Assessment of the Provision of E-Government Services and Proposed Recommendations

Conducted by the Tony Blair Institute on behalf of the Ministry of Innovation and Technology

February 2023

Table of Contents

List of Figures

List of Boxes

Acronyms and Abbreviations

Term	Description	Term	Description
AABE	Accounting and Auditing Board of Ethiopia	HCI	Human Capital Index
ACSO	Authority for Civil Society Organization	ITMS	Integrated Transport Management System
AII	Artificial Intelligence Institute	ITU	International Telecommunications Union
B2G	Business to Government	KPI	Key Performance Indicators
BCP	Business Continuity Planning	M&E	Monitoring and Evaluation
BPR	Business Process Reengineering	MInT	Ministry of Innovation and Technology
Covid-19	Coronavirus	MIS	Management Information System
DBRP	Data Backup Retention Policy	MoFA	Ministry of Foreign Affairs
DRP	Disaster Recovery Planning	MoI	Ministry of Industry
EAF	Enterprise Architecture Framework	MoPD	Ministry of Planning and Development
ECA	Ethiopian Construction Authority	MSME	Micro, Small and Medium Enterprises
ECRA	Ethiopian Revenue & Customs Authority	NIA	National Information Society Agency
eGA	E-Governance Academy	NIGDC	National Government Integrated Data Center
EGDI	E-Government Development Index	NIPA	National IT Industry Promotion Agency
eGIF	eGovernment Interoperability Framework	OSI	Online Service Index
EIC	Ethiopian Investment Commission	PEA	Petroleum and Energy Authority
ERP	Enterprise Resource Planning	PwC	PricewaterhouseCoopers
E-Services	Ethiopian Government Electronic Services Portal	SMART	Specific, Measurable, Attainable, Relevant and Time-bound
EU	European Union	SPIDER	Swedish Program for ICT in Developing Regions
EU Africa RISE	European Union Africa Reform for Investment & Sustainable Economies	SteerCo	Executive Steering Committee
FCSC	Federal Civil Service Commission	TII	Telecommunications Infrastructure Index
G2B	Government to Business	TOGAF	The Open Group Architecture Framework
INVEA	Immigration Nationality and Vital Events Agency	UNECA	United Nations Economic Commission for Africa
G2C	Government to Consumer	WB	World Bank
G2G	Government to Government	WeGO	World eGovernment Organization

Executive Summary

Over the years, the Government of Ethiopia has launched multiple initiatives to digitize its services, including introducing various strategies, reforms, legal frameworks, and the E-Services Portal in 2010. Despite these efforts, the government is yet to see any significant uptake of electronic government services. The recent E-Government Development Index (EGDI), a biennial benchmarking report published in 2022 by the United Nations Department of Economic and Social Affairs, ranked Ethiopia 179th out of 193 member countries on E-Government and 163rd on E-Participation. Ethiopia got an overall EGDI score of 0.2865, less than half the global average of 0.6102 and 30% below the African continent's average of 0.4054. In addition, Ethiopia scored 0.373 under the Online Service Index (OSI), which evaluates the government's provision of online services. Furthermore, the country scored 0.501 on the Telecommunication Infrastructure Index (TII) and 0.3364 on the Human Capital Index (HCI). Overall, Ethiopia also performed below par against regional peers, depicting a low level of e-government adoption in the country.

To support the Government of Ethiopia in enhancing the provision of digital services, the Ministry of Innovation and Technology (MInT) and its development partner, the Tony Blair Institute for Global Change (TBI), have commissioned this report to assess the provision of E-Services across various parameters covering the technical infrastructure, governance, monitoring and evaluation, and review of supply-side functional operations of the key selected institutions. The report will assist the government with identifying gaps and challenges and deliver actionable recommendations for the effective implementation and delivery of E-Services in the country.

The study adopted a hybrid approach consisting of desk-based secondary research, including a review of existing strategies and policies. It also included primary research through stakeholder consultations and key informant interviews with key stakeholders, including relevant officials from MInT, E-Services portal vendor (Perago) and eight (8) government ministries and public departments (Annex II) whose services have been onboarded on the E-Services Portal.

Summary of Findings

1. Legislation and Governance

- *Limitations in the current ICT legislation:* MInT's mandate on Information and Communications Technologies (ICTs) is stated in various legislation such as the Negarit Gazette of the Federal Democratic Republic of Ethiopia Proclamation No.1263/2021, Communications Service Proclamation No. 1148/2019 and Electronic Transaction Proclamation No. 1205/2020. However, the legislation does not clearly give MInT oversight powers on coordinating e-government services across the government. To address shortcomings in existing legislation, the ministry has developed the E-Transaction regulations, which are still awaiting approval.

- *Lack of governance structure*: The E-Services program has been running in an ad-hoc project mode since it was envisioned and launched. There is no defined or functional

governance structure with senior leadership support and limited intergovernmental communication for onboarding and uptake of E-Services. This has created numerous issues with the delivery, operational oversight, attainment of long-term goals and sustainable internal change management across government organizations.

- *Resource constraints to support the E-Services program:* There are significant resource constraints at the MInT, causing minimal operational oversight of the E-Services program. There is no fully-fledged departmental structure for E-Services. The program runs with limited expertise to properly plan and execute digital government activities at MInT and across other government ministries/agencies.

- *Lack of guiding e-service strategy to achieve set targets*: The E-Services program operates without a coherent approach to effectively align stakeholders and lacks standardized implementation guidelines. The Ten-Year National Development Plan aims to digitise 2500 public services by 2030. The ministry's Ten-Year Plan has gone further to indicate the number of services to be digitized per year. However, there is no strategy that outlines the services, their prioritization and how the digitization will be done.

- *Lack of coordination in E-Government services and ICT deployment:* There are instances where ministries and other public institution have developed their digital platforms independent from the MInT-run E-Services portal. These platforms operate in silo mode with their own look and feel, with the possibility of service repetition at the ministry level. In addition, government ministries continue to deploy silo digital infrastructure like data centers despite the passing of the Executive Order on Common Infrastructure that mandates MInT and the Information Network Security Agency (INSA) to approve any ICT infrastructure before deployment. Also, there are no guidelines in place to implement the directive.

2. E-Services Deployment

- *Standalone Enterprise Architecture:* The E-Services portal's architecture has been developed in a layer-based architecture operating in a silo environment. The portal's architecture also is not aligned with the approved Ethiopian National Enterprise Architecture Framework (ENEAF).

- *Lack of data sharing and reusability:* The E-Services portal is designed for single service requests and lacks the ability for customers or service providers to reuse previously captured data. Additionally, the portal does not offer data interoperability features, deviating from the approved Ethiopian eGovernment Interoperability Framework (EeGIF). Also, there is no open data sharing between government agencies and the private sector.

- *Inefficient Business Process Reengineering for digitized services:* There is inadequate to no Business Process Reengineering (BPR) conducted during the migration to E-Services, resulting in inefficiencies and redundancies across government service providers.

- *Lack of digital service standards and testing frameworks:* The ministry has not defined common e-government service standards that all government institutions can adopt as they digitise. The ministry has no defined testing procedures for different elements, including functionality and security.

3. Digital Infrastructure
   - *Poor digital infrastructure:* The E-Services portal runs on obsolete servers as the Government Data Center is not well equipped to support the growing transactional data. In addition, the government data network (WoredaNet) is running at low capacity and unable to support secure day-to-day government transactions. Internet penetration also remains very low at approximately 25%, and the quality of service is also poor, inhibiting the public from enjoying deployed digital services.

   - *Lack of Business Continuity and Disaster Recovery:* There is neither a business continuity plan (BCP) nor a disaster recovery plan (DRP) in place. This creates service quality and reliability concerns and raises red flags from a data hosting point of view.

4. User Experience
   - *Lack of integration to high-impact systems and services:* Though the digital government has been identified as a use case for the ongoing National Digital Identity (DID) program rollout, integration efforts have not commenced. In addition, an effective single sign-on is still to be adopted government-wide across different platforms that can be linked to the one-time entry of standard information. Also, integration into payment platforms is a work in progress. Customers make payments offline and submit proof of payment to the service provider.

   - *Poor User Interface:* The portal process flow structure is complex, resulting in poor user experience for service providers. With increased mobile penetration, a mobile phone has become a convenient tool for accessing digital services; however, the portal design is not mobile-compatible. In addition, an end-user experience assessment has not been conducted to inform enhancements to the user interface. Also, the portal does not have feedback functionality.

5. Monitoring and Impact initiatives
   - *Lack of Change Management*: The deployment of E-Services at the service providers is happening without a standardized change management plan. This has impacted E-Services uptake due to a lack of behavioral change, resistance from internal stakeholders, the varying level of digital literacy across public institutions and running legacy processes parallel to the E-Services portal.

- *Lack of a communication plan:* The E-Services program lacks a communication plan to promote the digital platform, resulting in limited public awareness and low portal usage over the years.

- *Lack of M&E Framework*: No monitoring and evaluation (M&E) framework is in place to gauge E-Services providers' performance, service levels or impact on the customers. In addition, the portal does not provide detailed MIS reports or data dashboards and generates only one report for MInT and service providers. Lack of comprehensive reporting has minimized government departments' ability to analyze trends, track service requests, evaluate caseworkers' performance, and service turnaround time.

Summary of Recommendations

Recommendations		Prioritization
R1	Digital Government Legislative and Coordination framework	
1.1	*Enact eGovernment enabling legislation and regulations* MInT should accelerate the approval and operationalization of the E-Transaction Regulations to close any existing gaps in the current legislation to support e-government services delivery.	**Stakeholders:** PMO, MoJ, MoPD, MInT **Priority:** High **Timeline**: Short Term **Potential Partners**: N/A
1.2	*Coordinate digital projects across the government* MInT, in collaboration with MoPD and MoF, should establish a centralized ICT Command Center, having budgetary and technical oversight of all digital initiatives across the whole of government. This will help drive technology standardization and impact-driven projects and remove duplication of effort, thus ensuring the prudent use of government resources. In the interim, MInT and INSA should develop guidelines to operationalize the directive for approving and coordinating the deployment of ICT infrastructure.	**Stakeholders:** MInT, MoPD, MoF, PMO, INSA **Priority:** High **Timeline**: Short - Medium Term **Potential Partners**: TBI
1.3	*Establish a well-resourced Program Management Office* A well-defined Office with a full-time departmental structure should be established at MInT. The office should oversee all the technical and operational aspects of deploying e-government services across the government.	**Stakeholders:** MInT, MoF, MoPD **Priority:** High **Timeline**: Medium Term **Potential Partners**: WB, EU, TBI
1.4	*Establish a fully equipped and empowered governance structure* A governance structure (i.e., executive steering committee) headed by high-level political leadership appointed and accountable to the Prime Minister to provide strategic guidance for the deployment of e-government services should be established, e.g., the Digital Economy Council as per the E-Transaction Proclamation should be established	**Stakeholders:** PMO, MoPD, MInT, FCSC **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI
1.5	*Appoint Digitization Experts across the government* MInT should establish a Memorandum of Agreement with FCSC to leverage existing ICT human resources in different government ministries and agencies to drive the digitization of services in their	**Stakeholders:** MInT, FCSC, All govt **Priority:** High **Timeline**: Short Term

	respective organizations. The experts should be capacitated regularly, monitored by setting performance targets and incentivized.	**Potential Partners**: TBI, EU, NIA, NIPA
R2	**E-services Modernization**	
2.1	*Develop and implement an overarching E-Services Strategy* A detailed strategy for rolling out E-Services should be developed with a supporting implementation roadmap. It should include, amongst others, the following deliverables: • Assessment of government digitization readiness and maturity • Detailed evaluation of service providers' internal backend and legacy systems • Step-by-step digitization guidelines, including service standards and principles • Process/Service identification • E-Services Categorization and Prioritization Framework • Evolution of e-service provision from basic to advanced The strategy can be incorporated into the broader E-Government Strategy to be developed by the European Union.	**Stakeholders:** MInT, all govt **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI, EU
2.2	*Align the portal's Enterprise Architecture to NEAF* MInT should transition the E-Services architecture from the current silo mode to National Enterprise Architecture Framework (ENEAF) based on microservices. This should be guidelines by microservices development guidelines. There is also a need to deploy data interoperability, sharing, and re-use functionalities, guided by a National Data Governance Framework. MInT, in collaboration with all ministries and agencies, should conduct a data governance maturity assessment across institutions and then develop and implement a unified data governance framework that defines data management, data sharing and interoperability, and data security, amongst others.	**Stakeholders:** MInT **Priority:** High **Timeline**: Short – Long Term **Potential Partners**: EU
2.3	*Redefine Business Process Reengineering* MInT, in collaboration with FCSC and all government ministries and agencies, should spearhead business process reengineering and help service providers reimagine their existing processes and redesign them to bring efficiency. This will help reduce inefficiencies and redundant activities, reduce service requests' turnaround time, and increase stakeholder satisfaction.	**Stakeholders:** MInT, FCSC, All govt **Priority:** High **Timeline**: Short – Medium Term **Potential Partners**: UNECA, UNDP, TBI
2.4	*Revamp the Open Data Portal* MInT should revive the common portal for sharing open data between the government and the private sector to drive the development of innovative solutions that support efficient service delivery and address everyday challenges across the economy.	**Stakeholders:** MInT, All govt **Priority:** High **Timeline**: Medium Term **Potential Partners**: TBI, ITU, NIA
R3	**Digital Infrastructure**	
3.1	*Expand broadband connectivity*	**Stakeholders: ECA, MInT** **Priority:** High

	Quality and reliable fixed and mobile broadband infrastructure should be rapidly deployed to enable people to access digital services. The telecommunications regulator should engage operators to extend network coverage in commercially viable areas and use the Universal Service Fund to subsidize connectivity to areas that are not commercially viable, particularly underserved and unserved locations. A broadband plan should be developed to this effect to guide infrastructure deployment. Connectivity to public access centers such as schools, post offices and community centers can be used as an immediate quick win.	**Timeline**: Medium Term **Potential Partners**: WB, TBI, Giga, Operators, Satellite providers
3.2	*Upgrade of the National Data Center* A thorough data center assessment must be undertaken to inform upgrades to the Government Integrated Data Center and considerations for the new data center built at the IT Park based on best practices. New production and backup servers should be procured for the E-Services portal to ensure uninterrupted and reliable service to customers, or consider adopting cloud IaaS as an immediate solution. In addition, data center best practice standards should be developed and adopted towards smart and sustainable data centers. MInT should assess all data centers across the public sector to inform available capacity that can be leveraged by all government and also move towards consolidation of infrastructure deployment and prudent use of government and donor resources.	**Stakeholders:** MInT **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI, WB
3.3	*Upgrade the Government Backbone Network* Highly skilled networking experts should be engaged to review WoredaNet network design and equipment to ensure that it sufficiently and secures serves government offices and is built for scalability. In addition, bandwidth standards should be developed and implemented to support the provision and use of e-government services.	**Stakeholders:** MInT **Priority:** High **Timeline**: Medium Term **Potential Partners**: WB, Private sector
3.4	*Adopt Cloud infrastructure* MInT should migrate to the cloud as a cost-effective, secure, and scalable solution for government services. The ministry should explore different cloud service models initially by looking at IaaS and PaaS and reviewing existing cloud solutions from different cloud operators taking into consideration data residency and data sovereignty. An overarching cloud policy or strategy should guide this migration.	**Stakeholders:** MInT **Priority:** High **Timeline**: Short - Medium Term **Potential Partners**: TBI, WB
3.5	*Develop a Business Continuity and Disaster Recovery Framework* A comprehensive business continuity and disaster recovery plan should be developed and implemented to guarantee high service availability and continuity in the case of a disaster. In addition, disaster recovery sites should be highly prioritized.	**Stakeholders:** MInT **Priority:** High **Timeline**: Short – Medium Term **Potential Partners**: WB
R4	**User-Centric Digital Experience**	
4.1	*Enhance the portal User Interface (UI) and User Experience (UX)* The ministry should conduct a customer-based evaluation of the UI/UX of the E-Services Portal to inform areas of improvement. Based	**Stakeholders:** MInT, AII **Priority:** High **Timeline**: Short Term

	on the findings, the ministry should consider adopting a co-creation process to enhance the portal UI/UX, such as running a hackathon to identify the most suitable design and process for interacting with the government. MInT should introduce feedback functionality on the portal, including developing an AI-enabled chatbot to respond to customers' queries.	**Potential Partners**: Academia, Innovation ecosystem
4.2	*One Face of Government eGovernment Portal Interface* MInT should review existing eServices portals across the government, e.g., eVisa, and Trade and consolidate them into one customer-facing interface to drive towards building one face of government and a one-stop shop for customers in dealing with the government.	**Stakeholders:** MInT, MoTRI, ESWP, EICS **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI
	Single Sign On & Once Only Principle In addition, the ministry should study existing identity mechanisms and adopt an inclusive customer-centric single sign-on to validate the authenticity of people accessing different government services across various government portals. The ministry should also adopt a Once Only Principle for common customer information integrated with single sign-on.	**Stakeholders:** MInT, NIDP, INVEA **Priority:** High **Timeline**: Medium Term **Potential Partners**: TBI
4.3	*Integration to Digital Payments* The E-Services portal should be integrated with various digital banking instruments, including EthSwitch, Mobile Wallet providers (i.e., Telebirr, M-Pesa etc.), agent networks and other payment gateway providers to ensure seamless and convenient use of digital services.	**Stakeholders:** MInT **Priority:** High **Timelines:** Short – Medium Term **Potential Partners:** Mastercard, Visa
4.4	*Develop standards and testing framework for e-services* The ministry should develop digital service standards for uniform e-service deployment and a detailed testing framework and adopt tools for deploying e-government services covering functionality, security, and web accessibility for People with Disabilities (PwDs).	**Stakeholders:** MInT, INSA **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI, ITU, EFPWD, ENAPH
R5	**Digital Culture**	
5.1	*Rollout of a structured and intensive capacity building program* The ministry should leverage technical assistance from development partners to rollout a detailed and structured capacity building program continuously for the eGov staff, Digitization Experts, and other ministries to support digital transformation and build a digitally enabled and confident civil service. The program should, among others, include training on digital government, digital skills, change management, project management, contract management, data analytics, emerging technologies and monitoring and evaluation.	**Stakeholders:** MInT, FCSC, All govt **Priority:** High **Timeline**: Short – Long term **Potential Partners**: TBI, ITU, UNDESA, UNECA, NIPA, NIA, EU Africa RISE, SPIDER, WB, MoFA, WeGO, EGA, Academia
5.2	*Implement a comprehensive Change Management Plan* MInT should lead a comprehensive change management plan in collaboration with government ministries and agencies. The plan should be fully supported and owned by the top leadership of each service provider to ensure effective inter-governmental coordination and to mitigate opposition from stakeholders.	**Stakeholders:** MInT, All govt **Priority:** High **Timeline**: Short Term **Potential Partners**: EU

5.3	*Development of a detailed Communications Plan* MInT should leverage existing public relations officers across the public sector to develop and execute a marketing and communications plan targeting internal and external stakeholders to promote awareness and uptake of E-Services.	**Stakeholders:** MInT, All govt **Priority:** High **Timeline**: Short Term **Potential Partners**: EU
5.4	*Extend service points to reach citizens* MInT should conduct an impact assessment of existing community service centers offering eGovernment services to services. Further, the ministry should leverage existing public service centers with connectivity and devices such as digital transformation centers, post offices, libraries, and schools to provide citizens convenient access to services and digital training programs.	**Stakeholders:** MInT, All govt **Priority:** High **Timeline**: Medium Term **Potential Partners**: TBI, ITU, EthioPost, Academia
R6	**Monitoring and Impact**	
6.1	*Adopt and implement a robust monitoring and evaluation framework* An M&E framework must be developed with clear parameters to assess the E-Services program's efficiency, impact, relevance, and sustainability. M&E will not only help in increasing the service levels but also produce enhanced accountability and transparency for the service providers. In addition, a reporting dashboard should be developed that gives leadership and operational teams visibility to the e-services' performance.	**Stakeholders:** PMO, MInT, FCSC **Priority:** High **Timeline**: Medium Term **Potential Partners**: TBI
6.2	*Service Level Agreements* The ministry should develop measurable indicators and targets to monitor the SLA/ contract with the contracted service provider(s) supporting e-service deployment. The contract should clearly define the roles and responsibilities of both parties. This should be accompanied by regular reporting and performance reviews to ensure intended objectives are met. In addition, FCSC should review the Service Charter per ministry and agency to align with delivering services in a digital environment and ensure the public service is held accountable for providing services timely and adhering to high service standards.	**Stakeholders:** MInT, FCSC **Priority:** High **Timeline**: Short Term **Potential Partners**: TBI
6.3	*Conduct e-services impact assessment from customers' perspective* The ministry should conduct a comprehensive impact assessment of the e-services program to gather customers' perspectives, measure its impact, and identify areas for improvement.	**Stakeholders:** MInT **Priority:** High **Timeline**: Medium Term **Potential Partners**: TBI
Key	**Short Term: 1 – 12 months Medium Term – 13 – 24 months Long Term: 25 – 36 months**	

1. Background

The digital age is driving a continuous transformation of needs and behaviors in economies and societies. It is changing all aspects and dimensions of people's lives and creating new expectations from governments. Governments globally have been trying to achieve the common goal of effective public administration through impactful policymaking. As a result, governments are adopting people-centric strategies coupled with technological solutions to create a transparent, trustworthy, and more inclusive governance model. As a result, the adoption of digital government (eGovernment) has gathered tremendous pace worldwide, as countries and their citizens increasingly recognize the convenience, cost and time saving it brings. This push gained even more momentum during the COVID-19 pandemic when citizens worldwide were confined to their homes and subsequently started interacting digitally with their governments.

eGovernment aims to enhance access and delivery of government services to bring convenience and ease of doing business to the citizens and businesses alike but also strengthens the drive towards effective governance, transparency, and better service delivery. Furthermore, it brings economic, political, and social benefits to societies and individuals by making the government more efficient, responsive, and accountable. This is achieved by evaluating current legacy processes, refining them by removing redundancies and digitizing updated procedures and processes. This way, governments can eliminate unnecessary activities, reduce organizational complexity, lower costs, and improve customer service.

1.1 Types of eGovernment

E-Government services traditionally focus on three major segments of the society, i.e., citizens, businesses, and government agencies.

1.1.1 Government to Citizen

Government to Citizen (G2C) services includes information dissemination and service requests from the public. These include essential citizen services such as license applications and renewals, motor vehicle registration, ordering of birth/death/marriage certificates, filing of income taxes, and citizen assistance for essential services like education, health care, hospital information, libraries etc.

1.1.2 Government to Business

Government to Business (G2B) services include interactions between businesses and the Government. For example, this could be for company registration, license renewal, obtaining permits, filing tax returns, or applying for tax refunds and procurement or information dissemination.

1.1.3 Government to Government

Government to Government (G2G) services entail intra-governmental interactions for communication, data access, and sharing. G2G services enable collaboration by enabling

transactions and information flows between the federal, provincial, and local/city-level ministries, public departments, agencies, and bureaus.

1.2 Impact of COVID-19 Pandemic

To contain the Covid-19 pandemic, governments enforced strict lockdowns, halted outdoor activities, shut down schools, and restricted offices. As a result, businesses rapidly moved to digital to provide their services to the masses. This led to increased demand for digital government services and accelerated the development of eGovernment solutions to ensure the continuity of public services and societal stability. The UN E-Government Survey 2022 reported that over 90% of its members started some level of government digitalization projects during the COVID-19 pandemic. However, the governments' approaches and outcomes varied greatly, and not all countries could achieve the same sustainable development gains through eGovernment initiatives due to insufficient policies and implementation.

2. Introduction

2.1 Objectives

The assessment aimed to assess the functionality of the current E-Services Portal, the technical infrastructure, governance, monitoring and evaluation, along with the review of supply-side functional operations of the key selected institutions. Furthermore, the assessment diagnosed and identified critical challenges faced by the different institutions in providing digital services to businesses and citizens.

2.2 Methodology

The assessment followed a four phased approach, evaluating the provision of e-services against various parameters covering the technical infrastructure, process, policies, and legislation, monitoring and evaluation, user interaction and departmental constraints. The assessment was conducted from both the platform provider (MInT and Perago) and service providers' perspectives. In addition, multiple stakeholder consultations were conducted with selected ministries, authorities and agencies providing services through the E-Services portal.

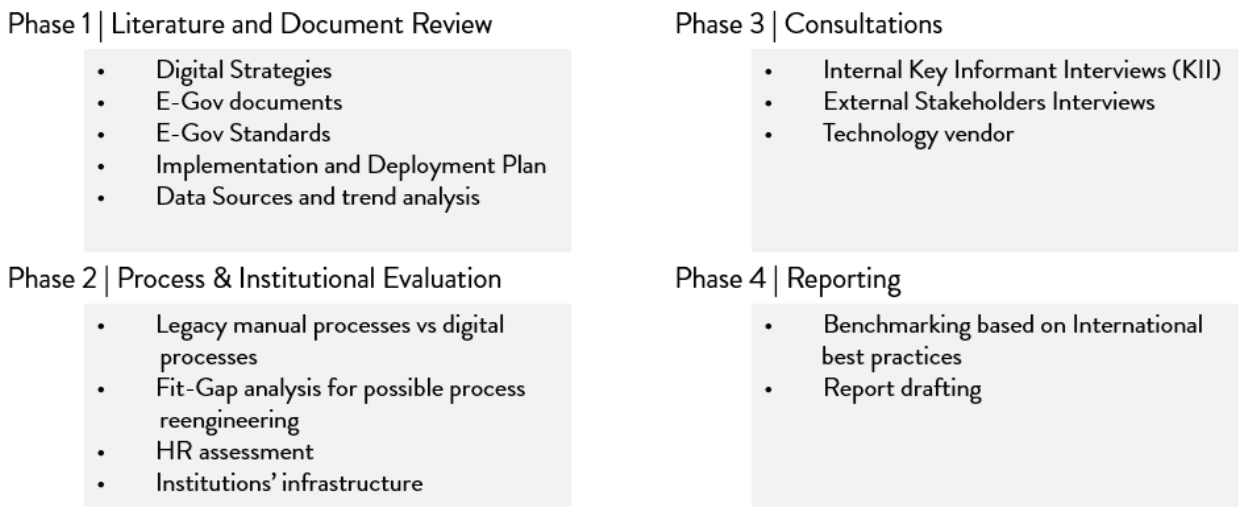


Figure 1: The four phases undertaken during the assessment

Figure 2: Evaluations Parameters

3. Digital Government Development in Ethiopia

3.1 Brief country profile

Ethiopia, a country with a population of approximately 117 million, is the 2nd largest and one of the youngest in Sub-Saharan Africa. Having a median age of 19.5 years, 40% of Ethiopia's population is under 14 years, while another 30% is less than 29 years. Ethiopia is one of the fastest growing economies in the region and has maintained an average annual growth of 9.6% since

2010[1], mainly due to high investments in public infrastructure. However, until recently, the country has largely been missing the enabling conditions for developing digital ecosystems. As a result, the government has recently taken several iconic steps and launched multi-year strategies to promote digitalization. These included Homegrown Economic Reforms Agenda, 10-Year National Prosperity Development Plan, Digital Ethiopia 2025, National Digital Payments Strategy, Electronic Transaction Proclamation, Communications Service Proclamation, National Financial Inclusion Strategy, and the National Digital ID Program.

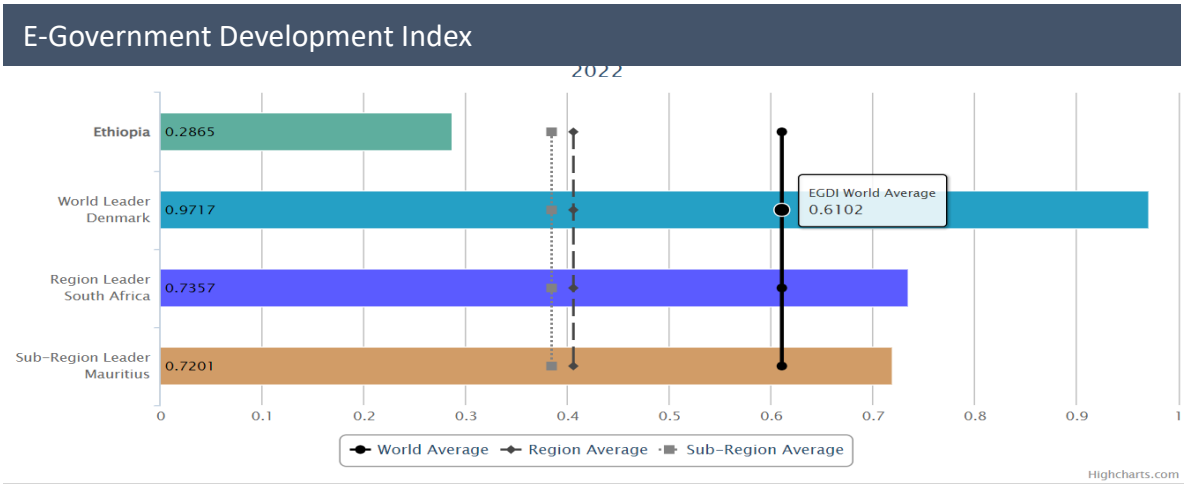
Furthermore, the government has also revised and introduced several laws to bring foreign direct investments into the country. This has led to the telecommunications and financial services sectors opening to international players. The newly enacted policies are expected to boost the digital infrastructure landscape in the country substantially. The market liberalization and enhanced competition have led mobile penetration to reach 59 million[2] subscribers compared to 39 million[3] cellular connections in 2019, while internet accessibility has reached 29 million[4] users. With expanding mobile penetration, increased internet connectivity, conducive policies and a young digitally literate generation, Ethiopia can be on a path to soon becoming a digital-first country.

3.2 International Performance

The UN E-Government Survey is a global biennial benchmarking report published by the United Nations Department of Economic and Social Affairs (UNDESA), which assesses the digital government landscape across 193 UN member states. The report, as a composite indicator, measures the eGovernment performance of countries relative to one another. The survey measures the E-Government Development Index (EGDI) and E-Participation Index (EPI). EGDI evaluates the readiness and capacity of national institutions to use online technology to deliver public services across three (3) components: Online Service Index (OSI), Telecommunications Infrastructure Index (TII) and Human Capital Index (HCI). EPI is a multifaceted framework that evaluates citizen engagement mechanisms and tools across three elements, E-information, E-consultation, and E-decision-making.

According to the 2022 report, the global EGDI average has risen from 0.5988 in 2020 to 0.6102 in 2022. Europe remains the top contender with an average EGDI value of 0.8305, with Scandinavian countries being the utopia of eGovernance. In contrast, Africa has been ranked the lowest, with an average value of 0.4054. Furthermore, Ethiopia has been witnessing a downward trend in performance in the previous few reports, with its overall EGDI score dropping from 0.3463 in 2018 to 0.2865 in 2022. As a result, Ethiopia's global ranking also dropped from 151st in 2018 to 179th in 2022[5].

[1] https://www.worldbank.org/en/country/ethiopia/overview
[2] https://www.gsmaintelligence.com/?utm_source=DataReportal&utm_medium=article&utm_campaign=State_Internet_Connectivity
[3] https://datareportal.com/reports/digital-2020-ethiopia
[4] https://datareportal.com/reports/digital-2022-ethiopia
[5] https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/58-Ethiopia



E-Government Development Index	2022	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Ethiopia (Rank)	179	178	151	157	157	172	172	172	171	170	166
Ethiopia (Value)	0.28650	0.27400	0.34630	0.26655	0.25888	0.23058	0.20331	0.18570	0.13602	0.13647	0.12773

Figure 3: Ethiopia -EDGI Performance

Across the three components of EGDI, Ethiopia performed poorly on TII, as shown in the table below. Although the TII score has improved in the last three EGDI reports, it is still extremely low due to underdeveloped telecommunications infrastructure and low internet penetration. Ethiopian OSI score in 2022 was 0.37300, which has dropped significantly compared to 2018, where the country scored 0.63190. This is predominantly due to low E-Participation, which fell from 0.5730 in 2018 to merely 0.1932 in 2022.

Table 1Ethiopia's EGDI score in 2022

EGDI COMPONENTS	2022 SCORE	2020 SCORE	2018 SCORE
OSI	0.37300	0.36470	0.63190
TII	0.15010	0.11940	0.09760
HCI	0.33640	0.33780	0.30940

Internal digital divide, lack of digital focus by senior government officials, difficulties in disrupting bureaucratic cultures, lagged response in policy implementation, and cost-intensive ICT infrastructure are a few of the reasons identified for the countries like Ethiopia, which are at the bottom of the eGovernment pyramid.

3.3 E-Government initiatives in Ethiopia

The Government of Ethiopia, realizing the importance of digitizing its services, has undertaken multiple initiatives to digitize and improve access to government services over the years.

3.3.1 National Enterprise Architecture Framework for Ethiopia

In 2011, PricewaterhouseCoopers (PwC) developed an extensive Ethiopia National Enterprise Architecture Framework (ENEAF) for the Government of Ethiopia. The ENEAF outlines how government information systems, processes, organizational units, and people function. By

identifying, structuring, and categorizing elements, ENEAF was developed to increase the potential for cross-organizational reuse of technology, reduce duplication, and thus lead to reduced costs.

The ENEAF was developed based on The Open Group Architecture Framework (TOGAF) methodology as a baseline model. It covered comprehensive government functionalities horizontally and vertically across ministries, agencies, and bureaus. It also provided a strategic and business-driven approach for policy planning to promote enterprise-wide thinking about resource utilization while avoiding duplication of resources and services across multiple hierarchies.

In 2019, the School of Information Science at Addis Ababa University reviewed the ENEAF and shared a revised version based on the latest technological advancements. The revised document emphasised establishing a governance structure, defining architectural principles and technical standards, and implementing a roadmap. It also shared several reference models needed for implementing eGovernment services in Ethiopia. However, despite the above efforts, the ENEAF is still to be implemented.

3.3.2 Ethiopian eGovernment Interoperability Framework

In 2010, PwC developed a robust eGovernment Interoperability Framework (eGIF) for the Government of Ethiopia. The purpose of the eGIF was to create an interoperable digital environment that will help government information systems to work together in an integrated and seamless manner regardless of the underlying technology or application in use. The eGIF provided a framework to share, collaborate and integrate information and organization processes using common standards. It included standards at various levels, such as business processes and organizational interoperability, information and semantic interoperability, and, most importantly, technical interoperability. Interestingly, eGIF was developed before the drafting of ENEAF. The eGIF also detailed the Metadata and Data Standard models to be followed. In addition, the model outlined how the resources will be part of various eGovernment applications and services and defined applicable standards for these resources.

In 2019, the School of Information Science at Addis Ababa University reviewed the eGIF and shared revised recommendations with MInT based on the latest technological advancements. It highlighted the need for a governance model and a specific compliance mechanism for interoperability deployment. The eGIF is also still to be implemented.

3.3.3 eGovernment Strategy and Implementation Plan 2011 – 2015

To kickstart the digitalization process, the Government of Ethiopia developed a five-year strategy and implementation plan (2011 to 2015). The plan's primary purpose was to define a vision that represented priority objectives, shared the voice of all stakeholders and strategies to communicate the digitalization vision to internal and external stakeholders. The strategy was developed with a customer-centric focus to facilitate the delivery of services seamlessly and conveniently. It also defined a thorough governance structure, including establishing a Project Management Office to support the implementation of the strategy.

The strategy selected 219 services to be digitized overtime in a phased approach. These services were to be available to the public through a national e-portal, call center, ICT service centers and mobile application. The strategy also highlighted six (6) core priority projects, including developing a National Payment Gateway, Enterprise Architecture Framework, Public Key Infrastructure, National Data Set, National Enterprise Service Bus, and National Integrated Authentication Framework.

3.3.4 eGovernment Strategic Implementation Plan 2020

The Government of Ethiopia, while implementing the eGovernment strategy (2011-2015), onboarded 168 services on the E-Services portal. However, due to lack of backend integration and cross-departmental service integration, there was low uptake of the services by customers. Therefore, to rejuvenate its plans to digitize its services, the government further developed an updated eGovernment Strategy (2015-2020), which included six (6) strategic plans, 39 nationwide programs, 40 ministry/agency level initiatives and a new target of increasing the number of services on E-Services portal to 320 by 2020. The strategy revolved around promoting an enabling environment for e-services, enhancing government e-readiness, increasing usage, and defining the operating model. The updated strategy also focused on driving economic growth; affordable and quality services; effective, efficient, and transparent governance; innovation; promoting entrepreneurship through ease of doing business; and leveraging SMART initiatives. The strategy revolved around six (6) primary objectives:

- Focus on the uptake of electronic services
- Integration of services
- Increased marketing and public awareness
- Use of advanced technology
- Strong Project Management Office
- Adoption of standards and policies

The ministry is in the process of developing its next five-year E-Government Strategy and revising the national Enterprise Architecture through support from the European Union.

3.3.5 Ethiopian eGovernment Portal (E-Services)

The Government of Ethiopia launched the E-Services portal as part of the inaugural eGovernment Strategy, thus enabling the provision of G2C, G2B and G2G services. The aim was to improve the government's efficiency and costs through better coordination amongst the government departments. Perago Information Systems PLC designed and developed the E-Services portal through a Public Private Partnership approach. Perago is a private technology company that develops and implements electronic government solutions. The E-Services project was initiated on a Build, Operate and Transfer model, with the Government of Ethiopia retaining the intellectual property (IP) and data rights. The portal is hosted within the National Government Integrated Data Center (NGIDC) and accessed by customers and service providers through the internet.

The E-Services portal is a standalone platform, functioning as a front-end communication channel between the customer and the service provider. The portal has its limited workflow structure developed for the service providers to process a particular service request. Currently, no technical integration with service providers' internal backend systems exists. The portal has been developed

as a two-way interactive communication channel. A customer can request a service, and the provider evaluates the requests and, if need be, communicates to the client through the portal. The communication from the provider could be related to a clarification, requesting additional information/documents, or advising the client to pay the necessary government service fee. The client can subsequently upload the required documents onto the portal as well.

Despite the eGovernment strategy setting a target of digitizing 320 services by 2020, only 180 services were made available on the portal by mid-2021. However, in 2022, a staggering 130+ services were digitized due to relentless efforts made by MInT, thus, increasing the number of digitized services on the portal to approximately 310+. Currently, 25 service providers (i.e., ministries, agencies, authorities, and other government institutions) are providing government services on the portal. Since the portal's launch, it has received approximately 2.2 million visits, while almost 300,000 customer applications have been processed digitally.

In 2021, Perago was awarded a new contract to upgrade the technical architecture to microservices, digitize additional 128 services within one year and provide maintenance and support services for a period of three years.

4. Evaluation Areas and Key Findings

4.1. Legislation and Governance

4.1.1 Legislation

Having the proper legislation and policies in place is vital to driving digital transformation. However, ICT ministries often have to address overlapping and unclear mandates due to obscure policies and legislation, making it challenging to lead and coordinate digital initiatives in the public sector. Similarly, in Ethiopia, while the Ministry of Innovation and Technology is considered the government's arm mandated to develop and coordinate ICT policies and plans for ICT development in the country, it's level of influence to enforce other government ministries and agencies to abide by these policies is not clearly stipulated on the various legal documents reviewed during this assessment, particularly the Negarit Gazette of the Federal Democratic Republic of Ethiopia Proclamation No.1263/2021, Communications Service Proclamation No. 1148/2019 and Electronic Transaction Proclamation No. 1205/2020. Furthermore, there is no specific legislation that outlines the functions of MInT in providing eGovernment or the ministry's absolute powers to coordinate other public bodies in the deployment of e-government services.

While the E-Transaction Proclamation has attempted to include some eGovernment clauses, the required governance structure, i.e., Digital Economy Council, has not been established. The proclamation also required all public bodies to launch digital services within one year; however, the ministry's role and level of influence in ensuring government institutions digitize their services within this timeframe remains unclear. The ministry has developed the E-Transaction regulations to operationalize the proclamation; however, they are yet to be approved. While government ministries have been receptive to the proclamation, the delayed approval of the regulations, lack of capacity and reliability of the NGIDC, and limited resources within MInT to handle all requests

for digitalization have led to various public institutions rolling out their digital platforms independent from MInT's E-Services program. Moreover, due to the lack of standardized principles, there is a deficiency in uniformity and interoperability among these silo platforms. Lack of comprehensive eGovernment legislation and clear oversight can limit the ministry's capability to effectively drive eGovernment's operationalization, realization, and development across the public sector.

4.1.2 Governance Structure

A governance structure provides strategic and operational guidance, resolution of possible risks and issues, and progress monitoring to ensure project success. To drive successful digital transformation in the government, it is critical to have a clearly defined and well-resourced governance structure with a mandate led by or reporting to a high-powered dignitary like the President or Prime Minister. This structure has attracted the proper support to convince and command government departments to implement digital transformation initiatives.

The E-Services program has been running in a project mode since it was launched with no properly established governance structure. This has created numerous issues with service delivery, operational oversight, and the attainment of long-term goals. Although a governance structure was initially proposed, it was never established. The structure was supposed to be organized hierarchically, with the Executive Steering Committee (SteerCo) as the governing body of the E-Services program.

4.1.3 Oversight

Having an effective and credible oversight mechanism in government institutions is indispensable to managing the implementation of policies and regulations. Moreover, according to the Organization for Economic Cooperation and Development (OECD), having an oversight body provides the capacity to coordinate institutional frameworks from a whole of government perspective by providing independence and sufficient authority, including political support.

During this assessment, it was observed that the E-Services team were severely understaffed, consisting of only four people to run the E-Services program effectively. The personnel include two people responsible for operations (a Project Coordinator and Project Member) and two providing technical support at the NGIDC. As a result, there is limited oversight of the day-to-day operations of the E-Services program. Due to limited headcount, there is a complete reliance on the outsourced vendor (Perago) to run the E-Services program end-to-end. Perago is responsible for shortlisting and engaging service providers to be onboarded on the portal, conducting providers' technical and operational evaluation, mapping current processes, conducting business process reengineering (BPR), devising and deploying updated workflows, and above all, providing day-to-day support and maintenance of the platform along with issue resolutions. There are no documented guidelines from MInT available to onboard government organizations on the E-Services portal. As part of stakeholder consultations, the following high-level onboarding process was observed:

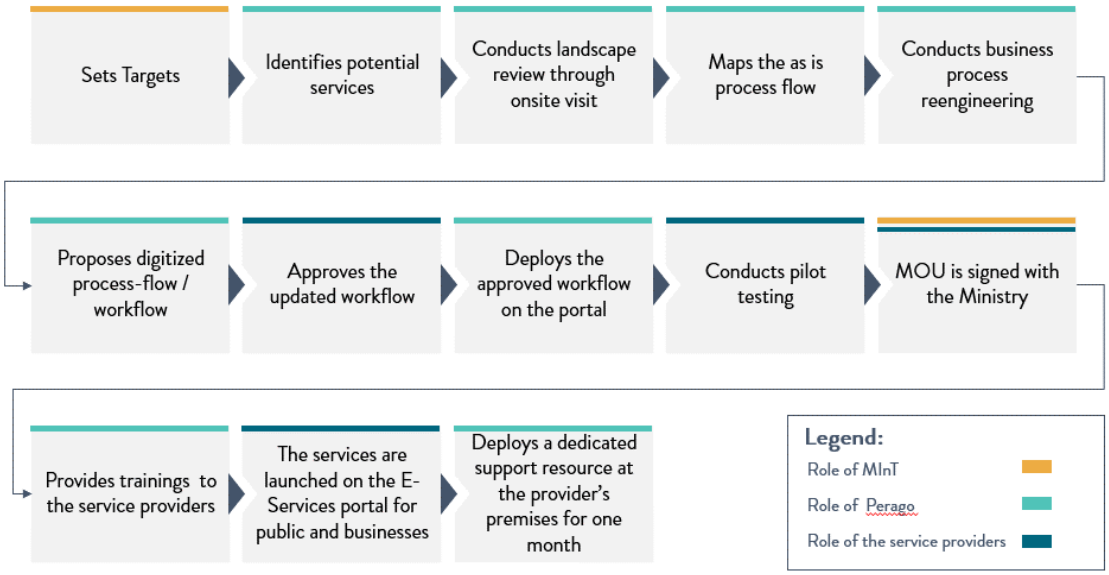


Figure 4 Process of onboarding service providers

As shown in the figure above, it was observed that throughout the onboarding exercise, there was no oversight from MInT. As most of the service providers' staff are not technically savvy and have no BPR experience, flaws and shortcomings have been observed in the business process reengineering being conducted by the vendor. It was also observed that BPR was performed on individual service levels without considering and removing departmental and government-wide duplicity.

Despite the E-Services portal's technical constraints, discussed more in Section 6, Perago's performance has been reported to be satisfactory by ministries and agencies using E-Services. In addition to in-person support, Perago has established a Telegram channel for accessible communication between government service providers and vendors on platform issues. During the interactions with various stakeholders, including MInT and other government providers, it was observed that the vendor was readily available to resolve the technical issues.

4.2. E-services Deployment

4.2.1 E-Services Strategy

To solve real challenges facing citizens today through digitalization, countries are adopting a user-centric approach to building end-to-end digital services to ensure a convenient, painless and seamless user journey. Therefore, having an eServices strategy that outlines the evolution of service provision from the basic forms to the transformational level, categorizes services and prioritizes high impact services first will promote high uptake of services.

As per the Government of Ethiopia's 10-Years Development Plan, MInT aims to digitize 2500 services by 2030, as shown in the table below. However, MInT has not defined any prioritization matrix for the new services to be onboarded based on importance or impact. Currently, it is the vendor's responsibility to identify potential services and onboard them on the portal.

Consequently, services have mostly been onboarded to increase the overall number of "digitized services" instead of the impact they might bring; as a result, overall citizen participation has remained low. The ministry is also not aware of the digitization readiness of each ministry to inform government-wide digitization mapping. In addition, there is also no roadmap to expand the E-Services program to regions and cities.

Table 2 Ministry's 10-Year Plan for digitizing services

The goal set to build a digital economy and increase its usability: Development of government electronic services, including empowering and making services accessible												
Goal indicator	**2020 (Start)**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Sum**
No. of services provided to the public through electronic means	176	278	400	700	1,000	1,300	1,600	1,900	2,000	2,200	2,400	2,500

4.2.2 System architecture

System architecture describes how a system works and relates with other systems or a detailed plan of the system at the component level to guide its implementation. The E-Services portal is designed in a layered architecture whereby the client interface layer, business logic and data layer are separate. Although the National Enterprise Architecture Framework (ENEAF) was created before the launch of the E-Services portal, the architecture of the E-Services is in absolute deviation from the Government's ENEAF.

The E-Services platform has been developed as a single monolithic application, where the application is typically assembled and deployed as a single unit. The architecture limits the vertical scalability of the platform, and horizontal scalability is only achieved through duplicating the entire application in multiple servers. This architecture also relies on a single database approach making the database size expand faster, thus difficult to manage and sustain.

MInT has recently awarded a contract to Perago to upgrade the E-Services portal to microservices. However, the overall architecture remains the same as the current version and does not outline how microservices will be implemented. In addition, the ministry has not developed microservices development guidelines to guide the deployment.

4.2.3 Data sharing and reusability

Data sharing is essential to amplify impact and increase its reusability in government platforms. For many years, governments worldwide have been working to overcome challenges to make government data more organized and accessible in a safe and secure environment and share it. However, based on the assessment, it was found that the architecture of the E-Services portal does not conform to Ethiopia's eGovernment Interoperability Framework (EeGIF). As a result, there is a lack of data sharing, interoperability, and data reuse among the various service providers.

Data is collected and stored on a service-by-service basis, not shared within the same organization offering multiple services. As a result, customers must provide data from scratch for each service they apply for, which goes against the basic principles of digitalization. In addition, the lack of customer-centricity has led to a lack of inter-and-cross-departmental collaboration, resulting in significant fragmentation and duplication of effort, limiting the government's efforts to deploy interoperable systems.

The ministry previously launched an Open Data Portal for sharing non-sensitive data with the private sector; however, the project failed due to lack of buy-in. Non-sensitive data generated from the E-Services portal presents an opportunity for the data to be harnessed by innovators to enhance e-service delivery and develop new solutions based on emerging use cases.

4.2.4 Business Process Reengineering

Business Process Reengineering (BPR) refers to redesigning business processes, including analyzing and designing workflows within an organization to substantially improve productivity, cycle times, quality, and customer satisfaction. Even though this term has been used widely in the public sector, studies suggest many countries are yet to attain efficient processes when digitizing services.

Similarly, in Ethiopia, it has been observed that inadequate and inefficient BPR is conducted when digitizing services, resulting in redundancies across government service providers that could have been eliminated. The assessment revealed that the analysis and design of service workflows were performed by the vendor (Perago), with inputs from the service providers. There are limited to no alterations done to the existing manual process. In most cases, it was found to be the replica of the manual processes. Also, the Federal Civil Service Commission (FCSC) was not involved in the BPR exercise, despite its role in service formulation across the government.

4.2.5 Digital service standards

Having the right standards and guidelines helps Government agencies implement digital services. To meet the goals set in the national digital agenda and digitize government services that are easy to use, seamless and relevant to citizens and businesses, there is a need to have a set of best-practice principles for designing and delivering government services. At present, MInT does not have defined common e-government service standards that all government institutions can adopt as they digitize their services. Furthermore, the ministry has no defined testing procedures for different elements, including functionality and security.

4.3. Digital Infrastructure

National digital infrastructure is an essential foundation for governments' digital transformation and supports the growing digital transactions.

4.3.1 Data Centers

The E-Services portal is deployed within the National Government Integrated Data Center and implemented in four (4) physical servers in a distributed environment:

- Application Server: hosts portal's system and business layer
- Frontend Server: handles portal's user interface and single-page application requests
- Portal Server: handles requests going to the clients and general public
- Database Server: stores portal configurations, client data and transactional data

The currently deployed physical servers have underpowered and outdated hardware, resulting in multiple performance issues with the E-Services portal. Additionally, the storage capacity on the servers has almost been exhausted. This has led to minor outages and server crashes that require data center technicians to reboot the servers physically. During stakeholder consultations, the E-Services portal's slow speed and unreliability were reported as reasons for the service providers' low adoption of the digital platform. Despite having a national data center, the government continues to have uncoordinated, siloed data center deployments across government institutions. This uncoordinated infrastructure deployment is a waste of government resources.

4.3.2 Government Backbone Network

Government Backbone Network (WoredaNet) is a terrestrial and satellite-based communications network providing internet connectivity and allied services such as video conferencing and messaging to Ethiopia's federal, regional, and woreda-level government entities. The WoredaNet, established more than 16 years ago, is running at low capacity and on obsolete equipment, unable to support day to day connectivity needs of government institutions. Resultantly, different service providers have resorted to installing separate private connections running parallel to WoredaNet to enable them to process service requests. However, these private connections run without network and traffic monitoring, which could expose government and customer data to security breaches. While MInT has made many attempts to upgrade and modernize the network, it still has not solved congestion, speed, and service degradation due to the network design and obsolete network equipment.

4.3.3 Business Continuity Plan

A business continuity plan proactively ensures operations proceed during disruption and avoids associated risks by creating policies that respond to various situations to ensure a smooth service provision. MInT does not have an offline recovery site and a business continuity or disaster recovery plan for the E-Services portal. Additionally, no data backup retention policy has been introduced, and no dedicated backup server has been put in place; consequently, all data is backed up on the production application server.

In 2022, the E-Services portal server crashed and remained offline, disrupting all E-Services for almost two (2) months. Government ministries and agencies who had fully migrated their businesses to the E-Services portal and had stopped entertaining walk-in customers were left at a standstill, gravely hampering their operations for two months. The crash also led to the loss of historical one month's data as well. Data loss impacted the providers' operations tremendously as the information regarding recently issued certificates, permits and other documents was lost,

causing major audit concerns. In addition, the E-Services portal's unreliability and data loss have caused trust issues among the service providers, leading some of them to revert to legacy manual processes.

4.3.4 Cloud

Migrating from legacy IT infrastructure and data storage to cloud services can yield enormous benefits for governments, such as cost savings, scalability, high reliability and availability of services, the increased speed at which government can deliver citizens and access to enhanced data analytics tools and security features[6]. The government has an ambitious digital transformation agenda that recognizes the importance of the cloud. However, the government has not embarked on a plan to migrate to the cloud nor assessed different cloud solutions to identify the most suitable solution (s) to cater for the government's digital transformation needs, considering security, data residency and data sovereignty requirements.

4.3.5 Broadband Connectivity

Internet penetration in Ethiopia remains very low at approximately 25%, with most connections concentrated in Addis Ababa. This means many Ethiopians, particularly those in rural areas, are left out of the digital economy. Quality of service and experience are also major concerns, with median mobile internet speeds reported at 14Mbps while fixed internet speeds are much lower at 3Mbps[7]. As the government aims to ramp up the digitization of services, high-speed, quality broadband is fundamental.

4.3.6 Access to devices

During the assessment, almost all the providers indicated they had sufficient ICT devices available at federal government offices, including computer hardware for caseworkers and supervisors. The offices also have a power generator or UPS as a backup for power outages. However, some computers have reached the end of life and need to be replaced.

4.4 User Experience

4.4.1 Systems Integration

System integration helps streamline and simplify communication between various departments and organizations. System integration also helps achieve higher efficiency by eliminating the need for repetitive manual data entry, including storage and management. The current E-Services portal acts as a front-end workflow management system for the providers (i.e., ministries, agencies etc.); however, it does not provide real-time or batched data integration with providers' backend systems.

Providers have different legacy systems utilized to process customers' applications internally. Although customers' data is available on the E-Services portal, there is no integration between the portal and internal legacy systems. Consequently, most providers have to manually input the same

[6] https://openknowledge.worldbank.org/handle/10986/37556
[7] https://datareportal.com/reports/digital-2022-ethiopia

data captured in the E-Services portal into their internal system, creating a manual overlay, which is prone to human error and increases staff workload.

4.4.2 Digital Payments

Payments are one of the crucial elements of the eGovernment ecosystem. Digitizing person-to-government (P2G) and business-to-government (B2G) payments can significantly improve the consumer experience. The National Bank of Ethiopia (NBE) launched its National Digital Payments Strategy (NDPS) in 2021. One of the NDPS strategy's main pillars is digitising government payments to increase efficiency and transparency.

The E-Services portal currently does not have the functionality to accept digital payments. The vendor is in the process of integrating the E-Services portal with TeleBirr, a mobile wallet provider operated by Ethio-Telecom; however, the service is yet to be made available to the public. There is also a plan to integrate with Mastercard Payment Gateway. Currently, when a customer applies for a service, depending on the provider, the customer is informed when and where the applicable service fee needs to be deposited. For most providers, once the fees have been paid, the customer must visit the service provider's office in person to submit the payment receipt to the finance department and then inform the relevant department that the required fee has been deposited to complete the service request. On other occasions, the customer is required to submit the original payment receipt at the time of the visit to the provider's office at the final stage of request processing. This not only impacts the intended seamless customer journey but also causes inconvenience to the customers.

4.4.3 User Interface and Experience

A digital platform's user interface (UI) is vital to customers' experience (UX) and overall customer satisfaction. A user-centred platform focuses on the users and their needs in each phase of the design process. The E-Services portal has a cluttered user interface, which can make it difficult for the majority of the digitally excluded population to use it. The portal displays overcrowded content and has a complicated service request process flow. The Amharic version is not fully translated and often includes English content. Since launching the E-Services portal, no exercises have been conducted to measure overall customer satisfaction. The E-Services portal's user experience currently lacks user-centricity for customers and service providers, resulting in broken and disoriented workflows. For example, customers are required to input all their data and upload documents for each service they apply for, and there is no ability to reuse data. There is also a lack of visibility for customers to know the progress of their requests. The portal also lacks the functionality to process digital payment of service fees.

For service providers, the portal cannot search old records based on case worker or application date. Additionally, if a supervisor identifies a mistake in an application, the case worker must rework the whole application from scratch. The portal does not have a functionality to filter old service requests, i.e., search based on a particular date, request outcome (i.e., approved, rejected, adjusted etc.), hierarchy (i.e., case worker or supervisor or senior manager etc.) or pending time etc. The "Appointment" functionality, though available on the portal, does not work, and customers walk into the offices as soon as they submit the request online. The providers stated

that they needed this functionality to schedule in-person meeting slots through the portal. The E-Services portal does not have the functionality for the providers to send reminders to customers to update the service request. Similarly, no automated reminders are sent to the customers regarding an upcoming expiry date and renewal of license or certificate. Furthermore, there is no functionality to define and track the service level for a service request. Similarly, there is no functionality to gauge customer satisfaction or take customer feedback.

Providers are unable to access old data files and attachments for the service requests which have been archived. The portal does not print certificates and letters correctly, which becomes a reputational issue. Sometimes the portal prints English and Amharic text together or omits specific codes necessary for the certificate to be valid. Every service request has three (3) possible outcomes, 'Approve', 'Reject' and 'Adjust'. If a supervisor/expert returns the request to the caseworker for adjustment, there is no option to edit the previous information. The caseworker has to re-enter all the data in the service request from scratch. User experience varies from browser to browser. For example, it is possible to view attachments within the chrome browser; however, caseworkers must download the files on the computer for other browsers. The service providers requested for the E-Services portal's useability, user experience, and user interface to be improved for ease of working.

4.5 Monitoring and Impact initiatives

4.5.1 Change Management

During digital transformation projects, it is critical that once a digital solution is implemented, there should be a pilot testing phase. Once the pilot is completed, there should be a hard cutover, after which old manual processes cease. Running digital and manual processes together for the same service can create multifold problems in data management, application tracking, quality of service and managing digital records in addition to manual records. Estonia, a leader in e-government, has successfully been able to halt legacy processes after the implementation of digital transformation. This includes using digital signatures and digital ID cards, reducing the need for traditional paper-based signatures, ID cards and face-to-face interactions, helping to speed up government processes and increasing efficiency and security.

MInT has placed minimal emphasis on uniform change management policies, resulting in inconsistent support from senior management at service providers. This has caused a varying approach towards the E-Services portal among service providers and, in some cases, inconsistent approaches across multiple services at the same provider. Currently, only three providers provide their services through the E-Services portal, while others use the digital channel in parallel to the existing old manual processes. During the stakeholder assessment, it was identified that the three providers' senior management's dedication towards digitization played a vital role towards these organizations' positive uptake towards the E-Services portal.

The adaptability and uptake of E-Services varied greatly from provider to provider and, in a few instances, from service to service within a particular provider. There were instances where service providers adopted the E-Services portal and moved away from manual processes, including

eliminating in-person requests. While on the contrary, there were providers who hardly received or processed any online requests. The variation was mainly attributed to inconsistent change management activities and top management's level of trust and push towards the digital platform. The caseworkers and supervisors were mostly digitally literate to process requests on the E-Services portal. However, no specific training material was available at the service providers, new caseworkers used to get on-the-job training by shadowing other peers.

4.5.2 Communication Plan

A communication plan is vital to any digital transformation project's success. It helps ensure all stakeholders know the project's intended purposes and changes and understand their roles. It can also help manage stakeholders' expectations and mitigate any potential disruptions during the transition. A communication plan reduces the risk of misunderstanding, confusion, and resistance to change, which can derail the project.

There is no communication plan or strategy to inform internal or external stakeholders about the E-Services program. During the COVID-19 pandemic in 2020, MInT conducted a small media campaign through radio channels, while some service providers undertook a few awareness initiatives. However, they all remained inadequate.

4.5.3 Platform Usage

To examine the service request trends on the E-Services Portal, raw data from January 2021 to July 2022 was analyzed (Annex III). The following are some of the key takeaways:

- Overall, a month-over-month upward service request trend was observed. This was mainly boosted by adding 130+ new services in the last year.
- At least two (2) major platform outages occurred, once in Nov/Dec 2021 and the other in May 2022, disrupting the service requests flow.
- On average, about 50% of the services received less than one (1) request monthly.
- On average, 23% of the services received single-digit requests monthly.
- Over 77% of all the requests were for only 15 services.
    - 66% of the 15 services are from the providers who have fully migrated their internal processes to the E-Services portal.
    - This included six (6) services from the Ethiopian Construction Authority, three (3) from the Ministry of Foreign Affairs and one (1) from the Accounting and Auditing Board of Ethiopia.
    - The high uptake of these digital services was also consistent with the high service demand in offline mode. This suggests that citizens are efficiently adopting digital channels to meet their needs.

4.5.4 Monitoring, evaluation, and learning

Critical platforms require constant monitoring so that necessary steps are taken to maintain uninterrupted peak performance. According to the Perago Service Level Agreement, the E-Services platform should have a 99.99% uptime. However, this is contingent on an operational-level agreement with the data center. The E-Services portal is being managed on an issue-to-issue

basis. The project team has no tool or mechanism to monitor the portal's service level and system health. The issue is identified and resolved only after service providers complain and inform MInT or the vendor about degraded performance.

It was observed through key informant interviews that the E-Services portal lacked stability and encountered latency issues, glitches, system crashes, and data loss while processing the service requests. This resulted in employee dissatisfaction towards the E-Services portal. Three (3) service providers have fully migrated to the E-Services portal and have stopped entertaining physical walk-in requests. Any system outage causes significant service disruption for these providers and compels them to use manual processes again.

Loss of historical data was highlighted as a significant concern towards E-Services' credibility as it creates audit problems for the service providers. This is even more critical for the providers who have halted manual processing and do not have a paper trail record. The server crash from early 2022, which left the E-Services portal offline for two months, along with the loss of historical data, was unexpected for all the providers. In addition, service providers indicated that customers often do not receive SMS text from the portal and remain unaware that providers are waiting for more documents or clarifications.

Launching an eGovernment platform enables the government to harness and internally analyze trends to improve service delivery and measure impact. External-facing dashboards help governments to increase efficiency, transparency, and accountability in the eyes of external stakeholders. Data dashboards and MIS reports were the main features required by the service on the E-Services portal. However, the E-Services portal does not have any robust reporting mechanism. It produces a basic high-level report showing the total number of requests received, in progress and completed status. MInT and the service providers cannot extract dynamic reports to analyze historical trends or monitor service levels.

5. Recommendations

5.1 Digital Government Legislative and Coordination Framework

5.1.1 Enact enabling eGovernment legislation

Legislative changes should be considered to enable MInT to drive e-government across the public sector effectively. Government should pass the E-Transaction Regulations to give MInT specific powers on ICT and eGovernment coordination and oversight across the government. The legislation should cover the establishment of the eGovernment Program Management Office, the governance structure, coordination, and management of eGovernment services, eGovernment infrastructure and related systems, the establishment of a command center with the necessary backing and budgetary oversight to push for the deployment of standardized technology across public agencies, security and data governance as well as introducing digitization experts across government. In addition, the government should pass the necessary legislation around data privacy and protection, open data, and security.

In other jurisdictions, the digital transformation agenda is given high-level support with direct reporting to the highest office, such as the President or Prime Minister and also supported by eGovernment legislation. For example, in Zambia, an eGovernment Act was enacted in 2021, establishing an Electronic Government Division reporting to the President. In Singapore, the country's digital transformation initiative – SmartNation, reports directly to the Prime Minister and the Government Technology Agency was established to operationalize the Smart Nation initiatives[8].

Box 1: E-Government Legislation

Zambia[9]: The Government of Zambia has passed a comprehensive E-Government Act to enhance the management and promotion of electronic Government services and processes; establish the Electronic Government Division in the Office of the President and provide for its powers and functions; facilitate access to electronic Government services to improve service delivery, administrative functions and procedures and productivity to enhance citizens access to Government services and information. The Act empowers the Division to coordinate e-government and information and communication technology matters in public bodies.

Tanzania[10]: in 2019, the Government of Tanzania enacted the eGovernment to make provisions for e-Government services; the establishment of the e-Government Authority and its administration; management and operations of e-Government services; management of eGovernment infrastructure and systems, security of electronic services and management of electronic data.

5.1.2 Establish a fully equipped and empowered governance structure

It is recommended that a high-powered digital transformation governance structure, a Steering Committee or SteerCo, which is chaired by the Prime Minister or Deputy Prime Minister, is constituted and provisioned for in the eGovernment legislation. The SteerCo should include senior officials such as the Minister of Finance, Minister of Innovation and Technology, and Minister of Planning and Development and act as the oversight committee for all digital transformation, including eGovernment initiatives. The primary role of SteerCo will be to provide overall strategic support and guidance to drive the digital transformation agenda. In addition, direct reporting to senior political leadership can assist eGovernment in maturing quickly and accelerating its adoption across government, which results in issues being resolved quickly and risks being mitigated amicably.

5.1.3 Establish a well-resourced eGovernment Program Management Office

A proper full-time departmental structure, i.e., the eGovernment Program Management Office, must be set up at MInT. The office will be responsible for overseeing the operational and technical aspects of the eGovernment, including E-Services. The office will lead the development and upgrade of the E-Services portal, adherence to ENEAF and eGIF, development and implementation of a comprehensive eGovernment strategy, onboarding of government providers and overseeing day-to-day operations. The office should also work closely with other institutions, such as the FCSC for service identification and BPR and Artificial Intelligence Institute, to build intelligence into the developed services as they evolve from basic to optimized services. PMO should also work with

[8] https://www.tech.gov.sg/who-we-are/our-role/
[9] Act No. 41 of 2021, The Electronic Government Act, 2021.pmd (parliament.gov.zm)
[10] sw1570619933-10. The e-Government Act.pdf (osg.go.tz)

various external stakeholders, including development agencies and private sector players (i.e., banks, telecom operators etc.) to increase product offerings and, most importantly, with the customers to increase their uptake of digital services. The eServices team under the eGovernment Office should be led by a dedicated Head of E-Services, who should report directly to the *Electronic Government Development Lead Executive* at MInT (See Figure 5). In addition, the E-Services team should establish several vital positions and other support staff for the smooth delivery and execution of e-services across the government:

- Strategy Advisor will be responsible for the overall E-Services strategy development and implementation. In addition, the advisor will work with various internal and external stakeholders collaboratively for the maximum uptake of E-Services.
- Technical Lead will be responsible for developing new platform functionalities, QA testing and migration to the production environment. The officer will also ensure sufficient technological infrastructure and technical standards are in place to provide reliable E-Services.
- Operations Lead will be responsible for the day-to-day operations of the E-Services. They will interact with service providers to understand their needs and resolve their issues.
- Communications Lead will be responsible for all internal and external communications related to E-Services. In addition, they will lead all ATL and BTL activities to increase E-Services awareness and maximum uptake of E-Services.
- The Monitoring and Evaluation Lead will lead M&E activities and develop and continuously monitor the implementation of the M&E framework in collaboration with respective providers.
- Project Management Lead will be responsible for implementing all projects related to the E-Services program, including platform upgrades, provider onboarding activities and new services deployments.
- Change Management Lead, in collaboration with service providers and PMO, will lead the internal and external change management before the launch of a new service or provider and conduct ongoing change management activities.
- BPR Lead will coordinate with service providers to map and evaluate current processes and conduct thorough business process reengineering to reduce redundancies and process inefficiencies.

In the broader ministry structure, the ministry should have a Digital Policy Lead to lead the development of policies and compliance matrixes and the development of data to policy frameworks. Moreover, this role will ensure policies related to digital government, such as Cloud First Policy, Open Data Policy, Participation Policy, and Accessibility/ Digital Inclusion Policy, are available and well circulated among government stakeholders. The lead will also provide the necessary support for developing infrastructure policies such as broadband, which affect access to digital services.

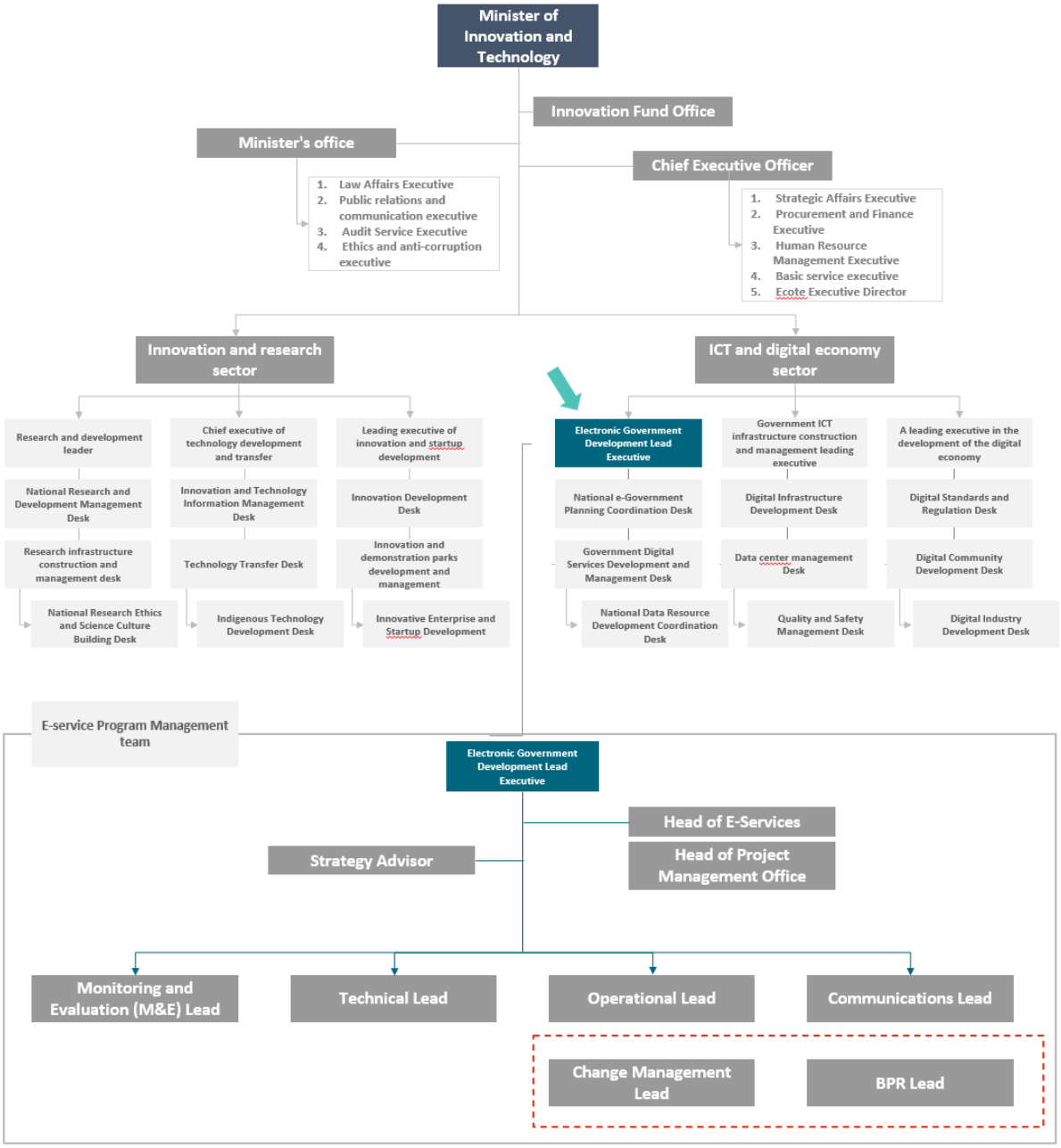


Figure 5 proposed structure of the eServices Team

5.1.4 Appoint Digitization Experts across the government

MInT, in collaboration with the Federal Civil Service Commission, should also leverage existing ICT human resources in different government ministries and agencies to drive the digitization of services and adoption of emerging technologies in their respective organizations. The experts should be capacitated regularly, monitored by setting performance targets and incentivized. The experts will interface directly with the eGovernment Program Management Office.

Box 2: Leveraging existing human resources across government to drive digital transformation[11]

In 2020, Rwanda's Ministry of ICT and Innovation appointed Chief Digital Officers (CDOs) to spearhead digitizing the traditional business processes in different government institutions to accelerate the country's digital transformation while promoting innovation. The initial focus has been deploying CDOs to seven fast-changing digital sectors: trade, industry, investment, justice, agriculture, environment, and disaster management. Other sectors include infrastructure, the education sector and local government. The CDOs are tasked to promote standardization for achieving efficient service delivery across the government while simultaneously realizing better control of IT expenditure. The officers also ensure uniformity and driver end-user satisfaction by adopting a citizen-oriented approach in designing digitization initiatives.

5.1.5 Coordinate digital projects through a Centralized ICT Command Center

A centralized ICT and E-Services/eGovernment Command Center provisioned for in the new/ revised legislation (5.1.1) should be set up at MInT, having budgetary oversight of all digital initiatives envisioned at various government ministries and public institutions. In addition, the command center should ensure standardization and consistency across all government digital platforms. This will help remove process repetition and minimize the implementation of silo platforms at the ministry or agency level.

A centralized command centre will also support public institutions in developing and integrating their backend systems into a single frontend interface. This will enable one window solution for the public while the government departments handle backend processes and solutions. The command centre can also act as a cross-functional technical working group in charge of design decision-making for the backend solutions by providing a gate process to review proposed designs that impact the various architecture layers across the E-Services program. This command centre can also be the common point of contact for all development agencies providing ICT/digitization-related support to different government institutions. As an interim solution for the coordination of digital infrastructure, MInT and INSA should develop guidelines for implementing the Executive Order on Common Infrastructure and be capacitated to ensure effective implementation of the directive.

Box 3: Coordination of digital government initiatives

United Kingdom[12]: In 2011, the Government of the United Kingdom formed the *Government Digital Services (GDS) Unit,* tasked with transforming the provision of online public services. With direct reporting to the Cabinet Office, GDS was given responsibility for setting cross-government standards for identity assurance, with the authority to approve, commission and accredit the identity component of any central government public service. Several countries across the globe have also initiated similar approaches, including the United States Digital Service, the Canadian Digital Service and the DigitalService4Germany.

Singapore[13]: Government Technology Agency (GovTech) is a statutory board of the Government of Singapore, under the Prime Minister's Office, established to help Singapore realize its Smart Nation vision. GovTech has over 3,000 high-tech employees to contribute to Singapore's digital government services. The agency has over 700 in-house developers who develop products for citizens, businesses, and the whole of government (WOG) and manage national projects, with established capability centers for Digital Services, Sensors & IoT, Data Science & AI,

[11] https://www.minict.gov.rw/news-detail/the-task-that-awaits-govts-new-digital-leaders
[12] https://www.gov.uk/government/organisations/government-digital-service/about
[13] https://www.tech.gov.sg/who-we-are/our-role/

Cybersecurity, and ICT Infrastructure. GovTech also manages WOG digital infrastructure, which includes migration to the commercial cloud, management of data centres and the deployment of digital devices across the government.

5.2 E-Service Modernization

5.2.1 Develop and implement an overarching E-Services Strategy

A robust E-Services strategy should be developed, either as part of the eGovernment strategy or independently, which must be approved and backed by the Steering Committee. The strategy should include a long-term digital vision, a categorization prioritization matrix to identify high impact services, a detailed plan to digitize federal, regional, and city-level services, and a roadmap to onboard them on the E-Services portal. The strategy should provide a guiding document to evaluate a provider in a top-down approach, review all their services, eliminate redundancies, and conduct BPR activities. The strategy needs to include various other aspects, including:

- List of all services for digitization, e.g., 2500 services including rollout criteria
- E-Service categorization and prioritization framework
- List operational functionalities and delivery channels for e-services
- Changes needed in the application architecture to make it adhere to ENEAF and eGIF
- Outline the BPR processes
- Identification of integration points between services and departments
- A high-level plan for data governance

The strategy must also evaluate each public institution's readiness level and how each can be supported for digitization. For example, one option could be for the E-Services portal to remain a single frontend solution for the public and business while, at the same time, separate parallel backend platforms are deployed at government institutions. MInT should conduct a detailed assessment of existing legacy systems running across the government. The evaluation should cover their effectiveness, relevance, technical architecture, interoperability, security and cost. Guidelines for legacy systems should be developed to this effect.

5.2.2 Align the portal's Enterprise Architecture to NEAF

The E-Services architecture should be migrated to microservices following the approved ENEAF and Microservices development guidelines developed by MInT. Further, MInT should collaborate with the vendor to ensure that modularization is achieved by decomposing the current system into functional units that can be created, evaluated, and maintained independently. This would enable the E-Services portal to be flexible and adaptable, allowing for greater horizontal and vertical scalability. This approach will also give MInT the flexibility to develop different components of e-government services.

5.2.3 Data Sharing and Interoperability

MInT should work with the vendor and other government ministries to implement the eGIF functionalities on the E-Services portal. This will help the government to move towards the next generation of eGovernment services. Furthermore, by creating interoperable data repositories, the government will achieve multi-fold benefits, including improved internal processes, increased

efficiency and transparency, and inter-departmental and cross-departmental coordination. This should be guided by a National Data Governance Framework.

Box 4: Sharing reusable digital components in Singapore[14]

The Government of Singapore has launched Core Operations Development Environment and eXchange (CODEX), a shared digital platform between government agencies and private sectors to develop better, faster and more cost-effective digital services. Using common tools and standards has reduced bugs and led to the development of secure quality services. CODEX comprises various resources such as:

- **Government Data Architecture:** includes common standards and formats to enable agencies to share data.
- **Commercial cloud:** Move less sensitive government systems and data to commercial cloud services and tap on these resources to develop digital services.
- **Singapore Government Technology Stack (SGTS**): includes a suite of shared software components and infrastructure to enable the more efficient and focused building of digital applications.

Box 5: ITU GovStack[15]

GovStack is a multistakeholder initiative led by Federal Ministry for Economic Cooperation and Development, Gesellschaft für Internationale Zusammenarbeit (GIZ), Estonia, the International Telecommunication Union (ITU) and the Digital Impact Alliance. GovStack aims to break down the barriers to building sustainable digital public infrastructure and help governments create human-centered digital services that empower individuals, improve well-being and build more inclusive and resilient societies. Furthermore, GovStack aims to support governments globally to develop digital services through:

- Developing specifications for reusable software components called "building blocks" that can form the foundation of a multitude of e-government services
- Prototyping best e-Government use cases and testing them through the GovStack sandbox environment
- Providing capacity building through different platforms, including Community of Practices
- Developing country level Digital Government Strategies that adopt the GovStack building block approach focusing on critical needs and prioritizing e-government services use cases

Reusing the same components in multiple government e-services reduces costs, reduces siloes, and improves coordination.

5.2.4 Redefine Business Process Reengineering

A user-centred design (UCD) approach must be adopted while conducting BPR for legacy processes. Following UCD principles, the legacy processes should be reengineered to remove inefficiencies and bottlenecks. MInT, in collaboration with FCSC, should spearhead business process reengineering and help service providers reimagine their existing processes and redesign them to bring efficiency. This will help reduce inefficiencies and redundant activities, reduce service requests' turnaround time, and increase stakeholder satisfaction.

5.2.5 National Dataset

MInT should establish a common national dataset and metadata repository to enable improved data gathering and parsing, resulting in efficient decision-making based on more accurate information to improve accountability and overall governance. In addition, MInT should revive and spearhead the open data initiative to enable public institutions to share non-sensitive data with each other and the private sector to develop innovative solutions to enhance government service delivery and accelerate digital transformation.

[14] https://www.smartnation.gov.sg/initiatives/strategic-national-projects/codex
[15] https://www.govstack.global/about/

Box 6: Estonia and Singapore Open Data Initiatives

Estonia[16]: Estonia is a world leader in digital government, according to the 2022 UN E-Government Survey. Also, the 2022 Global Data Barometer Survey ranked Estonia second among 109 countries on the use of data for the public good. Estonia Open Government Data Portal provides access to public sector data, which can be freely reused or shared. As of June 2020, more than 700 databases were published on the portal. In addition, the portal provides innovators with access to high-quality data across different thematic areas such as politics, economy, medicine, education, law and security and sports.

Singapore[17]: The Government of Singapore, through GovTech, provides common standards and APIs to facilitate data sharing and interoperability between public sector agencies. This has led to the development apps such as LifeSG[18] to build a seamless user journey from the cradle to the grave. Data is also collected from different public sector agencies and shared with developers through a common platform to create innovative solutions. Data.gov.sg provides open data sets from 70 public agencies, 14 APIs and resources for developers.

5.3 Digital Infrastructure

5.3.1 Upgrade of the National Data Center

There is an urgent need to upgrade the current digital infrastructure, notably the National Data Center, to have a reliable and stable E-Services portal. New server hardware should be acquired not only for the production server but for multiple backup servers as well. Furthermore, MInT should aim to have various disaster recovery sites and "hot sites" to ensure the availability of the ever-critical E-Services. Since the last two (2) attempts to procure new servers by MInT did not materialize, there is a need to give MInT special permission to procure server hardware bypassing the regular government public procurement process. MInT should also explore the possibility of infrastructural assistance from development partners towards procuring new servers.

An independent and detailed data center assessment ought to be conducted for NIGDC, data centers deployed across government and the new data center to be established at the IT Park against international standards and best practices. This will help evaluate government data centres' capability and capacity to support the provision of e-government services in the current and long term. In addition, data center standards and guidelines aligned with best practices should also be developed.

5.3.2 Adopt Cloud infrastructure

MInT needs to evaluate moving its government services to the cloud. This can be a cost-effective solution for the government with limited capital expenditure. Cloud hosting provides redundant server availability, enabling uninterrupted E-Services to providers and customers. By moving to cloud hosting, MInT can transfer several of its overheads to the vendor, including the need for infrastructure scalability and flexibility, data backup, security and disaster recovery. The ministry should evaluate different cloud solutions to identify the most suitable cloud solutions and deployment models for the Government of Ethiopia.

Given the government's sensitivity to data residency and sovereignty issues, solutions such as a Dedicated Regional Cloud @Customer (DRCC) offered by Oracle should be explored for suitability

[16] Estonian Open Government Data Portal – Infotehnoloogiline Mobiilsusobservatoorium | IMO (ut.ee)
[17] https://www.smartnation.gov.sg/resources/open-data/
[18] https://www.life.gov.sg/

to serve government needs. In addition, the Ministry should immediately evaluate migrating to the Infrastructure as a Service (IaaS) solution, given the constraints and limitations of the server and computing equipment at the National Data Center. The ministry should also explore the adoption of Platform as a Service (PaaS) for developing quality E-Services that can be scaled across the government. A cloud policy is also essential to support government migration to the cloud, identifying applications to be migrated to the cloud, data residency and sovereignty, and adopting cloud standards.

Box 7: Cloud Solutions

Oracle Cloud Infrastructure (OCI)[19]: OCI Dedicated Region is a complete OCI cloud region located in a customer's data center that offers the agility, scalability, and economics of OCI public cloud (SaaS/PaaS/IaaS). DRCC enables customers to retain complete control of their data and applications to meet the highest security, regulatory, and data residency requirements while modernizing its infrastructure. As a result, OCI is recognized as one of the leaders in public cloud infrastructure, guaranteeing high service availability and security for mission-critical and security-sensitive workloads[20].

South Korea's PaaSTA[21]: PaaS-TA is an open cloud platform that standardizes cloud software development efforts in the public sector. It was launched in 2016 and created through collaborations with various domestic companies with the support of the National Information Society Agency. PaaS-TA 6.0 Anelli, the latest version released in February 2022, will be applied to the eGovernment cloud platform, which will become the common basis for next-generations e-government services to provide a standard development and operation environment for cloud-based e-government services in the future.

5.3.3 Develop a Business Continuity and Disaster Recovery Framework

A detailed and thorough BCP and DBRP must be implemented to provide reliable and stable E-Services. These plans should document the measures, steps, and arrangements to ensure the continuous delivery of E-Services and the government's ability to recover the platform, data, and assets in the event of a disaster. Constant evaluation and risk management of the infrastructure should be part of the BCP to lower the risk of disruption. MInT should also specify DRP procedures, detailing all emergency responses, including last-minute backups, mitigation procedures, and eradicating cybersecurity threats. DRP should also designate a hot disaster recovery site located remotely so that operations can be instantly switched over to the hot site in the event of a disaster. MInT must develop a detailed data backup policy for all the databases it operates, including the E-Services portal. The policy should also identify backup frequency for incremental and full backup. MInT should immediately stop backing up E-Services data on the production server itself. This should be considered a red flag, and an alternate backup mechanism, like cloud storage, should be implemented.

5.3.4 Upgrade the Government Backbone Network

A thorough evaluation of the WoredaNet needs to be conducted to assess the equipment and its capacity against various quality of service parameters. Highly skilled network engineers should be engaged to review WoredaNet network design and equipment to ensure that it sufficiently and secures serves government offices and is built for scalability. In addition, bandwidth standards should be developed and implemented to guide connectivity to government offices.

[19] OCI Dedicated Region At-A-Glance (oracle.com)
[20] Oracle Cloud Made All The Right Moves In 2022 (forbes.com)
[21] PaaS-TA

5.3.5 Expand broadband connectivity

Quality and reliable fixed and mobile broadband infrastructure should be rapidly deployed to enable people to access digital services. The telecommunications regulator should engage operators to extend network coverage in commercially viable areas and use the Universal Service Fund to subsidize connectivity to areas not commercially viable, particularly underserved and unserved locations. A broadband plan should be developed to this effect to guide infrastructure deployment. Public access centers such as schools, post offices and community centers can be used as an immediate quick win.

Box 8: South Korea's Broadband Rollout Journey[22]

Following the Korean War in 1950, South Korea embarked on a mission to rebuild the nation's infrastructure. In 1960, South Korea had a telephone penetration of 0.36 per 100 inhabitants. As a result, South Korea introduced measures such as the one-phone - one-family policy, investment in rural areas to curb the digital divide, locally produced telecommunications systems to reduce dependency on imports, and reduced tariffs to enhance accessibility and liberalization of the telecommunications market. Over the years, Korea has continued to invest heavily in broadband infrastructure through different phases, including the Korea Information Infrastructure program in 1995; Master Plan for Closing the Digital Divide; consecutive Broadband Convergence Network (BcN) projects in 2004 (50~100Mbps); and Ultra BcN project 2009 (up to 1 Gbps). These developments led to universal fiber network access, enabling nearly every citizen access to high-speed broadband. This infrastructure has also allowed South Korea to leapfrog ahead of the rest of the world on 5G, demonstrating that infrastructure policy continues to be a critical factor in South Korea's global broadband leadership. The country is currently ranked second with the fastest mobile internet speed, with 97 percent of South Koreans having internet access and 85 percent with smartphones.

5.4 User-Centric Digital Experience

5.4.1 Enhance the portal User Interface and User Experience

The E-Services portal's design and layout must be updated to make it intuitive and easy to navigate. Furthermore, a user-based evaluation of the portal user interface and experience should be conducted to inform enhancements to the UI/UX. Finally, based on the evaluation findings, a citizen-centric approach that involves cocreating the UI/UX design with the citizens through the innovation ecosystem should be adopted. This could be through a hackathon leveraging the innovation ecosystem. To ensure that users can effectively and efficiently use E-Services, helpful resources and assistance features like User Guides, FAQs, online tutorials, and live chat or phone support should be available on the portal. Further, MInT should collaborate with the Artificial Intelligence Institute to develop an AI-enabled chatbot that can respond to customers' queries 24/7. The chatbot can immensely improve user experience and provide insights that help improve e-service delivery. Furthermore, the frontend design should be inclusive and accessible to all, ensuring that the platform is usable by People with Disabilities (PwDs). In addition, the portal should provide alternative ways to access content and functionality, such as through keyboard shortcuts or screen readers, and ensure that the platform is usable with assistive technology.

[22] International Telecommunications Union (2003). Broadband Korea: Internet Case Study

5.4.2 Adopt One Face of Government User Interface for electronic services

MInT should review existing eServices portals across the government, e.g., eVisa, eTrade, and Single Window and consolidate them into one customer-facing interface. In the interim, the management of the portals can remain in the respective institutions but should be accessible to customers from one interface.

Box 9: Kenya's One Face of Government

In 2014, Kenya launched eCitizen, an electronic services platform aimed at offering Kenyan citizens a hassle-free approach to accessing government services via the internet. The government implemented Single Sign-On to enable users to access all government services with one set of login credentials. The government has also adopted a consistent one look and feel for all portals with the eCitizen portal acting as a gateway for a range of services e.g., eVisa, eBusiness. Through the eCitizen portal, both Kenyan citizens and foreign residents can apply for G2C services and make payments using mobile money, debit cards, and eCitizen agents. eCitizen won the United Nations Public Service Award in 2017 for enhancing transparency, accountability, and responsiveness in the public sector, gaining international recognition.

5.4.3 Adopt Single Sign-On and Once Only Principle

The ministry should also review identity mechanisms and adopt an inclusive customer-centric single sign-on to validate the authenticity of people wanting to access government services across various government portals. The ministry should also adopt a Once Only Principle for common customer information that can be integrated with single sign-on.

Box 10: Implementing Once Only Principle in Singapore

Smart Nation introduced the MyInfo platform, allowing users to populate standard personal information only once. The service then auto-fills selected personal details for online forms, minimising the need for users to repeatedly provide and verify the same information when transacting with Government agencies online. By tapping on the Retrieve MyInfo button, the participating digital service will be able to retrieve the necessary data fields needed with consent. In addition, Singapore has introduced MyInfo Business to support businesses, which enables digital forms to be auto-filled with data from Government sources such as corporate profiles, financial performance and ownership information. The service has also been extended to private-sector services like opening a corporate utilities account and applying for SME loans.

5.4.4 Integration to digital payments

The provision of end-to-end e-services requires the platform to be integrated into digital payment solutions like Internet banking, mobile banking, ATMs, and agent network. Therefore, the E-Services portal should be integrated with various digital banking instruments, including EthSwitch, Mobile Wallet providers (i.e., Telebirr, M-Pesa etc.), agent networks and other payment gateway providers to bring convenience to the masses and promote ease of doing business.

5.4.5 Develop standards and testing framework for e-services

The ministry should develop digital service standards for uniform e-service deployment. A detailed testing plan must be developed for all new functionality developments and new provider/service onboarding. The E-Services infrastructure must be developed, undergo performance testing, and be regularly monitored for performance and functionality. MInT, in collaboration with INSA, should conduct regular penetration testing to safeguard customers' and service providers' data against cyber-attacks and theft. In addition, the ministry should introduce web accessibility tests to ensure the portal is accessible and usable by PwDs.

5.5 Digital Culture

5.5.1 Rollout of a structured Capacity Building Program

There is a need to conduct extensive capacity-building across MInT to run the E-Services program efficiently and effectively. For example, there is a need to increase skills in program management, project/contract management, platform development, testing and implementation, BPR, change management, testing, emerging technologies and data analytics. A similar capacity building is also required for the service providers' side, involving the caseworkers, supervisors, managers, and other staff associated with the E-Services to enhance their digital skills, change management and operational excellence. In addition, due to low digital literacy in the country, there is a need to roll out intensive digital literacy support programs nationwide.

Box 11: Rwanda Capacity Building Program

Rwanda's Ministry of Innovation and ICT has entered into an agreement with International Computer Driving License (ICDL) to train 85,000 government officers. The ICDL programme defines the skills and competencies necessary to use a computer and common computer applications. It offers different modules including Computer Essentials, Word Processing and IT Security. So far 146 officers have completed ICDL training. Rwanda government has also partnered with different development partners to provide training to public sector employees such as Korea International Cooperation Agency and Japan International Cooperation Agency and GIZ for training institutions providing digital skills for PwDs.

5.5.2 Extend service points to reach citizens

MInT should conduct an impact assessment and state of operation of the community service centers previously launched under the Ministry of Communications and Technology. Further, the ministry should explore leveraging existing public service centers such as digital transformation centers, post offices, libraries, and schools to provide convenient access to services by citizens.

Box 12: India Community Service Centers

Led by India's Ministry of Electronics and IT, Common Service Centres (CSCs) is a flagship project under Digital India. CSCs are a self-sustainable model run by Village Level Entrepreneurs. These centres provide easy access points for delivery of various digital services to rural and urban people, thereby contributing to a digitally and financially inclusive society. In rural India, CSCs also serve as centres for promoting rural entrepreneurship, building rural capacities and livelihoods. The CSCs offer web-enabled e-governance services in rural areas, including applications for Passport, Pancard, Voter ID, Ration Card etc, various Government certificates, and utility payments. In 2022, there were 463,705 functional CSCs across the country, with an average of 4 service agents

5.5.3 Implement a comprehensive Change Management Plan

The E-Services program needs to develop a comprehensive change management plan, which can be used to help providers and customers migrate from manual legacy processes to digital platforms. The change management plan needs to provide guidance to drive organizational culture and people's behavioral and attitudinal changes of internal employees and external customers. In addition, there should be a documented plan to digitally launch a service, including a pilot launch, a timeframe to run the manual legacy processes and digital service in parallel, and a cutover timeline for the manual processes.

5.5.4 Development of a detailed Communications Plan

A comprehensive internal and external communication plan must be devised to promote the E-Services program. The eServices Team and ministerial Public Relations Officers should lead the mass awareness campaigns. This could be through above-the-line (ATL) untargeted campaigns to raise brand awareness through television, radio, and print media, along with Below-The-Line (BTL) activities towards targeted segments of society through billboards, flyers and digital marketing channels.

5.6 Monitoring and Impact

5.6.1 Adopt and implement a robust Monitoring and Evaluation framework

MInT should develop a real-time reporting mechanism, including data dashboards and the ability to run ad-hoc reports. Also, an M&E framework should be designed to assess the E-Services program's efficiency, impact, relevance, and sustainability. M&E will not only help in increasing the service levels but also produce enhanced accountability and transparency.

5.6.2 Service Level Agreements

The ministry should develop measurable indicators and targets to monitor the SLA/ contract with the contracted service provider(s) supporting e-service deployment. The contract should clearly define the roles and responsibilities of both parties. This should be accompanied by regular reporting and performance reviews. The Service Charter per government ministry/agency should be reviewed to align with delivering services in a digital environment and ensure the public service is held accountable for providing services timely and adhering to high service standards.

Box 13: Irembo partnership

In 2015, the Rwandan government entered a 25-year contract with Rwanda Online, a local private technology company through a Public Private Partnership (PPP). To design and operate Irembo ,a one stop portal for e-government services that has a payment engine to enable citizens to pay for services digitally where Irembo charges a commission on every successful paid application. The contract agreement stipulates Rwanda Online's commission is only earned for services utilized by citizens, creating a natural incentive for them to prioritize designing and developing services that are demand-driven, customer-centric, and seamless. This PPP model has been praised for being sustainable, productive, reducing the administrative costs and expenditure of ICT projects, and also in helping monitor service quality and delivery.

5.6.3 Conduct e-services impact assessment from customers' perspective

A detailed customer survey should be undertaken to determine clients' (i.e., citizens, businesses, and government service providers) e-services experience. The survey will help MInT to understand the customers' perceptions of the E-Services portal and areas of intervention. Furthermore, the survey should be conducted from a customer-centricity and usability point of view.

6. International Best Practices

6.1 Denmark

Denmark has been at the forefront of eGovernment development and implementation for the last couple of decades. As a result, Denmark is now considered the most digitized country in the world and has remained in the top spot of the EGDI ranking for the last three publications. Denmark has taken several initiatives over the years to push towards the deployment of eGovernment, including:

6.1.1 Legislation

In 2011, the Danish government introduced and passed legislation that made digital self-service mandatory in 89 key service areas. As a result, all the self-service solutions were made available on the national citizen's portal, including services from the central government and provincial and local municipalities. These included applications for health cards, maternity allowance, housing allowance, old age pensions, booking of campsites etc.

6.1.2 Platform Flexibility

The local authorities developed and provided different eGovernment solutions but integrated with a user-friendly common national citizens' portal. The respective government or local municipalities are responsible for delivering the services. However, they were free to implement and decide on the self-service solution. Furthermore, the possibility of locating all the government services in one place made it easier for the citizen to interact with the government.

6.1.3 Communications Strategy

To ensure that no one is left behind, the Danish government launched a massive campaign and outreach programme to groups with difficulties using digital communications. In addition, they entered a dialogue with several special interest groups, including elderly organizations, disability networks, organizations working with immigrants and social housing groups to educate the masses on digital transformation and digital journey. As a result, by the end of 2015, almost 80% of the interactions with the government were through digital self-service channels.

A Model for Ethiopia

- Denmark is a prime example of leading eGovernment implementation from the front by legislating digital channels as mandatory. However, Ethiopia currently lacks the necessary regulation to mandate the implementation of E-Services across all the government ministries and departments. There is also a need for executive ownership towards the E-Services strategy from the very top of the Government so that provision of E-Services could be made mandatory for critical and impactful services.
- During its early days towards implementing eGovernment services, Denmark realized that each government department has unique requirements that cannot be fulfilled through a single platform. As a result, they promoted government departments to have their backend solutions; however, they were required to connect to a single frontend interface. As a result, it could provide one window solution for the public, while backend processes were handled by the government departments individually. This could be a solution that Ethiopia can explore, given the silo portal deployments across the government.
- Denmark realizing that a large population might not be digitally literate, started multiple outreach programs to include them digitally. Similarly, Ethiopia needs a comprehensive communication strategy and digital literacy programme to create mass awareness about E-Services and build people's capacity for using the digital platform.

6.2 Republic of Korea

The Republic of Korea (South Korea) started its eGovernment journey in 2001 by building a government-wide infrastructure. The core motto behind the success of their eGovernment has been to improve the government's efficiency and provide a hassle-free citizens experience. As a result, South Korea was ranked third in the EGDI survey (2022) and first in the OECD Digital Government Index (2019). The success of eGovernment has led to enhanced efficiency of public administration by digitizing government processes and securing government resources by integrating government-wide information systems.

6.2.1 Governance and Strategy

The government formed the Government Reforms Committee, which reports directly to the President. The Committee played the vital role of control and evaluation team by managing other departments, local government, and public offices. The technical and project support teams subsequently came under the umbrella of the Government Reform Committee. The South Korean government undertook multiple strategies and implemented them over time. The critical element remained the dedicated ownership and stability of the eGovernment initiative, even though the leadership changed numerous times along the road. The successive governments continued to allocate funding to ensure the continuity of the government's massive digital transformation.

6.2.2 Data Sharing and Interoperability

Korea has built a hyper-connected digital society, leveraging emerging technologies, like cloud computing, big data, Internet of Things (IoT), and smartphone applications, to pave the way for the future of digital eGovernment. In the next generation of eGovernment services, Korea plans to launch intelligent virtual assistant public services, cloud-based data-centric shared applications for public use, design platforms for digital inclusion, and revamp legal frameworks in lieu of algorithmic transparency, including digital ethics and rights. In addition, the government has fostered inter-agency data sharing across government departments to facilitate problem-solving and policy alignment for new and existing eGovernment services. As a result, this has allowed the government to improve the quality of services, maximize transparency, minimize corruption, strengthen public administration, and improve future policies based on data.

6.2.3 Cloud Policy

The South Korean government started working on cloud policy in 2015 and has since released a cloud computing development plan every three (3) years. According to the current '3rd Basic Plan for Cloud Computing Development (2022~2024)', the government intends to entirely switch the policy from the existing 'Cloud First' to 'Private (Public) Cloud First'.

A Model for Ethiopia

- Korea's success story in eGovernment is due to dedicated ownership and oversight by the top political leadership towards implementing eGovernment services.
- The Republic of Korea, realizing the importance of data, has released several policies, including establishing an Open Government Data Portal, which provides a single access point to open data from the Korean government. The portal has over 3000 datasets available, which are available via open API. MInT needs to gradually migrate towards implementing a National Data Set and National Metadata Repository so that the providers' decision-making can be streamlined and transparent.

- The Republic of Korea made a unique strategic move and migrated towards a public cloud-first strategy. PaaS-TA provided the government with numerous benefits, including the ability to scale up or down the capacity to meet the changing needs of e-government agencies, resulting in cost and resource savings.

6.3 South Africa

South Africa started working on eGovernment implementation in 2002, with the introduction of the South Africa Online Gateway to facilitate access to information about services provided by the government. In addition, a detailed eGovernment strategy was introduced in 2013 as part of the National Development Plan 2030. The strategy aims to digitize government services to create an inclusive digital society. In the latest EGDI report, South Africa ranked at the 65th position worldwide; however, it scored the highest EGDI score across the African continent.

6.3.1 Government Online Portal

The South African government has deployed a single point of access Government Online (GOL) portal, which provides citizens access to a wide range of government services and information. Around 150 government services have been consolidated under the national e-government portal to simplify and streamline the flow of information and ensure easy access for users. GOL aims to increase efficacy and cost-effectiveness, sustainable economic growth and foster inclusive innovation.

6.3.2 Government Cloud Computing Policy

The South African government developed a data and cloud computing policy as part of its broader e-Government initiative. The policy mandates the adoption of the cloud-first policy and public offices to use public cloud services for digital offerings. Strong emphasis was made on data sovereignty for data to be stored within the country and be subject to South African laws. A national cloud platform was developed as part of the policy implementation. State Information Technology Agency (SITA) was mandated to serve as the National Cloud Service Provider for the South African government to create and operate a secure and common Cloud service that consolidates government department systems and acts as a mediator for existing Cloud providers.

6.3.3 Open Data Policy

The South African Open Data Initiative (SAODI) is a government program that makes government data accessible to citizens, businesses, and researchers. The initiative promotes transparency, accountability, and innovation by making government data available in a machine-readable format for unrestricted use. It is also part of the government's broader e-government strategy, which aims to improve the delivery of government services using digital technologies. A centralized data portal, the Open Data Portal, has been developed to access a wide range of government data.

A Model for Ethiopia

- The eGovernment strategy played a vital role in implementing and using digital government services in South Africa. The strategy aimed to improve the transparency and accountability of government services and increase citizen engagement and participation in government decision-making.
- South Africa launched the open data policy, which included provisions for releasing government data in machine-readable formats and established a central open data portal for accessing government data. Additionally, the policy promotes open data for innovation and economic growth and encourages the development of public-private partnerships to use open data.

Annex I – Service Providers' Evaluation

1. Accounting and Audit Board of Ethiopia

The Accounting and Auditing Board of Ethiopia (AABE) is a statutory body established to promote and protect the professional independence of accountants and auditors. It is one of three (3) providers who have mostly stopped manual requests and processed requests through the E-Services portal only.

1.1 Types of service

AAEB provides G2B services to customers. It has four (4) services available on the E-Services portal, while only one service is entertained offline due to a high number of documents to be submitted by the customer. AABE was onboarded to the E-Services portal five (5) years ago. Over time, the management stopped customer walk-in requests and mainly migrated to the E-Services portal.

1.2 Key Findings

- Five (5) case workers and two (2) supervisors/directors manage all the requests coming through the portal.
- No business process reengineering was conducted during migration to the E-Services portal.
- Staff training was provided by the vendor (Perago). In case of attrition or transfer of an office resource, the new employee is initially trained by the AABE's IT team and then assigned with other caseworkers for on job training.
- Each caseworker has a dedicated computer.
- The office has a 70Mbps internet connection.
- The building is self-sufficient and has back power generators in case of power outages.

2. Public Servants Social Security Agency

The Public Servants Social Security Agency collects public servants' pension contributions and administers public servants' pension funds. Moreover, the agency determines the adequacy and validity of evidentiary data submitted in connection with claims to public servants' pension entitlements, its types and amounts of benefits.

2.1 Types of service

The agency provides G2G services to register eligible public employees in pension plans through the E-Services portal. It has five (5) services available on the portal. Agency's G2C services for individual customers (i.e., the government's current employees and pensioners) are handled through manual legacy processes.

2.2 Key Findings

- The agency has offices in Federal and ten (10) regions, operating 62 branch offices.
- The agency has its backend legacy system, which tracks all the pensioners' data. However, the requests received through the E-Services portal are manually input into the internal system, as there is no automated integration between the two platforms.

- Government institutions usually send bulk files through the E-Services portal; however, very often, complete files are not received at the agency, which delays onboarding new public servants. This is an issue the agency has been facing regularly and has raised it with MInT and Perago on multiple occasions.
- The agency faces user experience issues regularly and believes that the front end of the E-Services portal is complicated and can be improved and made user-friendly. It also experiences server and platform glitches, especially with bulk files.
- It is a common practice that after going through the workflow of a particular request, the data is not saved, and the case worker has to redo all the processing again.
- All the caseworkers and supervisors in the federal offices have dedicated computers; however, they are outdated.
- The Federal office has a WoredaNet connection and a private 100 Mbps connection. In the regions, however, only WoredaNet is available, leading to significant connectivity issues, electricity outages, and overall minimum digital literacy.
- No business process reengineering was conducted during migration to the eService portal. Hence, the agency has, over time, identified workflow issues and fixed them internally.

3. Ministry of Transport and Logistics

The Ministry of Transport and Logistics was established to promote Ethiopia's efficient, adequate, economic and equitable transport system. Its mandate is to ensure the safety of public transport services and promotion of domestic and international transport networks.

3.1 Types of service

Federal Transport Authority (FTA) used to offer G2C and G2B services through the E-Services portal, which was recently merged with the Ministry of Transport and Logistics. At one point, 26 services related to transport and logistics were available on the portal; however, currently, only 16 are active.

3.2 Key Findings

- The Ministry provides services related to freight transport, public transport, and private vehicles.
- The Ministry has been using the E-Services portal as a frontend customer interaction channel while running its own backend legacy ERP system, which records all the licenses and permits information.
- Multiple efforts were made to integrate the E-Services portal with the backend ERP system; however, the efforts remained unsuccessful. As a result, the Ministry case workers had to manually input all the data from the E-Services portal into the backend ERP system.
- To remove manual intervention, the Ministry and the Ethiopian AI Institute (AIC) collaborated to develop an Integrated Transport Management System (ITMS). This end-to-end digital platform included frontend and backend functionalities. As a result, the Ministry has migrated its services from the E-Services portal to the ITMS.
- The Ministry had previously struggled with digitization efforts due to an internal pushback who preferred face-to-face customer interaction. With ITMS, the top management wanted to push

digital channels to eliminate manual processes to bring transparency. Management addressed employees' concerns through change management activities and eliminated manual walk-ins.

4. Ethiopian Construction Authority

The Ethiopian Construction Authority (ECA) was established to promote infrastructural expansion missions crucial in nurturing the country's social and economic development.

4.1 Types of service

ECA migrated to the E-Services portal in 2020. ECA currently offers 35 G2C and G2B services on the E-Services platform. However, only 29 are active. In addition, ECA is one of three providers who have made initiating all requests through the E-Services portal compulsory. As a result, customers have to lodge their requests online before visiting the ECA office.

4.2 Key Findings

- There are 18 caseworkers in 4 departments who process customers' requests. On average, ECA receives around 3500 requests monthly, one of the highest among all providers.
- As ECA issues infrastructure permits and licenses, they need to retain historical data. ECA still stores old files (before E-Services migration) in the filing cabinet to maintain old records, as these are legal documents. However, the server crash in early 2022 and subsequent data loss raised a significant trust issue towards the E-Services portal's credibility and data storage abilities.
- At the time of migration to the E-Services portal, no major business process reengineering was conducted; hence almost the manual processes were replicated on the portal.
- Being a regulatory body, it is prevalent for Supervisors and Experts to identify an issue in a request and send it back to the caseworker to fix it. However, the E-Services portal has complicated this issue, and now whenever a request is sent back to the casework, they have to start the work from scratch instead of fixing the mistake. The below process flow diagram depicts an overall process flow of a service request within the ECA.

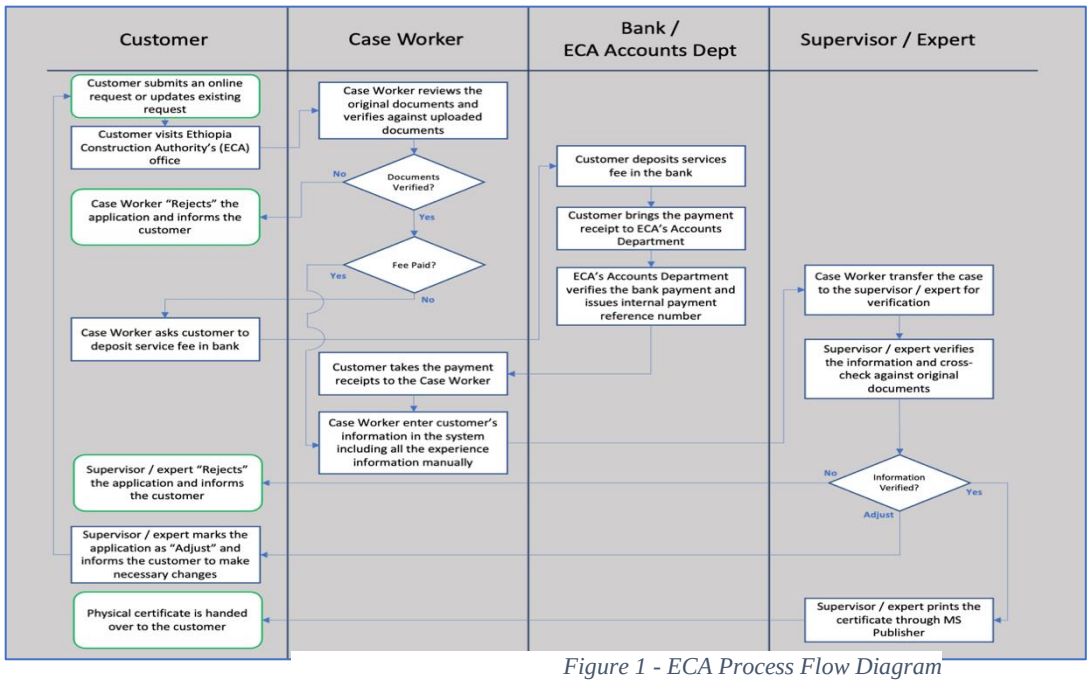


Figure 1 - ECA Process Flow Diagram

5. Ministry of Foreign Affairs

The Ministry of Foreign Affairs (MoFA) is responsible for building strong relationships with the diaspora, enhancing foreign resource mobilization through business flow, enhancing bilateral relations with the international community, and providing several services to Ethiopia's foreign missions and diplomatic communities.

5.1 Types of service

MoFA offers thirty-five (35) G2G services digitally on the E-Services portal. The services are mainly related to the issuance/renewal of Diplomatic ID Cards and issuing various Privilege Letters (i.e., duty-free car permits etc.) to the diplomatic community and embassies. MoFA migrated to the E-Services portal in 2019.

5.2 Key Findings

- Fourteen (14) caseworkers have been assigned to process the applications, each with a dedicated computer. The computers, however, are outdated and need to be replaced.
- MoFA also retains data of all the IDs and privilege letters being issued to various diplomatic missions in manual form as a backup.
- On average, it takes around four days (4) to issue an ID card, while issuing a Privilege letter takes much longer as multiple stakeholders are involved in the approval process. In addition, there is no gauging mechanism within the E-Services portal to track service levels. Therefore, MoFA informs the service levels of the diplomatic missions through in-person meetings.
- Top management buy-in and the Covid-19 pandemic immensely helped to adopt the platform.
- At the time of migration to E-Services, no business process reengineering was conducted; as a result, MoFA faces issues related to workflows from time to time. A few MoFA services are still being manually processed; however, these services are rarely requested.

- MoFA believes that E-Services has simplified the way of working and increased the ease of doing business.

6. Petroleum and Energy Authority

The Petroleum and Energy Authority (PEA) is a regulatory authority which issues competency certificates and licenses.

6.1 Types of service

The authority was onboarded on the E-Services platform five (5) months ago. The authority offers 46 services, with 24 G2B and G2C services onboarded on the E-Services portal.

6.2 Key Findings

- PEA has not completely migrated to the digital channels and is still running in trial/pilot phase mode. Although the authority has made its services available on the E-Services portal, it has yet to process requests digitally. The authority believes that it does not receive online requests due to the nature of its business.
- The vendor did not conduct business process reengineering; the new workflows were created based on existing processes.
- The authority believes integrating the E-Services portal with other government institutions, like Ethiopian Electric Utility, Ethiopian Investment Commission, Ministry of Trade, and banks, will significantly simplify their processes and help reduce turnaround times.

7. Authority for Civil Society Organization

The Authority for Civil Society Organization (ACSO) is a national body that oversees civil society organizations and their activities. ACSO ensures that the organizations carry out their activities according to their registered objectives and have internal governance systems that provide transparency, accountability, and participation.

7.1 Types of service

ACSO currently provides 72 services, of which 52 are digitized and available on the E-Services portal. ACSO intends to onboard the remaining services by the end of the year. These services cater to G2B and G2C services. ACSO services went live on the E-Services portal in Feb 2022.

7.2 Key Findings

- Two (2) departments mainly receive and process service requests, i.e., Registration and Monitoring. There are two team leaders and 18 experts who process the requests received through the E-Services portal.
- During the E-Services migration, the vendor did not conduct business process reengineering; however, ACSO has subsequently modified the workflow and removed redundant processes.
- The management has ownership of the digitization project and has worked actively to simplify the processes. They have also worked closely with the staff to promote digitization efforts and provided the necessary training to advance the swift adoption of digital channels.

- Although service requests are received digitally, ACSO's backend operations are manual and paper-based. However, ACSO has developed an internal digital transformation strategy and is actively working to implement it.
- ACSO is developing an in-house digital file management system called NextCloud; however, no integration between the E-Services portal and NextCloud has occurred.
- The communication department is responsible for the E-Services portal uptake. They have set up a dedicated committee to resolve issues related to the portal.
- ACSO charges Birr 10 for all its services, and the customer must pay at the final leg of the service request to receive the requested document. In addition, ACSO plans to integrate with Mastercard's Payment Gateway Services (MPGS) to digitize their payment collection.
- ACSO has dedicated computers, internet connectivity and backup power generators. However, there is a shortage of printers for printing licences and permits.
- The availability of reporting dashboard is critical for the organization. The currently available data includes testing data and does not segregate between pending and processed service requests. There is a need to introduce weekly and monthly trend reports filtered by request types, caseworkers, and other filters available on the portal.

8. Ministry of Industry

The Ministry of Industry (MoI) formulate policies, strategies, programs, and legal frameworks that ensure the development and competitiveness of the industry. MoI mostly gets service requests to issue competency certificates and business support letters.

8.1 Types of service

The Ministry is undergoing internal restructuring and currently offers 25 services in total. 15 G2B services have been onboarded on the E-Services portal. There are 12 caseworkers and four (4) supervisors dedicated to handling service requests.

8.2 Key Findings

- MoI was onboarded on the E-Services portal five (5) months ago.
- The Ministry is currently at a transition stage with a team of three dedicated employees. In addition, they have set up a dedicated team to help train the customers to use the E-Services portal.
- MoI has to work with other Government agencies, like Ethiopian Revenue & Customs Authority and Ethiopian Investment Commission; however, the E-Services portal does not support integration with other Government institutions.
- Historical data is critical as they need to track all certificates and letters the ministry has issued. The availability of data reporting and a dashboard will help support better organizational management.

Annex II – Service Requests' Trend (Jan 2021 to Jul 2022)

Service Provider	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Ethiopian Construction Authority	2021 - Jan to Dec	3258	3147	3067	2307	1498	1732	2156	4133	3786	5197	1212	588	32081
	2022 - Jan to Jul	3288	3745	3399	1999	1802	1574	2638						18445
Public Servants Social Security Agency	2021 - Jan to Dec	1118	1814	2274	2170	3487	2518	2240	3588	3640	3099	626	209	26783
	2022 - Jan to Jul	2376	3953	3424	1608	1527	2837	3036						18761
Ministry Of Foreign Affairs	2021 - Jan to Dec	619	663	695	654	576	762	620	1060	1324	1061	286	160	8480
	2022 - Jan to Jul	876	1245	1339	955	1327	1588	1478						8808
Ministry of Transport and Logistics	2021 - Jan to Dec	906	842	634	446	492	599	300	430	1034	1005	150	25	6863
	2022 - Jan to Jul	234	160	189	89	132	189	81						1074
Ministry of Labor and Social Affairs (splits to Ministry of Labor and Skill and Ministry of Women and Social Affairs)	2021 - Jan to Dec	4	14	264	71	309	783	600	876	935	843	153	52	4904
	2022 - Jan to Jul	498	612	801	571	605	600	572						4259
Ethiopian Coffee and Tea Authority	2021 - Jan to Dec											5	1	6
	2022 - Jan to Jul	49	290	1938	635	651	636	382						4581
F.D.R.E AUTHORITY FOR CIVIL SOCIETY ORGANIZATIONS	2021 - Jan to Dec										5	1		6
	2022 - Jan to Jul	71	131	164	534	990	923	897						3710
Accounting and Auditing Board of Ethiopia	2021 - Jan to Dec	400	84	50	29	32	38	79	92	63	35	8	51	961
	2022 - Jan to Jul	697	470	96	35	37	36	42						1413
Ethiopian Investment Commission	2021 - Jan to Dec													
	2022 - Jan to Jul		95	362	266	198	310	242						1473
Ethiopian Diaspora Service	2021 - Jan to Dec													
	2022 - Jan to Jul	6	57	1	172	189	313	276						1014
Ethiopian Environmental Protection Authority	2021 - Jan to Dec						8	4	10	10	3	1	38	74
	2022 - Jan to Jul	26	104	170	136	191	180	138						945

Service Provider	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Ministry of Innovation and Technology	2021 - Jan to Dec	79	79	96	67	67	72	45	43	49	65	11	6	679
	2022 - Jan to Jul	39	17	14	10	15	22	18						135
Ministry of Culture and Tourism	2021 - Jan to Dec	44	48	71	66	72	108	73	68	56	57	3	5	671
	2022 - Jan to Jul	4	3	1	3	2	2	1						16
Ministry of Peace	2021 - Jan to Dec	57	34	44	42	44	71	51	70	61	54	2	16	546
	2022 - Jan to Jul	46	43	84	79	44	95	70						461
Ministry of Communications and Information Technology (splits to Ministry of Innovation and Technology and Ethiopian Communication Authority)	2021 - Jan to Dec	38	30	61	61	28	42	45	92	45	73	21	5	541
	2022 - Jan to Jul	38	42	59	26	25	24	34						248
Ethiopian Media Authority	2021 - Jan to Dec							7	30	30	19	9	5	100
	2022 - Jan to Jul	17	27	26	22	36	18	47						193
Federal Attorney General	2021 - Jan to Dec					33	27		2					62
	2022 - Jan to Jul				1			2						3
Federal Civil Service Commission.	2021 - Jan to Dec	6	3					1	3	2				15
	2022 - Jan to Jul	2			1									3
Ethiopian Management Institute	2021 - Jan to Dec	5		2	2		2	2						13
	2022 - Jan to Jul		1			1	2							4
Trade Competition and Consumers Protection Authority (merged with Ministry of Trade and Regional Integration)	2021 - Jan to Dec				5	21	10	5	5	8	3			57
	2022 - Jan to Jul	1			2	1								4
Petroleum and Energy Authority	2021 - Jan to Dec													
	2022 - Jan to Jul			33	8	13	19	2						75
Ministry of Finance	2021 - Jan to Dec													
	2022 - Jan to Jul			1	3	6	2	3						15