

Internet Development in Ethiopia: High-Level Findings from the After Access Survey



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Table of Contents

Acknowledgements	2
Executive Summary	5
Background	7
Digital Infrastructure Landscape	8
Internet quality	10
Network reliability	12
Mobile data pricing	12
Internet Access Trends	13
Selected Use Cases	16
Social media	18
Digital financial services	20
Government services	21
Platform work	22
Policy Recommendations	24
Removing the high barriers to internet access and use	25
Expanding services that enable Ethiopians to put the Internet to good use	25
Supporting platform work	26

Table of Figures

Figure 1: Ethiopia map showing average download speed in mbps	11
Figure 2: Average mobile download speed in mbps	11
Figure 3: Average mobile upload speed in mbps	12
Figure 4: Cheapest 1GB basket in Ethiopia, 2014-2023	13
Figure 5: Internet access in Ethiopia, 2012-2022	14
Figure 6: Main access barriers, 2012 vs. 2022	15
Figure 7: Internet access by level of education, 2022	15
Figure 8: Gender and location access inequalities, 2012 vs 2022	16
Figure 9: Main uses of the Internet, 2022	17
Figure 10: Number of cited services used by internet users, 2022 (max=11)	17
Figure 11: Main uses of the internet by educational achievement, 2022	18
Figure 12: Main use limitations, 2022	18
Figure 13: Main social media platforms used in Ethiopia, 2022	19

Figure 14: Uses featuring in the top three uses of social media amongst social media users, 2022 20

Figure 15: Financial inclusion in Ethiopia, 2012 vs 2022 21

Figure 16: Use of the Internet for government services by those online, 2022 22

Figure 17: Types of platform work engaged in 2022..... 23

Figure 18: Motivation for becoming a platform worker, 2022 23

Figure 19: Main reason for not doing platform work, 2022 24

Executive Summary

The Ethiopian Government seeks to leverage digital technologies for social and economic development and job creation. This paper assesses the outcomes of Ethiopia's intensive digital policy reforms of the past decade, which strive to meet the objectives set out in *A Homegrown Economic Reform Agenda, Ten Years Development Plan (2021-2030)* and *Digital Ethiopia 2025*. As the only in-depth nationally representative demand-side evidence base for policymakers, the paper offers specific points of digital policy intervention to improve progress towards Ethiopia's digital vision and more generally, the achievement of the ICT targets of the Sustainable Development Goals.

The latest Africa After Access survey undertaken by Research ICT Africa indicates that Internet access in Ethiopia has grown from 3% in 2012 to 16% in 2022. This remains one of the lowest Internet penetration rates on the continent - still several points below the 20% critical mass necessary to enjoy the network effects associated with economic growth and development. While the telecommunications sector is the fastest growing service sector in Ethiopia, boosted by the liberalisation of the telecommunications market in 2018, this sector is hampered by poor Internet access capability. Under these conditions, the country's vision of Digital Ethiopia 2025, only two years away, will not be realised and the ICT drivers of the Sustainable Development Goals will remain elusive.

This is no longer a supply-side issue. The coverage of mobile networks has increased in recent years in terms of access to voice services, with over 98% of the population having access to 3G networks. High-speed 4G coverage is still low, however, with only a third of the population (33%) covered in 2023. Fixed broadband had 618 300 subscribers in 2023, a penetration rate of less than 1% of the population.

Despite nearly 100% 3G broadband coverage, access is highly unequal. There is a significant gap in access between men and women, literate and illiterate, urban and rural, and rich and poor. Women and rural dwellers are the most marginalised from acquiring meaningful access. Modelling of the survey data reveals that education and income determine access to the Internet. Only a very small elite have access to the Internet.

Several critical barriers to Internet access need to be addressed to effectively leverage the value of digital technologies for socio-economic development, including:

- ❖ *Low levels of digital literacy and awareness:* 25% of Ethiopians said they don't know what the Internet is, and 30% said they don't know how to use it; and
- ❖ *A lack of access to devices:* the high costs of smartphones (partly because of taxation and the high profit margins of vendors) make them inaccessible for 84% of the population.

Even when access has been achieved, more than 90% of Internet users say they feel constrained in their use of the Internet. In order to allow individuals to have more meaningful online engagement, there are clear limiting factors which need to be addressed, including:

- ❖ *High costs of data relative to average income:* while data costs in Ethiopia are low compared to other African countries, the costs are prohibitive relative to local incomes; and
- ❖ *Poor network performance and shutdowns:* The poor quality of service and network performance and frequent Internet shutdowns negatively impact the utility and value of the Internet to users and firms.

Ethiopians who do use the Internet regularly, report using it primarily for social media and entertainment. Very few individuals make use of online banking services and platform services to access work. A similar point can be made for online government services: only 27% of internet users in Ethiopia access government services through the Internet, which amounts to just 4% of the adult population.

To meet the vision of Digital Ethiopia and to leverage the potential of digitalisation and datafication to deliver on the ten-year development plan, Ethiopia will need to develop a transversal rather than simply sectoral digital strategy.

This is required to harness the opportunities across the public sector and to coordinate implementation between the public and private sector as proposed in policy reform.

Recommendations to address the pressing access barriers and use limitations identified in the study include:

- ❖ defining a broadband plan to expand services across the country;
- ❖ investment in community-driven digital literacy of the population with attention to marginalised groups;
- ❖ improving access to smartphones;
- ❖ undertaking a market review to identify cases of market dominance and remedies to deal with anti-competitive behaviour;
- ❖ reviewing the allocation of sector resources to ensure optimal competitive outcomes; and
- ❖ collection of comprehensive digital indicators.

Additional recommendations are made to promote expansion in the use of the Internet in Ethiopia, including:

- ❖ connecting all public buildings to broadband and creating public Wi-Fi access points;
- ❖ ensuring that online government services are made available through social media; and
- ❖ limiting the impact of social media on accelerating misinformation, disinformation and malinformation.

Finally, in order to realise the employment creation through ICT enablement set out in Ethiopia's *Plan for Job Creation*, the country's emerging platform work needs to be nurtured by:

- ❖ assessing the progress and challenges regarding platform work to address potential barriers; and
- ❖ Initiatives to improve digital skills development amongst the youth.

Background

A *Homegrown Economic Reform Agenda*¹, *Ten Years Development Plan (2021-2030)*² and *Digital Ethiopia 2025*³ lay out the Ethiopian Government's plan to leverage digital technologies for social and economic development and job creation. The *Homegrown Economic Reform Agenda* emphasises sector reform, the acceleration of digital government services, the development of digital skills and the digitalisation of the financial and logistics sectors. The *Ten Years Development Plan* pays particular attention to the agricultural, manufacturing, mineral, tourism, and information communication technology (ICT) sectors as sources of growth.

Digital Ethiopia 2025 hinges on four core objectives: (i) to harness opportunities presented by digitalisation to support Ethiopia's broader development objectives; (ii) to create a sense of urgency and mobilise stakeholders to address the constraints of digitalisation and take hold of opportunities; (iii) to provide the basis to coordinate and strengthen existing digitalisation initiatives; and (iv) to contextualise Ethiopia's digitalisation journey within a global context.

This working paper aims to provide a stocktake of Ethiopia's digitalisation journey at the midpoint of the implementation of the *Digital Ethiopia 2025* strategy. It further serves as the baseline for the implementation of the *Homegrown Economic Reform Agenda* and the *10 Years National Development Plan*. The paper draws on Research ICT Africa's (RIA) 2022 After Access survey, which has provided new data with immense value for informing digitalisation policies and strategies in Ethiopia. It also draws on historical data from previous waves of the survey.

Ethiopia is still in the early stages of digitalisation, but has built a solid foundation for further development. The 2022 After Access survey shows significant progress in the country over the past decade as more individuals are accessing and using digital technologies. However, there remain some major challenges that need to be addressed to achieve the country's vision of a thriving and inclusive digital economy.

Nationally representative demand-side surveys measuring access to and use of digital technologies

The After Access Surveys began in 2005, with the first set of survey data finalised in 2008 encompassing 17 African countries.⁴ It covered questions about how individuals can access and use technologies and how this has impacted their lives. There have since been survey rounds in 2012 (13 countries) and 2018 (10 countries). The most recent round commenced in 2022 (8 countries) with the aim of data being collected, cleaned, and made available for all countries in 2023. In each country, a household and individual survey includes detailed questions on the accessibility and use of ICTs at the household level, as well as the use of ICTs by a randomly selected household resident.

For the Ethiopia survey, a sample of 2 095 households were surveyed in 2022. Although ideally, the likelihood should be the same for all geographical areas of the country to be selected for the nationally representative sample, the Tigray region was inaccessible due to civil conflict at the time of enumeration and was thus

¹ Government of Ethiopia. (2021). *A Homegrown Reform Agenda, Unlocking Ethiopia's Economic Potential*. <https://faolex.fao.org/docs/pdf/eth211967.pdf>

² Government of Ethiopia. (2021). *Ten Year National Development Plan, A Path to Prosperity*. <https://faolex.fao.org/docs/pdf/eth215704.pdf>

³ Government of Ethiopia. (2020) *Digital Ethiopia 2025*, https://www.lawethiopia.com/images/Policy_documents/Digital-Ethiopia-2025-Strategy-english.pdf

⁴ Botswana, Cameroon, Ghana, Kenya, Namibia, Rwanda, South Africa, Uganda, Tanzania, Benin, Burkina Faso, Cote d'Ivoire, Ethiopia, Mozambique, Nigeria, Senegal, Zambia

excluded from the sample frame. All households surveyed are included in the analysis at the household level. From each household through Probability Sampling a household member (over the age of 15) is selected for the individual survey. Weighting for the survey is based on calculated sampling probabilities drawing on official national statistics provided by the Ethiopian Statistical Service.⁵ Weighted data represents the country, excluding the Tigray region. The survey provides the first glimpse into how people in Ethiopia interact with ICTs at a national level after the COVID-19 pandemic.

The next section offers a background to Ethiopia, its development and digitalisation objectives. This is followed by a supply-side assessment of the underlying broadband market in the country, followed by a brief Internet access trend analysis. Demand-side trends are then considered by looking at use cases, identifying and analysing the key activities Ethiopians engage in online. Finally, the brief ends with some high-level policy recommendations.

Digital Infrastructure Landscape

The telecommunication sector is the fastest growing service sector in Ethiopia, having grown from a low base of 20.5 million mobile sim cards in the market in 2012, to 69.1 million in 2022.⁶ Investment in the sector was boosted after the Prime Minister's announcement in 2018 to liberalise the country's telecom market and open it up for private investment.⁷ In 2019, the Ethiopian Parliament passed a new telecom law, establishing an independent communications regulator, the Ethiopian Communications Authority (ECA)⁸. This was followed by the regulator awarding a second national operator licence to a consortium led by Kenya's Safaricom and Japan's Sumitomo in 2021.⁹ Efforts are also underway to partially privatise the incumbent public operator, Ethio Telecom.¹⁰

The introduction of competition has unleashed network expansion, pricing innovation and a flourishing mobile banking sector. Ethio Telecom's Telebirr had 34 million subscribers (just a little less than the 38.4 million subscribers in the more mature market in Kenya, although acknowledging that this only amounts to 27% of Ethiopia's large population compared to 71% of the Kenyan population)¹¹ with total transactions amounting to Birr 679.2 billion (USD 12.3 billion) in 2023.¹² While the mobile banking penetration is still lower than Kenya (71% Kenya, 27% Ethiopia), rapid financial inclusion is visible across the country. Furthermore, the licensing of

⁵ <http://www.statsethiopia.gov.et/>

⁶ ITU data hub data, <https://datahub.itu.int/data/?e=ETH&i=178>

⁷ Ethiopia opens up telecoms, airline to private, foreign investors. <https://www.reuters.com/article/idUSKCN1J12JI/>

⁸ ECA is established as an Authority independent of the Ministry of Innovation and Technology. The director and board members are appointed by the Prime Minister. Its budget comes from government allocation and fees, as per the proclamation. See https://www.lawethiopia.com/images/federal_proclamation/proclamations_by_number/2022-06-23T12-21-40.305ZCommunications-service-proclamation-1148-2019.pdf

⁹ Global Partnership for Ethiopia welcomes licence award to operate telecom services in Ethiopia. <https://www.vodafone.com/news/digital-society/global-partnership-ethiopia-welcomes-licence-award-operate-telecom-services-ethiopia>

¹⁰ UNCTAD (2022) Issues expression of interest to partially privatize Ethio-telecom. <https://investmentpolicy.unctad.org/investment-policy-monitor/asures/4124/issues-expression-of-interest-to-partially-privatize-ethio-telecom>

¹¹ Communications Authority of Kenya. (2023). *Third Quarter Statistical Report for the Financial Year 2022/3023*. <https://www.ca.go.ke/sites/default/files/2023-06/Sector%20Statistics%20Report%20Q3%202022-2023.pdf>.

¹² Ethio Telecom. (2023). *Ethio Telecom 2022/2023 Annual Business Performance*, <https://www.ethiotelcom.et/ethio-telecom-2022-23-annual-business-performance/>

Safaricom in 2023 to enter the mobile money market and the launch of the popular M-Pesa¹³ Ethiopia is expected to expand the mobile user base, accelerating financial inclusion and digital services.

After mobile connections, equipment sales, after-sales support, mobile and accessories sales, and repair make up the bulk of employment and economic activity in the Ethiopian telecommunications sector. With virtually no manufacturing in the sector, except for a mobile assembly plant owned by the Chinese firm Techno Mobile, the ICT hardware segment is entirely dependent on imports. Ethiopia's ICT services sector, which covers software development, systems integration, network deployment, and management, is growing but remains relatively small compared to other African countries with similar populations, like Nigeria and Egypt. Only a few dozen companies in Ethiopia are currently operating in this important market.¹⁴

Ethiopia's start-up ecosystem is small, and growth opportunities are curbed by low network quality, inadequate access to financing and venture capital, limited participation in public procurement and inadequate platforms for growth like hubs, incubators and accelerators.¹⁵ Despite telecoms dominating the digital technology landscape, the country's low network quality is a challenge to delivering public services and to the competitiveness of enterprises in global markets.

While the coverage of mobile networks has increased in recent years in terms of access to voice services, with 98.4% of the population having access to 3G networks, penetration of 4G is still low, with only a third of the population (33%) covered in 2023. Fixed broadband had 618 300 subscribers in 2023, a penetration rate of less than 1% of the population.¹⁶ The limited fixed broadband access indicates that a critical mass of institutions and businesses are not using broadband services for competitiveness. It also indicates little progress in connecting public institutions like schools, libraries, health centres and local government offices to broadband.

A lack of access to devices is a significant barrier to low-income populations, especially those in rural areas. The taxation of smartphones, coupled with the high profit margins of vendors, makes these phones inaccessible to most of the population. An average smartphone at USD 60 effectively excludes a quarter of the population that earns less than USD 2.15 a day.¹⁷

The ECA has not assessed the quality of the Ethio Telecom and Safaricom services due to the lack of a quality-of-service (QoS) regulation up until recently, but consumer complaints indicate serious issues with network quality. Service interruptions are very common both in congested and rural areas, and service unavailability is commonplace even in the middle of big cities like Addis Ababa.

Ethiopia has experienced significant Internet shutdowns in recent years as the Government has sought to subdue conflicts and protests, with interruptions lasting over a week in some areas. The #KeepItOn Coalition has

¹³ Safaricom. (2023). *Safaricom Ethiopia goes live with M-PESA*, <https://safaricom.et/index.php/news-insights/97-safaricom-ethiopia-goes-live-with-m-pesa>

¹⁴ Research and Market. (2018). *Ethiopia's ICT Market Report 2018 with Profile of 28 Companies*, <https://www.prnewswire.com/news-releases/ethiopia-ict-markets-report-2018-with-profiles-of-28-companies-300798830.html>

¹⁵ Yilikal Abate, Ethiopia's ICT Enabled Innovation and Technology Ecosystem, <https://ethiopia2050.com/wp-content/uploads/2020/01/Ato-Yilikal-Abate-ICT-Enabled-Innovation-and-Technology-Landscape-ET2050.pdf>

¹⁶ Ethio Telecom, Three-Years LEAD Growth Strategy And 2023/24 Annual Business Plan, <https://www.ethiotelecom.et/ethio-telecom-three-years-lead-growth-strategy-and-2023-24-annual-business-plan/>

¹⁷ See 2017 World Bank report <https://data.worldbank.org/country/ET>

recorded 24 shutdowns since 2016. Three shutdowns have occurred in 2023, ranging from social media blocks to full internet shutdowns of mobile and broadband networks, affecting whole regions or even the entire country.¹⁸

Internet quality

For this report, RIA examined Internet speeds for the second quarter of 2023 at the regional level comprehensive assessment of the state of network quality across the region. Using regions provided by the Africa GeoPortal¹⁹ and the Ookla Open Datasets²⁰ RIA found that due to geographic differences in population concentrations and in internet access, there was a high level of variation in the number of mobile speed tests conducted in each region. In total 27 081 speed tests were conducted with over 12 000 carried out in the Oromiyaa region. In contrast, only around 1 000 speed tests were conducted in Somalē Kilil.

In the assessment by RIA of the Ookla 2023 quarter two data Ethiopia came 128th out of 141 countries in terms of mobile network speeds and 174th out of 181 countries for fixed broadband speeds, as per the analysis conducted by Ookla for the second quarter of 2023.

There is a significant disparity in performance between fixed networks and mobile networks, with fixed network performance markedly lower than mobile network performance. The median download speed for fixed networks in the second quarter of 2023 was 5.9mbps and the upload speed was 5.8mbps. Among the various mobile operators in the country, Safaricom emerged as the leader in network speed with a median mobile download speed of 35.2mbps. In contrast, Ethio Telecom trailed behind with a median download speed of only 17.4mbps.

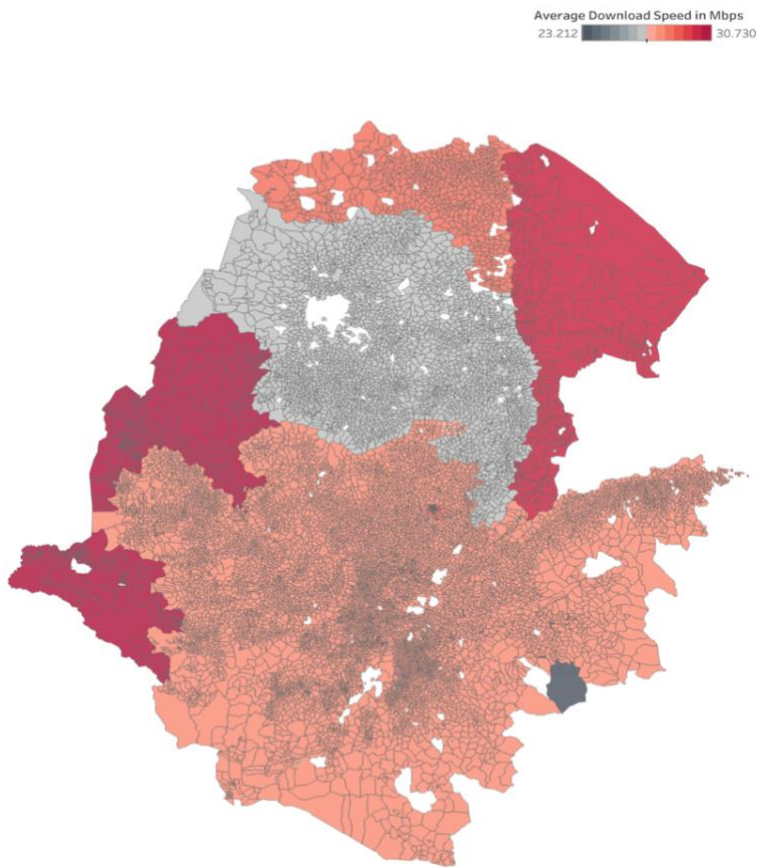
Network quality also varies geographically as shown in the heat map of average download speeds in Figure 1.

¹⁸ Access Now, Open Letter to the Ethiopian Government: Urgently ending Internet shutdowns in all regions across the country. <https://www.accessnow.org/press-release/open-letter-to-the-ethiopian-government/>

¹⁹ Ethiopia Geo Portal. (2020). *Kebeles (Level 4) administrative boundaries for Ethiopia*. [dataset]. Africa Geo Portal. <https://ethiopia.africageoportal.com/datasets/africageoportal::kebeles-level-4/explore?location=9.057571%2C40.481374%2C6.60&showTable=true>

²⁰ Ookla, *Global Fixed and Mobile Network Performance Maps*. <https://registry.opendata.aws/speedtest-global-performance/>

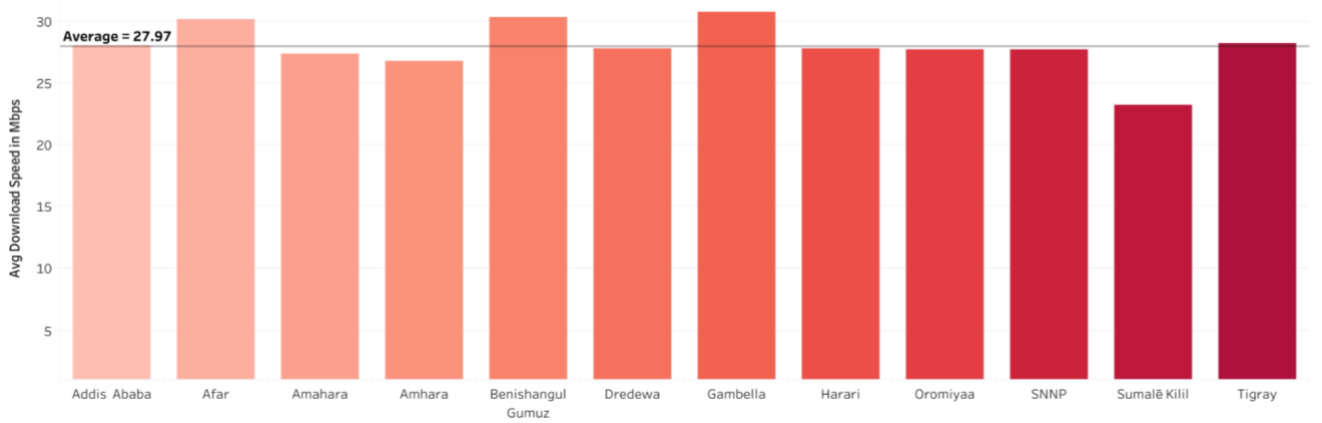
Figure 1: Ethiopia map showing average download speed in mbps



Source: Ookla Network Performance Open Dataset

At the regional level in Ethiopia there was some variation in download speeds from the national average of 27.6mbps. The highest download speed was observed for the Gambella region with an average speed of 30.7mbps. Somalē Killil exhibited the lowest download speed at 23.2mbps. As Figure 2 shows, although there is variation in download speeds, most regions were quite close to the national average.

Figure 2: Average mobile download speed in mbps

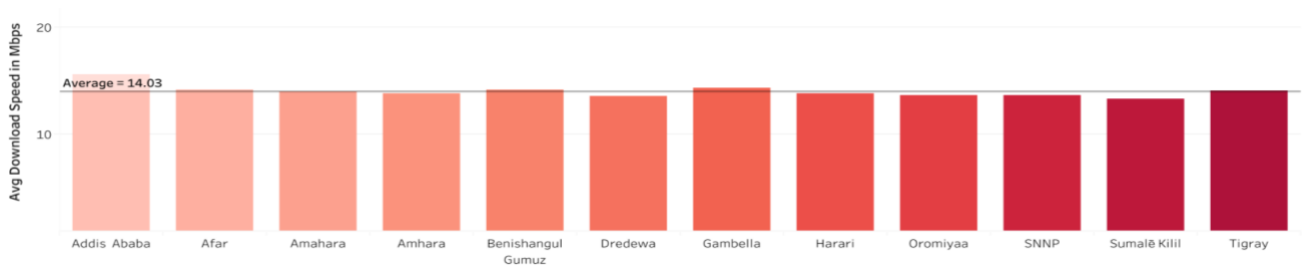


Source: Ookla Network Performance Open Dataset

The average upload speed for all regions was 14mbps, with the capital Addis Ababa recording the highest speed at 15.6mbps while the lowest upload speeds were observed in Oromiyaa, with a rate of 13.3mbps. It is worth

noting that, as is shown in Figure 3, there is not a significant difference in upload speeds between regions, and they are low across the board by contemporary global standards.

Figure 3: Average mobile upload speed in mbps



Source: Ookla Network Performance Open Dataset

These figures are low compared to internet speeds in other African countries such as Kenya which has an average mobile download speed of 22.44mbps.²¹

Network reliability

Network reliability is measured in terms of latency, or the time taken for a data request to reach the responding computer from the computer making the request. Safaricom registered the lowest median multi-server latency in Ethiopia at 42 milliseconds, as opposed to Ethio Telecom's latency of 53 milliseconds. This discrepancy indicates that Safaricom's network demonstrates superior responsiveness and reduced delay. Furthermore, in terms of network consistency which reflects the percentage of a provider's data samples that meet minimum thresholds for download and upload speeds, depending on the type of network²² in Ethiopia during the second quarter of 2023, Safaricom exhibited the highest level of consistency, with 89.4%. Ethio Telecom achieved a lower consistency rate of only 73.3%.

Operators claim that fibre and copper vandalism and limited access to electricity are to blame for the low quality of services.²³ The regulator, however, suspects that service deterioration during peak hours may not be related to lack of power and vandalism. It therefore issued a new QoS standard regulation to monitor services every three months to ensure improvement and impose sanctions and penalties.²⁴

Mobile data pricing

RIA's Africa Mobile Pricing (RAMP)²⁵ Index is a quarterly database that tracks the lowest data and voice/SMS basket prices from mobile operators in Africa. It is a vital tool for assessing the affordability of mobile services and their impact on connectivity, drawing from advertised prices on individual mobile network operator (MNO) websites.

The RAMP Index showed that Ethio Telecom's cheapest 1GB prepaid data bundle for the third quarter of 2023 was priced at USD 1.09. In contrast, Safaricom's offering for the same data package was priced at a lower rate of

²¹ <https://www.speedtest.net/>

²² Ookla. Ookla's Speedtest® Methodology. Glossary. <https://www.ookla.com/resources/guides/speedtest-methodology#ookla-metrics-and-scores>

²³ <https://www.ethiotelecom.et/ethio-telecom-2023-24-semi-annual-business-performance/>

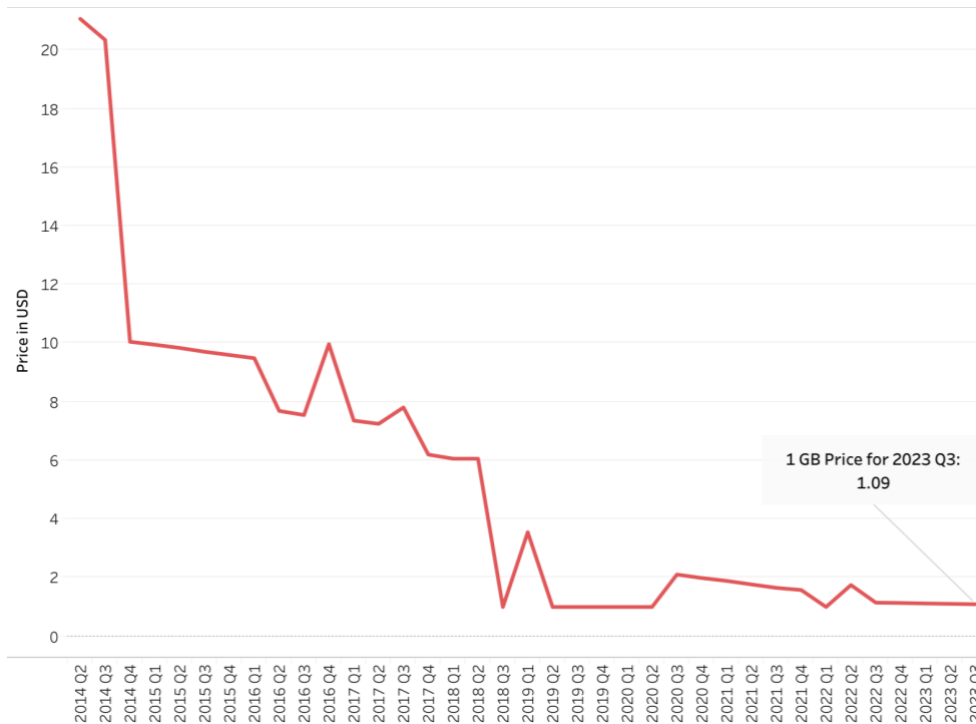
²⁴ <https://www.thereporterethiopia.com/35934/>

²⁵ Research ICT Africa. (2023). Research ICT Africa's (RIA) Africa Mobile Pricing (RAMP) Index [dataset]. <https://researchictafrica.net/research-ict-africa-ramp-index-2/>

USD 0.90. This price discrepancy suggests that Safaricom not only provides faster internet speeds but also does so at a more competitive rate.

Safaricom's pricing positions Ethiopia as the second lowest on the RAMP Index for the third quarter of 2023, just behind Ghana, with a price of USD 0.88, making Ethiopia one of the countries with the cheapest prices for data amongst African countries in terms of mobile data bundles. This is notably lower than the average 1 GB cheapest price across all African countries for this time period, which stands at USD 4.48. The increased competition in the Ethiopian mobile telecommunications market has resulted in falling data prices in recent years as evident in the clear downward trend in data prices shown in Figure 4.

Figure 4: Cheapest 1GB basket in Ethiopia, 2014-2023



Source: RIA, RAMP Index

Ethiopia’s monthly gross national income (GNI) per capita was USD 78 in 2022,²⁶ and the 1GB price of USD 1.15 for this year was therefore below the 2% monthly GNI per capita threshold recommended by the International Telecommunication Union (ITU) Broadband Commission.

Nevertheless, low prices alone are insufficient to ensure internet access. Limited coverage in some areas in Ethiopia and poor network performance negatively impacts the utility and value of the internet to users and firms, as do complete shutdowns. Thus, reporting on the low prices can mask the realities faced by those who have access to intermittent internet services only.

Internet Access Trends

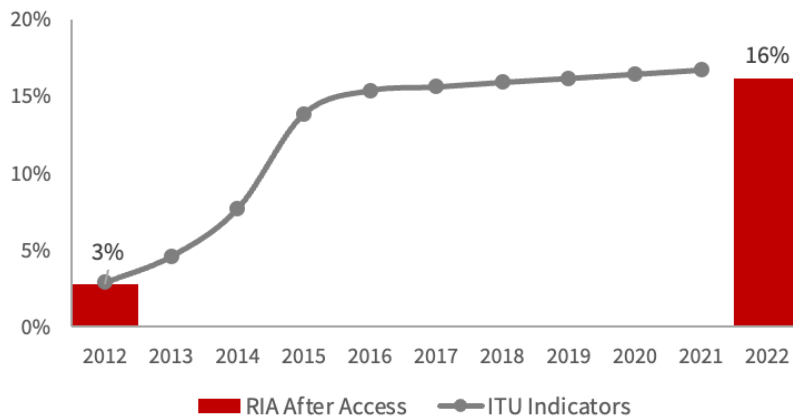
Internet access in Ethiopia has grown relatively slowly over the past decade. It has grown from 3% of individuals over 15 years old accessing the internet when the last After Access survey was done in 2012, to only 16% in 2022. This remains significantly lower than the other countries surveyed in the 2022 After Access survey²⁷ and well

²⁶ <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=ET>

²⁷ South Africa = 75%, Ghana = 57%, Kenya = 50%, Uganda = 22%

below the 20% found to be the critical mass required to enjoy the positive network effects associated with economic growth²⁸. This growth is illustrated in Figure 5 which also plots the annual indicator provided by the ITU²⁹ from 2012 to 2021. The After Access findings closely align with the ITU indicators, the latter showing that the fastest growth period was between 2012 and 2015. However, this flattened between 2015 and 2021, growing by only 1 percentage point in over half a decade.

Figure 5: Internet access in Ethiopia, 2012-2022



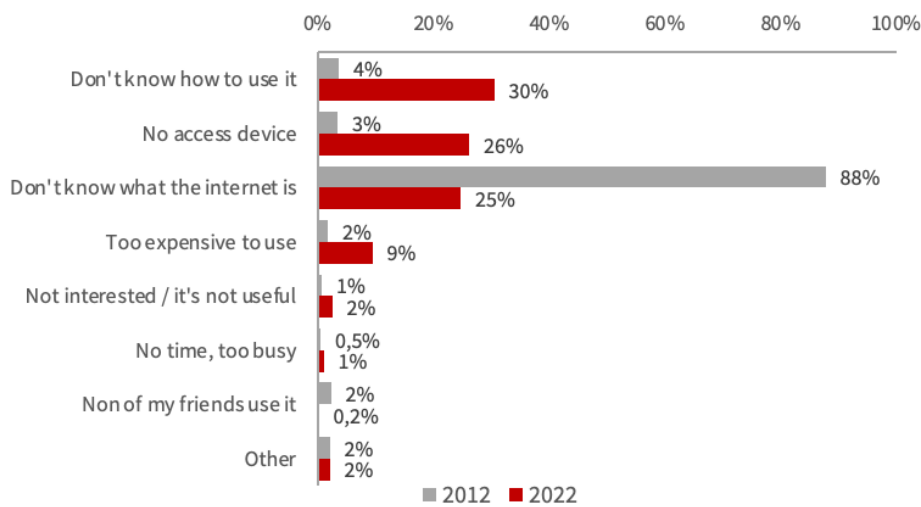
Source: RIA, After Access surveys; ITU DataHub

As a result, the vast majority of the Ethiopian population is still offline. In 2012, almost all individuals who did not use the internet said this was because they did not know what the internet is (relating to awareness). As Figure 6 shows, there have been substantial improvements in awareness in Ethiopia, with the biggest barrier now being that individuals do not know how to use it (education/skills). As individuals are more aware of what the internet is, the availability of smart devices has also become a more prominent barrier to access. Although the survey data shows that Ethiopia has achieved mobile phone penetration of 61%, the majority of mobile phone owners own only a basic mobile phone and only 16% of the population have a smartphone which is necessary to access the internet. A significant number of offline individuals are also deterred from accessing the internet due to the costs of data.

²⁸ Waverman, L., Meschi, M., & Fuss, M. (2005). The impact of telecoms on economic growth in developing countries." *The Vodafone policy paper series* 2(03): 10-24.

²⁹ ITU DataHub. <https://datahub.itu.int/>

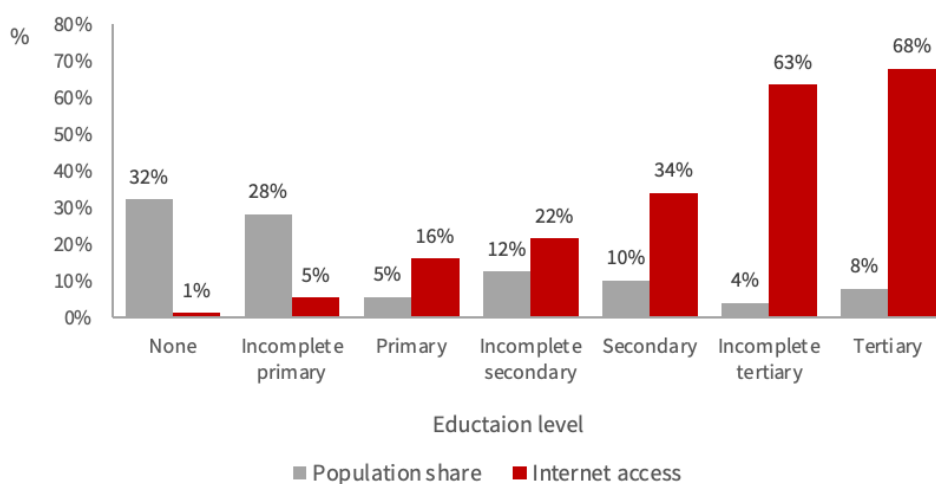
Figure 6: Main access barriers, 2012 vs. 2022



Source: RIA, After Access surveys

The importance of education and skills for Internet access can be seen in Figure 7 which shows the level of internet access for different levels of education. Internet access in general increases with higher levels of education. In particular, individuals who have not completed primary school have internet access levels far lower than the population average of 16%, and individuals who have gone beyond primary school have higher levels of internet access than the population average. Individuals involved in tertiary education have Internet access of 63%, which increases to 68% for those who have completed their tertiary education. However, these two groups make up only 12% of the Ethiopian population. About 60% of the Ethiopian adult population in the survey area either have no formal education or have not completed primary school, with these two groups having Internet access of only 1% and 5%, respectively.

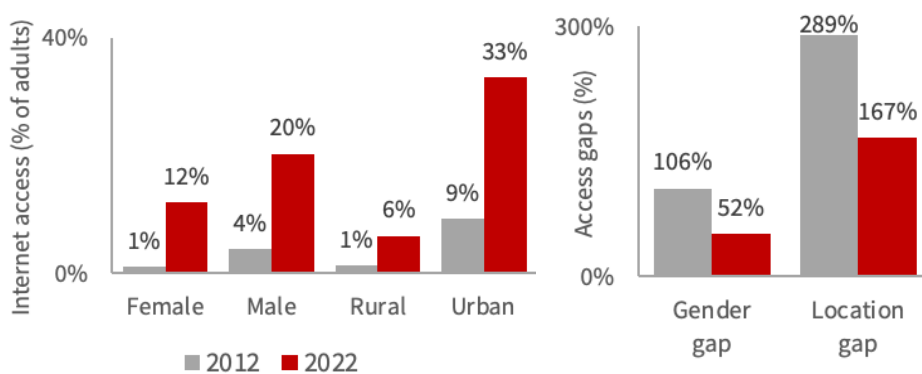
Figure 7: Internet access by level of education, 2022



Source: RIA, After Access surveys

Access is not evenly distributed across the Ethiopian population. Although the gap between men and women and between urban and rural areas has declined over the past decade as more people have come online, as Figure 8 shows, there remain significant inequalities, with women and rural dwellers having significantly lower access levels than men and urban dwellers.

Figure 8: Gender and location access inequalities , 2012 vs 2022



Source: RIA, After Access surveys

Gender and location digital inequalities should not be considered independently from each other or other inequalities. Evidence in the literature shows that intersectional inequalities reflect underlying structural inequalities,³⁰ particularly those relating to income and education, which modelling of the past RIA After Access surveys identifies as the key determinants of internet access.³¹ The gender and location gap therefore remains so wide in many countries including Ethiopia because women and rural dwellers are concentrated at the intersection of multiple inequalities including income and education.

This calls for an approach which targets policy interventions at the intersections of these inequalities to reach the most marginalised. This is important for the purpose of identifying the precise points of policy intervention. The aggregation of patchy international data, especially for Africa, to assess the digital gender gap which is said to be growing³², treats the categories of men and women as homogenous groups, whereas they are highly heterogeneous. Access strategies need to be geared towards people with lower levels of education and income, particularly when located in rural or remote areas. It means that efforts at promoting an inclusive digital economy need to consider inequalities in terms of gender, geography and ethnicity in the broader context of structural inequalities, particularly in terms of income and education.

Selected Use Cases

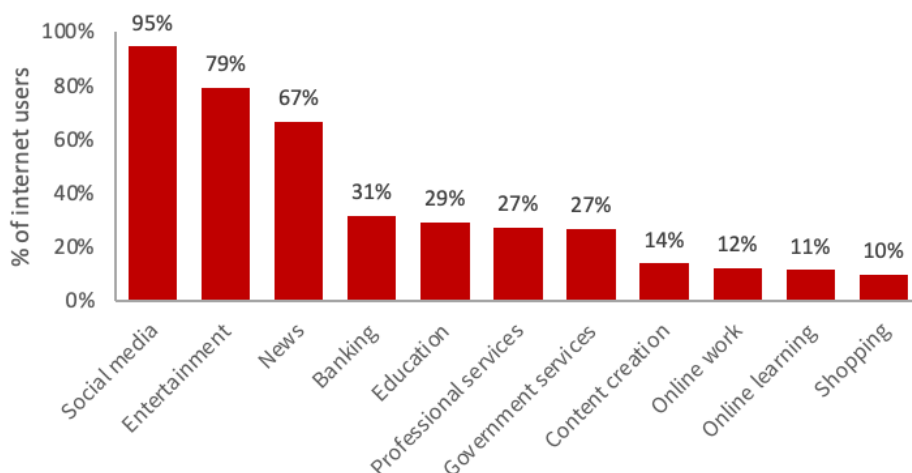
The main use of the internet in Ethiopia is social media, as is the case in all other African countries surveyed - in Uganda 91% of internet users use the internet for social media, in all of South Africa, Nigeria, Kenya and Ghana this rises to between 97% and 98%. Almost all internet users claim to use social media, showing its importance as a channel for reaching a wide audience. Other prominent uses amongst those listed in Figure 9 are entertainment and accessing the news. A much smaller percentage of internet users go online for work, learning and e-commerce.

³⁰ Gillwald, A., & Partridge, A. (2022) *Gendered Nature of Digital Inequality: Evidence for Policy Considerations*. https://www.unwomen.org/sites/default/files/2022-12/BP.1_Alison%20Gillwald.pdf

³¹ Deen-Swarray, M., Gillwald, A., Khan, S., Morrell, A. (2012). *Lifting the veil on ICT gender indicators in Africa*. https://www.researchictafrica.net/publications/Evidence_for_ICT_Policy_Action/Policy_Paper_13_-_Lifting_the_veil_on_gender_ICT_indicators_in_Africa.pdf; Aguilar, D.I., Barrantes, R.I., Agüero, A.I., Mothobi, O.R., Amarasinghe, Lirne, T. (2020). *Future of Work in the Global South: Digital Labor, New Opportunities and Challenges*. Instituto de Estudios Peruanos.

³² Gillwald, A., & Partridge, A. (2022) *Gendered Nature of Digital Inequality: Evidence for Policy Considerations*. https://www.unwomen.org/sites/default/files/2022-12/BP.1_Alison%20Gillwald.pdf

Figure 9: Main uses of the Internet, 2022

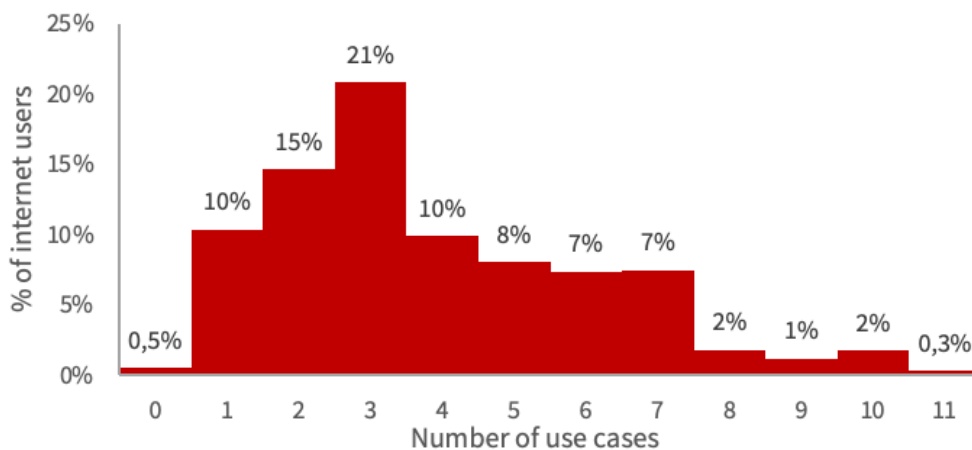


Source: RIA, After Access surveys

Accessing entertainment and news on YouTube has also been growing, the latter because many Ethiopians seek alternative news coverage to state-owned media on the Tigrayan conflict. Online shopping, work and content creation are rated low on the list, indicating Ethiopia's very limited e-commerce and gig economy.³³

Almost all internet users engage in at least one of the activities cited above, with less than 1% claiming not to use any of these 11 services. As can be seen in Figure 10, the mode³⁴ number of use cases is 3, with the average estimated at just below 4.

Figure 10: Number of cited services used by internet users, 2022 (max=11)



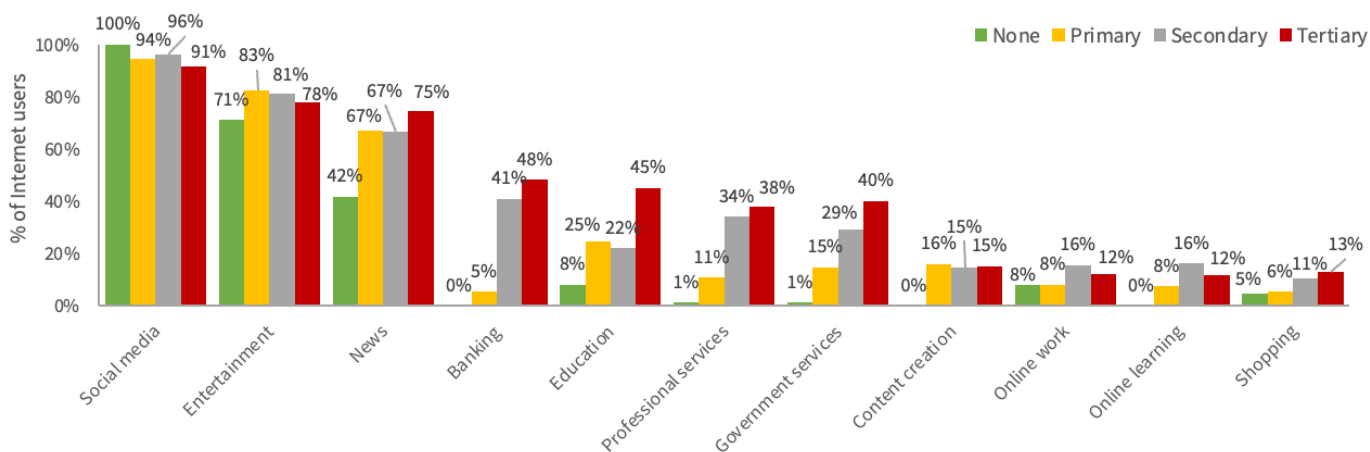
Source: RIA, After Access surveys

Higher education levels are not only associated with higher levels of access but also with more extensive internet use. Internet users with no education are far more limited to using the internet for social interactions, with the probability of online individuals using the other use cases listed in Figure 11 increasing with educational achievement. The gap is particularly notable for online banking, education, professional services and government services.

³³ The gig economy—also called sharing economy or access economy—is activity where people earn income providing on-demand work, services or goods. Often, it is through a digital platform like an app or website.

³⁴ Mode means ‘most common outcome’.

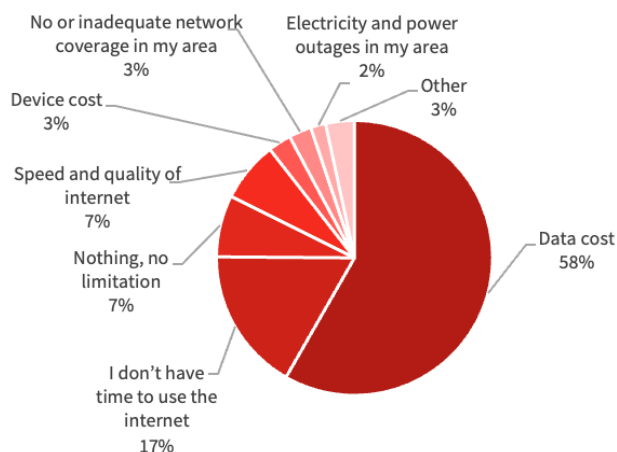
Figure 11: Main uses of the internet by educational achievement, 2022



Source: RIA, After Access surveys

Only 7% of internet users claim not to feel limited in their use of the Internet, with the remaining 93% claiming they would use it more were they able to. As Figure 12 shows, the most pressing limitation is the cost of data, with 58% of internet users claiming this to be the main thing holding them back from deeper digital engagement. A further 17% claim to be limited in terms of the time they have to use the internet.

Figure 12: Main use limitations, 2022



Source: RIA, After Access surveys

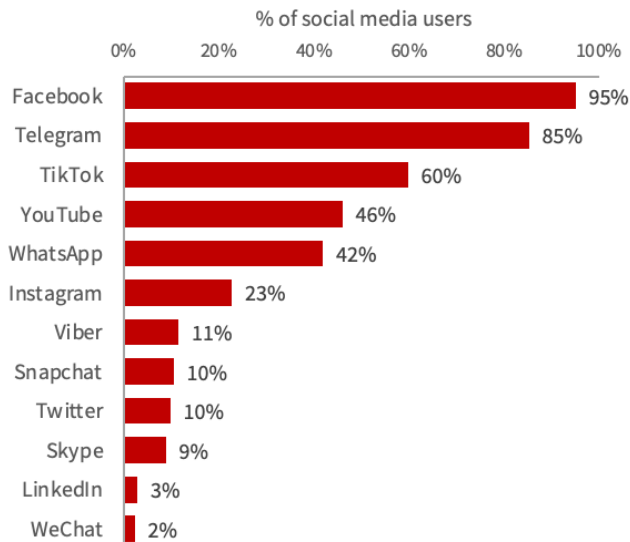
The fact that the cost of mobile data comes out as such a strong limitation despite Ethiopia having one of the lowest data prices in Africa highlights the important distinction between the relative price of data in a country and issues of affordability for the majority of people. This latter issue can be assessed simply through a percentage of GDP per capita. The UN Broadband Commission has, in the context of affordable access to broadband, called for 1GB of data to cost not more than 2% of Monthly GNI per capita. The quality of the network is also a relevant consideration, as poor network quality and reliability can significantly increase the cost of using the internet. Low prices relative to other countries do not guarantee low costs relative to incomes and hence seemingly low costs from a comparative perspective may still be considered high for the individual user.

Social media

As the main use of the internet, social media provides an important avenue to engage online consumers. Looking at specific social media platforms in Figure 13, Facebook is the most popular, with 95% of social media

users having a Facebook account. Meta reported that it had 6.53 million subscribers in Ethiopia in January 2022. The messaging platform, Telegram, is the second most popular. Telegram, which originated in Russia, has better built-in security and privacy controls compared to WhatsApp, which is more popular in many other African countries. The third most popular social media platform in Ethiopia is TikTok, a Chinese-initiated platform similar to Instagram, but geared at a much younger audience. Although not as popular as Facebook, the use of Telegram, X (formerly Twitter) and TikTok has been on the rise in recent years, particularly during the Tigrayan conflict.³⁵

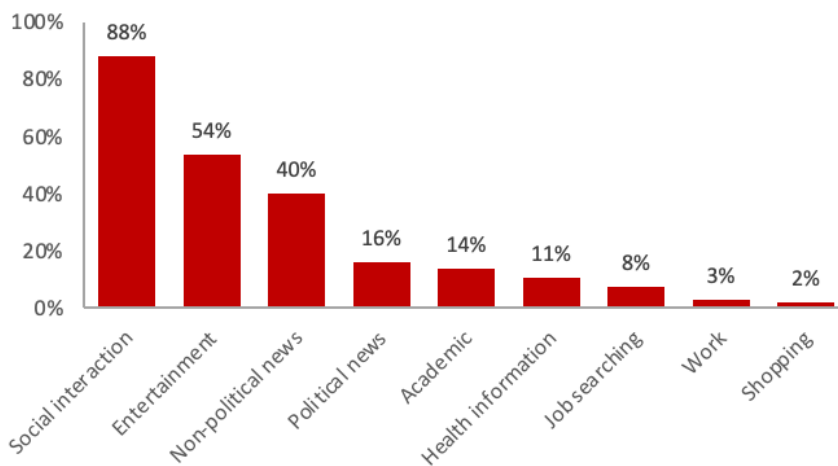
Figure 13: Main social media platforms used in Ethiopia, 2022



Source: RIA, After Access surveys

The main use of social media is for social interactions with the prominence of Telegram showing the high demand for secure, unmonitored interactions. When asked what their top three uses of social media were, social interaction was included in the top three for 88% of users. Entertainment is another common use of social media, featuring in the top three uses for more than half of social media users, with non-political news and political news also significant. As Figure 14 illustrates, very few users employ social media for work and e-commerce.

³⁵ Asrat Seyoum, A., Aschalew, M. & Mesert, M. (2023). *Ethiopian Digital Media Information Ecosystem Assessment*. Internews. https://internews.org/wp-content/uploads/2023/08/Ethiopian-Digital-Media-IEA_edited-Final-SinglePage.pdf

Figure 14: Uses featuring in the top three uses of social media amongst social media users, 2022

Source: RIA, After Access surveys

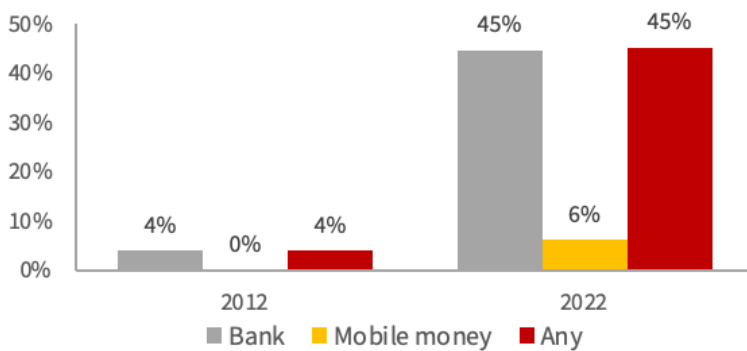
The prevalence of social media use amongst internet users highlights the value of these platforms in reaching a wide audience. However, the current use is mainly limited to activities such as social interactions and entertainment. This represents a relatively untapped opportunity to harness social media as a platform for learning, providing public information, trading goods and providing services.

Social media has the potential to provide a platform for a diversity of views and information. It likewise has the potential to be used for systematic information manipulation and disinformation. Both disinformation and internet activism have risen in Ethiopia over the last decade, particularly during times of conflict. In the case of internet activism, there is an increased appetite for social media-delivered news that bypasses official channels. However, social media is also a key channel for the circulation of disinformation producing challenges with respect to the trustworthiness of shared content. Information disorders propagate in strained political conjunctures with high perceived stakes.³⁶

Digital financial services

There has been a significant improvement in financial inclusion in Ethiopia over the past ten years, as shown by the notable increase in the share of the population with a transactional account in Figure 15. In particular, the adult population owning a bank account has risen from 4% in 2012 to 45% in 2022.

³⁶ Hlomani, H., & Orembo, L., Schroeder, Z., Schültken, T., & Timcke, S. (2023). *Policy reinforcements to counter information disorders in the African context*. RIA Policy Brief. no. 2/2023. https://researchictafrica.net/wp/wp-content/uploads/2023/02/Policy-reinforcements_info-disorders_RIA-policy-brief_Feb2023.pdf

Figure 15: Financial inclusion in Ethiopia, 2012 vs 2022

Source: RIA, After Access surveys

Mobile money is still in its infancy in the country, increasing from 0% to 6% between 2012 and 2022. It should be noted, however, that mobile money is currently not reaching the unbanked, with most individuals using mobile money also owning a bank account. As such, the financial inclusion rate is only marginally higher than the share of the population with a bank account. For example, the most widely used mobile money, Telebirr, is mainly available in towns for customers with bank accounts to transfer money to a mobile wallet and pay for utilities, air tickets, traffic fines, fuel or TV channel subscriptions.³⁷ Current direct transactions are limited to cash-in/cash-out (CICO), person-to-person (P2P) transfers and airtime top-ups; thus, there is a need for better financial inclusion and diversification of payment use cases.³⁸ This is likely to come with greater internet penetration enabling online transactions.

The findings on financial inclusion from the After Access survey align closely with the World Bank's Findex surveys,³⁹ which reported 46% of the Ethiopian population as financially included in 2022, with 46% of the population having a bank account and 5% owning a mobile money account.

The After Access survey shows a positive correlation between internet access and bank account ownership as evident by the fact that 84% of those with internet access own a bank account compared to only 34% of those without access. Although internet access appears to enable greater financial inclusion, the use of online banking remains limited. Only 11% of those with bank account owners claim to use online banking, despite the fact that 31% have access to the internet and hence the means to access online banking services. This highlights a gap in providing digital services, first to the 20% of banked individuals who use the internet but do not use online banking, and then to leverage the growing pool of online banking users as an incentive for individuals without an internet connection to come online.

Government services

The Ethiopian Government has made significant efforts to promote government services. It has drafted two five-year e-government strategies that envisage hundreds of e-services (the first for the period 2011-2015 and the second for 2016-2020). It has invested in several infrastructure and ICT services projects. These include WoredaNet, which connects districts to central government; SchoolNet and EthERNET to link schools and

³⁷ <https://www.ethiotelecom.et/telebirr/utility-bill-payment-telebirr/>

³⁸ GSMA. (2023). *Mobile Money in Ethiopia: Advancing Financial Inclusion and Driving Growth*, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2023/06/GSMA_Mobile-money-in-Ethiopia-Advancing-financial-inclusion-and-driving-growth-report.pdf

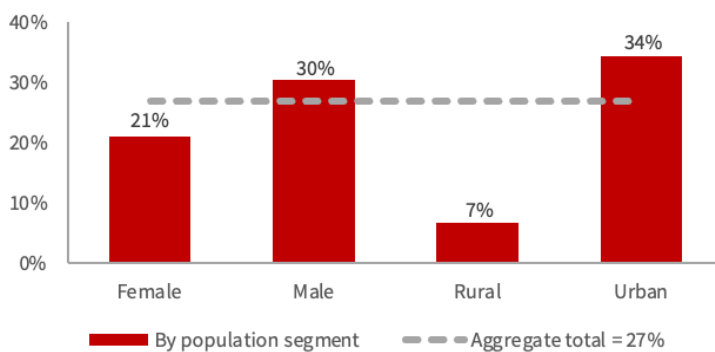
³⁹ World Bank, *Global Findex Database*. <https://www.worldbank.org/en/publication/globalfindex#sec3>

colleges; a data centre; an e-Services Portal; and a multitude of sector-specific information systems, especially in the health, education, agriculture and public financial management sectors.

While there has been some digital integration of government services, with more than 80% of the population offline, these can only service a fraction of the people living in Ethiopia. Despite efforts at promoting e-government services, only 27% of internet users access government services through the internet. This amounts to only 4% of the adult population.

The potential risk associated with providing government services through digital channels is that if those who do not have access to digital technologies cannot gain access, then initiatives may exacerbate inequalities. Moreover, as Figure 16 shows, even amongst those with internet access, online government services are accessed less by women than men, and there is an even greater gap between urban and rural areas. If the gender and location indicators are overlaid then it becomes apparent that women in rural areas would become even more marginalised through government services going online.

Figure 16: Use of the Internet for government services by those online, 2022



Source: RIA, After Access surveys

As the inequalities in online government services are only measured amongst those online, the inequalities widen further once overlaid with the inequalities already identified in internet access. Therefore, in attempting to develop online government service which achieves inclusive outcomes, it is important that the initiative both assists marginalised groups in gaining internet access and focuses efforts on ensuring that once access has been achieved, marginalised groups are equally aware of and able to use online services.

Platform work

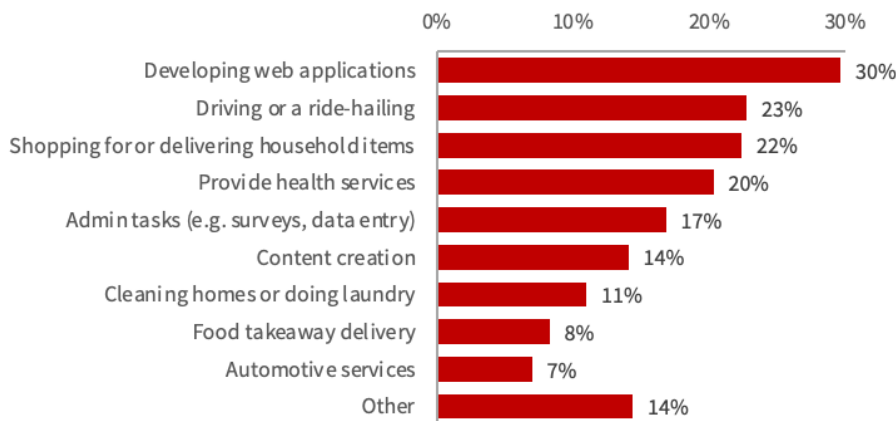
Ethiopia's platform economy is taking off, driven by improved internet access, urbanisation, high youth unemployment, and global trends. Ride-hailing platforms like Ride and Feres have played significant roles in popularising the gig economy model in the country. Other gig economy platforms include GoodayOn, Taskmoby, Haleta Tutors, and Mogzit, which connect service providers such as painters, electricians, plumbers, tutors, nannies and maids with clients. Some Ethiopian developers also earn a living connecting to global platforms like Upwork, Fiverr and Freelancer.

The After Access survey shows that although only 12% of internet users – equating to 1.9% of the adult population – claimed to use the Internet for online work, there was a slightly higher share of respondents who claimed to work for online platforms (3.3% of the adult population).⁴⁰ Most of these individuals (69%) could not

⁴⁰ Platform work is defined in the survey questionnaire as “a form of work in which organisations or individuals use an online platform to access other organisations or individuals to provide specific services or solve specific problems in exchange for payment. These sites

describe the activity they performed for the platform. Still, where the information was obtainable, the most prominent activity amongst the activities listed in Figure 17 was developing web applications, followed by driving to transport people and then delivering household items.

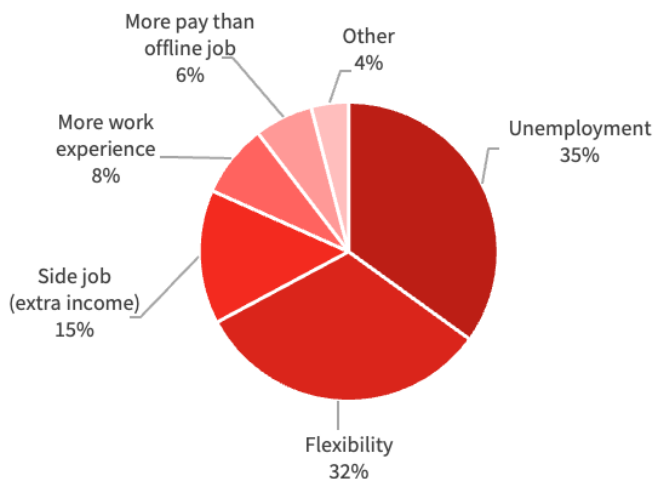
Figure 17: Types of platform work engaged in 2022



Source: RIA, After Access surveys

The main motivation for platform work was the lack of opportunities provided by the traditional labour market, with unemployment cited as the reason for more than a third of individuals entering platform work (Figure 18). The flexibility of platform work and the ability to participate in addition to a regular job appeared to be more of a lure to platform work than the anticipation of higher earnings.

Figure 18: Motivation for becoming a platform worker, 2022



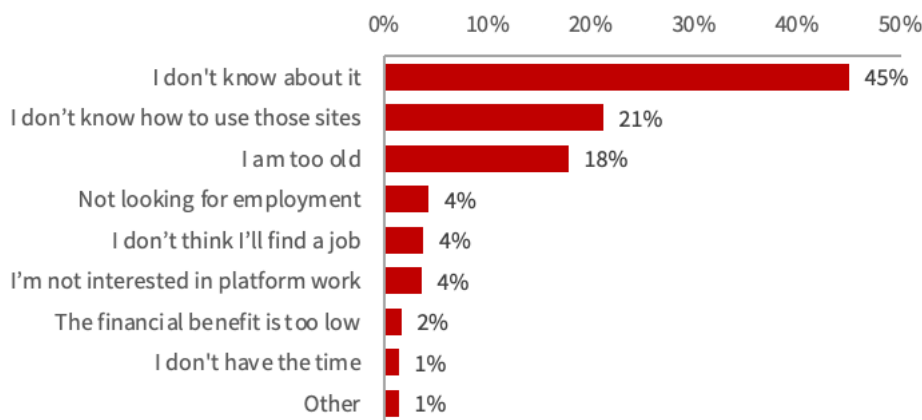
Source: RIA, After Access surveys

Awareness and lack of education appeared to be the major reasons why individuals do not engage in platform work, with 45% of adults not engaged in platform work claiming they have never heard about platform work. A further 21% claimed not to know how to use the associated sites. As can be observed in Figure 19 the only other major reason cited was individuals feeling too old. It should, however, be noted that the lack of awareness about

require workers to create a user profile in order to find and accept assignments, and they also coordinate payment once the work is complete. For example, Uber, Bolt, Amazon Turk etc.

platforms masks other barriers. Only once individuals become more aware of the nature of platform work will other key issues begin to surface.

Figure 19: Main reason for not doing platform work, 2022



Source: RIA, After Access surveys

As with online government services, the ability to engage with platform work is not evenly distributed amongst internet users. Male internet users are more likely to be involved in platform work than women, and those in urban areas are more likely to be platform workers than those in rural areas. This again creates a double layer of inequality and highlights the need for initiatives to address marginalisation not just in access but also in the ability to use digital technologies productively. The gender analysis of platform work from the 2018 After Access survey across 20 countries in the Global South found that even after controlling for differences in income-determining factors such as education and years of experience, women earned less than men for the same work. This gender pay discrimination creates an additional layer of inequality which was found to hold even in countries in Latin America where the gender access gap was very small (Aguilar et al., 2020).

Ethiopia's platform economy is still in its early stages compared to the tech-advanced African countries like Kenya and South Africa. Challenges include regulatory issues, unreliable internet service, and a lack of social protection. Labour laws and policies do not adequately address gig workers' unique needs and platforms generally do not comply with the basic standards of fair work conditions for platform workers set out by the International Labour Organization. Therefore, efforts to support the gig economy's growth should include revising labour and digital laws, promoting digital inclusion and aligning with multilateral efforts to uphold workers' rights.

Policy Recommendations

The After Access survey shows that Ethiopia has seen significant digital developments in recent years, providing a solid platform for further development and for people to benefit from the country's digital economy. In order to achieve the ambitions of the *Homegrown Economic Reform Agenda*, the *Ten Years Development Plan* and *Digital Ethiopia 2025*, and to move beyond that to becoming a leader in Africa's digital economy, policy interventions are required to support individuals and firms to take hold of the opportunities the Internet offers. The government must remove the current policy and regulatory barriers holding back digital developments while continuing to redress the structural inequalities that determine digital inequality. These interventions should include:

Removing the high barriers to internet access and use

The low level of access to and use of broadband is driven mainly by a lack of awareness of the Internet or knowledge of how to use it, as well as a lack of affordable devices. Amongst those with access, use is mainly constrained by high data costs. Moreover, education was shown to be associated not just with greater access but also with engagement with more meaningful online engagement. To address these barriers and limitations, it is important that:

- ❖ the Government, through the Ministry of Innovation and Technology, the regulator and operators work together to expand broadband services across the country by defining a broadband plan, increasing access to the national backbone, especially 4G and 5G coverage to ensure the quality of services to be able to use cloud and other high speed bandwidth dependent of products and services;
- ❖ the Government, in coordination with development partners, private sector and civil society invests in community-driven digital literacy of the population with attention to marginalised groups – people in rural areas, women, youth, people with disabilities and displaced people – to ensure broader access and meaningful internet use for the vast majority of citizens;
- ❖ the Government, through the Ministry of Innovation Technology, increases access to smartphones so that a greater number of people can access the internet by identifying and removing cost drivers including excise and sales taxes and accelerating local device manufacturing/assembly;
- ❖ the regulator, reviews the competitive outcomes of the market by undertaking market review to identify different market segments, dominance within them and identify remedies to deal with anti-competitive behaviour;
- ❖ the regulator reviews the allocation of sector resources to ensure optimal competitive outcomes by reassigning underutilised national spectrum licences; enabling more efficient dynamic spectrum licences in rural areas, creating opportunities for low-power/low-cost users to explore more affordable business models, and incentivising spectrum sharing and micro/MVNO sub-licensing; and
- ❖ the regulator collects comprehensive digital indicators in order to have available an up to date evidence base for policy, focusing particularly on research to understand the intersection between income and internet affordability in the country to guide operators, regulators and decision-makers.

Expanding services that enable Ethiopians to put the Internet to good use

The high level of social media use for entertainment, social interaction, and news indicates the value of these platforms in reaching a wide audience, be it for entertainment, communication, trading goods and services, job creation, governance or education. The growing use of social media platforms also has the potential to exacerbate disinformation which can disrupt economic and political processes. Despite being one of the few African countries that has legislation on disinformation, the information disorder is on the rise. To ensure the availability of the Internet as a public good essential to modern social and economic life it is important to

- ❖ ensure equitable access to the Internet through alternative strategies such as those stated above;
- ❖ connect all public buildings to broadband, particularly schools, and create public Wi-Fi access points to accelerate access to e-government services including educational, health and other government content;
- ❖ ensure that these services are also available through social media to optimise the use of social media platforms towards social and economic development; and

- ❖ limit the impact of social media on accelerating misinformation (spreading falsehood without intention to harm), disinformation (information manipulation to harm) and malinformation (sharing confidential information to cause harm) by aligning with global governance.⁴¹ It is important to understand the impact of these to raise public awareness of the negative impact of disinformation on accessing credible content.

Supporting platform work

Ethiopia has a stated ambition to reduce unemployment through the creation of digital jobs. The Plan for Job Creation projects 24 000 new jobs directly enabled by ICTs and 242 000 jobs indirectly enabled by ICTs by 2025.⁴² Ethiopia's emerging platform work needs to be nurtured. This requires that:

- ❖ the Government assesses the progress and challenges with respect to platform work to address potential regulatory, infrastructural, financial and legislative barriers; and
- ❖ the skills of the youth are increased through improving curricula, upskilling the youth and creating digital jobs, together with opportunities for innovation beyond the very small private ICT sector efforts, and a limited presence of international anchor institutions that facilitate skills and knowledge transfer. Therefore, improvement in digital skills, curricula, and incentives for the private sector are critical for accelerating platform work as a basis for digital jobs.

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⁴¹ IDRC, University of Cape Town, ARIJ, LIRNEasia, Internetlab, Meeting the Challenge of Information Disorder in the Global South, <https://idl-bnc-idrc.dspacedirect.org/items/5aad1667-cf56-44bf-b85f-8695cb5f11dd>

⁴² Job Creation Commission, Plan of Action for Job Creation (2020-2025), Briefing Document.