digitalising government payments could save approximately 0.8–1.1% of GDP.[59] Similarly, it has been shown that countries that have adopted digital channels for people to make tax and other payments to government, experience a 1.2–1.3 percentage point boost in direct tax revenue as a share of GDP.[60]

It is estimated that the increased adoption of digital government services that would arise if the policies described in this report were implemented has the potential to add ETB 22 billion in additional tax revenues for the government, equivalent to 2.2% of total tax revenue by 2028.

Table 8: Potential impacts of increased adoption of digital government on tax revenue in Ethiopia in 2028

Digital government revenue increase (ETB billion)	22
% tax revenues	2.2%
% of GDP	0.2%

Constant 2023 ETB. See separate methodological document that accompanies this report.[61]

59 IMF, Susan Lund, Olivia White, and Jason Lamb, 2017, The Value of Digitalizing Government Payments in Developing Economies, in Digital Revolutions in Public Finance, IMF.

60 Abdoul-Akim Wandaogo, Fayçal Sawadogo, and Jesse Lastunen, February 2022, Does the adoption of peer-to-government mobile payments improve tax revenue mobilization in developing countries?

61 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

GSMA

4. The Telecommunications Sector in Ethiopia

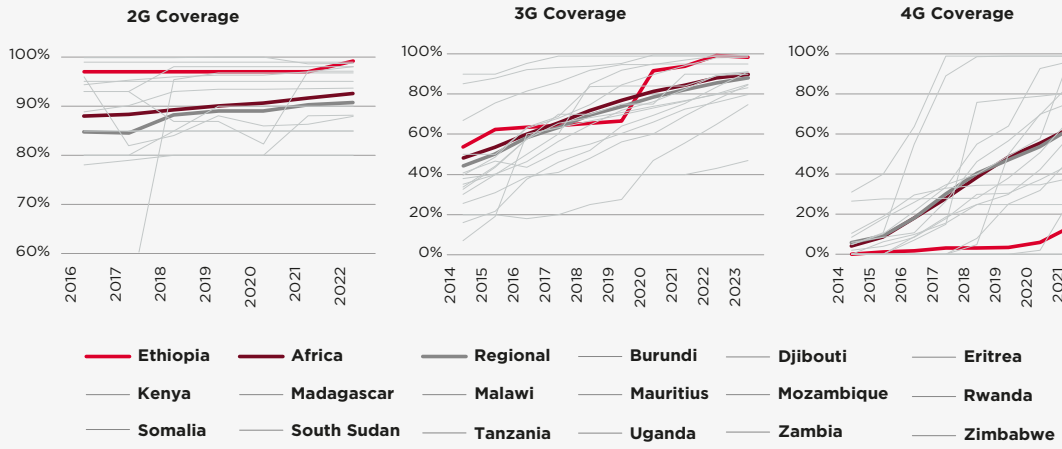
A. SECTOR OVERVIEW

Mobile market

The Ethiopian telecommunications market has been undergoing a process of liberalisation since the inception of the telecommunications sector reform programme in 2019. The incumbent operator, Ethio Telecom, had a monopoly in the market until 2022, when Safaricom Ethiopia launched commercial operations. Within its first year, Safaricom Ethiopia had 4.1 million active mobile subscribers, corresponding to a 5% market share of the total telecommunications subscriber base. Ethio Telecom has a market share of 94.5% compared to Safaricom's market share of 5.5%.[62]

Ethiopia has made good progress in rolling out 2G and 3G networks. Network coverage has been growing steadily for several years and has accelerated since liberalisation. However, gaps in network coverage still remain. 4G network coverage has more than doubled in the couple of years from 2021 to 2023, but it remains limited to 40% of the population[63] and further expansion of the network is needed (in line with unified telecommunications service license requirements).

Figure 10: Evolution of mobile network coverage by technology

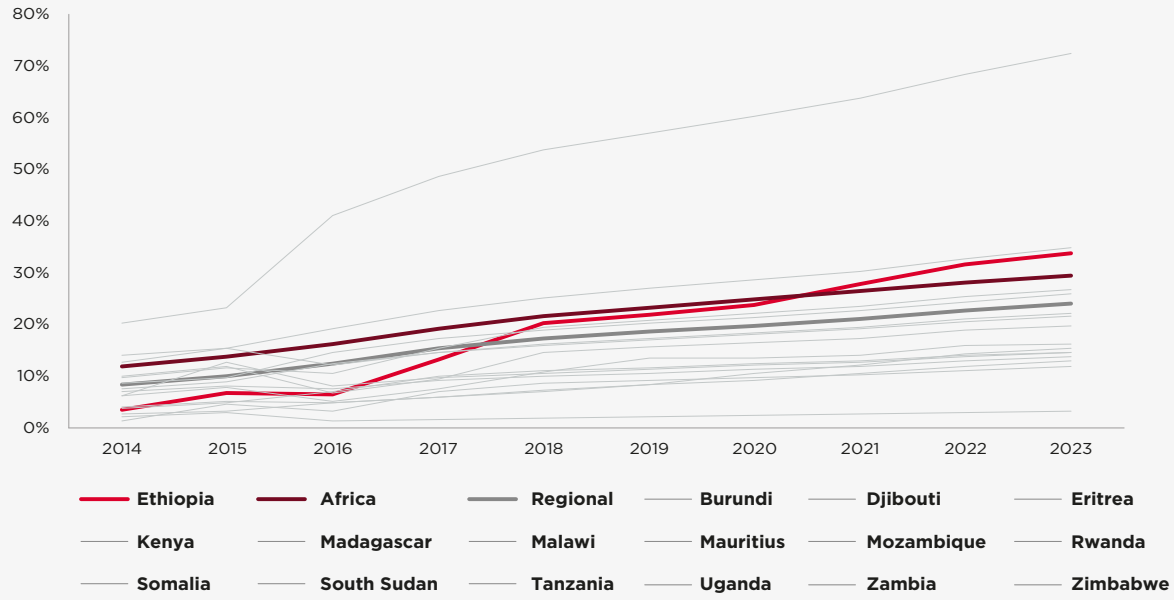


Source: GSMA Intelligence, ITU.

Mobile internet usage in Ethiopia has grown considerably in recent years. There were fewer than 4 million 3G internet users in 2014 while this had grown to more than 40 million users with at least a 3G+ connection by 2023.[64] Figure 11 provides a comparison of mobile internet penetration in Ethiopia and other African countries.

62 GSMA Intelligence, 2024. Historical data and estimate for 2024.
63 Data for 2024 is an estimate.
64 "Internet users" refers to active SIM cards that connect to the mobile internet. Source: MNOs and GSMA Intelligence.

Figure 11: Mobile broadband user penetration, 2014-2023



Source: GSMA Intelligence, MNOs.[65] Population data is from World Bank.

A survey of attitudes and mobile internet use in Ethiopia has shown that the most significant barrier to adoption is affordability, followed by literacy and digital skills. Affordability remains the most significant barrier to further use and more advanced activities online.[66]

Figure 12: Barriers to mobile internet adoption and further use in Ethiopia

Barriers to mobile internet adoption

	AFFORDABILITY	LITERACY AND SKILLS	RELEVANCE	SAFETY AND SECURITY	NETWORK COVERAGE	OTHER ACCESS BARRIERS
2022	35%	39%	7%	3%	7%	9%
2023	42%	36%	6%	3%	4%	8%

Barriers to further mobile internet use

	AFFORDABILITY	LITERACY AND SKILLS	RELEVANCE	SAFETY AND SECURITY	NETWORK COVERAGE	OTHER ACCESS BARRIERS
2023	39%	5%	2%	7%	23%	24%

Source: GSMA Consumer Survey 2023.

The World Bank found that 34% of Ethiopian firms have internet, with 80% for large firms and 23% for small firms. Agricultural firms' access to the internet is significantly below average at 13% compared with 40% of manufacturing firms and 34% of service firms. As a result, only 11% of firms have a website and only 25% use social media for business.[67]

65 Data for Ethiopia is MNO data and GSMA connections data. International comparators are based on GSMA Intelligence unique mobile internet subscribers data.

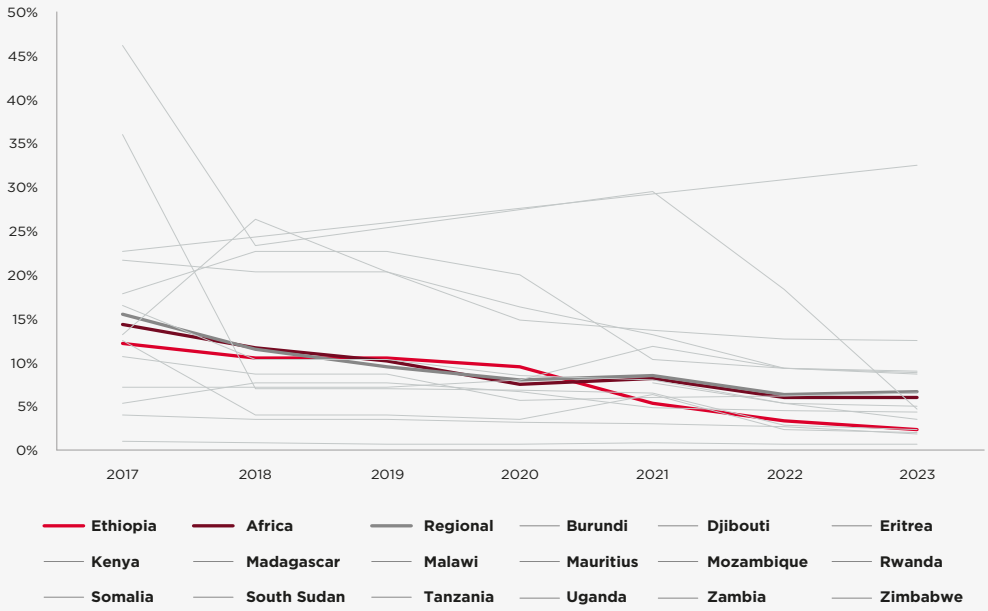
66 GSMA, 2023, Consumer Survey 2023.

67 Cirera, X. et al., 2023, Understanding Firm-level Adoption of Technology in Ethiopia; British International Investment, 2024, Impact of investment in the Ethiopian telecommunications market – the story so far

Digital adoption varies within population groups in Ethiopia. Levels of digital adoption are lower in rural than in urban areas. The unconnected are disproportionately poorer, rural, people with disabilities and women. According to GSMA's Mobile Gender Gap Report 2024, there is a 40% mobile internet gender gap in Ethiopia, meaning that women in Ethiopia are 40% less likely than men to use mobile internet. This is higher than the regional gender gap across sub-Saharan Africa, which is 32%.[68] However, Ethiopia has been making progress in increasing the level of digital adoption among underserved groups of the population.

The price of mobile services as a percentage of monthly GNI per capita has been falling and the price of mobile broadband already fell to the UN 2% target as at 2023.[69] As of 2023, Ethiopia's data prices had fallen well below the regional average (Figure 13). Analysis of Ethio Telecom's prices finds that many mobile data package prices have decreased by approximately 70% from 2017 to H1 2023, not just the 2GB product. Safaricom Ethiopia's prices have also declined by 50–70% across its portfolio in the year since its launch.[70] As of October 2024, prices for a 2GB data package are ETB 100 per month for Ethio Telecom and ETB 110 for Safaricom - equivalent to just over 1% of GNI per capita.[71]

Figure 13: Basic data only basket cost, 2017-2023 as a % of GNI per capita



Source: ITU.

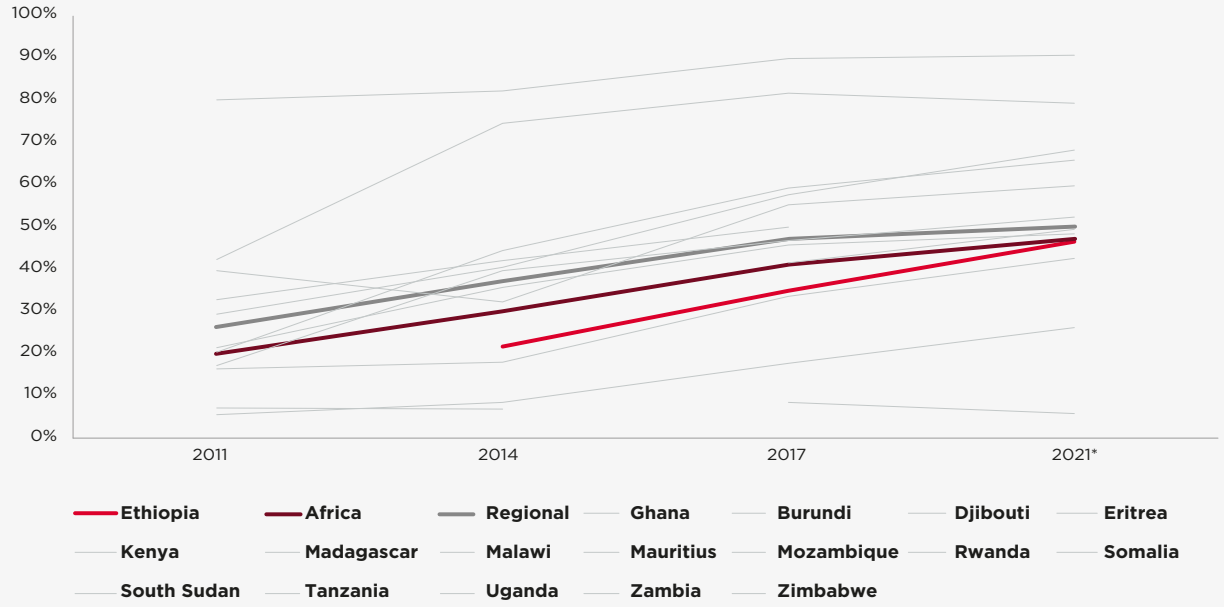
Mobile money

Mobile money services have grown rapidly in Ethiopia since the **licensing of Telebirr and M-Pesa with Payment Instrument Issuer (PII) licenses in 2021 and 2023** respectively.

Early efforts to increase bank account usage means that mobile money has not historically been the primary driver of rising levels of financial inclusion in Ethiopia. In 2022, mobile money accounts only represented a small minority of the overall financial services accounts in the country. In 2021, Ethiopia had 46% penetration of financial accounts across the population, driven by high penetration of traditional financial institutions. The National Financial Inclusion Strategy (NFIS 2021–2025) aimed to increase financial inclusion from 46% to 70% of all adults by 2025, in part by scaling digital payments through mobile money services.

68 GSMA, 2023, Consumer survey 2023.
69 ITU Data Hub.
70 British International Investment, 2024, Impact of investment in the Ethiopian telecommunications market – the story so far.
71 Source: Ethio Telecom, Safaricom Ethiopia websites.

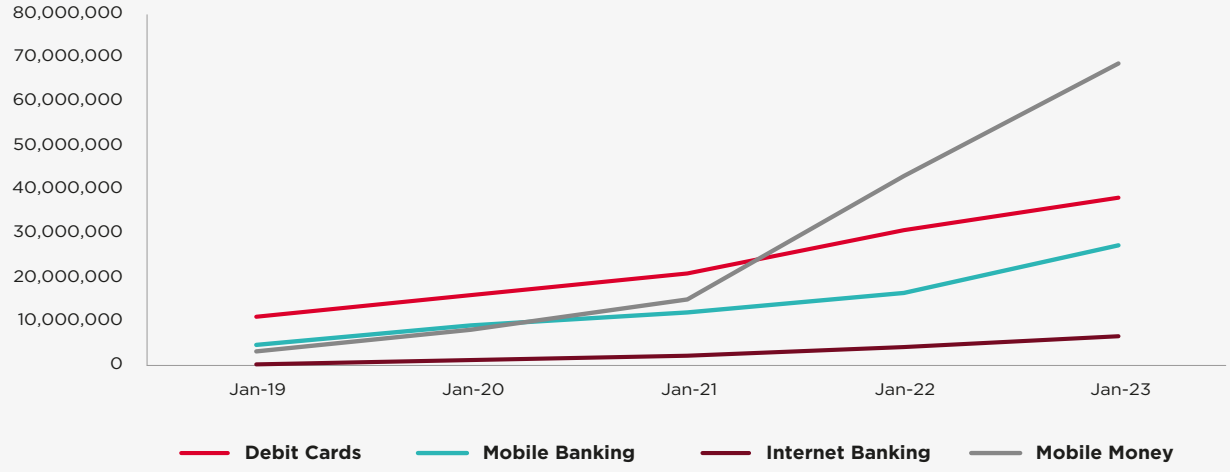
Figure 14: Finance services account penetration (% of adult population), 2011-21



Source: Findex data.
*Ethiopia's data was reported in 2022, but the majority of other countries reported in 2021.
**Only considers population who are 15+. Financial services account includes both accounts at formal financial institutions and mobile money accounts.

However, this situation has changed rapidly over the last two years, with mobile money accounts now reaching a penetration rate of over 50%. Since then, there has been rapid uptake of mobile money across the country. NBE reported 69 million mobile money accounts in June 2023,[72] with Telebirr accounting for over 48 million of these.[73] This equates to a mobile money penetration rate of approximately 55% of the population.

Figure 15: Evolution of number of financial accounts in Ethiopia, 2019-2023



Source: NBE.

72 National Bank of Ethiopia, April 2024, Ethiopia's Digital Payments Performance. Presentation at Ethiopia Digital Payments Conference.
73 Total Customers as of Aug 2024 from https://www.ethiotelecom.et/telebirr/ accessed in October 2024.

The volume and value of mobile money transactions also reflect financial inclusion and the role of mobile money transactions. The volume and value of mobile money transactions reflects the extent to which people use mobile money services and the importance of the service in the economy as a whole. It could also include measures of the extent to which people can access more sophisticated financial services products such as loans. NBE reported that the total value of mobile money transactions was ETB 380 billion in June 2023.[74]

GSMA estimates that mobile money could lead to a real GDP increase of USD 5.3 billion up to 2030 under a scenario with high mobile money adoption in Ethiopia, equivalent to an increase of nearly 5%, and a reduction of 0.7 million in the number of people living in poverty.[75]

B. POLICY PRIORITIES FOR THE TELECOMMUNICATIONS SECTOR

The mobile telecommunications sector in Ethiopia has made significant progress in recent years and this is likely to continue. Coverage and availability of mobile telecommunications services have increased progressively, and prices have generally fallen. Together, these trends have stimulated uptake and raised levels of adoption of mobile telecommunications services.

The sector will continue to grow on the current trajectory, but further policy and regulatory reforms and a focus on implementation can ensure a wider reach of digital services, densification of current 4G networks and upgrades to 5G. This will lead to increased adoption of digital technologies across a wide range of sectors of the economy.

Adjusting some of the policies relating to mobile will improve the financial sustainability of the industry and make digital adoption more affordable for Ethiopian citizens. Further policies could be implemented to stimulate demand, reduce the cost of supply and promote a policy environment that supports investment in mobile telecommunications and mobile money.

This section summarises selected policy priorities and their impact on mobile adoption.

Policy priority 1: Fair and timely implementation of the telecom reforms agenda and administrative processes

Full implementation of the telecom reforms agenda will fast-track infrastructure rollout and adoption of digital technologies.

Under the Communications Service Proclamation, there are a number of directives that ECA is in the process of implementing. Fast-tracking these procedures is needed to achieve the stated objectives of digitalisation in the country. These include: ensuring the use of land and building for telecommunications infrastructure, provisions related to regulations around pricing and competition, Universal Access Fund regulation, and ensuring that other remaining directives or regulations are implemented to ensure a level playing field.[76]

The ability of the unified telecom services licensees to roll out networks rapidly and to compete and innovate with new services is dependent on a wide range of rules and regulations imposed by the government and the regulatory authority. The ECA has so far adopted a consultative and responsive approach to industry needs, which has resulted in increased certainty and the ability of Mobile Network Operators (MNOs) to expand networks and services. A better-resourced ECA in the future could result in faster and expanded capabilities to address emerging regulatory and bureaucratic needs and innovations.

74 National Bank of Ethiopia, April 2024, Ethiopia's Digital Payments Performance. Presentation at Ethiopia Digital Payments Conference.
75 GSMA, 2023, Mobile Money in Ethiopia – Advancing Finclusion and Driving Growth
76 Ethiopian Communications Authority, 2024, Determination on Mobile and Fixed Telecommunications Operators with SMP; Ethiopian Communications Authority, 2024, Determination on Mobile and Fixed Termination Rates.

Obtaining rights of way and other permits to build network infrastructure is slow and bureaucratic. Operators need permission from state, city, and local authorities to construct network infrastructure. No national-level legislation governs access to rights of way and other permits. This means that the process and the fees charged vary considerably across different regions and even localities. In some cases, local authorities charge high fees in areas which may result in lower profitability, making network rollout in those areas less commercially viable. In addition to fees, there are usually lengthy administrative processes involved in obtaining such permits which slows down the construction of network infrastructure and the provision of services to customers. A consistent national framework for acquiring rights of way and other permits, and a standardised approach to fees would accelerate network rollout.

The Communications Service Proclamation provides preliminary rules regulating land and building use for telecommunication infrastructure installation and fixtures on both private and public holdings. However, a dedicated implementing directive has not yet been issued. It is critical that the new directive be published, consulted with all stakeholders including federal, state and city administrations, and implemented through a harmonised and partnership approach by the ECA, licensees and administrations. Until this is done, operators will continue facing delays and bureaucratic problems when building networks.

The security of telecommunications infrastructure is a significant problem for operators. Telecommunications network infrastructure is vulnerable to damage caused by other parties. This can be the result of construction or rehabilitation of roads or other forms of infrastructure, vandalism or theft. When such events happen, licensees are required to spend time and resources repairing their network equipment. This pushes up costs for all customers and impacts the deployment rate and service quality.

Finally, **the importation of equipment remains critical to enable continued investment by the unified telecommunications service licensees.** Whilst local providers partially address the capital goods needs (for example Woda is providing telecommunications tower infrastructure[77]), streamlining the importation process for telecommunications infrastructure is key to further rollout of network infrastructure throughout the country to meet license obligations and to contribute to Digital Ethiopia objectives. Continuing a fast-track customs and importation process, together with the introduction of a directive on capital goods and a customs handbook to identify goods for the purpose of duty-free importation for communications services (as defined by the Communications Service Proclamation) would significantly assist the licensees with their network investment plans and operations to serve customers.

Policy priority 2: Industry sustainability and investment

Telecommunications licensees will continue to invest in new network infrastructure to provide services to customers. In future years, this will deliver additional coverage which will extend further as technology innovation reduces costs and extends the reach of networks. The right policy environment (including continuing the telecommunications reform program and the implementation of the new regulatory framework under the Communications Service Proclamation) would enhance the financial sustainability of the licensees. It would allow them to push network coverage out further still, ensure densification of existing 4G network and the roll-out of the latest generation 5G networks.

Supporting industry sustainability and development through investment and tax incentives, including reducing or removing customs duty and other costs of mobile devices, import restrictions and access to foreign currency will improve affordability and make investment more attractive for local and foreign companies.

77 Safaricom, 23 May 2024, Safaricom Ethiopia Receives First Batch of Locally Manufactured Telecom Towers from Woda plc.

Hence, a balanced regulatory environment that supports the sector would attract further foreign investment, result in additional network rollout and create an efficient market in which all operators can offer similar levels of technology (3G, 4G and 5G) and quality to customers.

Coupled with the recent forex reform[78] and the HGER 2, improved macro-economic conditions are expected to increase attractiveness of investment and reduce the historical challenges related to financing and attracting FDI.

Innovative financing mechanisms could be sought in partnership with multilateral financing institutions and through public-private-partnerships. For example, reverse auctions for subsidies to deploy infrastructure in rural areas have proven successful,[79] and could be used in Ethiopia for cell towers or fibre. The regulator would award the auction winners licenses to lay fibre on specific routes designed as missing. These partnerships could also be employed to provide pre-purchases of broadband to public service providers, such as schools of hospitals.

Encouraging a sustainable investment environment for all players could result in 1.7 million additional mobile internet users in 2028 as a result of policy reform compared to Business as Usual (BAU).[80] The table below shows outputs from modelling of the impact of this scenario on mobile internet uptake.[81]

Table 9: Mobile internet uptake with improved investment environment and industry sustainability

Additional mobile internet users (million)	2023	2024	2025	2026	2027	2028
BAU	43.47	47.62	51.07	54.68	58.38	62.06
Competition/sustainable investment	43.47	47.82	51.56	55.49	59.60	63.79
Y-on-Y difference to BAU	0%	0%	1%	1%	2%	3%
Increase in growth vs BAU	0%	+0%	+1%	+2%	+3%	+4%

Policy priority 3: Taxation on mobile services and devices

Telecommunication services are subject to several taxes and fees in Ethiopia. Some of these are specific to the telecommunications sector and apply over and above general taxation. For example, an Excise Tax of 5% is levied on mobile and wireless telephone (Internet, Voice and SMS). Moreover, the sector pays to obtain licences and spectrum in order to operate.

Sector-specific taxation raises costs to consumers irrespective of how the taxes are structured. Although some taxes are levied on mobile operators, most of their costs are ultimately passed on to customers in the form of higher prices. Previous studies have found that 90% of changes to the value of consumer taxes (e.g. sales and usage taxes) are passed through to consumers. In comparison,85% of changes to the value of operator taxes (e.g. revenue and profit taxes, spectrum and license fees) are passed through to consumers.[82] Studies show a relationship between data and handset prices, on the one hand, and the rate of uptake of mobile broadband on the other.[83]

78 National Bank of Ethiopia, 2024, Press Release: The National Bank of Ethiopia Announces A Reform Of The Foreign Exchange Regime With Immediate Effect
79 CEPA, 2022, Allocating universal service subsidies using multi round reverse auctions: Telecommunications in Tanzania
80 2023 BAU data based on information from MNOs and the GSMAi 3G Connections data. 2024-2028 based on GSMAi's forecast growth rate of mobile broadband capable connections.
81 See separate methodological document for modelling assumptions. GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.
82 World Bank 2022, Using Geospatial Analysis to Overhaul Connectivity Policies, Table A.2.
83 See separate methodological document for details on the elasticities used. GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

In Ethiopia, smartphones are subject to 10% excise duty on the device price. This is a significant burden considering 68.7% of the population meet the conditions of being multidimensionally poor according to the UNDP Multidimensional Poverty Index.[84] Removing or reducing these taxes will significantly improve smartphone affordability, encouraging mobile broadband service adoption. The digitalisation ambition of Ethiopia outlined in the Digital Ethiopia 2025 strategy will not be a achieved if many citizens remain offline.

Sector-specific taxation can also reduce investment in network infrastructure and mobile telecom services. A study by the World Bank on the tax burden on businesses in Ethiopia found that 57.3% of the respondents identified that taxation was a moderate to very severe challenge affecting the business environment in Ethiopia.[85] Lower taxes on operators frees up funds that can be invested in additional network infrastructure and services, enabling the significant capex investment which is needed to reach the 77% of the population living in rural areas. Moreover, taxation on consumers and affordability constraints indirectly impact on the profitability of investment, as network rollout will be discouraged in areas where profitability is low due to low take-up of services.

Table 10: Taxes applicable on the mobile sector in Ethiopia

Tax	Base	Rate	References / documents
Import duty on devices	Device price	10%	10% on fully assembled phones, 5% on part-assembled phones, and 0% on disassembled parts August 2019 Tariff Book, HS 85.25
VAT	Airtime	15%	Proclamation 285/2002
VAT	Data	15%	Proclamation 285/2002
VAT	Interconnect International	0%	VAT Proclamation No. 1341/2024
Excise duty	Airtime	5%	Proclamation 1287/2023
Excise duty	Data	5%	Proclamation 1287/2023
Annual spectrum licence fees	Varies by band	N/A	Fees Directive No. 1024/2024
Annual universal access levy	Not applicable Yet	Not applicable Yet	Universal Access Fund Regulation yet to be promulgated
Other regulatory fees: Numbering, Type approval	per number, per device	ETB 0.3 per number, ETB 500 per device	Fees Directive No. 1024/2024
Rights of way	Varies by state/ city administration	Varies by state/ city administration	Varies by state/ city administration

Recognising the challenges of balancing support for the sector with the objective of increasing the current tax-to-GDP ratio and the recently announced IMF's supported programme of reforms, **the government could consider reforms that would boost productivity through the increased adoption of digital technologies. This would result in a widening of the tax base in the medium-term due.** In particular, the government could consider supporting customer uptake of mobile broadband services by (a) lowering customs duty on handsets and increasing local production, and (b) removing excise duty on services.

84 UNDP, Ethiopia Country Profile
85 World Bank, 2015, Tax Compliance Cost Burden and Tax Perceptions Survey in Ethiopia

Supportive policies to reduce the price of devices would generate significant benefits as mobile broadband uptake is particularly sensitive to handset prices. Efforts to make handsets, data and mobile services more affordable are likely to disproportionately benefit women as they usually experience the affordability barrier more acutely due to lower average incomes and lower access to external sources of finance. There is a global market for handsets, so the local price locally is affected by customs duties and other taxes levied when imported and sold to customers. It is also affected by the extent to which devices are manufactured or assembled locally. This can reduce costs but requires scale to be able to compete effectively with global players.

A national strategy that creates a coherent approach to taxation and support to local production of devices could effectively reduce the prices paid by customers for handsets. This would have a material impact on the affordability and adoption of digital services. If the average amount of customs duty paid on handsets was reduced by 5 percentage points (through a combination of lower import duties on assembled handsets and greater volume of local production), it would reduce the average cost of handsets in the economy.

This, in turn, would stimulate additional demand and could result in 1.1 million additional mobile internet users in 2028 (compared to BAU) as a result of policy reforms. Table 11 shows outputs from modelling of the impact of a lower customs duty on mobile internet uptake.[86]

Table 11: Mobile internet uptake with customs duty reduction

Additional mobile internet users (m)	2023	2024	2025	2026	2027	2028
BAU	43.47	47.62	51.07	54.68	58.38	62.06
Customs duty reduction	43.47	47.86	51.51	55.33	59.25	63.14
Y-on-Y difference to BAU	0%	1%	1%	1%	1%	2%
Increase in growth vs BAU	0%	+1%	+1%	+2%	+2%	+3%

In addition, consumer uptake of mobile broadband is also sensitive to service prices. The excise duty on data and voice directly impacts on the price that customers pay for services.

Removing the 5% excise duty could result in 630,000 additional mobile internet users in 2028 compared to BAU. Table 12 shows outputs from modelling of the impact of an excise duty reduction on mobile internet uptake.[87]

Table 12: Mobile internet uptake with excise duty reduction

Additional mobile internet users (m)	2023	2024	2025	2026	2027	2028
BAU	43.47	47.62	51.07	54.68	58.38	62.06
Excise duty reduction	43.47	47.76	51.32	55.06	58.88	62.68
Y-on-Y difference to BAU	0%	0%	1%	1%	1%	1%
Increase in growth vs BAU	0%	+0%	+1%	+1%	+1%	+1%

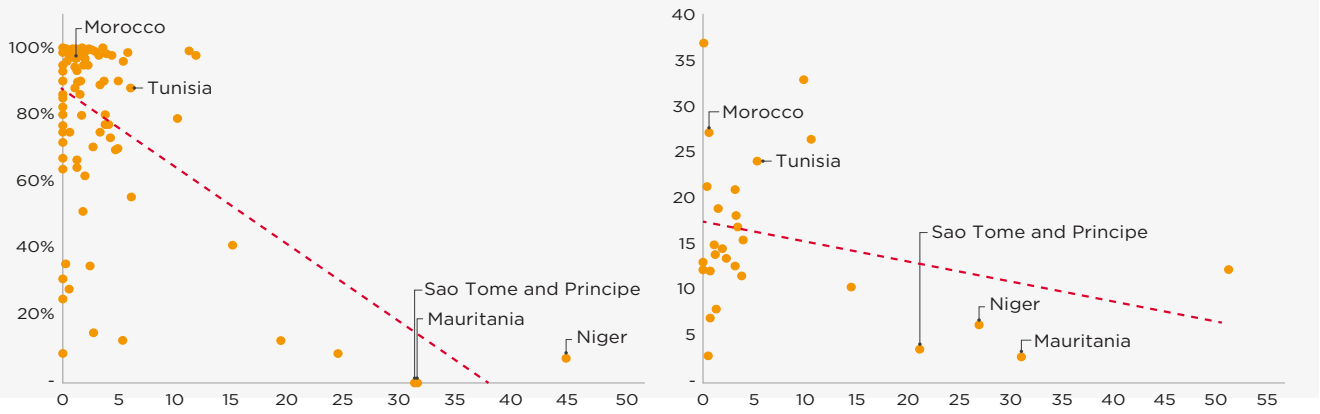
86 See separate methodological document for modelling assumptions. GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

87 See separate methodological document for modelling assumptions. GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

Policy priority 4: Licensing, spectrum, and regulatory fees

The GSMA has found evidence that high spectrum fees lead to reduced network quality and coverage.[88] Historical analysis of spectrum pricing practices adopted for 93 licensees in Africa and 405 assignments globally over the period 2010 to 2019, demonstrated that high spectrum fees have a direct link to lower coverage and to slower download speeds (Figure 16).

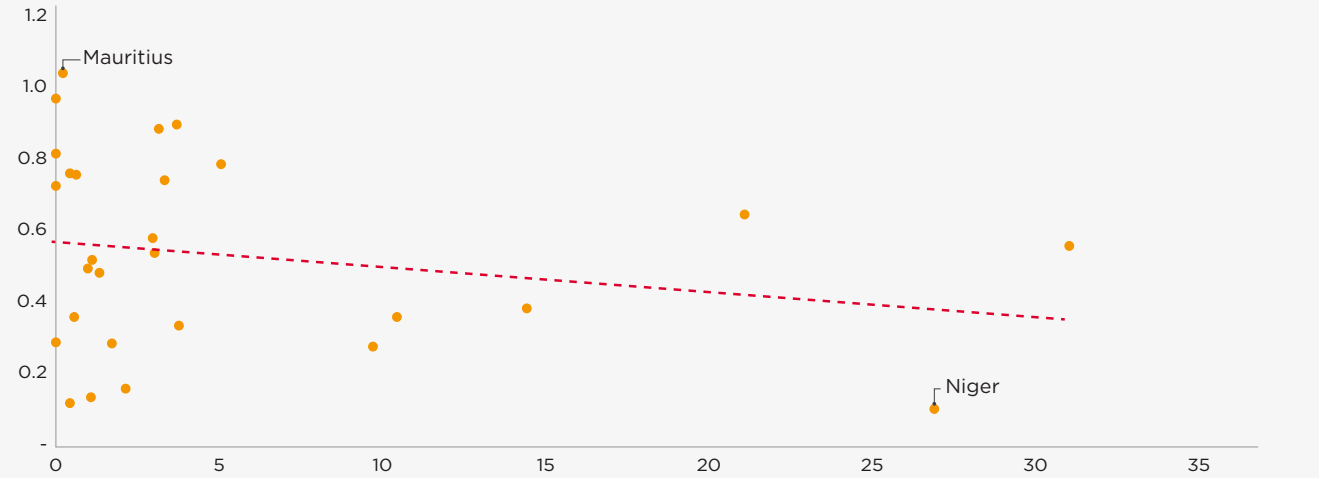
Figure 16: Impact of high spectrum fees on coverage and download speeds



Source: GSMA, Effective Spectrum Pricing in Africa, 2020.

Conversely, lower spectrum fees are a catalyst for accelerated broadband adoption, as illustrated in Figure 17.

Figure 17: Impact of spectrum fees on mobile broadband adoption

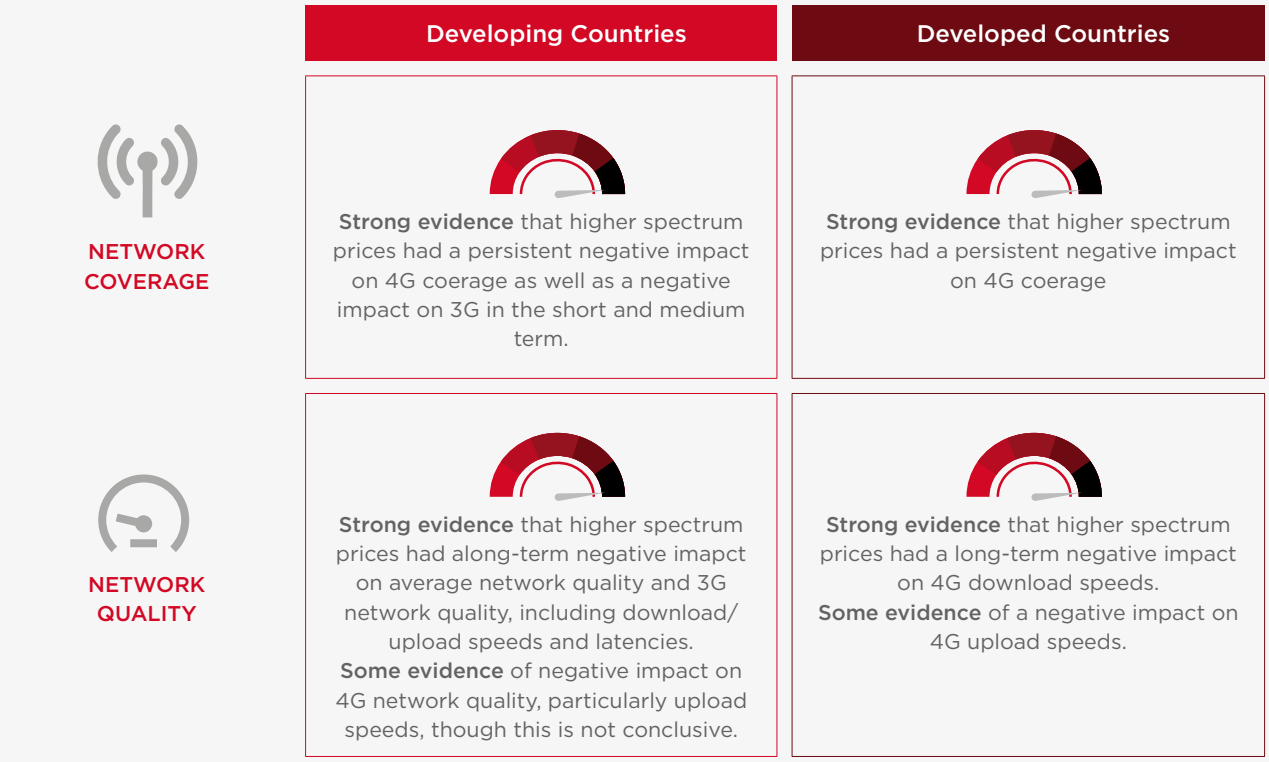


Source: GSMA, Effective Spectrum Pricing in Africa, 2020.

In addition, in both developing and developed economies, there is evidence that high spectrum prices had a consistently negative and statistically significant impact on coverage and download speeds (Figure 18).

88 GSMA, 2019, The Impact of Spectrum Prices on Consumers; GSMA, 2020, Effective Spectrum Pricing in Africa

Figure 18: Summary of evidence on impacts of spectrum prices



Source: GSMA, Impact of Spectrum Prices on Consumers, 2019.

The GSMA estimates that 4G coverage in Ethiopia could reach 76.2% of the population by 2028. This high coverage rate would only happen if the right investment and financial sustainability conditions are in place. One critical element of this is the price paid for spectrum. High spectrum fees could reduce the maximum level of coverage reached by the networks to 68.7% based on a review of international experience.[89]

Affordable and predictable of licence, spectrum, and regulatory fees encourage investment in the densification of the existing network, the roll out of the next generation of network technology and an improvement in the affordability of services. In contrast, higher prices would translate into higher costs of expanding access to telecom services and might reduce access and quality of service. More broadly, it might also jeopardise the country's overall digitization goals.

Continuing to commit to affordable and predictable licence, spectrum, and regulatory fees will inspire investor confidence enabling long term planning in Ethiopia. Clarity around the fees and their frequency will go a long way in enabling licensees to plan for the future, thereby providing opportunities for accelerated innovation and rollout of consumer products. Moreover, licence, spectrum and other regulatory fees must balance the economic value of the resources and the need to promote the expansion of communication services in the country.

Finally, **the Universal Access Fund Regulation and accompanying policy provides a sound framework, consistent with international standards.** It is critical that the Fund's implementation and investments complement the commercial network infrastructure provided by the unified telecommunications services licensees to contribute to achieving Ethiopia's digital objectives. It is recommended that licensees are able to participate in the activities of the Fund, including governance, the periodic access gap studies undertaken by the Fund, and a robust and equitable disbursement framework to ensure fair participation by all contributors.

89 GSMA, 2019, The impact of spectrum prices on consumers: Technical Report.

Policy priority 5: Mobile money and payments

The rapid rise in mobile money adoption reflects the underlying demand for the service and efforts by the government to promote its use. In particular, NBE has spearheaded several necessary reforms in recent years, such as:

- The revision of the regulatory framework that has allowed non-banking players into the payments ecosystem.
- Encouragement of people and companies to make tax payments via mobile money.
- Establishment of full interoperability between bank accounts and mobile money wallets.
- Support in the use of digital payments for fuel subsidies.

Continuing to implement regulatory reforms to enable digital financial strategy and inclusion objectives will support the development of a solid digital payments system and a level playing field in digital financial services.

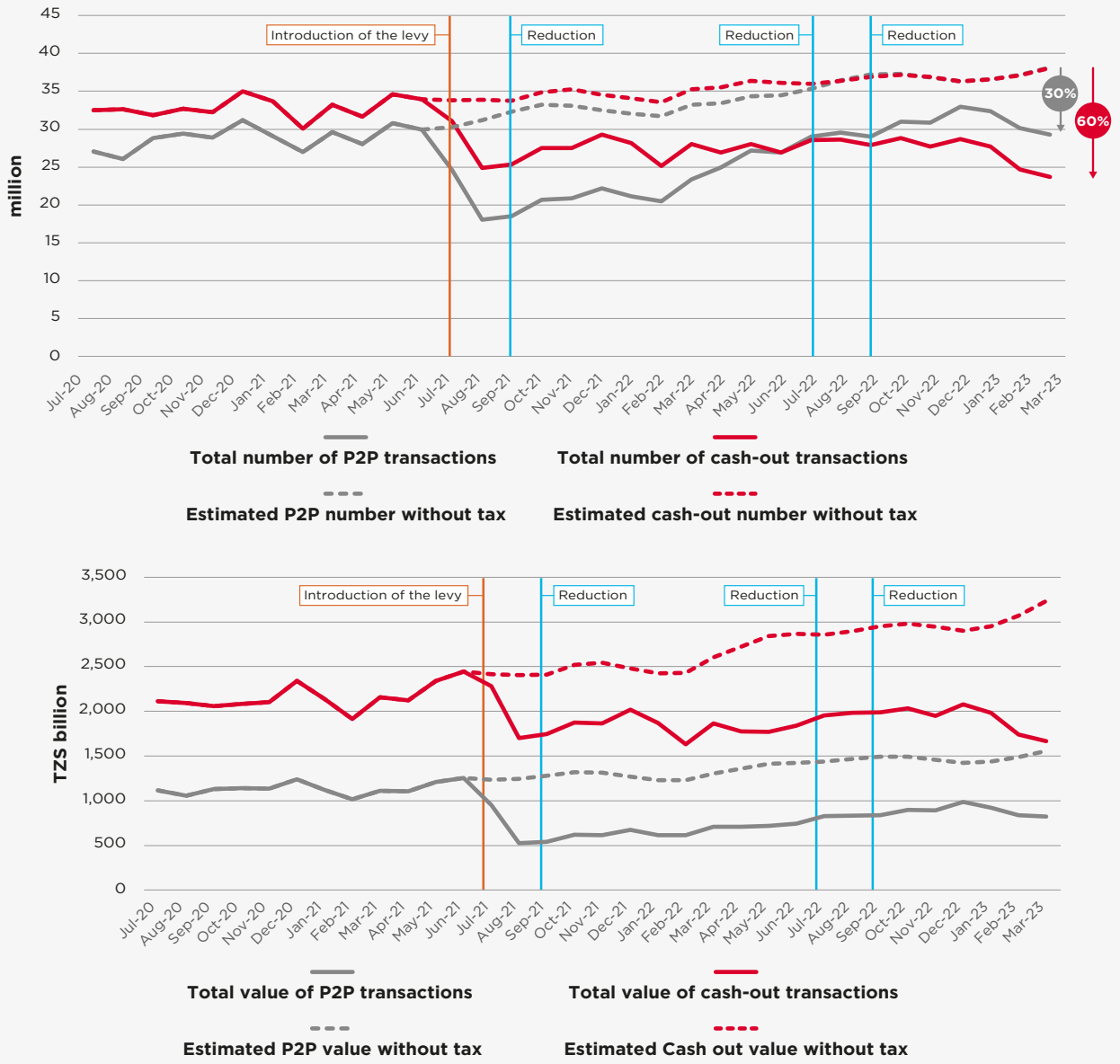
The newly enacted VAT Proclamation (No. 1341/2004) introduces VAT on digital financial services, including mobile money and other types of financial service. **It is important that the government avoids the temptation to resort to distortive taxation on emerging mobile money services, as seen in other African countries, as this would jeopardise the sector's development.** While taxation is a necessary tool for generating government revenue, this particular imposition could have unintended negative consequences on the growth and development of mobile money in Ethiopia. Mobile money services, including those provided through agents, serve as a lifeline for financial inclusion, particularly in rural and underserved areas where traditional banking is either inaccessible or too costly.

By imposing VAT on these services, the cost of transactions may rise, leading to reduced usage by consumers who are highly price sensitive. This could slow down the adoption of mobile money as an affordable financial service, potentially reversing the gains in financial inclusion. Additionally, agents, who are critical to the mobile money infrastructure, may face reduced incentives to continue offering these services due to increased operating costs.

Exempting or reducing VAT on digital financial services, particularly those offered by mobile money platforms and agents, could help to maintain the growth momentum in this crucial sector. Without such adjustments, the tax could create a barrier to further innovation and expansion, stifling Ethiopia's efforts to build an inclusive digital financial ecosystem. **Mobile money levies have been shown in a number of countries to slow down the growth and usage of mobile money.** The introduction of a levy has slowed the growth rate of active accounts by 5% per year, resulting in permanently lower active users than if the pre-levy growth had continued.[90] The introduction of a levy on certain types of mobile money transactions has also had a long-term impact in other countries. Transaction values remain at only half the level they would have been if they had continued on their pre-levy trend.[91] In the Ethiopian context, this would be equivalent to a reduction in the value of mobile money transactions of ETB 160 billion in 2023.

90 GSMA, 2023, E-levy in Ghana: Economic impact assessment.
91 GSMA, 2023, Tanzania Mobile Money Impact Assessment.

Figure 19: Impact of mobile money Levies in Tanzania, 2020-2023



Source: GSMA, 2023, Tanzania Mobile Money Impact Assessment.[92]

In Ethiopia, mobile money agents are also subject to a withholding tax on their commission. Due to the lack of an electronic receipt system, mobile money providers must pay this upfront and are unable to claim it back as an expense.[93] This presents a significant compliance burden and effectively ats as a tax instead of a claimable expense, holding back agents' expansion and therefore financial inclusion.

Lowering taxation on mobile would be to broaden the tax base and increase productivity, leading to a medium-term increase in tax revenue of over 2%. In addition, further reforms should be aimed at broadening access to government payments and systems, such as tax payments and utility bills. This would also stimulate the mobile market and support the full potential of mobile money, enabling greater access to public services for citizens and innovation to flourish. The process of granting a licence to Safaricom as a registering entity for Fayda ID is a good step in this direction.[94]

92 GSMA.

93 This reflects discussions with industry stakeholders on the application of the withholding tax.

94 Interviews with Safaricom Ethiopia. NID is yet to grant the license to Safaricom but have acknowledged it as a Registering Entity and have commenced the onboarding process.

Another pressing challenge faced by the mobile money sector in Ethiopia is the growing incidence of fraud, particularly through social engineering tactics. These social engineering schemes result in significant financial losses for users and they have contributed to growing mistrust in the use of digital financial services. The rise of fraud and scams will require the financial services industry, regulators, and mobile money providers to collaborate to develop comprehensive fraud prevention and mitigation strategies. This should include technical solutions such as enhanced security protocols, two-factor authentication, and biometric verification as well as educational campaigns to raise awareness among users about the fraud risks and how to protect themselves.

Moreover, regulatory bodies need to set up clear frameworks for reporting and handling fraud cases, ensuring that affected users receive timely support and that fraudsters are held accountable. Public trust is crucial for the continued growth of digital financial services, and efforts to prevent and combat fraud will be key to restoring consumer confidence. A proactive approach, involving both industry players and regulators, will be essential to safeguard the future of mobile money in Ethiopia.

Finally, raising the limits on the allowed amounts of mobile money transfers, which are increasingly adding more substantial constraints on mobile money growth due to high inflation, would improve the reach and ability to use mobile money for savings and more advanced financial products. **A more expansive definition of financial inclusion and access to a wider range of services, including insurance and credit,** should be encouraged for example by supporting the development of digital lending services. Digital lending is currently subject to the same regulation as traditional lending by banks. However, mobile money providers can reach many more customers with their widespread presence and do not use collateral to secure loans. Therefore, the thresholds on Non-Performing Loans to total loans that apply to banks are not appropriate for mobile money. For these reasons, digital lending should be regulated with a dedicated directive.

Policy priority 6: Demand-side policies

Demand-side factors also affect the adoption and usage of mobile internet and mobile money. Increased demand increases adoption and usage. Policies aimed at supporting demand and closing the usage gap could include interventions such as handset subsidies, digital skills training programmes, business support for SMEs, digitalisation of government services, and programmes to increase the adoption of new technologies by business and consumers, including mobile money.

Demand for mobile internet is driven by a wide range of uses, including communications, information collection, entertainment, education etc. The government has an important role to play in this. By shifting to digital forms of delivery of critical public services such as driving licences, passport applications and property registration, the government creates demand for people to have access to the internet. In this regard, the ongoing roll-out of digital ID will significantly improve the way citizens interact with government, saving time, improving access and enabling a more personalised service.

This is a win-win process. On the one hand, the government reduces costs and improves access to services by making them available through digital channels. On the other, citizens can access public services more easily and benefit from better quality of service when they are delivered through digital channels.

The other key benefit is that, by encouraging people to adopt the internet, this process stimulates demand for digital services more broadly. The more people that become internet users, the more people the government can reach via digital channels. Similarly, as the user base grows, the service providers also grow which delivers greater tax revenues.

Removing barriers and stimulating additional demand could result in 7.9 million additional mobile internet users in 2028 compared to BAU. Table 13 shows outputs from modelling this scenario's impact on mobile internet uptake.

Table 13: Mobile internet uptake with demand stimulation

Additional mobile internet users (m)	2023	2024	2025	2026	2027	2028
BAU	43.47	47.62	51.07	54.68	58.38	62.06
Demand stimulation	43.47	48.83	53.66	58.84	64.31	69.94
Y-on-Y difference to BAU	0%	3%	5%	8%	10%	13%
Increase in growth vs BAU	0%	+3%	+6%	+10%	+14%	+18%

Source: See separate methodological document that accompanies this report.[95]

C. MODELLING FUTURE DEVELOPMENTS IN THE TELECOMMUNICATIONS SECTOR

Substantial empirical evidence exists on the dynamics of telecommunications markets. Academics and policy makers have extensively studied the telecommunications market, and much of this research has been in relation to markets in Africa. This evidence and analysis has been applied in a model of the telecommunications market in Ethiopia that combines up-to-date information on the current market with this body of evidence.

The base case forecast of the market projects market developments, assuming that the policy environment remains as it is today. It is based on historical trends and sector analysis which are used to extrapolate market outcomes to 2028. This base case focuses on mobile subscriptions, mobile broadband adoption and mobile money usage.

The impact of changes in regulation and policy on the sector is modelled by analysing how these changes would affect the operators in general and how they would affect the adoption and usage of mobile broadband and mobile money (Table 14).

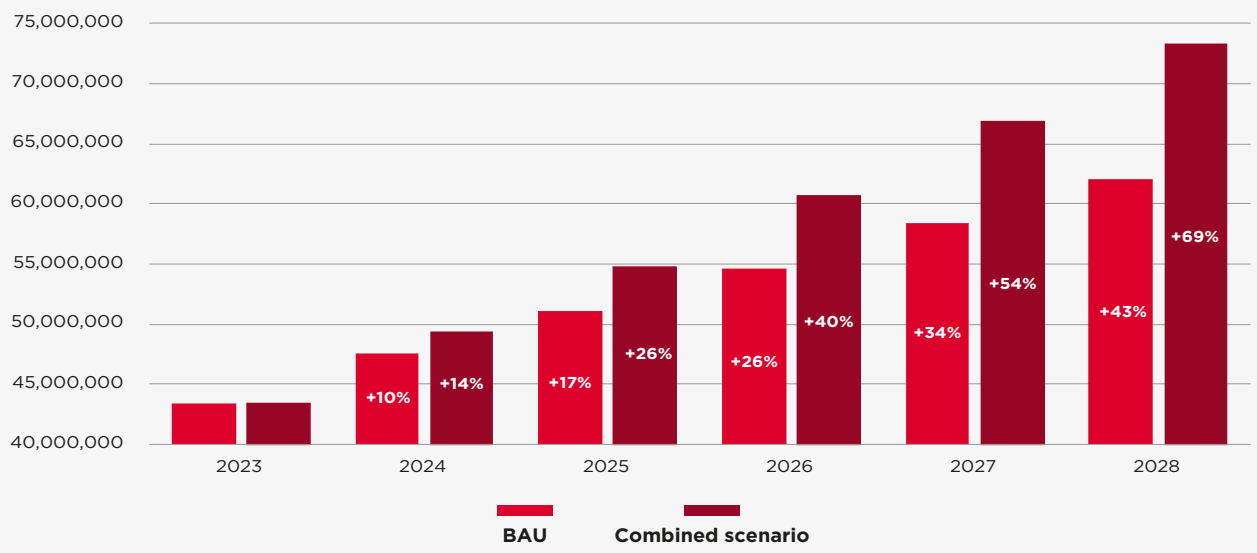
Table 14: Modelled policy and regulatory reform scenarios

Policy/regulatory change	Impact	Number of additional people using mobile services in 2028 compared to BAU
1. Industry sustainability and investment	Support industry sustainability and development through continuing to implement the telecom reform program and investment incentives. Reducing or removing customs duty and other costs on mobile devices will improve affordability and reduce the usage gap. It will also make investment more attractive for local and foreign companies.	3% - 1.7 million additional users
2. Taxation – Customs duty and excise duty	Support customer uptake of mobile broadband by (a) lowering customs duty on handsets and increasing local production, and (b) removing excise duty on services.	3% - 1.7 million additional users
3. Demand-side policies	Adoption and usage of mobile internet and mobile money is also affected by demand-side factors. Increased demand increases adoption and usage. Policies aimed at supporting demand and closing the usage gap could include interventions such as handset subsidies, digital skills training programmes, business support for SMEs, digitalisation of government services and programmes to increase adoption of new technologies by business and consumers, including mobile money.	13% - 7.9 million additional users

95 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

The base case scenario shows a steady increase in mobile broadband. In this scenario, mobile broadband users are expected to increase from 43.5 million in 2023 to 62.1 million in 2028.
The policy recommendations described in this report would substantially increase the adoption of mobile telecommunications services. If policy measures were taken to address the industry's key challenges, it would have a material impact on the industry. It is estimated that they could result in a faster rate of adoption by Ethiopians as illustrated in Figure 20.

Figure 20: Impact of combined policy scenario on the number of mobile internet users



Source: See separate methodological document that accompanies this report.[96]

The effect of the policy recommendations would be to boost mobile broadband adoption over the period by more than 61%, from 19 million new users in the BAU scenario to 30 million if all policies are implemented. This would increase the number of mobile internet users by 26% compared to the BAU scenario. This would mean that 69% more people will be using the mobile internet in 2028 than were using it in 2023. Table 15 below shows outputs from modelling of the combined impact of mobile internet uptake policies in 2028.[97]

Moreover, higher internet adoption rates would have a wide range of positive knock-on effects on the rest of the economy through its impact on productivity and growth in those sectors, as well as higher tax revenue generated by the industry. In the previous section, these impacts were calculated for specific sectors of the Ethiopian economy.

Table 15: Combined impact of policy recommendations on internet uptake

Additional mobile internet users (m)	2023	2024	2025	2026	2027	2028
BAU	43.47	47.62	51.07	54.68	58.38	62.06
Combined policies	43.47	49.41	54.86	60.69	66.91	73.39
Y-on-Y difference to BAU	0%	4%	7%	11%	15%	18%
Increase in growth vs BAU	0%	+4%	+9%	+14%	+20%	+26%

Source: See separate methodological document that accompanies this report.[98]

96 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.
97 See GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document for detailed assumptions.
98 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

Figure 21: Sectoral impact of increased digitalisation of in Ethiopia following telecom policy reforms

	Agriculture	Industry	Transport	Trade	Healthcare	Government
Digital Value Add (ETB bn)	134	108	24	27	4	22
% of sector GDP	3.1%	3.7%	4.6%	1.5%	5.5%	2.2%
% of Total GDP	1.1%	0.9%	0.2%	0.2%	0.0%	0.2%
Employment	1,500,000	180,000	130,000	150,000	20,000	-
Tax Revenue (ETB bn)	11	9	2	2	0.4	-

Source: Authors' calculations. See separate methodological document that accompanies this report.[99]

99 GSMA, 2024, Driving digital transformation of African economies Evidence and methodology document.

5. Policy Recommendations

5. POLICY RECOMMENDATIONS

Policy reforms must balance short-term objectives with long-term investment and development to realise the full potential of digital transformation in Ethiopia. **Reaping the wide-ranging benefits of digitalisation will require bold actions to support demand, reduce the cost of supply and promote a policy environment that supports investment.**

The economic and social value of digital and emerging technologies relies on mobile networks as the backbone of digitalisation of the economy and the mobile sector is best positioned to partner with the government to develop a mission-oriented public policy that can catalyse innovation across multiple sectors in the economy.

This report identifies five areas of policy recommendations that the government, the Ethiopian Communications Authority, NBE, and other relevant authorities could undertake to support the development of the mobile telecommunications sector, mobile money services, and the wider process of digital transformation in Ethiopia.

Policy area	Description and detailed recommendations
Telecommunications reform implementation	Fair and timely implementation the telecom reforms agenda to enable Digital Ethiopia transformation and inclusion objectives. This includes: 1. Implementation of Communications Service Proclamation and the applicable ECA directives to conclusion, fast tracking of administrative procedures and universal access fund regulation. 2. Issue and implement the use of land and building for telecommunications directive to provide fast track, efficient, and harmonised fees – as well as providing measures to protect security of telecommunications infrastructure - across federal, state, and city administrations. 3. Continue a fast-track customs and importation process, together with the introduction of a directive on capital goods and a customs handbook to identify goods for the purpose of duty-free importation for communications services as defined by the Communications Service Proclamation.
Industry sustainability and investment	Support industry sustainability and development through investment and tax incentives, including reduce or remove customs duty and other costs on mobile devices to improve affordability and reduce the usage gap. Policies could include: 1. Providing tax cuts and tax benefits for telecom infrastructure development, digital finance and international communication services and temporary suspension of application of tax on digital financial service, e.g. a grace period on telecom service taxes and review of excise tax. 2. Incentives for innovative financing mechanisms to support the need for network financing for 4G coverage and densification of existing networks, quality of services, and advance users. For example, concessional financing to enable more investment in the sector considering the challenges with getting internally-generated dollar-denominated funding.

Licensing, spectrum, and regulatory fees	Ensure affordable and predictable licensing, spectrum, and regulatory fees to encourage investment and densification of existing network, rollout of new generation network and improve affordability of services. Policies include: 1. Continue appropriate and predictable pricing of spectrum in consideration of the issues outlined, including further suspension of introduction of fees for numbering resources and increase of fees for frequency. 2. Participation of unified telecommunications services licensees in the implementation of the Universal Access Fund, including participation of licensees in the fund oversight, periodic access gap studies, and a robust and equitable fund disbursement framework to ensure fair participation by all fund contributors.
Mobile money and payments	Discourage distortive taxation on emerging mobile money services, and continue implementing regulatory reforms to enable digital financial strategy and inclusion objectives. This includes: 1. Continue implementing Mobile money / PII license regulatory reforms to enable digital financial strategy and inclusion objectives and ensure level playing field with other players. 2. Reduce taxation and avoid additional distortive taxation on mobile money services. 3. Consider increasing account limits and legislation to support the development of digital lending by mobile money operators.
Demand-side policies	Support demand by continuing implementing digital government and digital ID programmes, and incentivising adoption of digital technologies by consumers and firms. Other interventions could include: 1. Support digital skills programmes across target populations (rural, youth) including on AI. 2. Reduce affordability barriers - work with industry, universal service agency, and international investment institutions on measures and incentives, such as subsidies and micro loans. Underserved groups, in particular rural women should be targeted for any government initiative addressing the barriers to digital inclusion. 3. National level policies and regulations on data centre and cloud infrastructure for enterprise and private connectivity. 4. Support development and adoption of digital initiatives for traditional sectors such as agriculture, trade, supply chain, manufacturing, tourism, including precision agriculture and Industry 4.0 initiatives, as well as expanding the availability of local content and services. 5. Incentives to businesses to adopt digital technologies. In particular, support development of digital entrepreneurship schemes and adoption of digital technologies by SMEs, as well as support to improve access to electricity. 6. Establish programs to promote R&D and technological innovation in the private sector through grants or incentives. 7. Address online safety and fraud and ensure a robust data privacy framework is in place.

GSMA HEAD OFFICE
ONE ANGEL LANE
LONDON, U.K.
EC4R 3AB
UNITED KINGDOM
TEL: +44 (0)20 7356 0600
FAX: +44 (0)20 7356 0601