



E-GOVERNANCE IN ETHIOPIA 2025:

PROSPECTS AND CHALLENGES

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Introduction

The process of ICT development in Ethiopia dates back to 2002, when the first National ICT Policy was drafted. That was followed by the establishment of the Ethiopian ICT Development Authority (EICTDA) in 2003. E-Government was among the Policy’s strategic pillars, with a goal to implement 211 eServices.

The next National ICT Policy and Strategy was published in 2009, followed by inauguration of the Ministry of Communication and Information Technology (MCIT) in 2010. The Ministry emerged as a result of the merger of the Ethiopian Information and Communications Technology Development Agency (EICTDA), the Ethiopian Telecommunications Agency (ETA) and the Communication branch of the Ministry of Transport and Communications. To support the sector development, in 2012 the Ministry of Science and Technology published the National Science, Technology and Innovation (STI) Policy aimed at promoting digital skills and introduction of ICT into educational activities.

In 2013, as a part of the Korea’s Knowledge Sharing Program (KSP) carried out by the Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI), the Strategy for the Implementation of Ethiopian e-Government and Adoption of ICT technology¹ was published. The key tasks outlined in the Strategy were the Plan proposal for the e-Office system, policy directions for the performance management of the national informatization project, and directions for the information system for SME development, based on the Korean models.

In 2018, the Government initiated a restructuring process, which led to a merger of the the Ministry of Science and Technology and Ministry of Communication and Information Technology that formed the Ministry of Innovation and Technology, which now is the key regulator of the ICT sector.

The Ethiopian eGovernment Interoperability Framework (EeGIF) Governance and Compliance² document, drafted in November 2019, outlines the governance principles, policies, and compliance mechanisms for interoperability among Ethiopian government systems. The core principles of EeGIF include the use of open standards and technologies to ensure system interoperability and data sharing across government entities, reusability of existing ICT infrastructure, services, and data to reduce redundancy and improve efficiency, scalability of the systems, secure data exchange, embedding of interoperability requirements into the development of all new government ICT systems. EeGIF is an extension of the Ethiopian National Enterprise Architecture Framework (ENEAF)³, drafted in 2019 as well, which is focusing on government-to-government (G2G), government-to-employee (G2E), government-to-citizen (G2C), and government-to-business (G2B) interactions. It provides models, governance mechanisms, technology standards, and guidelines to ensure effective development and implementation of enterprise architectures within the public sector.

In 2020, the national strategy for the ICT sector, Digital Ethiopia 2025⁴, was released by the Ministry of Innovation and Technology in coordination with the Prime Minister’s Office. Regarding e-government development, the strategy outlined a demand to increase coordination across government agencies and facilitate access to data through development of open data initiatives and enhancement of clear data sharing policies. The need to foster citizen engagement and increase public awareness on the advantages of digital public services was stated as well. A necessity to develop an enabling legal framework in order to lessen the regulatory complexity and reduce costs for G2B services development were also among the priorities.

1 Strategy for the Implementation of Ethiopian e-Government and Adoption of ICT technology. URL: <https://www.ksp.go.kr/api/file/download/8648?downloadFilename=%EC%97%90%ED%8B%B0%EC%98%A4%ED%94%BC%EC%95%84-%EC%98%81%EB%AC%B8.pdf>

2 Ethiopian eGovernment Interoperability Framework (EeGIF) Governance and Compliance. URL: <https://thedocs.worldbank.org/en/doc/003d76985cbd41c53cfa9825d2464495-0460012022/original/1-3-9-1-EeGIF-Governance-and-Compliance.pdf>

3 Ethiopian National Enterprise Architecture Framework. URL: <https://thedocs.worldbank.org/en/doc/96dca2931542e337d2e764c271395b56-0460012022/original/1-2-8-1-NEAF-Governance-and-Compliance.pdf>

4 Digital Ethiopia2025. URL: [https://mirror.explodie.org/Ethiopia Digital Strategy 2020.pdf](https://mirror.explodie.org/Ethiopia%20Digital%20Strategy%202020.pdf)

CHALLENGES

Low digital literacy entails poor use of e-government services .

The issue of low e-participation is further hindered by disintegration among institutions and nascent stage of development of a number of e-government initiatives, as highlighted in the case of e-tax system

Unavailability of sufficient amounts of data: according to the MInT, vast amounts of public data are not digitized/standardized/interoperable

According to the 10-Year Development Plan of Ethiopia (2021-2030), the agricultural sector remained the least productive despite enhanced research and development in the area. Integration of food security systems into 972 cities/towns is among the 2030 targets.

Tourism is among the Government's priority areas, as it plans to increase the number of languages used in tourism activities from 53 to 73, double the number of institutions providing tourist services from 1,348 to 2,696, and boost domestic tourist numbers from 24 million to 70 million.

Mining is among the Government's priority areas as well, with geological data promotion and attraction of private investments being among the targets.

Urban development and city management, with decentralized governance, migration prevention, increase in land registration efficiency, decentralized financial systems in municipal areas to cover at least 60% of expenses from local revenue, improvement of social safety nets, are the key areas that can be addressed with e-governance in social sphere.

RECOMMENDATIONS

Rollout of targeted campaigns to raise public awareness on the benefits of e-governance, as well as implementation of training programs to improve digital skills among government employees and final users.

Implementation of geospatial solutions for livestock and land monitoring in real-time, such as GIS & Remote Sensing, as well as IoT-based agricultural monitoring, sensors for soil tracking, implementation of AI for predictive analytics, food traceability systems to increase transparency in food supply chains.

Use of AI for digitalization of languages and boost in their digital use in the tourism sector, amelioration of the website of the immigration authority with information on tourist destinations, local culture, festivals, and other up-to-date information to attract the visitors.

Development of a dedicated cadastre website/merging with the websites on agriculture data with GIS-based datasets on land, integration with a dedicated website for business registration

Digital Ethiopia 2025 placed a significant importance on service delivery on vulnerable and remote populations, as well as on facilitation of business procedures, especially of Small and medium enterprises (SMEs), via e-governance.

Increase in tax collection, compliance and assessment were also outlined as one of the crucial areas that promote national development. Based on the Strategy, in 2020 tax collection represented 11% of GDP, compared to the African average of 17%. 800 major taxpayers represented 70% of collected taxes. This disparity is due to the predominance of informal SMEs.

The 2020 Strategy defined main government operations and services implemented or being under development. National Data Centre and E-Procurement along with such G2G services as Human Resource Management Service (HRMS), E-Office, and Management Information System (MIS) used by the ministries of Tourism, Health, and Education were already put in place.

The Digital Government Strategy and Government Enterprise Architecture 2024-2029 was drafted and received⁵ National Digital Transformation Council’s approval in 2025. The Strategy was jointly developed by the MInT and DT-Global⁶, a US-headquartered digital solutions developer, under the EU’s funding. In line with the Strategy, the government enterprise architecture was formulated, and an ambition to implement 5000 eServices until 2030 was set⁷. The Ministry also declared the plan to establish a Digital Government Support Center to enhance management of activities. The document is not publicly available yet.

The Ethiopian National Data Set (ENDS) Master Plan⁸, being a strategic framework developed to standardize and enhance data management across various government sectors, proposes a phased implementation approach to establish a comprehensive and standardized data management system. The ENDS Master Plan has identified 188 common datasets, categorized into high, medium, and low priority. The data types include identification, transactional data, survey and statistical data. The first implementation Phase includes development and deployment of the basic infrastructure for the ENDS and its associated systems at both central and other government organization level, formulation

and implementation of data management and sharing policies and procedures, with consecutive deployment of 30 high-priority datasets is planned. Medium- and low-priority datasets are planned to be deployed during the second and third stages of the project.

Regarding the national ICT infrastructure, in 2019 the Government initiated⁹ the process of development of the National Backbone Project to replace the previous WoredaNet. The latter used to serve as a government network that was linking the 9 regions, 2 city administrations, 950 Woredas and other sites. WoredaNet’s internet gateway capacity stood at 50 GB per second, and was planned to reach a minimum of 2000–10000 GB per second until 2022. As of 2025, updates on the project are not disclosed.

In 2022, the first privately owned Ethiopian data centre was constructed by Wingu.Africa¹⁰ in Ethio ICT Park located in the capital Addis Ababa. Another privately owned data centre was constructed by Raxio Group¹¹ in 2023.

Rankings

According to the 2024 UN E-Government Development Survey, Ethiopia ranked 169 with an EGDI (E-Government Development Index) of 0.31 (compared to the Sub-Region average of 0.39). In 2022 the country was placed 179 on the Survey’s list with an EGDI of 0.29. As per the World Bank’s GovTech Maturity Index (GTMI), the country’s GTMI reached 0.58 placing Ethiopia among the countries with significant focus on GovTech development.

According to the International Telecommunication Union (ITU) rankings for 2024, Ethiopia is among Tier-3 (establishing) countries with a cybersecurity index rate of 76.34.

5 Ethiopia’s New Digital Strategy Poised to be Transformative for Government’s Digital Future: Innovation Minister. ETA. URL: https://www.ena.et/web/eng/w/eng_4759694
 6 DT-Global. URL: <https://dt-global.com>
 7 Ethiopia’s eGovernment: Leap to Interoperability. Reg-Tech. URL: <https://reg-tech.co/2024/07/19/ethiopias-egovernment-interoperability-leap/>
 8 Ethiopian National Data Set (ENDS) Master Plan. URL: <https://publicadministration.desa.un.org/sites/default/files/list-of-files/2025/1.1.1%20Abiyot%20Bayou.pdf>
 9 Ministry to Replace WoredaNet with New ICT Infrastructure. ENA. URL: https://www.ena.et/web/eng/w/en_5655
 10 Ethiopia’s First Carrier Neutral Data Center. Wingu. Africa. URL: <https://www.wingu.africa/our-locations/addis-ababa-ethiopia/>
 11 Ethiopia’s first state-of-the-art carrier-neutral data centre. Raxio Group. URL: <https://www.raxiogroup.com/locations/ethiopia/>



E-Government in Ethiopia

2024



A MoU signed between Ethiopia's National ID Program (NIDP) and 4 sectoral institutions as a part of the Digital Ethiopia 2025 initiative



Launch of the "5 Million Ethiopian Coders" Initiative in collaboration with the UAE

2023



Launch of a payment gateway system developed by EthSwitch



E-ID Fayda was made the main identification tool for civil servants and students

2022



Launch of the pilot version of the face recognition system and unified biometric system (Fayda project). It is part of the unified system of identification and authorisation (Ethiopia National ID Program, NIDP)



Launch of the unified procurement platform

2021



Launch of the unified register of information about the residents of the country (Immigration Nationality and Vital Event Registration Agency)



Start of the implementation of the e-budget system



Publication of the National Digital Payments Strategy and launch of the governmental payment system Telebirr

2020

Launch of the Digital Ethiopia 2025 Strategy



Launch of D-library, which is a video-library containing the recordings of lessons on the website of the Ministry of Education



Announcement of the plan to develop a national data centre for cloud storage



Launch of the Ethiopia Electronic Single Window Project with the aim of developing a customs processing platform



Launch of the Integrated Freight Transport Management System



Establishment of the Ethiopian Artificial Intelligence Institute

2019



Launch of the earth remote sensing system in partnership with China (based on the first Ethiopian Remote Sensing Satellite ETRSS-1)

2018



National Data Management Center for Health established



Electronic Signature Proclamation No.1072/2018 by the parliament of Ethiopia



Launch of the national program "E-government"

2017



Launch of the e-visa platform



Modernisation of the Ethiopian Government Electronic Services Portal

2016



Inauguration of the partnership between the Government of Ethiopia and Korea International Cooperation Agency (KOICA) to implement Ethiopia's e-Government programme



Launch of The Ethiopian Government Electronic Services Portal

2012

2010

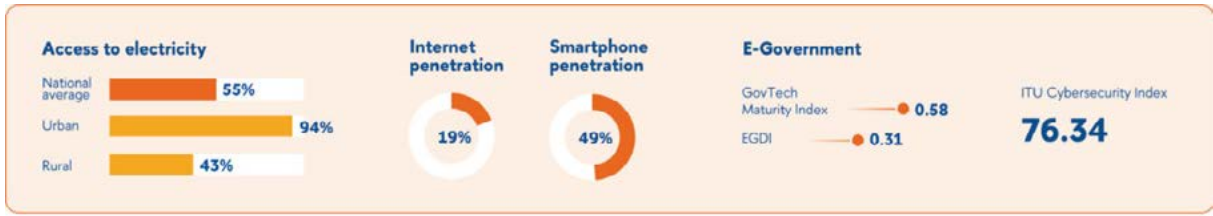


Launch of the Electronic Toll Collection System construction (finished in 2014). The project was partly financed through a 350 million USD loan from Exim Bank and constructed by Chinese Communications Construction Company



Beginning of the implementation of the digital system SmartCare which enables people to make appointments and use digital medical cards

2009



Source: prepared by the HSE Center for African Studies based on the World Bank and Lucidity Insights data, 2022.

Regulators

The Ministry of Innovation and Technology (MIiT), established in 2019 after the merging of the former Ministry of Science and Technology and the Ministry of Communication and Information Technology, is the main national sector regulator and policy maker. The Ministry's ICT and Digital Economy Sector coordinates the National E-Government Services Office.

One-stop shop portal

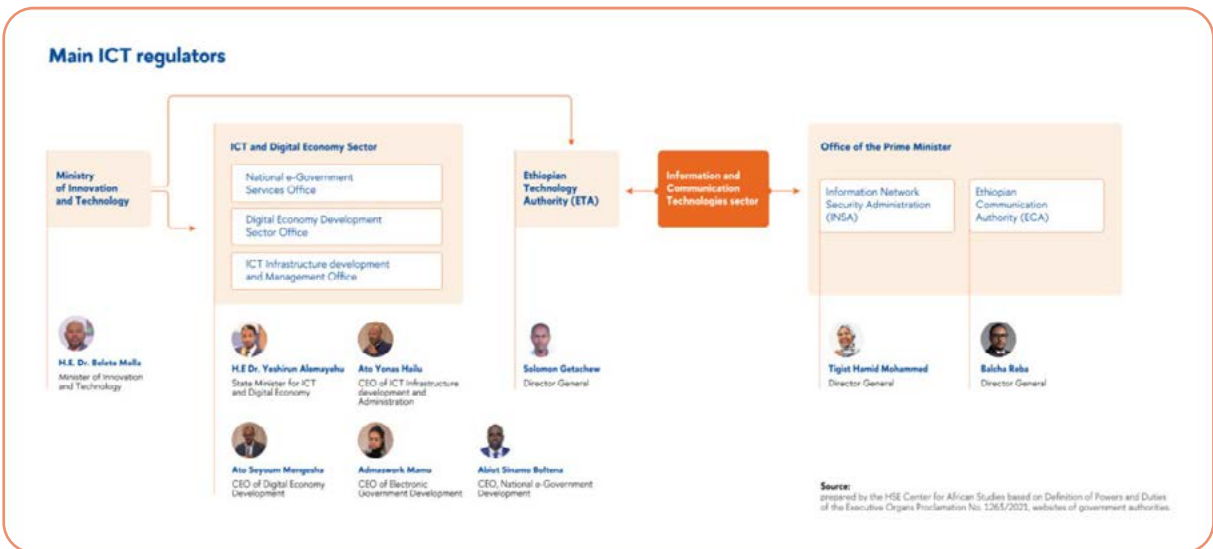
The Ethiopian Government Electronic Services¹², or E-Services Portal, is the one-stop shop which accumulates all the digital services delivered by the Government. As of January 2025, the number of services available amounts to 373. Service providers are 26 national ministries and authorities. The portal is available in English and Amharic.

Digital Ethiopia 2025¹³ identified disparity among institutions, low infrastructure connectivity, and digital skills gaps as the main challenges for the implementation of e-government services via the main portal. The Government's goal for the end for 2020 was to display 278 services provided by 25 institutions, as in the beginning of the year, the number of services did not exceed 50 and was delivered by 6 institutions. As such, the number has shown a seven-time growth over the five year period.

In order to register on the website, the phone number and a personal number are required. Despite the Government of Ethiopia having introduced a digital Fayda ID, the one-stop shop has not integrated this means of authentication yet.

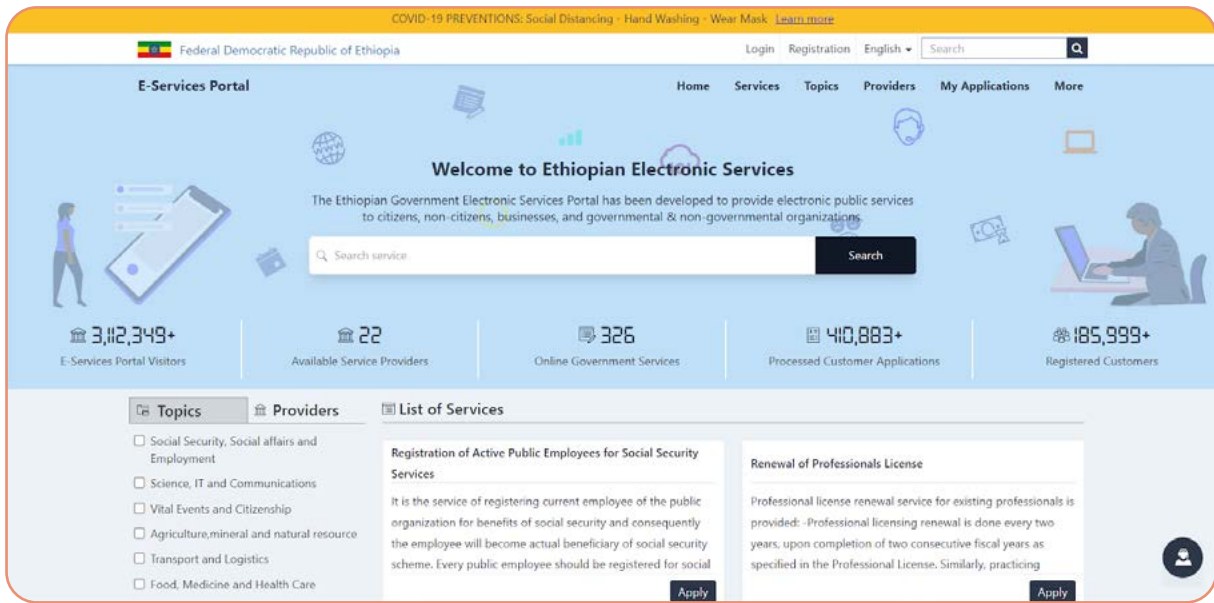
The library of templates for various governmental institutions is already developed, and the ministries websites design is consistent.

The portal enables users to submit applications ranging on 61 topics, among which are agriculture,



12 E-Services Portal. URL: <https://www.eservices.gov.et/>

13 Digital Ethiopia2025. URL: <https://mirror.explode.org/Ethiopia Digital Strategy 2020.pdf>



Source: E-Services Portal (main page, English)¹⁴

mineral and natural resources, education and learning, registration, and others. The website grants G2B and G2C services, such as registration and certification for companies or submitting enterprises annual reports, and renewal of professional license. Nevertheless, the website’s examination showed a slight inconsistency in the filter option, as links of 23 service topics lead to an empty page, where no service is accessible.

According to the data presented on the website, the number of website’s visitors exceeds 3 mln, while the number of registered users is stated to be 284,050. The portal was launched in 2012, and further modernised in 2017. Over this period, over 560,000 applications were made via the portal.

The 2022 version of the Ethiopian Government Electronic Services Portal¹⁴ is also available online via the other domain. The server connection is not protected. According to the seemingly previous version of the portal, 158, 255 online services were available. All the data except for statistical information has been cleared from the website.

Performance of the e-services website

The performance monitoring metrics show that the

website requires improvement in order to provide good user experience.

The website’s First Contentful Paint (FCP) amounts to 1.3 seconds, while the average length is 0.9s. The Speed Index stands at 2.7s, with a figure representing good user experience amounts to 1.3s or less. The Largest Contentful Paint (LCP) is 2.9s (good user experience — 1.2s). The main page’s Time to Interactive stands at 3.4s (good user experience — 2.5s). Total Blocking Time (TBT) is 218ms (average — 150ms). Cumulative Layout Shift (CLS) takes 0.16 (good user experience — 0.1 or less).

The portal is visited by 30.5 thousand visitors monthly — which is insignificant compared to the population of Ethiopia exceeding 120 million people and the population of Addis Ababa of 5.7 million.

Concerning the global ranking of governmental websites, the one-stop shop portal is 17761th. The website is predominantly accessed via desktop version (75.6%), while the share of mobile users (24.4%) indicates less popularity.

Security

The website possesses TLS 1.0, TLS 1.1, and TLS 1.2 certificates. SSL 2 and SSL 3 are not available. It

14 E-Services Portal (2022). URL: <http://196.189.44.47:3001/>

uses a valid certificate issued by Kaspersky Endpoint Security Personal Root Certificate.

The website is stored on the servers within the country's borders in Addis Ababa by Ethiotelcom.

Accessibility

The website's main page has 6 errors, namely 2 missing form labels (no visible descriptions and clickable targets for form controls), 2 empty buttons with no text or value, and 2 empty links. The front page also has 10 redundant links leading to the same URL. The website possesses 9 ARIA (Accessible Rich Internet Applications) attributes.

e-Taxes

The process of digitization of the Ethiopian tax system dates back to 2004, when the Standard Integrated Government Tax Administration System (SIGTAS) to process taxpayer records was implemented. In 2008, the electronic sales registry machines (ESRMs) linked with the central database of the Ethiopian Revenues and Customs Authority, enabling real-time reporting on transactions and revenue.

In 2010, the pilot project of the e-filing system was first presented¹⁵ by the Ministry of Revenue. Until 2011, all the Value-added tax (VAT) and Corporate income tax (CIT) were filled manually. The utilisation of e-filing has become slightly more popular, with 26% of VAT and 11% of CIT returns having been filled online in 2014 and 2013, respectively. In contrast, the share of VAT returns via e-filing accounted for 46% in 2019 and 95% in 2020. The proportion of CIT returns performed online in 2019 stood at 91%.

According to the Digital Ethiopia 2025, in 2020, the national e-tax architecture was not effectively used due to lack of integration of institutions and delayed transactions. Unavailability of digital payment enabling regulations and systems emerged as a barrier to the digitalization of tax operations. Furthermore, banks' non-interoperability restrained the use of mobile payments for tax payment.

Based on the focus group discussions initiated by

the International Centre for Tax and Development (ICTD)¹⁶ in 2022, the three main reasons for low e-filing adoption in the beginning included:

1. the systems incompleteness and inefficiency, as it lacked clarity and completeness. Initially, not all tax forms were available, and it couldn't automatically calculate values like totals and VAT rates. The system was also not thoroughly tested before implementation, leading to inefficiencies and inability to handle high traffic, especially during peak filing periods.
2. inadequate training, as training sessions for taxpayers were insufficient, being too short and lacking in-depth content with limited practical exercises. Only one person per firm could attend these sessions, and professionals rarely received updates on system changes despite requests.
3. cultural and technological barriers, as taxpayers experienced cultural shock and mistrust in the early stages of e-filing. Many lacked experience with computers and the internet, and faced challenges like poor internet connectivity and inadequate technical knowledge. These issues hindered the effective use of the e-filing system, similar to challenges faced in other developing countries.

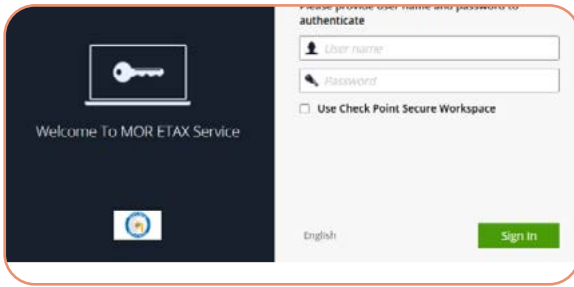
In 2019 and 2020, two key factors significantly boosted the adoption of e-filing among taxpayers. The Ministry of Revenue (MoR) engaged in extensive discussions with experts and taxpayers to identify and address issues with the e-filing system. This led to significant improvements, including the addition of necessary tax forms, making the system more comprehensive. Taxpayers gained experience and built trust in the system, which led to an increase in adoption rates. Furthermore, the MoR launched a successful campaign to register over 10,000 e-filers during these years. This initiative effectively encouraged taxpayers to adopt e-filing, resulting in a notable surge in adoption rates starting from 2019.

In 2019, the system was integrated with electronic payment for private income tax, pension tax and federal taxes. During the pilot phase, the e-tax was tested¹⁷ by 11 companies, including the Commercial

15 E-Tax Rollout in Ethiopia—A Challenging Road to Renaissance. Bloomberg Tax. URL: <https://news.bloombergtax.com/daily-tax-report-international/e-tax-rollout-in-ethiopia-a-challenging-road-to-renaissance>

16 E-tax System Adoption and Tax Compliance in Ethiopia: Large and Medium Taxpayers' Experience. URL: https://opendocs.ids.ac.uk/articles/report/E-tax_System_Adoption_and_Tax_Compliance_in_Ethiopia_Large_and_Medium_Taxpayers_Experience/26433184?file=48183391

17 Ministry of Revenue of Ethiopia. URL: <https://www.mor.gov.et/web/mor/w/ethiopia-introduces-electronic-tax-payment-system>



Source: Ministry of Revenue ETAX Service

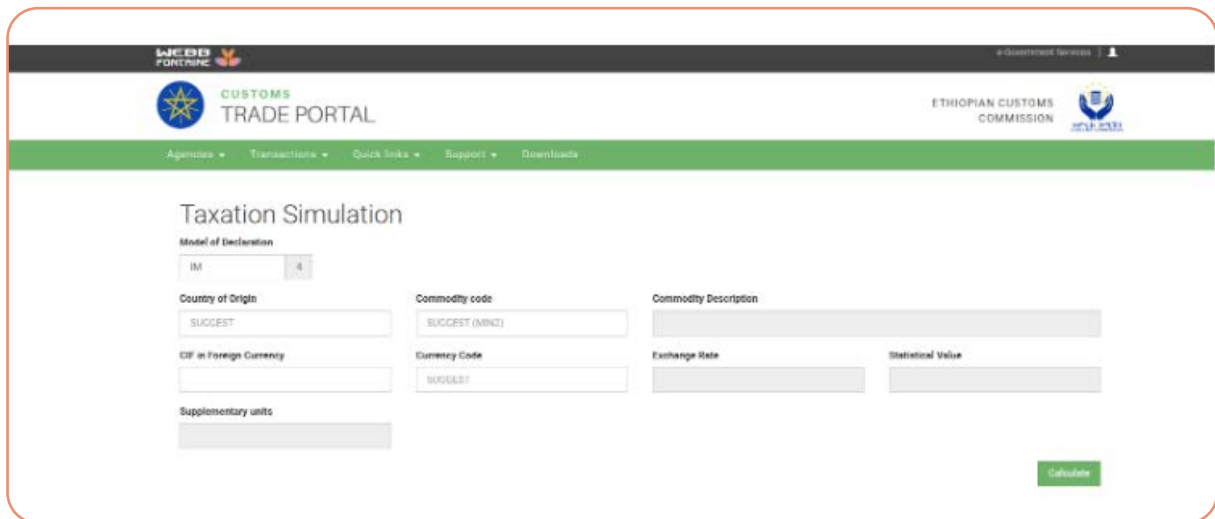
Bank of Ethiopia and Ethio Telecom. In 2018, this telecommunications company paid 4.1 billion Birr (~\$31.9 mln) using the e-tax system.

In July 2024, the Ministry of Revenue reported¹⁸ an overarching increase in tax collection, which amounted to 512 billion Birr (~\$4 bln) in 2023/24 fiscal year, which is 96.8% of the annual target. Compared to the previous fiscal year, the income from direct taxes and non-tax sectors showed 70.8 billion Birr (~\$555 mln) growth. The Minister of Revenue Aynalem Niguse ascribed the increase to the modernisation of tax administration systems.

As of 2025, the website¹⁹ of the Ministry of Revenue provides access to the e-tax service²⁰ which requires a user name and a password.

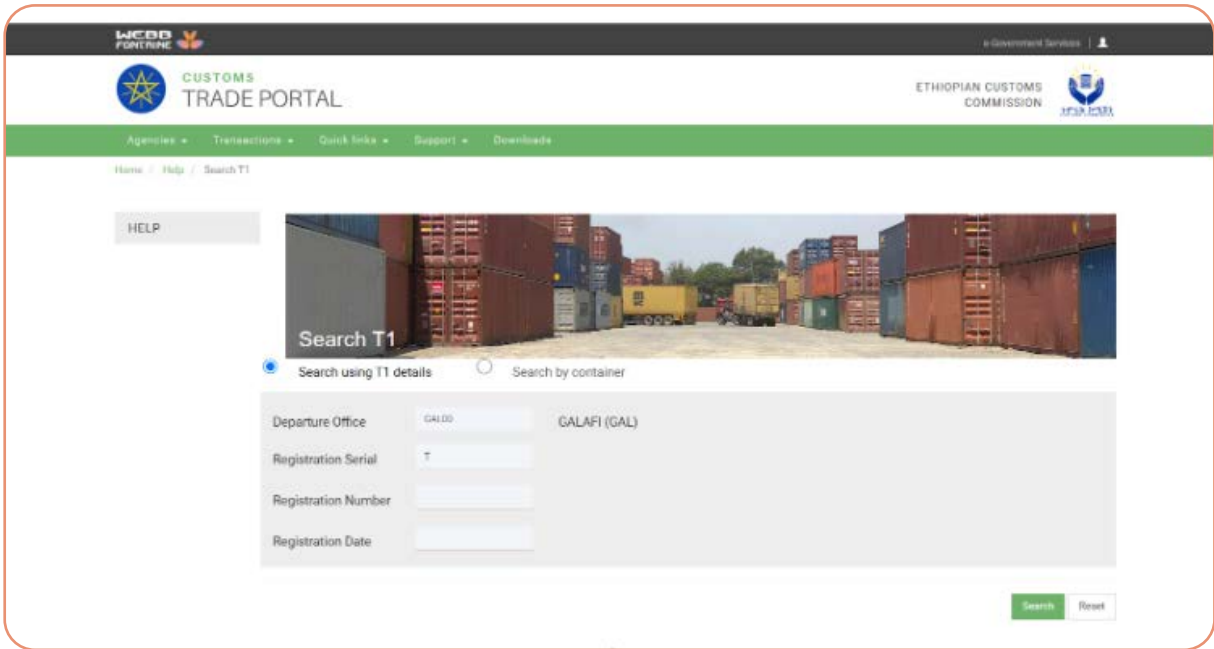
The Ministry of Revenues operates the Customs Trade Portal²¹, an automated Customs Clearance system that covers all customs regimes, including import, export, transit and warehousing. The Customs Management System (eCMS) was designed to replace ASYCUDA. A training program on the new system was started in 2017, covering over 100 clearing agencies and 150 transitors. The current website's first online copy was saved in October 2019.

The system was developed by Webb Fontaine²², a provider of global trade technologies with a head office in Dubai, UAE. The partnership between the Government of Ethiopia and Webb Fontaine was established under a EU-funded initiative in order to implement eCMS in 27 customs offices. During the project, Webb Fontaine brought about a range of solutions, including a trade portal for taxation simulation,



Source: Customs Trade Portal (Taxation Simulation page)²⁸

18 Ethiopia's Ministry of Revenue Reports Record-Breaking Tax Collection ENA. URL: https://www.ena.et/web/eng/w/eng_4868835
 19 Ministry of Revenue of Ethiopia. URL: <https://www.mor.gov.et/>
 20 E-tax service. Ministry of Revenue of Ethiopia URL: <https://etax.mor.gov.et/Login/Login>
 21 Ethiopia Customs Trade Portal. URL: <https://customs.erca.gov.et/trade/>
 22 Webb Fontaine. URL: <https://webbfontaine.com>



Source: Customs Trade Portal (Search T1 page)

declarations, and T1 transit forms, enabling self-assessment for declarants. Transit operations were fully automated across key corridors, connecting customs offices at the Djibouti border, Addis Ababa, and neighboring countries like Kenya, Somaliland, and Sudan. Real-time tracking with barcode scanners and integration with Djibouti’s AsycudaWorld system improved transit oversight, with the eCMS managing transit bonds and 100% of the country’s transaction flows. Other features included automated airport manifests using IATA XML and Cargo IMP standards, dynamic risk management, and monitoring of manufacturers’ raw material processing with advanced formulae, streamlining Ethiopia’s customs and trade operations.

The outcomes of the eCMS implementation include a 30% increase in revenue for the Government, amounting to more than \$5 billion in duties, taxes, and fees. The number of total users of the systems exceeds 4000. Implementation of eCMS allowed for the streamlined handling of high trade volumes and simplifying intricate customs procedures, reduction of clearance time and increase in transparency. Following the success of its initial project, Webb Fontaine secured a new contract to further enhance Ethiopia’s customs system. The ongoing collaboration

is announced to incorporate AI and cutting-edge data analytics to optimize trade processes and improve customs efficiency.

Identification and Biometrics

The National ID Program (NIDP), an initiative aimed at developing a unified system of identification and authorisation with the use of biometric data, was introduced in 2021 and approved by the Parliament in 2023. In March 2023, the Government of Ethiopia enacted the e-ID law, the Ethiopian Digital Identification Proclamation 1284/2023²³. The Program is supervised by the Office of Prime Minister.

Implementation of Fayda Digital ID, a 12 digit unique identification number based on biometric technology, is an integral part of the Program.

Fayda is a Modular Open Source Identity Platform based on MOSIP, developed by International Institute

23 Ethiopian Digital Identification Proclamation 1284/2023. URL: <http://citizenshiprightsfranca.org/wp-content/uploads/Ethiopia-Digital-ID-proclamation-1284-2023.pdf>

of Information Technology, Bangalore, India. Eligibility criteria²⁴ for obtaining Fayda Digital ID includes Ethiopians and non-Ethiopians with a proof of residence in the country aged above 5. Those lacking residence documentation could be granted an ID provided that they have a “witness” holding a Fayda ID.

Ethio Telecom, a leading local telecommunication services provider, participates in the digital ID registration and distribution. For instance, ID can be registered via telebirr application. It also has a built-in National ID app which allows one to make a softcopy of a printable ID. Fayda ID can also be registered at the Minister of Revenue Tax collection offices and selected bank branches. As of January 2025, the registration with the use of Fayda ID is being performed²⁵ at 41 centers of Ethio Telecom in Tigray region.

During the pilot phase carried out in 4 regions, Fayda ID has seen 1.4 million of total registrations. Facilitation of food security was among the main outcomes²⁶ of the pilot project, as Fayda ID demonstrated its applicability for management of distribution of agricultural inputs and of enrollment in nutrition programs. In October 2024, the NIDP and Ethiopian Airlines signed²⁷ a Memorandum of Understanding in order to facilitate the use of Fayda ID as a travel document on domestic flights.

The Digital ID project received a \$350 million financial support from the World Bank, which supports the Fayda rollout within its Ethiopia Digital ID for Inclusion and Services Project²⁸ (2023-2029). Since January 2025, all banks in Addis Ababa are mandated to use the Fayda ID in the customer’s account opening procedures. The rollout across bank branches in other major cities is planned for July, while a nationwide rollout is scheduled for January 2026.

In August 2024, the Public Key Infrastructure (PKI) System was launched²⁹. The System with the Information Network Security Administration

comprises hardware, software, and legal framework. PKI was designed to ensure security during the electronic information transfer through data encryption. Digital signatures and certificates are announced to be issued to bolster data security.

The Ethiopian Immigration and Citizenship Service³⁰ (ICS) provides a number of services online. Applications for temporary ID and residence permits, as well as IDs for Ethiopian descents are available online. Users can also apply for student or business visas via the website, and check the status of the application via the portal.

The ICS also manages the Ethiopian Passport Services³¹, the website allows to schedule an appointment for international passport registration or renewal. The passport status checker³² is available via the Ethiopian Immigration and Citizenship Service.

The Ethiopian Passport Services website is integrated with the eVisa portal. The latter is powered by Ethiopian Airlines.

The portal proceeds tourist and business visa applications and extension requirements and enables users to check the application status. Information on historical landmarks, outdoor experiences and local festivals can be accessed as well. A company registration service which applies to individuals of non-ethiopian origin is also available. The website contains a warning on the existence of unofficial websites reduplicating the original one. As well as the emergence of 3 websites managed by the same authority, this highlights the issue of inconsistency and disintegration among government websites.

Education

During the COVID-19 pandemic there was a boost in

24 Fayda National ID. URL: <https://www.ethiotelcom.et/national-id/>

25 Nat'l Digital ID Registration Underway in over 40 Centers across Tigray Region. ENA. URL: https://www.ena.et/web/eng/w/eng_5761195

26 Ethiopia's Digital ID Ecosystem; Challenges, Opportunities and Lessons. UNECA. URL: https://www.uneca.org/sites/default/files/TCND/Digital%20ID%20_in_Ethiopia.pdf

27 Fayda Digital ID to Serve as Travel Doc for Domestic Flight Services. Ethiopian Monitor. URL: <https://ethiopianmonitor.com/2024/10/29/fyda-digital-id-to-serve-as-travel-doc-for-domestic-flight-services/>

28 Ethiopia Digital ID for Inclusion and Services Project. URL: <https://projects.worldbank.org/en/projects-operations/procurement-detail/OP00305150>

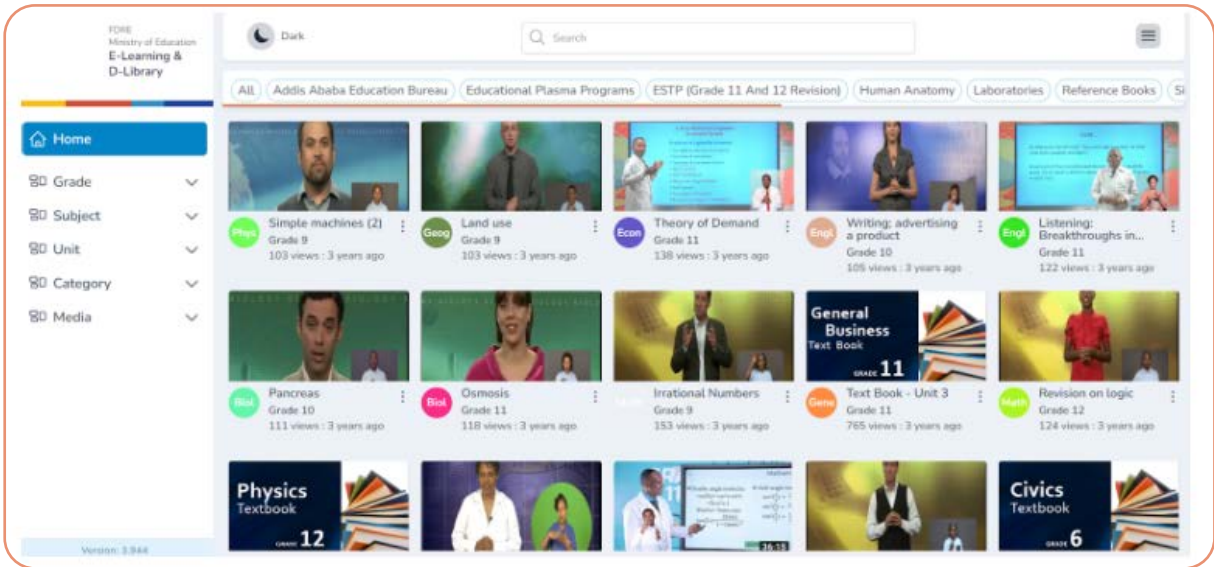
29 PM Abiy Says Digital Information Security Crucial for Ethiopia's Modernization, Sovereignty. ENA. URL: https://www.ena.et/web/eng/w/eng_5078905

30 Ethiopian Immigration and Citizenship Service. URL: <https://ics.gov.et>

31 Ethiopian Passport Services. URL: <https://www.ethiopianpassportservices.gov.et>

32 Passport Status Checker. URL: <https://passport.ics.gov.et>

33 eVisa Portal. URL: <https://www.evisa.gov.et>



Source: e-Learning and D-Library (main page)

the development of e-Learning platforms. D-library³⁴ is a service on the website of the Ministry of Education, which is a video-library containing the recordings of lessons. However, there are no digital school journals and there is no monitoring of attendance.

Market authorization

The Electronic Regulatory Information System (eRIS)³⁵ is an integrated platform developed by the Ethiopian Food and Drug Authority (EFDA) to streamline and enhance the regulatory processes associated with health commodities and products in Ethiopia. The eRIS was officially launched in Ethiopia in February 2019. This open-source, locally developed software system was introduced by the Federal Ministry of Health in collaboration with³⁶ the United States Agency for International Development (USAID) and the AIDSFree project. The launch event also marked the establishment of the revamped Ethiopian Food and Drug Administration (EFDA), which replaced the former Food, Medicine and Health Care Administration and Control Authority (FMHACA). The EFDA acquired additional responsibilities, including licensing health professionals and regulating health

service delivery establishments.

The system comprises several interconnected subsystems, each designed to manage specific aspects of the regulatory framework. Among them the users can find i-License, a module that facilitates entities in applying for certificates of competency, enabling them to register and import products into Ethiopia; i-Register, dedicated to managing the medicine registration process and allowing applicants to register pharmaceuticals intended for the Ethiopian market; i-Import, an application that oversees the importation process, ensuring compliance with national regulations, once products are registered; i-Verify, designed to verify the authenticity and legality of medicines, it monitors the movement of health commodities from manufacturers to the point of issue, providing real-time visibility to regulators and public users.

Additionally, EFDA offers the iVerify-EFDA mobile application, which provides real-time visibility into the movement of health commodities and products from the manufacturer to the point of issue. This application is designed for use at any point in the supply chain by anyone to verify the authenticity of a product and to track and trace health commodities throughout the health import process and supply chain. The

34 D-Library. Ministry of Education of Ethiopia. URL: <https://elearn.moe.gov.et>

35 URL: Electronic Regulatory Information System. <https://www.eris.efda.gov.et>

36 U.S. Embassy Supports Going Digital to Improve Ethiopia's Food and Drug Safety. Addis Standard. URL: <https://addisstandard.com/news-u-s-embassy-supports-going-digital-to-improve-ethiopia-s-food-and-drug-safety/>

i-Verify application was launched in October 2020 and developed with support from the USAID-funded five-year project (2019-2024) Ethiopia Digital Health Activity.

GS1, an international non-profit organization that develops and maintains standards across supply chains primarily through unique identification codes such as barcodes, is engaged into the development of traceability systems in Ethiopia as well. The Ethiopian Food and Drug Authority (EFDA) utilizes GS1 standards³⁸ (barcodes and tracking numbers) in i-Verify to ensure the authenticity and traceability of medicines and healthcare products.

Public Procurement

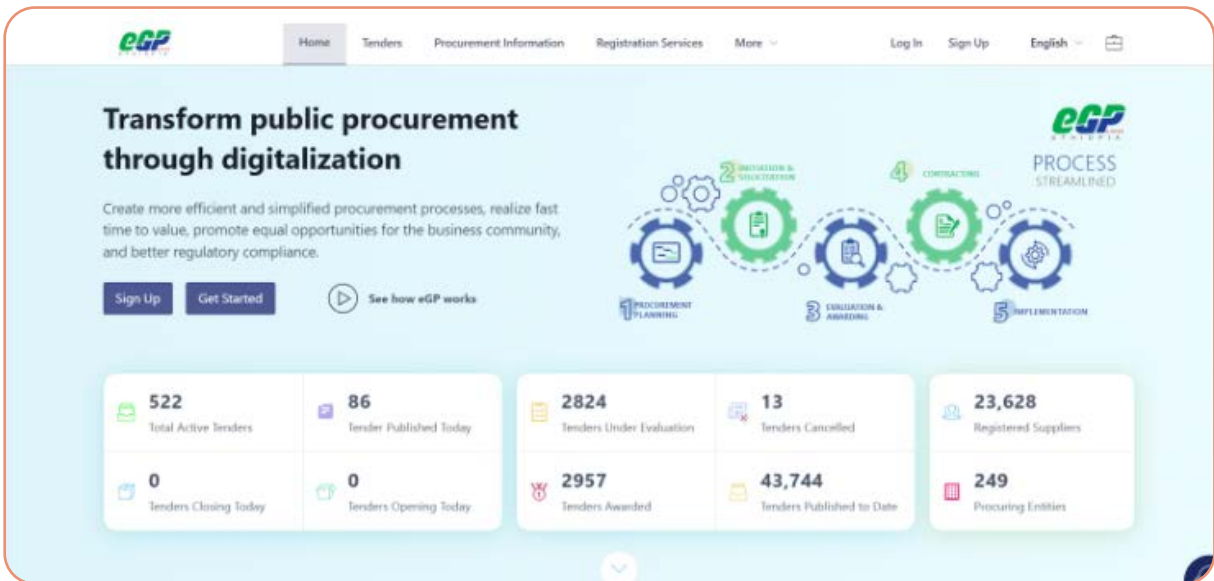
In 2021, the Federal Public Procurement and Property Authority³⁹ (FPPA) launched the pilot phase of the Electronic Government Procurement (eGP)⁴⁰, where 9 state agencies have participated. In 2023, the eGP was implemented at 74 agencies operating in agriculture, healthcare, education and ICT sectors. In 2022, ePG website contained information on more

than 1200 procurement opportunities. In 2023, 8000 supplies, both domestic and international, were registered via the website, whereas as of January 2024, the number of active suppliers amounts to 23,628, with 283 of them being of a foreign origin.

The portal allows access to government tender notices, public procurement legislation and standard bidding documents, and provides a workspace with personal information on procurement procedures.

The eGP website was developed by Perago Information Systems PLC⁴¹, an Ethiopia-based ICT solutions provider which focuses on building e-government G2C services, e-procurement, e-pay and data management platforms.

The FPPA also manages an eLearning system⁴² with online courses on procurement operations, such as purchasing and tendering, as well as provides a supplier guide in order to make the users acquainted with the eGP system.









Source: Electronic Government Procurement (eGP)

37 Authority Launches New Mobile Phone App That Helps Ethiopians To Identify Approved Medicines. FanABC. URL: <https://www.fanabc.com/english/authority-launches-new-mobile-phone-app-that-helps-ethiopians-to-identify-approved-medicines/>
 38 Gs1. Ethiopia. URL: https://www.gs1.org/system/files/gslseg220630_01_reference_book_2022-2023_ethiopia.pdf
 39 Federal Public Procurement and Property Authority. URL: <https://www.ppa.gov.et>
 40 Electronic Government Procurement. URL: <https://production.egp.gov.et/egp/home>
 41 Perago Information Systems. URL: <https://www.peragosystems.com>
 42 eLearning Platform. URL: <https://elearning.ppa.gov.et>

What can we do for you today?

The eGP platform avails various online services and solutions to help you participate in government procurement.

 <p>Procurement Plans</p> <p>Publish annual procurement plans of government agencies so that the business community gets prepared and respond more effectively.</p>	 <p>Tenders</p> <p>Access tender notices of various government agencies for the procurement of goods, services and works.</p>	 <p>Procurement Information</p> <p>Provide access to tender statistics, tender opening minutes, evaluation reports, contract awards, and other procurement information.</p>
 <p>Registration Services</p> <p>Register your company in the national suppliers list to be able to identify government procurement opportunities and participate in tenders.</p>	 <p>Suppliers List</p> <p>Access registered companies from the national suppliers list. Identify suppliers that are debarred from participating in government procurement.</p>	 <p>Resources</p> <p>Access various electronic resources related public procurement legislation, standard bidding documents, eGP materials and the like.</p>

Source: Electronic Government Procurement (eGP)

Available courses



Procurement Overview



e-GP Overview and Supplier Registration



መሰሪያ የአቅራቢዎች ኮርስ በአማርኛ



An Introduction to Supplier Guide on eGP system

Available courses



Planning



Purchasing



Tendering



Contract Administration and Management

Source: FPPA eLearning system

Agriculture

The Ministry of Agriculture (MoA) and the Agricultural Transformation Institute (ATI) have developed the Digital Agriculture Roadmap (DAR) 2025-2032⁴³, as the agricultural sector is among the strategic development areas identified in both the Ten Years Development Plan 2021-2030⁴⁴, and Digital Ethiopia 2025. DAR is planned to be implemented in 2 phases (2025-2029 and 2030-2032). In line with the strategy, a robust digital ecosystem for agriculture is planned to be built.

The first phase outlines 12 objectives, among these are the development of agricultural intelligence, amelioration of supply chain and financial services to enhance the availability of inputs and machinery, provide crop insurance, and streamline payment processes, improve data collection and availability, and provide high-tech solutions to supply farmers with use cases. During the second phase, the Government plans to introduce Smart Farming — tools for productivity growth and natural resource management, the digital stack that will consist of four subcomponents, namely the user facing layer, the integration layer, the analytics layer, and the data and content layer with crop and weather information, market trends, and educational resources.

According to the Roadmap, use of farmer profiles with separate IDs, as well as land & farmer-linked production data are critical for data stack development.

Among the ongoing projects regarding the development of the user facing layer are the 8028 hotline⁴⁵ jointly managed by the MoA, ATI, Ethiopian Institute of Agricultural Research (EIAR), and Ethio Telecom. This toll-free initiative was launched in 2014 to deliver immediate and customised information and advice on agriculture via Interactive Voice Response (IVR) and SMS in regional languages. The hotline has received a total of 67,028,576 calls.

Artificial Intelligence is already utilized in the agricultural sector as well. Since 2023, Farmer.CHAT⁴⁶, an AI-based assistant, consults the farmers based on their location and provides advice on crops, soils and markets in real-time.

The Farmer CHAT application, which is available in regional languages, significantly improves the cost-effectiveness of public extension services by reducing costs from \$35 to \$3.50 per farmer.



Source: 8028 Farmers' Hotline

43 Digital Agriculture Roadmap 2025-2032. Ministry of Agriculture. URL: <https://www.moa.gov.et/wp-content/uploads/2024/12/49.-Digital-Agriculture-Roadmap-2032.pdf>

44 Ten Years Development Plan 2021-2030. URL: https://www.mopd.gov.et/media/ten-year-document/ten_year_development_plan.pdf

45 8028 Hotline. URL: <https://8028.et/#/login>

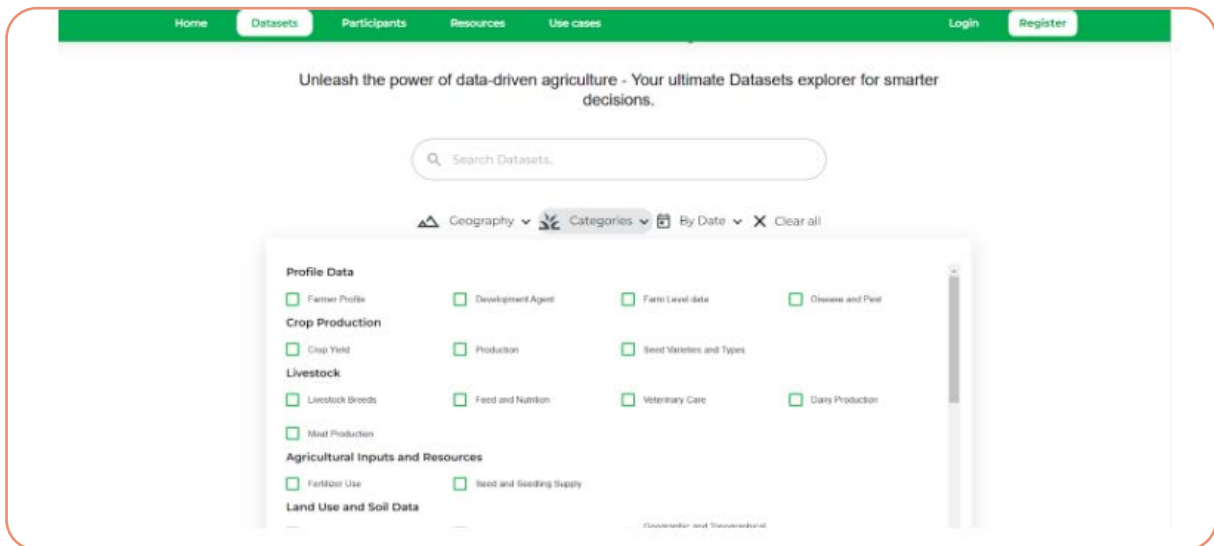
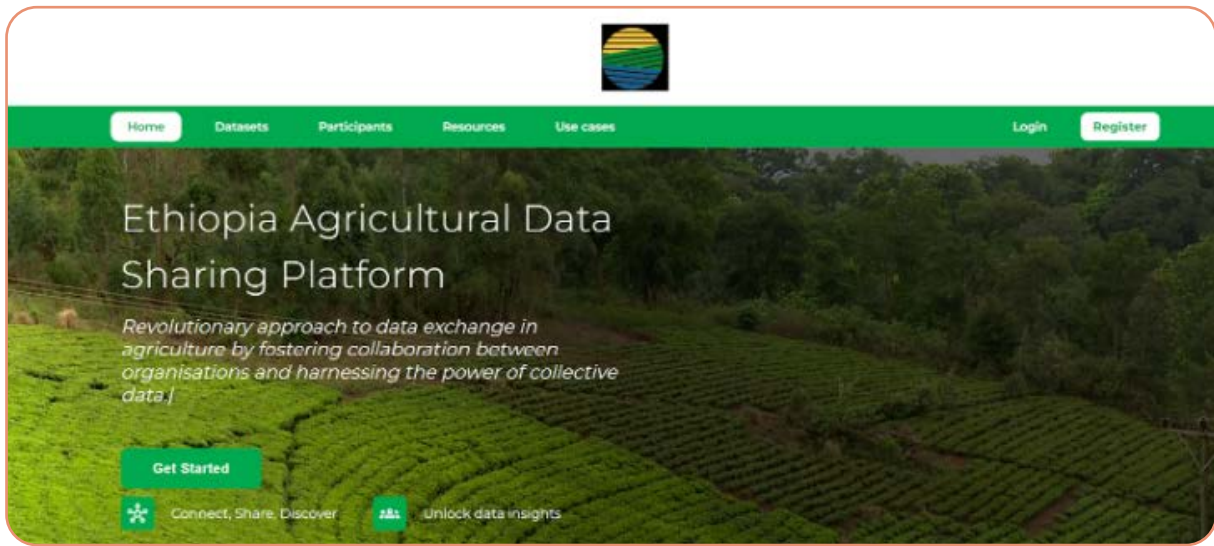
46 Farmer CHAT. URL: <https://farmerchat.digitalgreen.org>

In Ethiopia, Farmer.Chat supports over 40 value chains, including such crops as potatoes and rice.

The chat-bot is operated by Digital Green⁴⁷, a non-governmental organization focused on empowering smallholder farmers. Founded in 2008, it emerged from a Microsoft Research project aimed at leveraging technology for rural development. The organization operates primarily in India, Ethiopia, Kenya, and Nigeria, impacting over 6.9 million farmers. Digital Green collaborates with various partners, including government agencies and grassroots organizations.

Among its partners are USAID, the World Bank, the Rockefeller Foundation, GIZ, OpenAI and Gooye.AI.

In 2021, Digital Green introduced FarmStack in Ethiopia. FarmStack⁴⁸ is an open-source software for data exchange that aims to enhance data sharing and coordination within the agricultural ecosystem, facilitating better access to information for farmers and agricultural stakeholders. Launched as part of the Digital Agricultural Advisory Services (DAAS) initiative⁴⁹, a five-year project started in 2019, FarmStack aimed to create a collaborative environment for stakeholders

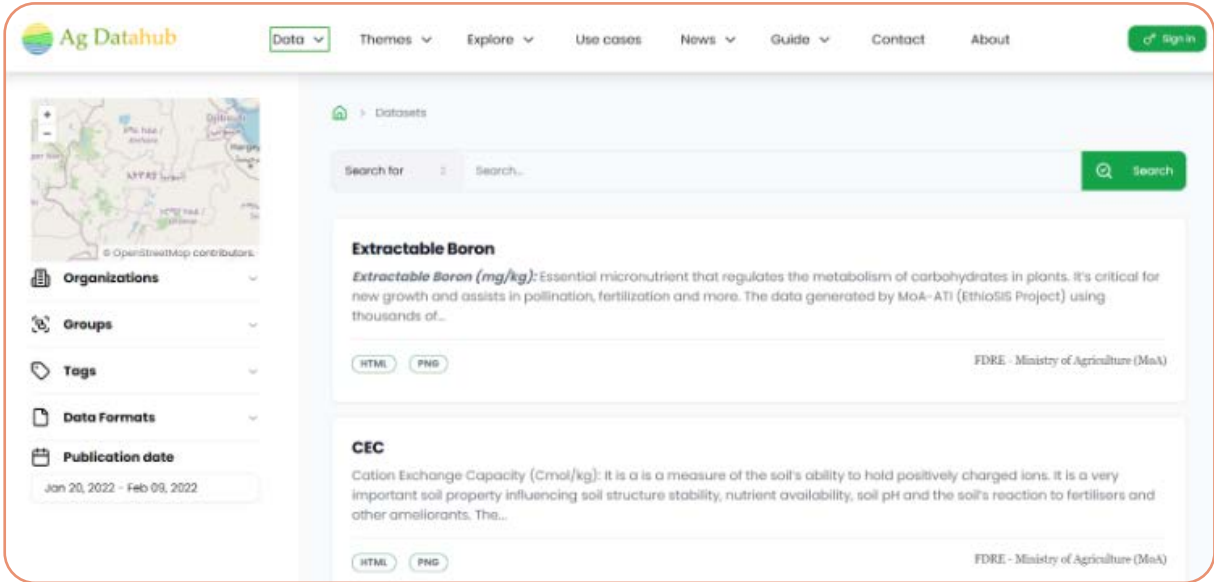


Source: FarmStack

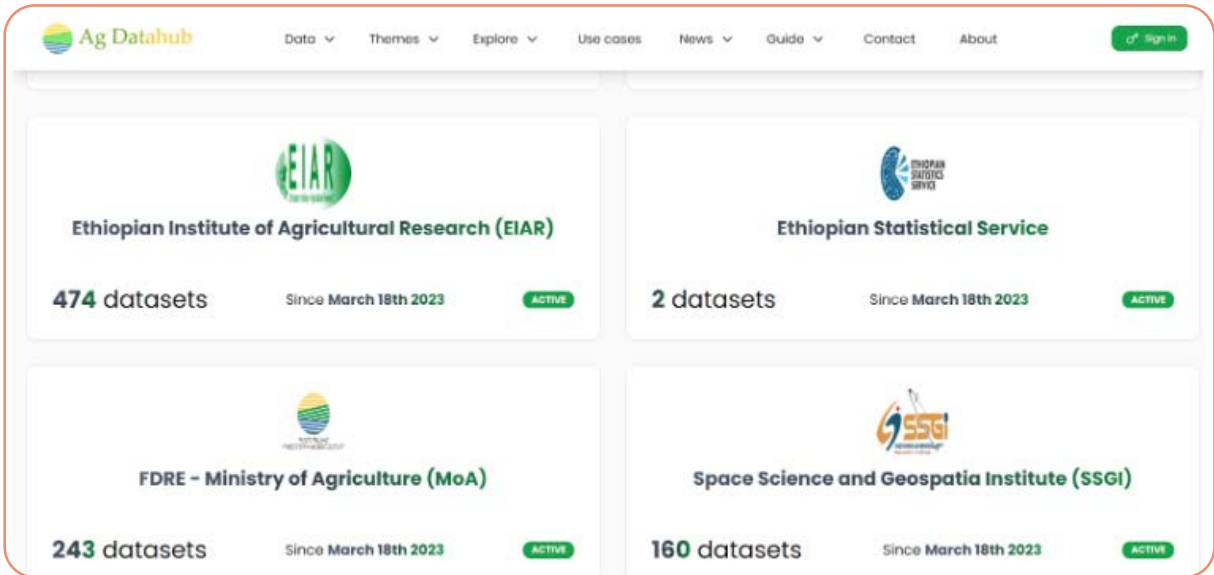
47 Digital Green. URL: <https://digitalgreen.org>

48 FarmStack. URL: <https://farmstack.co>

49 Digital Agricultural Advisory Services (DAAS) initiative. FarmStack. URL: <https://farmstack.co/wp-content/uploads/2021/07/DAAS-Factsheet-2021.pdf>



Source: Ag Datahub (Datasets page)



Source: Ag Datahub (Data Sources page)

within the agrifood systems domain, enabling seamless access to and sharing of agricultural knowledge and resources. The platform utilizes APIs and CKAN integrations to facilitate the exchange of data among various actors, including government agencies, NGOs, and farmers. FarmStack serves as a centralized repository for diverse content sourced from expert organizations such as the Food and Agriculture Organization (FAO) and the Ethiopian Ministry of

Agriculture. As of January 2025, the platform does not provide any resources, datasets or use cases for non-registered users.

The MoA operates a dedicated datahub on agriculture, dubbed Agri(Ag)Datahub⁵⁰. The platform was launched as part of the Accelerating Impacts of CGIAR Climate Research in Africa (AICCRA) project. The project is a collaborative effort led by the Alliance of Bioversity and the International Center for Tropical

50 Agri (Ag) Datahub. URL: <https://datahub.moa.gov.et>

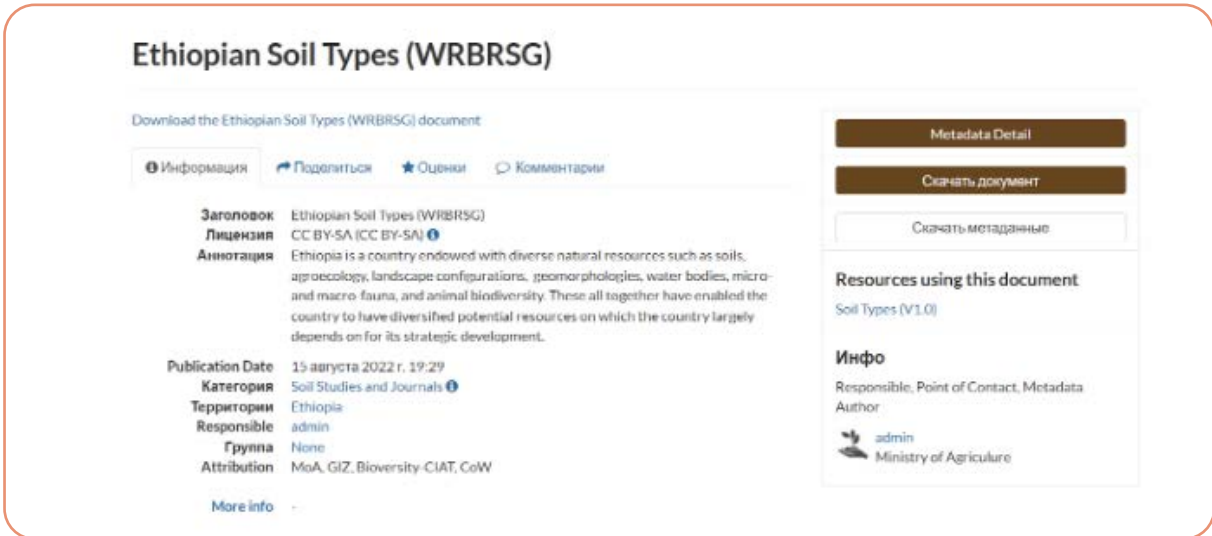
Agriculture (CIAT). The stakeholders initiated the platforms’ development process in 2021, and the pilot was launched in 2023. The Hub was undergoing public launch preparations in late 2024.

The platform is announced to aggregate data from various sources, including databases, APIs, and IoT devices. Data curators from the Ministry of Agriculture are involved in selecting and filtering data before it becomes publicly available. The Datahub already offers an interactive dashboard with keyword-based search capabilities, graphical query interfaces, and robust analytics tools.

The National Soil Information System (NSIS)⁵¹ is a comprehensive web-based platform developed by the Ethiopian Ministry of Agriculture (MoA) to enhance agricultural productivity through improved soil management. NSIS was implemented in 2017 as an evolution of the Ethiopian Soil Information System (EthioSIS) project. The EthioSIS project, which began in 2012, laid the groundwork for soil mapping and fertility assessments across the country. The transition to NSIS aimed to enhance and develop a more comprehensive system for managing soil information, ensuring its sustainability, accessibility, and usability for various stakeholders in the agricultural sector.



Source: National Soil Information System (NSIS)



Source: NSIS. Ethiopian Soil Types (WRBRSG) dataset

51 National Soil Information System. URL: <https://nsis.moa.gov.et>

The NSIS project has been supported by various partners, including GIZ, Alliance of Bioversity and the International Center for Tropical Agriculture (CIAT). The platform was developed by Acatech Technology⁵², an Ethiopian-based software engineering company specializing in the development of data portals, open software customization, learning management systems, e-commerce and e-library solutions.

Telebirr, Ethiopia's mobile payment platform launched by Ethio Telecom in May 2021, benefits digital agriculture as well. It integrates multiple services such as e-commerce, utility payments, and financial services, which enhances its utility for farmers and agricultural stakeholders. The platform aims to facilitate financial inclusion for smallholder farmers by providing access to essential financial services like micro-loans and savings accounts. By disbursing around 9 billion Ethiopian Birr in digital credit, Telebirr has enabled farmers to invest in agricultural inputs and technologies that can improve productivity and sustainability. In line with DAR, integration of Telebirr into agricultural practices allows farmers to make transactions efficiently, access market information, and receive timely advice from agricultural extension services.

Transport Management

Ethiopia Road Administration implemented an Integrated Road Asset Management System (i-RAMS/ ERA RAM)⁵³ in order to manage the existing infrastructure. The systems that are integrated under ERA RAM comprise the Federal Road Network Management (FRDM), which is used to oversee and maintain federal road infrastructure, Road Network Inventory (RNI) system, which allows for road asset documentation and condition maintenance, Road Maintenance Information (RMI) which is used for planning and tracking roadworks across the whole network. Traffic monitoring and management system and a database of critical infrastructure are integral

parts of the ERA RAM as well. Data on the 30,000 km-long road network, covering 11 districts and 5 300 bridges, is collected via GIS-based systems integrated with Google Earth.

i-RAMS was funded by the African Development Fund (ADF)⁵⁴, the concessional financing window of the African Development Bank (AfDB). Ethiopia received financing from the ADF under the Mombasa–Nairobi–Addis Ababa Road Corridor project, which supported the development of the Road Asset Management System for the Ethiopian Roads Authority. According to the Japan International Cooperation Agency (JICA)⁵⁵, the system utilizes dTIMS (Deighton Total Infrastructure Management System) for road management via accumulating all the data on traffic volume, accidents, PMS, BMS (Bridge Management System), signs, etc. Being a desktop application with a closed source code, licences purchased by ERA were installed on 2 computers, as of 2023. That became a barrier to implementation of the system across all regional offices.

Since 2018, NTU International⁵⁶, a Danish-based consulting firm that specializes in advisory services for development projects, has been involved in implementation of RAMS under the EU project entitled Technical Cooperation to Support the Road Sector Development Programme (RSDP) For Ethiopia. The company also organised an eighth-rounds training on the new system in Addis Ababa with the participation of the Team Leader and GIS/IT Expert, who designed and developed the system.

52 Acatech Technology. URL: <https://acatechte.com/>

53 Integrated Road Asset Management System. URL: <https://iram.era.gov.et>

54 Consulting Service for Development of Road Asset Management System for Ethiopian Roads Authority. AfDB. URL: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/EOL_-_Ethiopia_-_Consulting_Services_-_Development_of_Road_Asset_Management_System_for_Ethiopian_Roads_Authority_-_06_2015.pdf

55 The Project for Technical Advisory on Road Asset Management in Federal Democratic Republic of Ethiopia. JICA. URL: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/EOL_-_Ethiopia_-_Consulting_Services_-_Development_of_Road_Asset_Management_System_for_Ethiopian_Roads_Authority_-_06_2015.pdf

56 NTU International. URL: <https://www.ntu.eu/news-archive/road-asset-management-system-and-training/>

Knowledge Sharing Opportunities

National Best Practices

Ethiopia has made significant strides in implementing e-government services that improve efficiency, transparency, and accessibility in public service delivery. These initiatives can be shared with regional partners to enhance digital transformation across Africa.

One-stop shop portal for e-services

The Ethiopian Government Electronic Services Portal is designed to provide a centralized platform for citizens, businesses, and organizations to access a variety of public services online. The portal's structure suggests several key **integration** aspects, such as centralized access, which involves integrating various governmental departments and agencies to provide seamless access to services such as licensing, permits, and certifications, ensuring compliance and promoting transparency across various sectors. The presence of a login feature indicates an integrated user authentication system, ensuring secure access to personalized services and information.

Fayda Digital ID

The Fayda Digital ID system is a pivotal component of the nation's digital transformation, offering a range of features that enhance service delivery and security. Its implementation presents valuable lessons for regional partners aiming to develop or refine their digital identification frameworks. The system employs biometric data, including fingerprints, facial recognition, and iris scans, to verify identities, thereby reducing fraud and enhancing security. The integration of Fayda with **banking services** promotes financial inclusion by simplifying the process of opening bank accounts and conducting transactions, particularly for previously unbanked populations. Linking Taxpayer Identification Numbers (TINs) with Fayda IDs has improved the quality of **tax data**, enhanced compliance monitoring, and expanded the tax base. Fayda's **witness-based registration system** ensures that lack of traditional identification documents does not exclude individuals from obtaining a digital ID, promoting social inclusion.

Digitalization of tax collection and management

E-tax systems have minimized the opportunities for tax evasion and underreporting of income. The adoption of e-filing systems in Ethiopia has undergone a significant transformation between 2019 and 2020. The Ministry of Revenue (MoR) initiated the expert discussions and training in order to increase the adoption rates and build trust in digital systems.

Integration of electronic payment options with the e-tax system to ensure compliance and enhance efficiency and transparency also made the system less prone to corruption. Ethiopia's tax revenue has grown significantly due to the implementation of the e-tax system, with a reported increase of 70.8 billion Birr (~\$555 million) in the 2023/24 fiscal year compared to the previous year.

Provision of translation on government websites

Availability of language choice options on governmental websites ensures inclusivity and accessibility for linguistically diverse populations in Ethiopia, and is worth sharing given that the population of African countries lives in polylingual societies. Implementation of translation enhances transparency by allowing citizens to interact with government services in their preferred language. The most represented languages include Swahili (Tanzania, Kenya), Amharic (Ethiopia), Kinyarwanda (Rwanda), and Tamazight (Morocco), whilst Somali, Afrikaans, Yoruba, Hausa, Lingala, and Malagasy are much less popular. The availability of e-services in indigenous languages can boost their use by the population and simplify the transition from in-person service delivery by making procedures available for people who do not speak European languages and providing linguistically seamless access to public services.

Regional Inspirations

The analysis of Ethiopian e-government platforms, as well as the national key objectives outlined in the 10-Year Development Plan (2021-2030) shows that solutions for agriculture, land-use, sustainable urbanization, decentralized city management and tourism tend to be the most promising areas for the development of digital services in the country.

Land use services

Rwanda case

In January 2023, the Rwandan National Land Authority (NLA)⁵⁷ launched e-Title, an electronic certificate for land registration. With the new platform the land titles will be provided immediately following approval by the Land Registrar. The system was further developed to create the Land Information Inquiry Portal⁵⁸ which integrates the Land Application Tracking System. The NLA also manages the Rwanda Land Dashboard⁵⁹ which is an interactive land data visualisation containing information about all changes of land use. Through this platform users can examine the territory at different levels.

Machine learning for language digitalization

Nigeria case

In April 2024, the government launched the first multilingual large language model (LLM), jointly developed by the Ministry of Communications, Innovation and Digital Economy, the National Information Technology Development Agency (NITDA), the National Center for Artificial Intelligence and Robotics (NCAIR), Nigerian AI company Awarri and Data.org, a US-based non-profit tech organisation, sponsored by the Rockefeller Foundation. To develop AI solutions suitable for the country, the LLM is announced to be trained in five low-resource languages (Yoruba, Igba, Hausa, Pidgin English, Ibibio) and accented English to ameliorate language representation in existing datasets.

Rwanda case

During the COVID-19 pandemic, GIZ and the Digital Transformation Center Rwanda developed Mbaza chatbot to provide information on the disease in Kinyarwanda, English and French. The project was implemented with the support of the Rwanda Biomedical Center (RBC) and the Rwanda Information Society Authority (RISA), and private companies: Mozilla Common Voice, AOS Rwanda, Arxia and the Digital Umuganda startup. Development of voice technology in Kinyarwanda was one of the key challenges of the project, as the language is a low-resourced tonal language, which significantly complicated the implementation of existing open-source machine learning frameworks for chatbot development. A sufficient documentation on the modeling of the language was also unavailable. Data challenges exacerbated the existing issues, as the developers faced government agencies' resistance to data sharing in search of additional language resources in voice and text format.

57 National Land Authority of Rwanda. URL: <https://www.lands.rw/home>

58 Land Information Inquiry Portal. URL: <https://landinformation.lands.rw>

59 Rwanda Land Dashboard. URL: https://rwandalanddashboard.lands.rw/l_u@4

Tourism

South Africa case

The Government of South Africa enables tourists to access the South African Tourism⁶⁰ website. The website consists of 4 sections, namely, Corporate and media⁶¹, Travel⁶², Travel Trade⁶³ and Business events⁶⁴. For instance, the 'travel' section stores information on tourist activities, destinations and events, while the 'business events' part enables discovering the meeting venues.

Rwanda case

Visit Rwanda⁶⁵ is a governmental platform for tourists with a user-friendly interface managed by the Rwanda Development Board. The service provides foreigners with tools (information on accommodation, activities, and culture) to plan their travel and discover Rwanda, as well as exhibits information on investment opportunities⁶⁶ with a direct link for investor registration and eligibility criteria.

City management

South Africa case

In March 2021, the South African Department of Cooperative Governance published 'A South African Smart Cities Framework'. The City of Cape Town launched its first Smart City Strategy in 2000 (reviewed in 2016). Under the strategy, an enterprise resource planning (ERP) system was implemented. In 2011, the Cape Town integrated rapid transit (IRT) system called MyCiti Bus was set off; it uses collected citizens' data to optimise the transportation system of the city. Citizens are provided with free WiFi in buses. MyCiti Bus allows cashless payment using My Connect Card and has an official application where users can check timetables, prices, nearby stops, etc. In 2015, the City of Cape Town launched an open data portal to promote citizen engagement, transparency and innovation. The portal provides access to datasets related to the city's services. In 2016, IBM developed a Fire Management Portal allowing to predict fire incidents based on collected and analysed data. There are also e-government services in the city: e.g. citizens can pay utility bills, apply for municipal services, licences and permits online.

Angola case

The implementation of a video surveillance system began with a pilot project in Luanda where 700 cameras were installed⁶⁷ in 2019, yet this number is highly insufficient for a large agglomeration. Nevertheless, the Integrated Public Security Centre (CISP)⁶⁸, which was established for surveillance data processing, can be considered a step forward in developing the system. The latter was created under a contract with South Korean company KT Corporation. Contributing to the city management since 2014, the Institute of Cadastre and Cartography⁶⁹ has been responsible for providing private zoning services and designing electronic register projects. However, a specialised land cadastre platform has not been created yet, and extracts from cadastral data are obtained through the one-stop shop government portal SEPE⁷⁰.

60 South African Tourism. URL: <https://www.southafrica.net/gl/en/>

61 Corporate and Media. South African Tourism. URL: <https://www.southafrica.net/gl/en/corporate>

62 Travel. South African Tourism. URL: <https://www.southafrica.net/gl/en/travel>

63 Travel and Trade. South African Tourism URL: <https://www.southafrica.net/gl/en/trade>

64 Business Events. South African Tourism. URL: <https://www.southafrica.net/gl/en/business>

65 Visit Rwanda. URL: <https://visitrwanda.com/>

66 How to Invest. Visit Rwanda. URL: <https://visitrwanda.com/investment/how-to-invest/one-stop-centre/>

67 Legislação nacional relevante sobre a Protecção de Dados. Agência de Protecção de Dados. URL: <https://www.apd.ao/ao/legislacao/>

68 Integrated Public Security Centre . URL: <https://www.cisp.gov.ao:10443/en/>

69 Instituto Geográfico e Cadastral de Angola. URL: <https://igca.gov.ao/index.php>

70 SEPE. URL: <https://www.sepe.gov.ao/ao/>

