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STUDY

Kenya Digital Readiness

A journey towards human-centred digitalisation

By e-Governance Academy

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Glossary

Abbreviations

3G/4G/5G	Third/fourth/fifth generation of wireless mobile telecommunications technology
API	Application Programming Interface - a software intermediary that allows two applications to talk to each other
CERT	Computer Emergency Response Team
CIRT	Cyber Incident Response Team
COVID-19	Novel Coronavirus (2019-nCoV)
GDP	Gross domestic product
GoK	Government of Kenya
eGA	e-Governance Academy Foundation
eID	Electronic Identification
EU	European Union
GIZ	German Agency for International Cooperation
ICTA	ICT Authority
ICTs	Information and Communication Technologies
IT	Information Technology
MDA	Ministries, Departments, Agencies
MoICTYA	Ministry of ICT, Innovation, and Youth Affairs
NGO	Non-governmental organisation
NIIMS	National Integrated Identity Management System
OGP	Open Government Partnership
PPP	Public-private partnership
RTI	Right to Information Act
SDG	Sustainable Development Goals
SMEs	Small and Medium-sized Enterprises

Terms

application	software that is dependent on the services of an operating system
Certification Authority	a trusted entity that manages and issues digital certificates and public keys that are used for secure communication in a public network
cybersecurity	(a) the security of cyber devices and (b) security against threats created through the operation of cyber devices. Security usually means a situation where risks are not materialised
data	reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

data exchange	Data exchange storing, accessing, transferring, and archiving of data
digital identity	a set of data and software, protected with cryptographic means
digital signature	signature based upon cryptographic methods of originator authentication, computed by using a set of rules and a set of parameters such that the identity of the signer and the integrity of the data can be verified
e-governance	electronic governance, the application of information and communication technology (ICT) for delivering government services, exchange of information, communication transactions, integration of various stand-alone systems and services between government-to-customer (G2C), government-to-business (G2B), government-to-government (G2G) as well as back-office processes and interactions within the entire government framework
e-government	using the tools and systems made possible by information and communication technologies (ICTs) to provide better public services to citizens and businesses
e-services	library services delivered via electronic means, whether from local servers or provided via networks
encryption	process of encoding messages (or information) in such a way that only authorized parties can read it
interoperability	ability of two or more systems or components to exchange information and to use the information that has been exchanged
open data	data that can be freely used, re-used and redistributed by anyone without restrictions from copyright, patents or other mechanisms of control
personal identity number	numeric code used to authenticate an identity
Public Key Infrastructure	a set of roles, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital certificates and manage public-key encryption

Executive Summary

The Republic of Kenya is considered a leader in digitalization in Eastern Africa, often referred to as the Silicon Savannah. Building on its good connectivity, a hugely successful mobile money service, and a wide range of electronic services available to the public, Kenya has taken the next step to envisage digital transformation for the next ten years.

The recently launched National Digital Master Plan for 2022-2032 covers twenty flagship programmes, which strive for better connectivity at the local level, digitization of government records and automation of all Government systems to maximize the benefits of interoperable government services, products and data management. It also envisages training and capacity building for 20 million citizens, 350,000 teachers, and 300,000 civil servants on digital skills. All in all, it is seen as a key enabler towards achieving the ambitious of the Vision 2030 and the Big Four Agenda.

The new National Digital Master Plan is very comprehensive and sets clear objectives to be achieved. However, the question remains on how to build an ecosystem that effectively supports the implementation of the Master plan in terms of organizational aspects, digital skills, financing, legal framework, digital infrastructure and other aspects.

The aim of the current study was to review the current status of digital governance in Kenya and to provide ideas for better supporting the key areas related to the achievement of strategic objectives. The report is based on desk research and interviews conducted with more than a dozen Kenyan stakeholders from the public sector, business sector, academia, and civil society organizations.

The main recommendations for further activities include:

- **Improved strategic and operational coordination**, which includes developing short term implementation plans for the strategic documents, establishing a high-level digital council to mainstream the national digital agenda across sectors, creation of the Government CIO position, conducting a comprehensive legal review, and placing a strong emphasis on strategic digital governance communication
- **Establishment of interoperability**, which starts from developing an up-to-date inventory of information assets and services as well as agreeing on principles of data governance, and culminates with the mandatory implementation of a data exchange layer to ensure seamless data exchange between registers and information systems.
- **Digital identity and digital signatures** should be considered as core components of public service development and can be further supported by the creation of a national authentication system in a manner that is inclusive and respects rights.
- **Digital skills form a cornerstone of any digitalization.** A digital competency model would help to better manage the ever-chancing digital competences needed in the public sector, but equal attention should be turned to increasing the level of digital skills of the general public.

- **E-participation and inclusion** have proved to be a pitfall in the past. Clear engagement guidelines should be developed by a responsible public organization to involve all relevant actors in the digitalization discussion and implementation. To make sure that everybody benefits from digitalization, the government must lead in an open and inclusive manner.
- **Global best practices** can not only help lead the way but deal with implementation. There is a lot of value in international cooperation – both in the region to boost digital economies through cross-border services, but also internationally, either through bilateral relations or in larger partnerships such as the Team Europe initiative.

1. Introduction

1.1. Objectives

The assessment analyses the current digital readiness of the public sector of Kenya, draws general findings and offers suggestions for further activities in 10 digital governance focus areas:

1. ICT coordination
2. Financing model
3. Legal framework
4. Interoperability
5. Digital identity and digital signatures
6. Digital skills
7. Access to services, awareness-raising
8. Telecommunications, digital infrastructure
9. E-participation, e-democracy
10. International cooperation

The Kenya Digital Readiness Study provides the country stakeholders with a good understanding of their current digital situation and the recommendations it contains can be used as guidance for the development and implementation of strategic national documents and projects on digital transformation.

1.2. Methodology

The assessment was conducted in five steps:

1. **Preliminary research**: review of existing policy documents, strategies, government political agenda, public reports, statistical sources, etc.
2. **Digital Readiness Study questionnaire**: The public authority in charge of digital issues in the country – Ministry of ICT, Innovation, and Youth Affairs – filled in a questionnaire that mapped the existing digital governance situation and stakeholders in Kenya.
3. **Preparations for online data collection interviews**: The list of stakeholders to be interviewed and the interview agenda were developed. Meetings with local digital governance officials and other key stakeholders were scheduled both as online and in-person interviews. The list of authorities to be interviewed was determined based on the questionnaire results and with input from key local partners.
4. **Interviews with key stakeholders** were conducted from April to May 2022, including during a mission to Kenya on 23-27 May 2022. The interviews provided a deeper understanding of their current state of digital development as well as their plans and challenges faced. In total, 8 online interviews and 8 in person interviews were held with representatives of relevant ministries and authorities as well as with representatives of the academia, business sector, and civil society organisations.
5. **Development of the Digital Readiness Study report**, based on the input from the desk research, questionnaires, and interviews. The report reviews the country's current state of digital readiness in the specified focus areas and provides suggestions for next steps.

1.3. Digital governance development in Kenya

The Republic of Kenya is the world's 48th largest country by land area (580,367 square kilometres) with a population of circa 47.6 million (according to the 2019 census). The country is the third-largest economy in sub-Saharan Africa after Nigeria and South Africa. Neighbouring countries are South Sudan, Ethiopia, Somalia, Uganda, Tanzania. The country has two official languages: English (widely used in commerce, education, and governmental affairs) and Swahili.

1.3.1. Political context

The first government in Kenya was formed in 1963, but Kenya only became a republic in 1964. The country is a presidential representative democracy and has a multiparty system. It is divided into 47 semi-autonomous counties which are led by governors. The 2010 constitution introduced a bicameral legislative house, devolved county government, and a constitutionally

tenured judiciary and electoral body. The first election under this new system was held in 2013.

The Government of Kenya (GoK) has three independent branches: the legislature, the executive, and the judiciary. The legislative branch encompasses the National Assembly and the Senate. The National Assembly represents the people of the constituencies, whereas the Senate represents the counties. The executive branch is tasked with enforcing the law. It consists of the 1) President (head of state and government, Commander-in-Chief), 2) the Deputy President, and 3) the rest of the Cabinet (Attorney-General, Cabinet Secretaries). The judiciary is tasked with upholding the law and consists of the judges of the superior courts, magistrates, etc.

The Democracy Index by the Economist Intelligence Unit (EIU) is an annual report that assesses the state of democracy of nearly 170 countries. Based on the score a country receives, it is either classified as a 'full democracy', 'flawed democracy', 'hybrid regime' or an 'authoritarian regime'. According to the Democracy Index (2021)[1], Kenya is ranked 94th (compared to 95th the year before) and is classified as a 'hybrid regime': elections have substantial irregularities that often prevent them from being both free and fair.

1.3.2. Economic context & business climate

Kenya is classified as a lower-middle income economy. Agriculture is – besides the service industry (especially tourism) – the biggest economic sector. Coffee and tea are the traditional cash crops. The biggest export market for Kenya is Africa, followed by the EU.

From 2015 to 2019, Kenya's economy achieved broad-based growth averaging 4.7% per year, significantly reducing poverty. In 2020, COVID-19 hit the economy, disrupting international trade and transport, tourism, and urban services activity, in particular. Fortunately, the agricultural sector remained resilient, helping to limit the contraction in GDP to only 0.3%. In 2021 a significant economic recovery has been underway, although it remains uneven across sectors. GDP growth is projected at 5.0% for 2021 and the poverty rate is projected to begin declining again after rising earlier in the pandemic.[2]

According to the latest Kenya Economic Update by the World Bank (from June 2022), Kenya managed to contain the health and economic impacts of COVID-19 waves but is now facing a potentially large economic shock from the war in Ukraine. Moreover, remote learning efforts have revealed a significant digital divide, with over 50% of students not having the means to engage in remote learning. However, the ICT sector has been constantly growing throughout the crisis (+6.3% growth rate for ICT in 2020 and +8.8% in 2021). In order to keep pace with rapid developments within the ICT sector, Kenya needs strong digital foundations, including regulations and policies that are designed to support digital transformation.

[1] Economist Intelligence (2021). Democracy Index 2021. The China challenge.
[2] The World Bank in Kenya. Overview. https://www.worldbank.org/en/country/kenya/overview#1

Kenya is a hotspot for venture capital funding, with 307 million USD raised in 2020.[3] The country is also sometimes called the "Silicon Savannah". Doing Business 2020[4] ranked Kenya 56th out of 190 countries, while starting a business ranking for Kenya is 129th and paying taxes 94th[5].

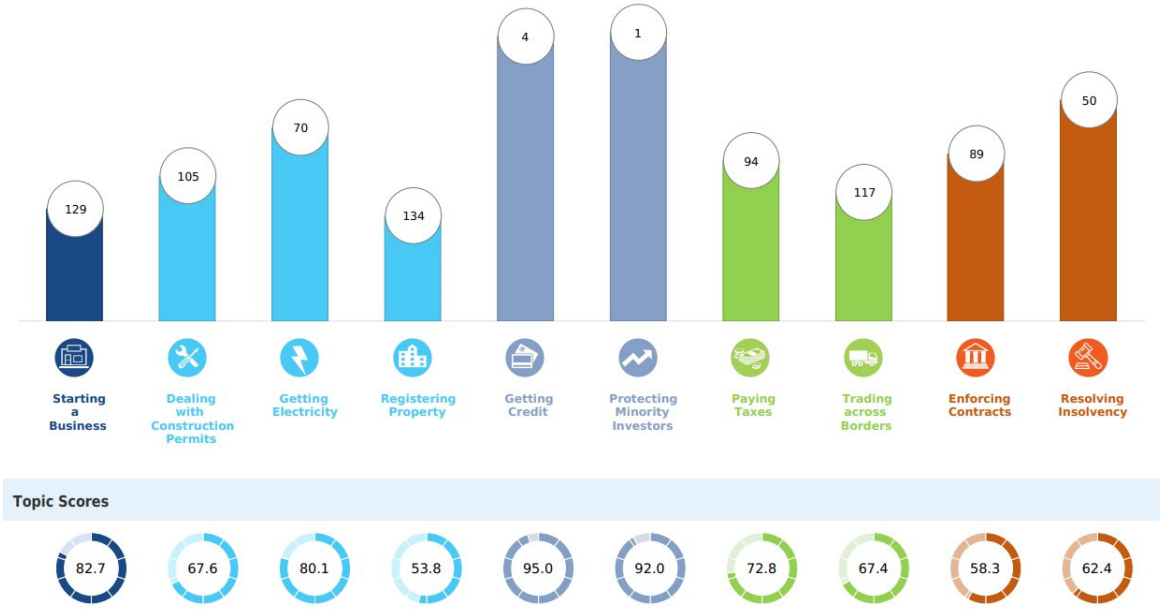

Figure 1: Kenya rankings on Doing Business topics (2020)

1.3.3. Socio-economic context

According to the 2019 census, Kenya has about 47.6 million inhabitants. However, in the meantime it has grown to about to 54.4 million (as of 2021). Some projections see Kenya surpassing 100 million people by the end of 2058[6]. The country has a diverse population: Bantus (60%), Nilotes (30%), and other smaller ethnic minorities (e.g. Arabs, Indians, Europeans). Most Kenyans are Christians (circa four-fifths of the population are protestant or catholic). Most Kenyans live in rural areas (circa 72%) and the remainder in urban ones (circa 28%).

"The proportion of the population living below the national poverty line fell from 46.8 percent in 2005/06 to 36.1 percent in 2015/16. Most of the poverty decline is attributable to progress in rural areas where poverty declined from around 50 percent in 2005/06 to 38.8 percent ten years later. (...) Of concern is the fact that the wellbeing of the population in the NEDI counties [North-North-Eastern counties] lags considerably behind the rest of Kenya. (...) Despite a drop

[3] World Economic Forum (2021). Funding for Africa's startups is at a record high - this is where it's going. https://www.weforum.org/agenda/2021/05/study-shows-virtual-capital-for-african-startups-is-steeply-increasing/
[4] The World Bank (2020). Business Enabling Environment (BEE)
[5] World Bank (2020). Doing Business 2020.
[6] World Population Review (2022). Kenya Population 2022 (Live) (accessed on 11 May 2022)

in the growth rate caused by the global COVID-19 pandemic, the international poverty headcount rate is expected to continue its decline, but only at a moderate rate to 33.1 percent in 2020 and 32.4 percent in 2021."[7]

Human Capital Index (HCI) is measured in terms of the productivity of the next generation of workers relative to the benchmark of complete education and full health. An economy in which a child born today can expect to achieve complete education and full health will score a value of 1 on the index. Kenya scored 0,55[8].

Freedom House Freedom in the World report evaluates people's access to political rights and civil liberties in 210 countries and territories. In 2022[9], it gave Kenya a total score 48 out of 100 points, including 19 points for political rights and 29 points for civil liberties.

1.3.4. Digital transformation context

In 2021, the country had 21.75 million internet users and an internet penetration rate of 40%. There were 59.6 million mobile connections in Kenya, out of which 33.1 million feature phones and 26.5 million smart phones. According to the Communications Authority of Kenya, at least 94% of the Kenyan population was covered by the 4G-network at the end of 2021.[10]

However, it should be noted that Kenya has a strong digital divide, some 44% of the urban population has access to the internet compared to only 17% in rural areas. Gaps in basic digital skills reinforce this divide. To counter this divide, GoK has implemented ICT reforms in the education system.

The country's government is supportive of digital technology, and this is reflected also in Kenya's most important development programme – **Kenya Vision 2030**. The main objective of Vision 2030 is to transform Kenya into a thriving middle-income country by 2030 and, to that end, the document sets out activities in three pillars – economic, social and political. ICT is identified as a key enabler in the achievement of economic pillars and a critical factor in driving the economic, social and political development in Kenya[11].

The government's commitments to digital solutions are also reflected in the Digital Economy Blueprint (2019), the National ICT Policy (2006 and revision of 2019) and the recently launched Kenya National Digital Master Plan 2022-2032. The **Digital Economy Blueprint** identifies five pillars as crucial for growth: digital government, digital business, infrastructure, innovation-driven entrepreneurship, and digital skills and values. The Digital Master Plan builds

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[7] World Bank (2020). Poverty & Equity Brief: Kenya.
[8] World Bank Group (2020). Human Capital Index 2020 Update: Human Capital in the Time of COVID-19 The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19
[9] Freedom House (2022). Freedom on the Net 2022
[10] Communications Authority of Kenya (2022). Second Quarter Sector Statistics Report for the Financial Year 2021/2022
[11] Kenya Vision 2030 website (accessed on 10 May 2022)

on the pillars of the Kenya Digital Economy Blueprint, and the achievements of the Kenya National ICT Master Plan 2014 – 2017.

The Digital Master Plan serves as an enabler towards the achievement of the Vision 2030 as well as the Kenya's **Big Four Agenda.** The latter focuses on Food Security, Affordable Housing, Manufacturing, and Affordable Healthcare, the competitiveness of which depends on digitization[12]. Furthermore, the Digital Master Plan is expected to lead Kenya towards obtaining the status of Silicon Savannah and to the forefront of ICT and economic development in Africa[13].

Kenya achieved numerous goals of its **National ICT Masterplan 2017**:

- Recognition as a regional ICT hub.
- ICT sector is now conceived as a standalone economic sector.
- Considerable investments were made in order to improve internet connectivity.
- Certain government services have been digitized: a gateway to Government services – eCitizen was created and 52 Huduma centres operationalized[14].
- Progress has been made towards the introduction of a unique national identification number Huduma Namba that would serve as a precondition of interoperability of state information systems and would facilitate online service provision.

The objective of the **National Digital Master Plan 2022-2032** (NDMP) is to build a robust, secure, affordable, accessible and reliable digital ecosystem which benefits the public and private sector, and improves quality of life[15]. The achievement of the objective is envisioned through five pillars: digital infrastructure; digital services and data management; digital skills; digital innovation and business; and policy, legal and regulatory framework. In addition, four foundational and cross-cutting themes have been set out: data protection and cyber security management; emerging technologies; policy, legal and regulatory framework; research and development.

[12] MoICTYA (2022). The Kenya National Digital Master Plan 2022-2032
[13] Ibid.
[14] Ibid.
[15] Ibid.

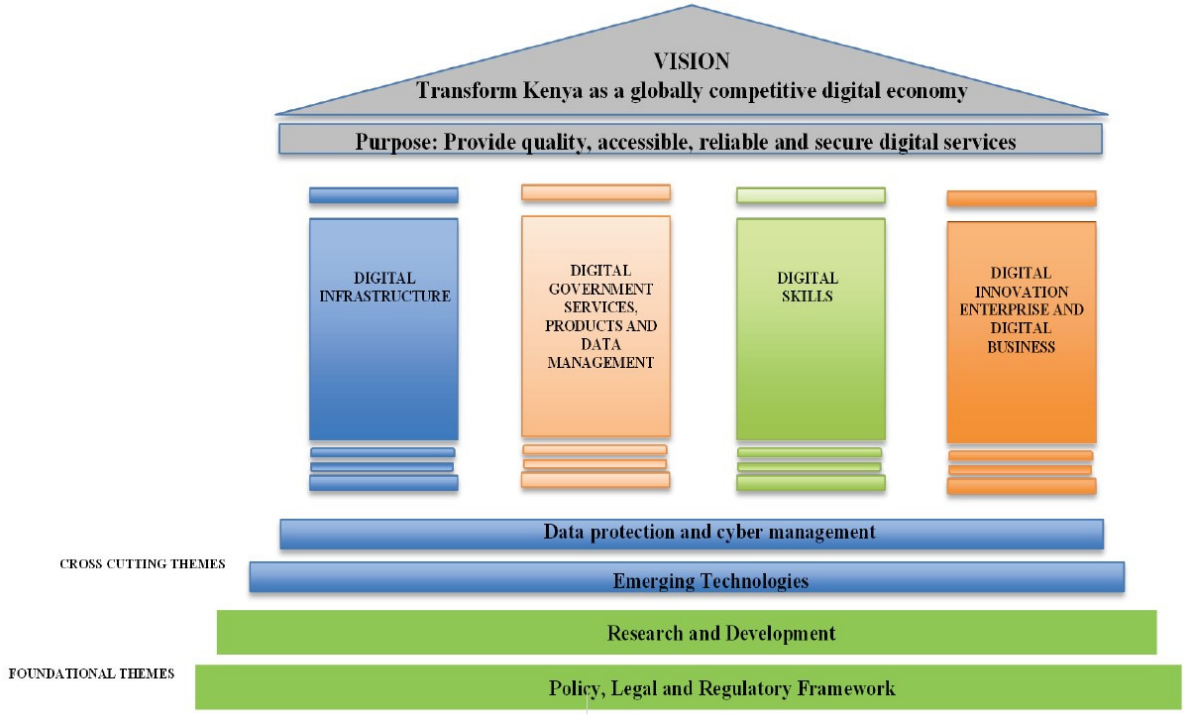


Figure 2: Conceptual model of the Digital Master Plan 2022-2032

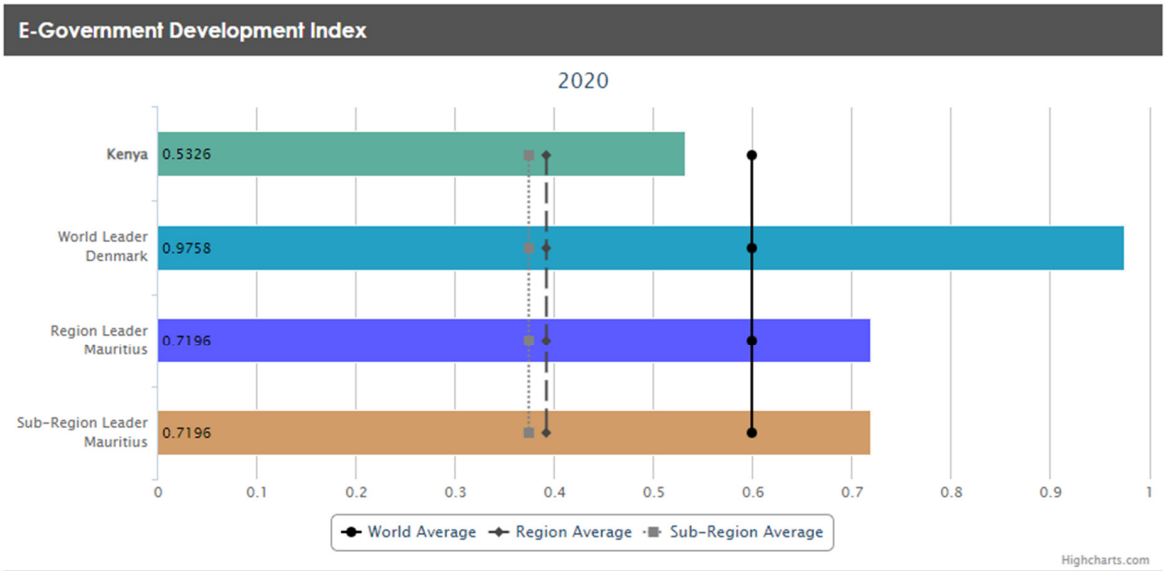
Twenty flagships projects will be launched within the NDMP, e.g. deployment of 100,000 km of national fibre optic connectivity network, digital one-stop-shop for all government services, national public key infrastructure for digital signatures, smart ID card to provide unique personal identification, digital literacy capacity building for 20 million Kenyans and establishment of 1450 digital hubs for digital literacy training[16].

The responsibility for ICT policy formulation in Kenya is vested with MoICTYA while the body in charge of ICT policy implementation, including the coordination of the implementation of the Digital Master Plan is the Kenyan ICT Authority.

1.3.5. Kenya in e-government and digital transformation indices

As illustrated in Figure 3, Kenya ranked 116th out of 193 countries in the UN E-Government Development Index 2020[17], rising 6 places following the prior survey conducted in 2018.

[16] Ministry of ICT, Innovation and Youth Affairs (2022). Kenya National Digital Master Plan 2022-2032
[17] UN E-Government Development index (2020). Kenya

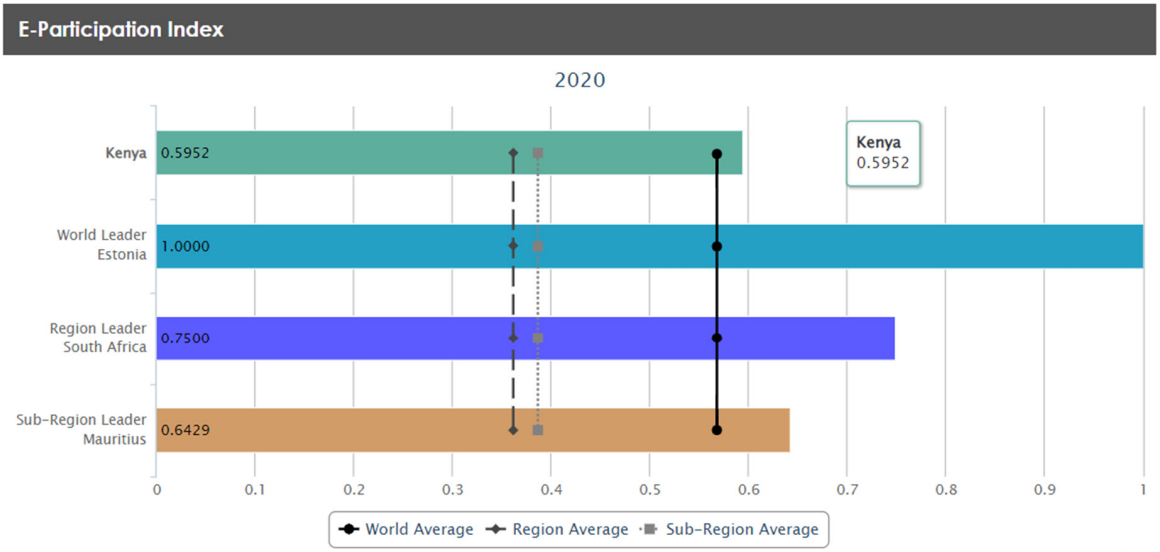


E-Government Development Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Kenya (Rank)	116	122	119	119	119	124	122	122	126	118
Kenya (Value)	0.53260	0.45410	0.41855	0.38054	0.42117	0.33384	0.34740	0.32981	0.29591	0.29924

Figure 3: Kenya in the UN E-Government Development Index (2020)

Looking at the sub-components of the UN E-Government Development index, Kenya exceeds the region and sub-region average in the Online Service Index, reaching 67.65% of the full score, whereas the world average stands at 56.2%. In 2018, Kenya scored 62.5% for the same sub-component. The Telecommunication Infrastructure Index ranked Kenya 34.02% of the full score while world's average is 54.64% and region's average is 31.35%. The Human Capital Index in 2020 was at 58.12%, which has stayed almost the same compared to 2018 (54.72%), which is under the world average (68.8%) and slightly over the region average (47.77%).

The UN E-Participation index measures the use of online services to facilitate provision of information by governments to citizens, interaction with stakeholders, and engagement in decision-making processes. In the E-Participation Index 2020, Kenya was ranked 90th in the world among 193 countries (see Figure 4). It should be noted that in 2018 Kenya was ranked 110th in the world in this index and 84th in 2016.



E-Participation Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Kenya (Rank)	90	110	84	33	124	53	135	105	75	151
Kenya (Value)	0.59520	0.53370	0.52542	0.64705	0.05260	0.22857	0.04545	0.03174	0.06557	0.00000

Figure 4: Kenya in the UN E-Participation Index (2020)

In 2021, Kenya ranked 84th out of 130 economies in the Networked Readiness Index 2021[18] (Kenya), which looks at 60 variables contributing to digital transformation. The index scores four pillars – technology, impact, people, and governance – with a maximum of 100 points each. Out of these categories, Kenya scored highest in the pillars of governance (57.25 points) and people (43.01), and lowest in the pillar of technology (38.79).

Kenya ranked 78th in the National Cyber Security Index[19] in June 2022 and 51st in the ITU Global Cybersecurity Index 2020[20].

Finally, Kenya holds the 85th position in the Global Innovation Index on ICT infrastructure[21] out of 173 countries with overperforming on innovation relative to its level of development for the 11th year in a row.

[18] Portulans Institute (2021). Network Readiness Index: Kenya
[19] National Cyber Security Index (2022). Kenya (accessed on 20 June 2022)
[20] ITU (2020). Global Cybersecurity Index 2020
[21] WIPO (2021). Global Innovation Index

2. Digital readiness analysis

This chapter provides an overview of the current digital government situation in Kenya, together with making observations on strengths and opportunities for improvement as well as proposing recommendations for future activities in 10 digital governance domains.

2.1. ICT coordination

The coordination component of digital governance includes designating an institution that will have the mandate to take decisions on e-governance for the entire administration. It is possible to have regional solutions, but in any event, coordination will be needed. This does not mean centralizing but ensuring that relevant decisions are properly coordinated. The coordinating institution is responsible for the strategic planning necessary for a state building e-governance and, more generally, an information society. The higher in the hierarchy the appointed unit is, the better the chances of directing ministries and agencies. The power and competences of the coordinating institution should be determined by legislation.

It is important to identify roles and determine responsibilities for coordination and implementation, also encouraging public-private partnership and cooperation with academic institutions.

2.1.1. Current situation in Kenya

ICT policy coordination in Kenya is rather decentralised. The body responsible for the elaboration and implementation of ICT policy is the Ministry of ICT, Innovation and Youth Affairs, in particular its State Department of ICT and Innovation. Other ministries are responsible for drafting and executing ICT strategies in their respective (ministry-specific) domains, which must be aligned with NDMP.

Counties (altogether 47 in Kenya) are also expected to follow the common ICT policy while having the freedom to develop their own internal and local IT-systems. They must draft ICT roadmaps that align with the National Digital Master Plan as well as their local county development plans.

The National Digital Master Plan is currently the most important ICT policy document in Kenya that has clear links to other policy documents aimed at improving the socio-economic situation of Kenya, such as the country's Vision 2030, Digital Economy Blueprint and the Government's Big Four agenda. Thus, the ICT coordination is primarily built around the implementation scheme for the Digital Master Plan.

The **Ministry of ICT, Innovation and Youth Affairs** has three state departments: State Department of Broadcasting and Telecommunications, State Department of ICT and Innovation and State Department for Youth Affairs. The **State Department of ICT and Innovation** that is responsible for national ICT policy and innovation; development of e-government, including public e-services; development of software industry; provision of ICT

technical support to MDAs; and the development of national communications infrastructure[22]. The State Department of Broadcasting and Telecommunication is in charge of telecommunications policy; government telecommunications services; broadcasting policy; postal services and public communications (incl. government advertising services)[23]. The State Department of Youth Affairs bears responsibility responsible for youth empowerment and mainstreaming youth in national development[24].

While MoICTYA is responsible for IT policy formulation and issuing of respective guidance, it is the **Information and Communication Technology Authority (ICTA)** that coordinates the implementation of the Kenyan Digital Master Plan. In fact, ICTA also has the right to initiate and review the NDMP.

ICTA is a State Corporation established in 2013 under the Ministry of ICT. Its mandate includes setting and enforcing ICT standards and guidelines within the Government, establishing and maintaining secure ICT infrastructure and systems, deploying and managing ICT staff in the public service, enhancing the supervision of the Government's electronic communication, as well as promoting ICT literacy, capacity, innovation and enterprise. ICTA also supervises the design, development, and implementation of critical ICT projects across the public services.

One of the most important functions of ICTA is to provide IT staff for other ministries and state agencies. A considerable part of public sector software development in Kenya is done in-house and, thus, the need for public sector IT-staff is high. In-house versus procurement-led development is favoured for varying reasons, including a high rate of disputes by bidders leading to court cases and slowing down developments, as well as necessity to implement development projects in highly sensitive thematic areas.

In terms of information security, ICTA is, first and foremost, in charge of the Government's information security. It is responsible for the elaboration of information security policy, guidelines and standards and must also oversee the enforcement of such guidelines. ICTA must ensure the Government's information security incident reporting and response system and is planning to launch a Government Computer Emergency Response Team (CERT). The agency also deals with information security awareness raising and education.

It is ICTA's task to set and enforce ICT standards and guidelines for the human resources, infrastructure, processes and technology in the public service[25]. The agency has compiled nine government ICT standards. It has been noted during the interviews, however, that without legal basis, enforcement of these standards sometimes remains weak and, thus, an ICTA Act empowering the agency in this respect is in progress of being adopted.

As mentioned above, ICTA is the primary body coordinating the implementation of the Digital Master Plan. The agency was supposed to be the main coordinating body also for the previous Master Plan 2017, but due to the delay in establishing the entity, the expected effect was not

[22] MoICTYA website https://ict.go.ke/ict-and-innovatioin/
[23] MoICTYA website: About Broadcasting and Telecommunication
[24] MoICTYA website: About Youth Affairs
[25] ICTA website: Who we are

achieved[26]. Inadequate coordination coupled with lack of implementation framework have been considered some of the main shortcomings in implementing the Master Plan 2017[27]. This critique is well in line with input eGA experts received during interviews with different stakeholders – operationalization of objectives, working in silos with limited cooperation remain major challenges in effective implementation for many. This, in turn, has admittedly led to duplication of projects with similar objectives.

Against this background, it is highly valuable that the Master Plan 2022-2032 sets out a detailed coordination model. It provides a multi-level approach with ICTA taking a central role:

- ICTA chairs the Technical Implementation Committee, which comprises technical officers from key implementing agencies,
- ICTA provides the secretariat for the two higher level committees:
    - Inter-ministerial Project Steering Committee of Principal Secretaries (non-political top-most civil servants in charge of general administration of a ministry) chaired by Principal Secretary of the MoICTYA,
    - Oversight Committee of Cabinet Secretaries (ministers) chaired by the President.
- ICTA CEO chairs the working group of County Executives for ICT*[26].*

For instance, the Huduma Namba project has an oversight committee composed of the Ministers of Agriculture, Health, and Education as well as an inter-ministerial committee of principal secretaries of the same ministries. The chair of the minister-level oversight committee is the Minister of Interior, and the deputy chair is the Minister of ICT. The principal secretaries of the same agencies and ministries form the second level of oversight, where the organizational structure is the same.

According to the NMDP, the highest in this structure is the Oversight Committee chaired by the President of Kenya. This committee brings together ministers of energy, infrastructure, trade, industrialization, security and education as well as representatives from private sector and academia. The role of the committee is to provide oversight of flagship projects, receive status reports and resolve conflicts related to flagship projects. This body is planned to be replaced by an ICT Council chaired by the President[28].

[26] Ministry of ICT, Innovation and Youth Affairs (2022). Kenya National Digital Master Plan 2022-2032
[27] Ibid.
[28] Ibid.

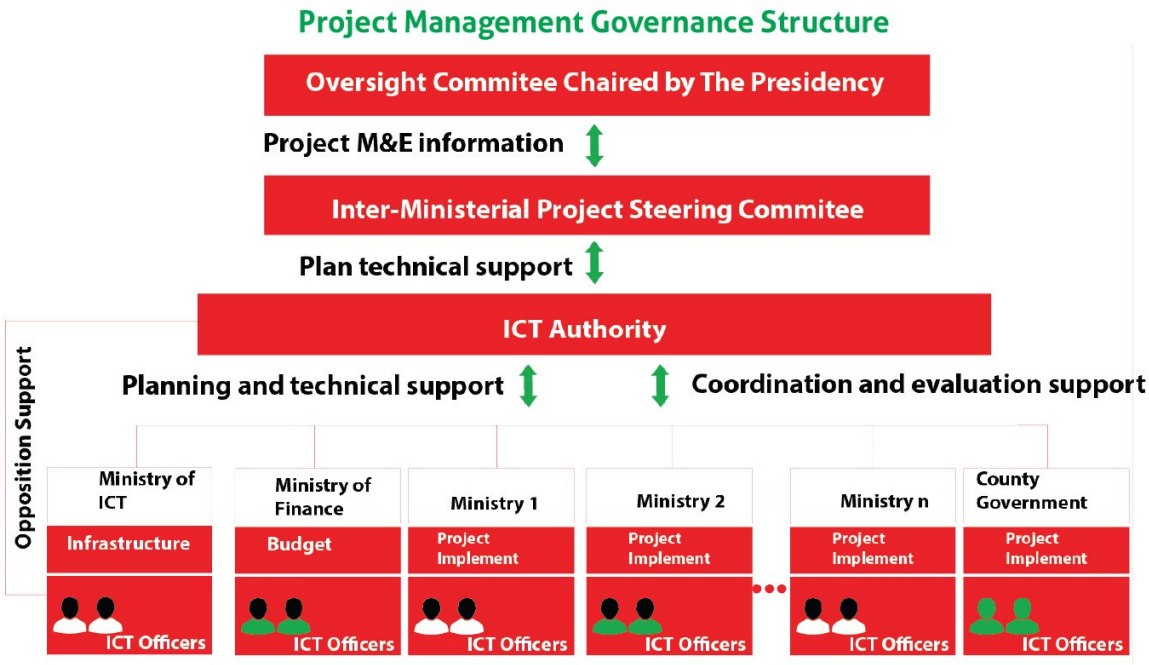


Figure 5: Project Management Governance Structure for the Kenya National Digital Master Plan 2022-2032

Other agencies relevant from the point of view of the ICT policy, include the Communications Authority and the Office of the Data Protection Commissioner.

The **Communications Authority of Kenya** (CA) is the regulatory authority for the country's communications sector[29]. The authority is responsible for broadcasting, cybersecurity, multimedia, telecommunications, electronic commerce, postal and courier services. Its tasks include licencing all systems and services in the communications industry; managing the country's frequency spectrum and numbering resources; facilitating the development of the national cyber security framework; facilitating the development of e-commerce; protecting the consumer rights; managing the universal service fund; managing competition in the communications sector; and monitoring the activities of licensees[30].

Both CA and ICTA deal with certain aspects of cyber security. Thus, it deserves to highlight that while ICTA deals with government's cybersecurity, the tasks of CA cyber security unit go beyond the government. CA also advises academia, the private sector, etc.

The **Office of the Data Protection Commissioner (ODPC)** is a relatively new agency. It was established in 2019 on the basis of the Data Protection Act[31]. The main functions of the agency are the following:

- To oversee the implementation of the Data Protection Act,

[29] Communications Authority website
[30] Communications Authority website: About us
[31] Ibid.

- Establish and maintain a register of data controllers and data processors,
- Exercise oversight on data processing operations,
- Conduct assessments to decide whether information is processed according to the Data Protection law,
- Investigate infringements of privacy rights complained by any person,
- Carry out inspections of public and private entities with a view to evaluating the processing of personal data,
- Promote international cooperation in matters relating to data protection.

As personal data is often sought and provided in Kenya, protection of one's privacy and personal data is a frequent topic in Kenya. People's awareness of data protection and cyber hygiene is low and there is a lot of distrust in the Government. Thus, high expectations are currently put on ODPC in terms of gaining citizen trust and improving citizens' data protection skills by practically all stakeholders that eGA interviewed.

Although NDMP sets out a rather detailed ICT coordination model and describes the monitoring and evaluation mechanism for the strategy, it is somewhat unclear how the policy will be implemented. One would expect that a long-term strategy extending over 10 years would be carried out through short-term implementation plans. Although the term "implementation plan" exists in the document, details about when, how and by whom this document will be drafted remain obscure. A need for such document ensuring "better operationalization" of ideas and objectives set out in the agenda is strongly expected, as echoed during different eGA interviews by different stakeholders.

2.1.2. Summary of findings

Key strengths	**Opportunities for improvement**
A clear vision and ambitious objectives for Kenya's digital transformation are in place in the form of the Digital Master Plan	Significant attention to be put on the operationalization of the ambitious vision and policy goals
The Digital Master Plan is linked to the country's economic and social objectives defined in Kenya Vision 2030	Implementation plans covering short-term activities would help to meet the objectives of NDMP
The Digital Master Plan covers all crucial pillars of an effective IT policy (connectivity, skills, eGovernment, data protection and cyber security etc)	Clear governance structures and rules for co-operation would help to manage cross-ministry projects more effectively
An agency with the clear responsibility for coordinating the implementation of the ICT strategy (ICTA) is assigned	Government use of ICT would be more unified if common standards were enforced (ICTA Act might be an answer)

A coordination model is provided for the implementation of the strategy	A comprehensive communication strategy would help to inform stakeholders of ICT initiatives and create trust
Flagship projects have been designed for all objectives of the strategy	Mandating ICTA to have a say on the funding decision of ICT projects may help to avoid duplication

2.1.3. Recommendations

- **Short-term (max 2 years) implementation plans with clear objectives, metrics, and responsible authorities should be used** to ensure effective implementation of long-term ICT policy such as the Kenya's Digital Master Plan. The priorities for each implementation plan must be agreed upon between all ministries and in collaboration with stakeholders from the private sector and academia. At the end of each period, an evaluation report taking account of the achievements and shortcomings of the previous period should be drawn up to guide the preparation of the next implementation plan. To that end, it is important to include not only target indicators, but also baseline data. Experience of other countries (Estonia among others) can be used to gain better insight in this regard. In addition, a mid-term evaluation might be needed around 2025 to make sure that the path chosen is still relevant and in sync with new developments. If necessary, the Digital Master Plan should be updated to take into account the changed environment and results achieved so far.
- **A high-level digital council should be mandated and enforced to set the national digital agenda across sectors as well as to harmonise and prioritise different digital transformation programmes.** This body could be built upon the currently envisaged Oversight Committee and chaired by the President. The council would include representatives from selected key public sector authorities, private sector, critical infrastructure operators, private sector, and academia who would act as visionaries for further digitalization.

  Such a high-level digital council would have the following tasks:

  - To direct the elaboration and implementation of the National Digital Master Plan that provides vision for the digital transformation of all sectors of society in Kenya. The tasks of the council in this respect would include initiating and giving opinions on the country's digital agenda, approving the Digital Master Plan and its implementation reports, giving opinions on proposals to evaluate the implementation of Master Plan, guiding collaboration between government institutions, the private sector and the academia.
  - To form and give opinions in matters related to digital society development in Kenya as well as elsewhere in the region and the world. This would also include giving input for forming national positions on ICT in international organisations.

- To make proposals for drafting policy documents to steer the development of digital society and give opinions on relevant draft proposals.
- To act as a sectoral monitoring committee for international donor involvement (with the ICT Donor Coordination Group as the key counterpart) and funding in the ICT policy field.

- **The creation of the Government Chief Information Officer (GCIO) position should be considered** to ensure effective implementation of ICT policy (incl. Digital Master Plan). It would be the GCIO's responsibility to increase ICT-related cooperation and communication between different stakeholders. Ideally the GCIO would not be positioned in any of the line ministries or the Ministry of ICT, but at the Office of the President, where he/she would have more autonomy, power, and visibility. This person could be seconded from ICTA.

  The tasks of the GCIO could include, for example:

  - Leading the work of the high-level Digital Council
  - Act as a visionary and spokesperson for digital governance, contributing to public communication on digitalization and information society issues
  - Co-ordinating and facilitating interagency initiatives
  - Contributing to international cooperation activities in the field of ICT.

- **A communication strategy to support digitalization should be drawn up** to cover both long-term and short-term actions to increase citizens' trust towards new ICT initiatives by the state (e.g. Huduma Namba). The plan should set out awareness-raising activities and messages to be delivered to the general population regarding any new initiative or service. As the general trust in government is currently low, it is important to avoid highly political spokespersons. The Government CIO or ICTA would be well-placed for such work.

  - Such a strategic communication plan should also target public sector officials, as continuous awareness-raising of ministries and other government organisations is an essential part of change management. Awareness-raising should be done through different levels starting from leaders and management and involve all public officials. Each ministry and government organisation need to have proper communication tools in use to introduce and explain activities related to digital transformation.

- **The coordinating authority (ICTA) should sign off on all new digital development projects of all ministries and public agencies** that create new services, new databases and have a budget exceeding a certain budget (e.g. 1 million USD), to avoid duplication and ensure that agreed principles and strategic directions for digitization are followed.

2.2. Financing model

General financing and financial models for e-services need to be developed in order to ensure sustainability. For every e-governance solution, the total cost of ownership of the solution must be planned. The introduction of e-governance will have a cost, even if it will soon lead to savings in other respects, so it is essential that there is adequate provision for the necessary funds in a sustainable manner. The provision can be made centrally but also at the level of specific institutions. In any case, sufficient financing should be provided on a medium- to long-term basis, preferably through multi-annual budgeting.

Authorities must be able to manage the risks arising from cyclical planning of the state budget. For example, in the state financial forecast a separate budget line is allocated for the development of e-governance. To support that allocation, clear procedures for planning the e-governance budget and managing the use of budgetary resources must be established. Transparency and accountability of the financial model need to be ensured.

2.2.1. Current situation in Kenya

The planning of the budget allocated to digital governance is organized centrally via the Treasury based on requests received by the individual ministries and agencies. Each authority must put forward their budget requests that are in line with their own ministry-level strategies and the Vision 2030. The specific priorities and processes to be followed will be laid out in a Treasury circular sent to all entities based on the procedures laid out in the Public Finance Management Act (2012). The budgeting is organized in a 'rolling' three-year budget plan where the budget resources are appropriated on an annual basis by the process also includes estimates of expenditure and revenue for the two following years (within the planned ceilings).

For instance, the national budget allocation for FY2021/2022 included $210 million to fund various initiatives in the ICT sector: $100 million for government shared services, $67 million for the Digital Literacy Program (DLP), $12m for maintenance and rehabilitation of the National Optic Fibre Backbone (NOFBI) Phase II Expansion Cable, $11m for installation and commissioning of the Eldoret-Nadapal Fibre Optic Cable, and $16m to fast track the development of the Konza Technopolis[32].

The review of the budget requests is conducted by Sector Working Groups (SWG), which compare the requests to the strategic objectives (e.g. 'Big Four' Plan, Medium-Term Plan of Vision 2030, Digital Master Plan, core mandate of the MDA, etc.), establish the resources required for individual programmes and projects within the ceilings provided, as well as review the supporting documentation. In addition, the expected outputs and outcomes as well as the cost effectiveness and sustainability of a programme are reviewed.[33] The eGA experts note that although there is much emphasis on analysing the cost implications of the programmes and their alignment with national and organization-level priorities, there does not seem to be sufficient attention turned to the impact assessments of the proposed projects, which should also be prepared and submitted by the MDAs.

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[32] BMI

[33] National Treasury and Planning (2020). Treasury Circular No. 16/2020

The work of the SWGs will result in setting criteria and conducting a prioritization exercise for resource allocation. There is a specific SWG for Energy, Infrastructure and ICT. In the 2021/22 budget cycle, 9 State Departments were involved in this SWG, including the State Department for Information Communication and Technology & Innovation. The SWGs also include representatives from development partners and from the private sector.[34]

All ICT services are consolidated under MoICTYA. This includes the purchasing of computers, printers and other ICT equipment, ICT networking and communication equipment, software, contracted ICT professional services, etc. MDAs will need to present and justify to the Sector Working Groups the requirements they have submitted to MoICTYA for ICT goods and related services.[35]

Although there is a clear procedure in place for requesting funding from the state budget, there are also reports that criticize the limited transparency of central government's expenditure. For instance, the Freedom House Freedom in the World report of 2022 notes that the enforcement of the elaborate public finance rules is often lacking as there is limited willingness from the legislature to ensure that budget-making procedures are followed by the Treasury.[36]

Furthermore, it remains somewhat vague what the role of the sectoral experts in the budgeting process is. According to the interviews conducted by eGA experts, the process is seen as a Treasury-led process, where the MoICTYA does not interfere in the priorities of other MDAs as far as they are linked to the relevant strategies. Therefore, it is possible that certain duplication takes place, for instance if several MDAs request for funding to undertake similar developments (which according to one interviewee has been the case in previous years).

Although there are several external donors financing ICT development and digitalization in Kenya, according to some of the interviewed ministries it is first sought to cover the requested expenses from the state budget and only if the requests exceed the available funding, the Treasury turns to donors. Even if this approach is commendable from the point of view of flexibility of budget use, there seems to be a lack of a coordinated and strategic approach to use donor funding. In addition, whereas PPP models are used in other sectors, they seem to be underused when it comes to the field of digitalization.

2.2.2. Summary of findings

Key strengths	Opportunities for improvement
Ground up budgeting based on ministry level strategies & Vision 2030	Initiative-based funding for larger and multi-MDA strategic ICT projects

[34] Ibid.
[35] Ibid.
[36] https://freedomhouse.org/country/kenya/freedom-world/2022

PPP experience (although mostly in fields other than digitalization)	More information sharing between ministries and the Treasury to avoid duplicate investments
Maintenance costs are taken into account in the budgeting process	Make use of PPP opportunities
	Increase the role of impact assessments in budgetary decision-making

2.2.3. Recommendations

- **The Ministry of ICT should have a more prominent coordination and approval role in evaluating ICT projects that are submitted for funding from the state budget**, which also involves a veto right to avoid duplication.
- **Project/initiative-based central funding** would be useful to have for larger strategic projects (involving one or multiple ministries) to assure funding over a longer period of time.
- **Use of public-private partnership** (PPP) in the field of digital identity and digital infrastructure (e.g. last mile development)
- **The budgeting process (including ICT budgeting) of government institutions must be transparent and performed electronically**, if possible. Budget transparency includes, among others, procedural standardization, cooperation and participation of relevant stakeholders, as well as basing the process on existent instrumental political and technical development plans.
- **Strive for a government decision for a specific percentage of the state budget to be allocated to digitalization** (e.g. 5% as proposed in the Master Plan).

2.3. Legal framework

There are no legal prerequisites for starting the process of introduction of e-governance. There are, however, several laws that need to be looked at and this legal overview should be made in the early stages of e-governance development. There should not be too much specialized legislation on e-governance, but the legal implications of the technologies used should be integrated in legislation across the whole spectrum of the affected laws. The more innovative the e-governance solution, the more it changes the existing workflows. Major changes in workflows may require new or amended legislation. The changes needed in the legal framework are country-specific, but often relate to electronic signature, data protection, accepting electronic information, etc.

In addition to laws, different strategies and plans need to be developed and drafted, clearly indicating the connection between the legal component and the governance one.

2.3.1. Current situation in Kenya

Digital transformation requires the support of an up-to-date and dynamic legal and regulatory framework. Kenya has put a number of relevant legal acts in place since 2016 but it faces issues with adopting certain new legislation and enforcement of the some of the adopted legislation. The new Digital Master Plan for 2022-2032 also acknowledges gaps in legal and regulatory frameworks to adopt and implement automation and includes 'Policy, legal and regulatory framework' as one of the foundation and cross-cutting themes to 'create a progressive ICT regulatory environment with updated laws to cater for developments and changes in the sector'.

The Master Plan also specifies the policies and laws that need to be developed and reviewed with ICTA and MoICTYA as the core responsible partners. However, it should be kept in mind that the legal review not only concerns central digital government aspects but should also cover different economic sectors to make sure that there are no barriers to digitalization.

Data protection
In 2019, the government passed a new Data Protection Act (DPA), which is largely in line with the EU's General Data Protection Regulation (GDPR). The DPA regulates processing of personal data, sets out rules to ensure that data processing principles are followed, and privacy of individuals is protected, establishes a legal and institutional mechanism to protect personal data, and provides data subjects with rights and remedies to protect their personal data.

It also established the Office of the Data Protection Commissioner whose role is to oversee the implementation of and enforcement of the Act. The Act provides an investigation procedure that will be undertaken by the Commissioner, including powers of entry and search, and issuing administrative fines. Data controllers and data processors are required to notify the Commissioner without delay and within 72 hours of becoming aware of a breach of any of the provisions of the Data Protection Act.

The Data Protection Commissioner has drafted regulations for Data Protection (General), Data Protection (Compliance and Enforcement), Data Protection (Registration of data controllers and data processor), and guidelines to support the implementation of data protection rules.

There is also a separate Data Protection (Civil Registration) Regulation, establishing rules for processing of personal data. Any civil registration entity has to take practical measures to ensure that access to the data in its system is only by authorized officers, the database system has adequate technical and procedural safeguards for processing personal data, the data subject is provided with the necessary information, etc. It is also mandatory to ask data subject's consent for processing personal data either in physical or electronic form. The data subject has a right to make a request to access their personal data and civil registration entity is obligated to grant that access either through manual or electronic mechanisms.

Access Now, a non-profit with a mission to defend and extend digital civil rights of people around the world, has published an overview about data protection in Kenya[37], making the following recommendations:

a) guarantee the independence of the Office of the Data Protection Commissioner by removing seemingly compulsory involvement of the Cabinet Secretary for ICT and national security bodies.
b) ratify international agreements to protect personal data as established under the African Union Convention on Cyber Security and Personal Data Protection and the Convention for the Protection of Individuals.
c) clarify the scope of the act regarding national security and public interest exemptions and ensure it mirrors the spirit of the constitution.
d) provide adequate resources to the Office of the Data Protection Commissioner to ensure effectiveness and functionality.
e) improve transparency and participation in processes by making provisions for meaningful public participation processes, by ensuring there is enough time for stakeholders to submit comprehensive comments.
f) streamline processes by reducing the amount of information required to submit a complaint and register a data controller or data processor.

Access to public information

The right to information arises from article 35 of the Constitution of Kenya, which states that every citizen has the right of access to information held by the state and information held by another person and required for the exercise or protection of any right or fundamental freedom. It also states that every person has the right to the correction or deletion of untrue or misleading information affecting that person.

Access to Information Act, adopted in 2016, establishes detailed rules related to right of access to information and empowers the Commission on Administrative Justice with oversight and enforcement functions. The object and purpose of the Access to Information Act is to give effect to the right of access to information by citizens as provided by the Constitution, provide a framework for public entities and private bodies to proactively disclose information that they hold and to provide information on request in line with the constitutional principles, provide a framework to facilitate access to information held by private bodies in compliance with any right protected by the Constitution and any other law, promote routine and systematic information disclosure by public entities and private bodies on constitutional principles relating to accountability, transparency and public participation and access to information, provide for the protection of persons who disclose information of public interest in good faith, and provide a framework to facilitate public education on the right to access information.

According to the law, right to information is granted to every individual who has Kenyan citizenship, and any private entity that is controlled by one or more Kenyan citizens. The Access to Information Act includes rules regarding how the request for information must be processed, terms for refusal, and filing an appeal. In order to get the required information,

[37] Access Now (2021). Data Protection in Kenya: How is this right protected?

one has to fill in a dedicated form[38], which also includes information about tracking the request.

Telecommunications
Telecommunication related topics are regulated by the Information Communications and Act, adopted in 1998. This act sets out the general legal framework for telecommunications in Kenya. It contains licensing, competition policy, quality service, interconnection, co-location, universal service, tariffs regulation, penalties and sanctions and dispute resolution. It also covers some postal service issues.

Interoperability framework
ICTA has drafted government enterprise architecture standards[39] for the ICT network, data centres, cloud computing, end-user equipment, systems and applications, information security, electronic records and data management, IT governance, ICT human capital and work force development. However, ICTA currently has limited coordination and enforcement power, which is being solved through the upcoming ICTA Act. Also, there does not seem to be a clear regulation in place for managing services.

Digital identity
Although rules regarding the registration of persons arise from Registration of Persons Act (RPA), Kenya has no Digital Identity Law in place. In 2018, the President issued an Executive Order creating grounds for development of a central master population database to be the 'single source of truth' on all Kenyan citizens and foreign nationals residing in Kenya[40]. In 2019, the RPA was amended, and the National Integrated Identity Management System (NIIMS) known as Huduma Namba was created, forming a legal basis for national population register. Based on the judgements of High Court of Kenya regarding the validity of legislation related to NIIMS, two subsidiary legislations known as the Huduma Regulations have been issued. First is called Registration of Persons (NIIMS) Rules, and the other Data Protection (Civil Registration) Regulations. These regulations establish NIIMS as the primary source of identity data and create a legal basis for the collection of digital data as required under the Data Protection Act. Although the legal grounds for issuing national identity are fragile, national ID cards are being issued. It is important to mark that the RPA and the two regulations do not mention use of digital identity by the private sector but focus only on public sector service provision. NIIMS is the primary means of identification for public services and it is stated in the regulation that any government agency requiring personal particulars of an individual must, at the first instance, rely on the NIIMS database to authenticate the foundational data of an enrolled resident individual.

In order to overcome legal issues, the Government of Kenya has drafted the Huduma Bill 2019 (which marks the fifth time the Huduma Namba project was restarted due to legal and procurement issues) to regulate the management of NIIMS, promote efficient delivery of public services, consolidate and harmonize the law on registration of persons, facilitate assigning of Huduma Namba as a unique identification number and issuance of identity

[38] Sample Access to Information request template
[39] ICTA website: About GEA ICT Standards
[40] Presidency of Kenya (2018). Executive Order No. 1 of 2018. Organization of the Government of the Republic of Kenya.

documents, and facilitate the registration of births and deaths. The Huduma Bill states that NIIMS is a single source of personal identification for citizens and persons resident in Kenya and it is an integrated digital population register and a repository of foundational data and functional data of every resident individual. In October 2021, the High Court of Kenya declared that the roll-out of Huduma Namba was illegal since there was no Data Protection Impact Assessment (a process of identifying the impact of data processing on the rights and freedoms of the people to whom the data relates and mitigating those risks) conducted. However, the Court of Appeal noted in its 4 March 2022 ruling that the project had complied with the provisions of the Data Protection Act with respect to Data Protection Impact Assessment and the Bill was once again sent for deliberation to the Parliament in June 2022, but the outcome was still undecided by the time of writing this report.

Digital signature

Use of digital signatures is supported by several legal acts. First, the Law of Contract Act (2020) supports the use of advanced electronic signatures in addition to wet ink signatures. Advanced electronic signature is an electronic signature which is uniquely linked to the signatory, is capable of identifying the signatory, is created using means that the signatory can maintain under his sole control and is linked to the data to which it relates in such a manner that any subsequent change to the data is detectable. The same principle is included in the Registration of Documents Act, the Survey Act, the Land Registration Act and in the Kenya Information and Communication Act. The Communications Authority of Kenya is mandated under the Information and Communications Act to license and regulate Electronic Certification Service Providers.

Cybersecurity

There is no separate Cybersecurity Law providing the requirements for the maintenance of network and information systems essential for the functioning of society and state and local authorities' network and information systems, liability, and supervision as well as the bases for the prevention and resolution of cyber incidents. Cybersecurity related rules and requirements are divided between different legal acts such as the Computer Misuse and Cybercrimes Act (2018) that provides for cybercrime offences, the Information and Communications Act (1998) that facilitates the development of the information and communications sector and electronic commerce, the Information and Communications (Consumer Protection) Regulations that protect consumers of ICT services and products, Data Protection Act (2019) that makes provision for the regulation of personal data, the rights of data subjects and the obligations of data controllers and processors, and Guidelines on Cybersecurity for Payment Service Providers (2019) supporting the creation of secure cyberspace and combat cybercrime. In addition to legislation, a National Cybersecurity Strategy was adopted in 2014 defining cybersecurity as a national priority and the drafting of a Cyber Security Strategy 2022-2026 is currently ongoing[41].

[41] Kenya News Agency (2022). CS Matiang'i Launches Drive For Cyber Security Strategy

2.3.2. Summary of findings

Key strengths	Opportunities for improvement
Most of the core legal acts related to digitalization are in place	Assign clear coordination for a legal analysis to a dedicated body or committee of legal experts and review any obstacles to further digitalization systematically across the sectors from the legal point of view
Legal and regulatory framework as a cross-cutting objective in the Digital Master Plan 2022-2032	Assure that proper stakeholder consultations and awareness-raising activities are undertaken when proposing new legislation
	Definition of a cybersecurity policy and update to the current strategy (from 2014)

2.3.3. Recommendations

- **A comprehensive legal analysis should be conducted** to identify any obstacles to e-governance at the national level, in order to be able to determine what further legal changes are necessary to remove such obstacles (whether in the form of amendments to various laws or the inclusion in one law with general provisions). This analysis should be carried out by local legal experts who need to have expertise in primarily public law (but need not be e-governance experts), who should identify exactly which legal acts need to be reviewed. Such a review should be undertaken together with e-governance experts, who can explain the technology so as to design the appropriate legal solutions. It may be necessary and sufficient to change definitions in legislation, to ensure that existing laws can include electronic transactions and documents. Seek for additional international expertise to support the process, if needed.
- **Adopt the necessary legislation for implementing digital ID** in order to securely use digital services and to sign documents digitally. Place special emphasis on involving stakeholders through consultations and awareness-raising activities, and address their concerns in a constructive manner. In addition, make it mandatory to use the unique national identifier in all registers enabling citizens easily access services and data related to them.
- **Further improve the access to information regulation** by:
    - ensuring that access to information applies to everyone regardless of their citizenship,
    - creating legal prerequisites to submit requests of information online and also monitoring the status of the requests online,

- considering that the population register is in electronic form, granting access to personal data in a timeframe that is less than the currently foreseen 30 days.

- **Consider drafting a regulation on managing services and governing information**, which would establish the principles for managing and developing public services and for managing, sharing and exchanging information in state information systems and databases. This regulation should assign responsibility for management and quality assurance of services, establish coordination mechanisms for development of services across authorities, as well as organization of document management.
- **Develop the new Cybersecurity Strategy for 2022-2026 and do so by involving a wide spectrum of stakeholders from different sectors.** The new strategy would support regulation and its implementation, as the current strategy is from 2014 and is already outdated. As cybersecurity concerns the whole society, representatives from business sector, academia, and civil society organizations should be involved in the process.

2.4. Interoperability

Data constitutes a key element of digital transformation, as every interaction in a digital setting generates data and most depend on the availability of data in digital format. Developing a digital society requires governments to better understand what kind of data is available, both offline and digitally, how this data can be aligned and used for creating value in the public sector and in the society as a whole.

The digitization of public services means that ministries and government agencies capture and process data in a machine-readable form. Digital transformation requires digital databases and data exchange between those.

The modern e-governance model is a component-based service model, allowing the establishment of public services by reusing, as much as possible, existing service components. Public administrations should agree on a common scheme to interconnect loosely coupled components and put in place the necessary infrastructure.

2.4.1. Current situation in Kenya

In Kenya registries are largely digital and further efforts to digitize paper records are underway. there are ad-hoc data exchange solutions in place as well. But the lack of common components for data exchange and service discovery hinder the development of services by making it harder to find the relevant registries and connect to them. An up-to-date online catalogue of services and information assets would make it easier to find where information and services are duplicated.

The comprehensive ICT standards[42] by ICTA provide an excellent framework for building national solutions including Systems and Applications Standard, Government Enterprise Architecture, Electronic Records Management Standard and others.

The Huduma Namba Regulations allow public agencies to request access to data held by the civil registries and to link to NIIMS for the authentication of persons. The government has denied intentions of monetizing the NIIMS data and instead the creation of a master population database for more efficient government service delivery as their main aim. Possible use of the NIIMS database by private entities is not clearly stated in the law.[43]

Standardization of data and interoperability of databases are also objects of digital transformation, as stated in policy documents such as the Integrated Population Registry Strategy Paper (2006) and Government Enterprise Architecture (2016). However, neither these documents nor the RPA provide for checks and balances on data sharing.

Therefore, public agencies can share data, but there are no data sharing code lists governing the process of sharing. In addition, there are no specific oversight mechanisms for governance of digital ID data. Citizens are not made aware of how and by whom their data has been accessed.

The Ministry of Interior is building a data exchange platform for Huduma Namba, that is being piloted with four agencies, which would allow for easier integration with their databases.

The Office of the Data Protection Commissioner (ODPC), which is tasked to provide oversight on data protection, has been housed under the Ministry of ICT, having raised questions on whether the ODPC is really independent. However, steps towards independence have been made with ODPC having its own budget line with the National Treasury, being able to appoint staff without prior approval of the MoICTYA, etc.

2.4.2. Summary of findings

Key strengths	**Opportunities for improvement**
Most databases are digital	Establish common components, including data exchange layer
Guidelines and broad framework for interoperability already exists	Define base registries and avoid duplicating data
Pilots with different agencies already in the works	Create national data policy and a catalogue of services
Huduma Namba is targeted at having a single source of truth for population data	Make the information, about when and why your data has been accessed, available

[42] ICTA website: About GEA ICT Standards

[43] Mutungu, G. (2021). Digital Identity in Kenya: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa

Detailed guidelines for developing government systems	Separate data into domains (i.e. education, taxes, healthcare, etc.)

2.4.3. Recommendations

- **An inventory of information assets should be carried out.** The government should have a clear an up-to-date overview of what type and content of data is collected across all institutions. To guide future developments, information is needed on the existing information systems, which data are collected and processed in which information systems, what kind of services are offered, who the contact persons of different information systems are, on which legal bases the information systems are operated and the data is processed, and which are the reusable components ensuring interoperability. Ideally this should result in an online catalogue that is to the most part also accessible to the private sector.
- **Principles of data governance including data management, data description and data quality management need to be adopted on national and organisational level.** Data governance includes internal policies and procedures controlling the management of data. Data governance ensures that data is secured, trustworthy, documented, managed, and audited. Proper data governance provides high quality of data management through all phases of the data lifecycle. This means appointing people or units responsible for data management, developing catalogue of semantic assets enabling to understand what kind of data is collected, developing, and implementing data quality rules etc. It is essential to focus on data quality while planning and developing information systems or e-services since it is a key to making accurate and informed decisions. Information on how their data has been used should be available to the citizens.
- **Stakeholder forums for state agencies should be established** to promote mutual understanding and co-operation, taking place for instance on a biannual basis.
- **Interoperability of data with data sharing and implementation of the once-only principle should be made binding in due course.** Once-only means that the government must use and reuse the data it has already collected from the citizen (following all legal and privacy requirements), and it is forbidden to ask the same information from the citizen again.
- **A mandatory data exchange layer should be adopted to ensure seamless data exchange between registries.** The areas covered by the framework should be access management, authentication, encryption, time-stamping, digital signature of messages, logging and error handling. This data exchange layer is essential for building secure connections between databases and for reusing the data in them for better user experience across government services.

- **Move towards a decentralised model for registries where personal information is separated into specific domains and data is collected and stored where it is generated.** Having separate registries helps lower the impact of data breaches and helps ensure that personal information is used responsibly, because nobody has access to all of the information at once. A master database with all of the information runs the risk of becoming a single point of failure for all government services, it can also become bloated as well as difficult to maintain and upgrade.

2.5. Digital identity and digital signatures

For e-governance services to be useful for all types of governance tasks, it is essential that the users can identify themselves in a secure manner. This requires the development of a digital identity concept and tools. This can include digital ID or mobile ID together with a digital signature.

Digital signatures are fast, efficient and secure means of signing documents, they are backed by a certificate and tied to your digital identity. Because the signatures are cryptographically bound to the document they can be easily verified and are virtually impossible to alter.

Digital signatures can mitigate the risk of human errors, such as mistakes while signing or misplacement of documents; these errors can slow the process and cause expensive issues if undetected. Signatures must be secure enough to be recognized as evidence in court or similar situations, making procedures faster and more reliable.

A PKI (Public Key Infrastructure) that consist of roles, policies, hardware, software and procedures needed to create, manage, distribute, use, store and revoke digital certificates and manage public-key encryption is required for the ecosystem to function.

2.5.1. Current situation in Kenya

Kenya has a well-established civil registration and national identification system, with a unique ID number in place for its citizens and residents. Kenya has a long history of mandatory use of the national identity card, which also carries the national ID number, which is used to access virtually all public services. Furthermore, it is used to access private services, e.g. to open a bank account, to receive cash transfers, or to register a mobile number.

The government maintains a database called the Integrated Population Registration System (IPRS) on identity information from several public agencies, which is managed under the Kenya Citizens and Foreign Nationals Management Service Act (KCFNMA).

As digital transformation takes place, there has been an increase in queries made to IPRS to verify the identity of those who wish to consume services. Since 2016, there have been

charges in place for banks, insurance companies, and mobile network operators, to make queries to the IPRS database to verify customer identification documents.[44]

However, the ID card is not available to every person, with research showing that people from border communities and ethnic minorities have reduced access to citizenship documentation. Considering that the national identification card is mandatory to consume public services, as well as to opening a bank account and registering a mobile number, it can exclude a certain population.[45] This issue has been vocally raised by the civil society in the Huduma Bill discussion process, as they have criticized the government for excluding those without identity documents, persons with biometric challenges, persons with disabilities, street families, and stateless persons[46]. Although the government has a firm position on the registration of stateless persons, they have made efforts to register other vulnerable groups and increased their outreach programmes to convey the benefits of Huduma Namba. The slogan has been: "Get Huduma Namba, get good services!"

For the time being, Huduma Namba Regulations do not link to the KCFNMA, leaving in place two systems of identification of persons and documents.[47] However, according to the Huduma Namba Secretariat, which was set up already in 2018, once the Huduma Bill passes the legislative process, a population register can be set up, which will be compulsory to use by all public offices. During the first stage of registration to the Huduma Namba, nearly 39 million people registered themselves over 45 days. In the second phase, ID registration offices will be opened all over the country and they will continue the registration using biometric kits. Eventually, the current ID number will be replaced by the Huduma Number and will cease to exist.

An integration interface for the population register has already been developed and was being tested in May 2022 with different departments (Health Insurance Fund, National Transport and Safety Authority, Pensions Department, Social Benefits Department, etc.). However, there is a lack of technical capacities and funding hindering the developments.

The Business Laws (Amendment) Act (2020) that was recently enacted came in force to improve the ease of doing business in Kenya. The following are some of the changes the Act brought in line with the cybersecurity regulations:

- the Act amends the Law of Contract Act to provide for use of advanced electronic signatures – contracts that required wet ink signatures to be valid can now be signed by way of an advanced electronic signature,
- the Survey Act has been amended to enable the use of electronic signatures and advanced electronic signatures,

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[44] Ibid.
[45] Ibid.
[46] Coalition of Civil Society Organizations (2022). RE: The Huduma Bill (National Assembly Bill No. 57 of 2021. Letter to the Clerk of the National Assembly from the Coalition of Civil Society Organizations.
[47] Mutungu, G. (2021). Digital Identity in Kenya: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa

- the Kenya Information and Communication Act (KICA) has been amended to permit the use of electronic signatures in executing title documents.

In response to this, The Communication Authority invited electronic certification service providers to apply for licensing and recognition from the Authority to provide electronic signature authentication services to electronic signature users.

Information and Communications Act[48] states that if agreed by the parties, an offer and acceptance of an offer may be expressed by means of electronic messages thus where an electronic message is used in the formation of a contract, the contract shall not be denied validity or enforceability solely on the ground that an electronic message was used for the purpose. It is also stated that where any law provides that information or other matter must be in writing then, notwithstanding anything contained in such law, such requirement shall be deemed to have been satisfied if such information or matter is rendered or made available in an electronic form; and accessible so as to be usable for a subsequent reference.

During the COVID-19 crisis the government certified some service providers to offer advanced digital signatures and currently there is an effort underway to build a national PKI system.

2.5.2. Summary of findings

Key strengths	**Opportunities for improvement**
Strong government initiative to implement nation-wide digital identity	Co-operation with the private sector to accelerate adoption
More than 37 million Kenyans already enrolled	Allow private sector identity providers to offer authentication methods that are linked to the national digital identity
The legislation for digital signatures exists	Adopt legislation for digital identity
	Organize public awareness-raising for eID adoption
	Create a national authentication service
	Promote the usage of digital signatures
	Conduct an analysis whether a national solution for digital signatures would be necessary to be developed

[48] Kenya Law (2020). Kenya Information and Communications and Act, 1998

2.5.3. Recommendations

- **Public service development should consider digital identity and digital signatures as core components.** This approach supports implementation of digital identity and helps to identify users in the secure manner. One of the first initiatives should be cooperation with financial sector by making digital identity a core component for banking. Online banking is one of the vital services concerning every adult, so quick and secure access to financial services on daily basis will motivate people to use even more e-services and digital identity. Using e-banking as a door opener enables to get quick valuable result and creates a solid foundation of trust for the future services. The digital identity should be interoperable with the Huduma Namba to enable better online and offline service delivery.
- **Public awareness-raising campaigns on the use of digital identity and public services.** The existence of widespread and accepted digital identity for all citizens and residents is an essential prerequisite of the digital transformation of the society. After the technical implementation of the digital identity significant efforts need to be turned to user acceptance and actual usage through media and communication campaigns. It is important that users and stakeholders understand the benefits and implications of digital identity, but also that specific measures are indicated and implemented to address the concerns voiced by the civil society organizations (e.g. fast further roll out of legal identity, measures for data protection, etc.). It is recommended to organise such campaigns in cooperation with the private sector, if possible. The aim would be to make the user base more aware and the services and their consumption (incl. the cost of the e-token) as cheap and smooth as possible. After all, the more digital identity users there are, the cheaper the provision of services will be for the government.
- **The creation of a national authentication system** that enables the electronic authentication and authorization of users when using electronic services at the national level will help agencies to save time and money by eliminating the need for to develop separate solutions. By allowing different identifiers of domestic and foreign users, as well as using certification services of different service providers it can enable more seamless international cooperation. Single Sign On for multiple applications, can be applied to external users as well as internal ones. Support for multiple industry standard authentication methods would allow it to provide authentication services for 3rd party applications.

2.6. Digital skills

The rapid development of digital technologies requires both public officials and citizens to acquire skills needed to use the new tools and enjoy the possibilities of a digital society. In addition to equipping all citizens and public officials with basic skills, authorities need ICT specialists with advanced IT and project management skills to maintain ICT architecture and user support, manage ICT procurements, and implement the government's digital strategy.

2.6.1. Current situation in Kenya

Digital literacy and ICT skills are prioritized highly in Kenya's strategic documents aimed at enhancing its socio-economic competitiveness. The Digital Economy Blueprint – a vehicle for helping the country to achieve its Vision 2030 – highlights digital skills as one of the main pillars to bring Kenyan economy to a new level[49]. The Digital Master Plan reiterates the significance of ICT skills from the standpoint of digital economy and social inclusion. It has also been realized that having ICT skills in excess would allow Kenya to provide human capital to other states in the region as well, thus strengthening its digital economy[50].

The National ICT Policy of 2019 sets out a number of objectives to scale up ICT education to increase the competitiveness of Kenyan ICT professionals and the computer literacy of the whole population[51]. Other strategies exist to improve ICT skills of Kenyans at different levels[52]. There does not, however, seem to be a comprehensive policy that would allow for a systematic and effective implementation of the objectives in all these documents. Fragmentation of ICT policy objectives and a lack of an integrated and systematic Human Resources Master Plan was highlighted during eGA interviews with experts and has been brought out in the ILO report on digitalization of education in Kenya[53].

In addition to policies aimed at promoting the acquisition of ICT skills, there are policies in place to innovatively transform the Kenyan education sector itself, such as the National Education Sector Strategic Plan 2018-2022 and the Policy Framework for Reforming Education and Training for Sustainable Development in Kenya (2019). An important step towards that aim was made by the Kenya Institute of Curriculum Development (KICD) in 2016 with the transition to Competency-Based Curriculum, which includes digital literacy as one of the seven core competencies.

The roles and responsibilities regarding ICT in education remain somewhat unclear. The Ministry of Education, Science and Technology is responsible for education policy in Kenya and ICT has been a priority area since 2005[54]. The ministry includes four state departments that cover the entire educational cycle from early learning and basic education to university education and research. MoICTYA, in particular its State Department of ICT and Innovation, also has a significant role as the body responsible for national ICT policy formulation and a driving force both behind the National ICT Policy and Kenya's Digital Master Plan. ICTA, the main coordinator of the national ICT policy implementation, carries out several digital skills projects, such as Digital Literacy Programme, Presidential Digital Talent Programme, AJIRA programme, etc. In ICTA's organizational structure, there are special departments for digital capacity building and for the digital literacy programme. A recent report by UNESCO highlights that the domain is dealt with by different agencies, making coordination and implementation difficult[55].

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[49] Government of Kenya (2019). Kenya Digital Economy Blueprint
[50] ICTA (2014). The Kenya National ICT Masterplan 2013/14-2017/18
[51] Ministry of ICT (2019). National Information, Communications and Technology (ICT) Policy
[52] ILO (2021). Digitalization in teaching and education in Kenya (p. 9)
[53] Ministry of ICT (2019). National Information, Communications and Technology (ICT) Policy
[54] ILO (2021). Digitalization in teaching and education in Kenya
[55] UNESCO (2022). White paper: ICT talent cultivation for Kenya's digital economy

ICT in formal education

In terms of ICT in education and digital skills acquired during one's school years, several initiatives have been and are being carried out. The **Digital Literacy Programme (DigiSchool**) is one of the Digital Master Plan's flagship projects to help Kenya's schools to teach children the necessary digital skills. The project involves all important stakeholders, covering units responsible for teacher capacity, development of digital content, electricity connections, local assembly plants and ICT devices. The first phase of the project with more than 1 million devices installed in public primary schools and over 80,000 teachers trained, has brought along clear benefits, such as improved school attendance and increased student alertness[56]. As many devices have been left unused due to the shortage of ICT-competent personnel and lack of electricity in some schools[57], the objective to provide capacity building to 500,000 teachers and educational offices as set out in the Digital Master Plan is critical.

The recently launched **Digital Skills Programme** (2022) by the ICTA-led training school SmartAcademy[58] targets also pupils. The information disclosed in the web portal promises to provide digital literacy and basic ICT skills.

Some challenges that have been brough out in different studies[59] and were also highlighted during eGA interviews with experts include access to electricity and internet connectivity, continuous need for teacher training, and cybersecurity. In terms of cybersecurity, lack of training and preparedness against cyber security attacks, absence of relevant regulation for teachers to acquire cybersecurity training, and lack of integrating cyber security skills in school curriculum have been highlighted by ILO[60].

Digital literacy of the general public

Different projects have been carried out to increase the digital literacy of the general public with several training programmes also targeting digital skills to improve employability. The **DigiTruck project** (2019) launched by MoICTYA together with private sector partners is a mobile classroom that provides basic ICT skills training to young people living in remote areas and seems well scalable[61]. The **Ajira Digital Program** (2016) aims to help young people with basic computer skills and a laptop to find digital jobs. The project, initiated by MoICTYA, is based on Kenya's wish to tap on the potential of the growing gig economy – to make Kenya a globally freelancing centre and enable 1 million youth to earn a decent wage[62]. The ambitious goal and a flagship project of the Digital Master Plan to train 20 million Kenyans in digital literacy was recently launched by ICTA. The overall objective of this **Digital Skills Programme** (2022) is to equip the Kenyan citizenry with the relevant digital skills to operate effectively in the digital economy. The course offers training at three levels: basic, intermediate and advanced and for three different target groups: general public (basic skills), public servants and ICT professionals.

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[56] ILO (2021). Digitalization in teaching and education in Kenya
[57] Fingo (2021). Landscape report on digital education in Kenya.
[58] ICTA website: Smart Academy
[59] e.g. ILO (2021). Digitalization in teaching and education in Kenya
[60] Ibid.
[61] https://www.close-the-gap.org/what-we-do/Digitruck
[62] https://unesdoc.unesco.org/ark:/48223/pf0000381538

However, limited digital literacy is still a challenge. On the one hand, not knowing how to use the Internet has been cited as the second reason for not using it altogether[63]. On the other hand, skills need to be improved to use the Internet more wisely and cautiously. In Kenya, personal data is asked and provided for many transactions both with the public and the private sector while Kenyans also increasingly use different forms of social media. There is, thus, more and more potentially sensitive data available, which has already led to an increase in cyberattacks[64]. If not properly addressed, this might also lead to a severe decrease of trust in digital solutions. Therefore, people need training on how to protect their personal data and maintain good cyber hygiene. Another aspect deemed critical with regard to digital skills, is information literacy – the ability to distinguish authentic information from fake news. According to DECA, online misinformation had significant role in Kenya's 2017 presidential elections[65].

Digital skills of ICT specialists

Like the rest of the world, Kenya is facing a shortage of ICT specialists. Approximately 5000 ICT graduates are produced yearly against a minimum demand of around 25,000. According to the Ministry of Education, there are 41 public universities/colleges and 36 private universities/colleges in Kenya. Computer science programmes are in high demand, ranking 4th in popularity. Almost all public universities have programmes containing ICT, while digital components are also mainstreamed across all curricula. In addition, small privately owned universities offering technology-related curricula have started to appear.

The need to increase the ICT talent pool is well realized by the Government of Kenya and many initiatives have already been launched. **The Presidential Digital Talent Programme** (PDTP), implemented by MoICTYA through ICTA was highlighted as a huge success in all interviews. The project has a dual objective. First, it offers ICT and engineering interns the possibility to gain practical work experience and an understanding of government services within 12 months. Second, the project aims to improve the ICT capacity of the public sector thereby contributing to improved service delivery[66]. Approximately 2100 specialists (400 students per year) have been trained and there seems to be a consensus on the willingness and need to continue with the project.

ICTA's **SmartAcademy portal** created within the Digital Skills initiative contains a module for ICT professionals, but at the time of drafting this report the content of and information about the course was not yet available[67].

A mismatch between the skills offered by ICT graduates and those needed by the industry appears as a considerable challenge. A UNESCO report on Kenya's ICT education[68] brings out different reasons for that, with faculty driven curricula, in case of which universities

[63] USAID (2020). Kenya Digital Ecosystem Country Assessment
[64] Ibid
[65] USAID (2020). Kenya Digital Ecosystem Country Assessment (p. 22)
[66] Ministry of ICT, Innovation and Youth Affairs (2022). The Kenya National Digital Master Plan 2022-2032
[67] ICTA (2022). Smart Academy
[68] UNESCO (2022). White paper: ICT talent cultivation for Kenya's digital economy

themselves decide the intake of students as well as which programmes to open, popping up as one of the primary concerns also during eGA interviews. Other aspects highlighted as causing the mismatch concerns the speed at which changes can be made to ICT curricula and insufficient focus on practical skills[69]. Both the private and public sectors offer internship projects and industry placements, but these are not sufficient to meet the demand of ICT graduates and ICT industry.

To regulate the market of ICT professionals, the Parliament of Kenya recently passed an **ICT Practitioners' Bill**, which intends to establish an ICT Practitioners Institute and sets out rules for the training, registration and licensing of ICT professionals[70]. The bill foresees that in order to practice as an ICT specialist, one would need to get a respective license from the Institute. Practicing in ICT without the license would be forbidden and the license would need to be renewed yearly. The bill appears to have caused a lot of opposition from different stakeholders, some of the contra arguments being that it is unconstitutional, badly placed in a country where IT talent is in short supply[71] and that rules for the accreditation of ICT professionals remain unclear[72].However, President Uhuru Kenyatta has refused to sign the Bill into law and has asked it to be sent back to Parliament for additional scrutiny[73].

Digital skills of public servants

Boosting the digital capacities of public servants is a well-acknowledged need in Kenya. The Digital Economy Blueprint seeks to deepen the use of ICT services in the public sector and improving ICT skills constitutes one of the outcome areas of the Digital Master Plan's pillar on digital skills. The Master Plan foresees offering digital services training for 300,000 civil servants and 250,000 county officials by 2030[74].

Kenya School of Governance – a state corporation under the State Department of Public Service of the Ministry of Public Service and Gender provides systematic training, consultation and research to the public sector. ICTA in collaboration with Huawei has upskilled over 1500 civil servants through different courses since 2020[75]. The Presidential Digital Talent Programme as well as seconded ICT staff to line ministries probably are likely to also have a considerable spill over effect in terms of skills, knowledge, and attitude.

Nevertheless, limited ICT competence of public servants constitutes an obstacle in the rollout of new digital services. The Government is planning to carry out an audit of ICT skills in the public sector to get a better understanding of potential skill gaps[76]. This is well in line with input received during the interviews carried out by eGA. In fact, a lack of proper digital skills and respective mindset were said to be prevalent at all levels – state, county and political. Public servants, whose average age is higher than that in the private sector, are expected to

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[69] World Bank Group (2019). Kenya Digital Economy Assessment: Summary Report
[70] Kenyayote (2022). ICT Practitioners Bill in Kenya (Detailed explanation)
[71] CIO Africa (2022). Retrogressive Bill? Why Kenya's ICT Practitioners Are Worried
[72] TechCabal (2022). Kenya's controversial "ICT Practitioners Bill" is closer to becoming law
[73] techweez (2022). President Kenyatta Rejects Highly Disputed ICT Practitioners Bill
[74] Ministry of ICT, Innovation and Youth Affairs (2022). The Kenya National Digital Master Plan 2022-2032
[75] https://www.kbc.co.ke/state-targets-to-boost-ict-skills-pool-within-the-civil-service/
[76] Ibid.

take part in awareness-raising activities to better understand the essence and importance of an enabling environment for digital economy.

2.6.2. Summary of findings

Key strengths	Opportunities for improvement
Digital skills and ICT in education are clearly defined priorities in different strategic policy papers (Digital Economy Blueprint, National ICT Agenda 2006 and 2019, Digital Master Plan etc)	A more integrated approach to digital skills development is needed to ensure effective implementation
The digitization of schools coupled with teacher training within the first phase of Digital Literacy Programme has already yielded positive outcomes	Internet connectivity, electricity, teacher training and information security still need close attention to boost the acquisition of comprehensive ICT literacy within the education system
Digital Skills Programme to increase the digital literacy of 20 million Kenyans has been launched	Computer and internet training for the general public should also include awareness-raising of information literacy and tips for better protection of personal data (cyber hygiene)
To increase the number of skilled ICT-experts, good examples of public-private partnerships exist (Presidential Digital Talent Programme, Centre of Excellence programme on BPO etc) and can be built upon	A lot can be done to reduce the skills mismatch between what is offered at universities and demanded by the market (cooperation with ICT sector representatives to update the curricula with modern skills needed in the market; more flexibility to change curricula according to market needs, incentives for more internships, etc.)
The need to improve the ICT literacy of public service is well understood and present in the Digital Master Plan	The ICT skills audit proposed by ICT Ministry should be carried out to identify gaps in public sector digital skills and mindset

2.6.3. Recommendations

- **Introduce a digital competency model to better manage the ever-changing digital competences need in the public sector**

Introduction of a **multi-level digital competency model** could be considered as a preceding step of the GoK plan to perform an ICT literacy audit[77]. The model would differentiate between digital transformation leaders, ICT experts and other civil servants, and set out different skill requirements for them. Assessment of the current situation and competencies (e.g. audit of skill and competency gaps) should be the first step followed by the development of a specific competency model. To ensure a match between the competency model and the actual skills of people, a capacity-building implementation plan must follow. Competency development and measuring must be a continuous process. Assistance of international experts can be used to adopt best practices and standards.

The three potential levels to be included in the competency model are shortly described below.

- **Leaders** need to be capable of planning, coordinating, and managing digital transformation. In addition to already known competencies, a new type of leadership is required to effectively address changes in organizational structures and operating models due to digitalization. This includes skills for inspiring others and creating a vision, leveraging technology, encouraging collaboration, driving innovation, managing risks, and leading transformation.
- The competency model for **ICT specialists** should cover advanced digital skills and knowledge of cyber hygiene.
- Digital skills are critical also for **other public servants** (the non-ICT staff), not only the leaders. Each official should have basic digital skills, know the basics of ICT and digitalization (incl. processes automation) and have an understanding of the ICT policy principles in Kenya. **County officials** should not be left behind, as they are often the primary point of service delivery for citizens.

- **Increase the level of digital skills of the general public**

Strengthening of digital skills should be mainstreamed across curricula at all levels of education (primary, secondary, tertiary education, and further training).

As digital transformation is not possible without conscious and informed users of public e-services, the government should organize public awareness campaigns and build digital skills also outside the public sector/education system. Emphasis should be put on promoting cyber hygiene, incl. protection of personal data, information literacy, and use of e-services. Basic ICT training should be organized for different target groups (adults, the elderly, and other vulnerable groups, incl. people with audio-visual disabilities and illiterate people). To offer digital skills training on such a large scale it is advisable:

[77] KBC (2022). State targets to boost ICT skills pool within the civil service

- to do it in co-operation with private partners and e-service providers (e.g. banks, telecom companies, utility companies) as they could also have an interest in enhancing digital skills for the general public,
- to develop common digital skills training curricula and offer training of trainers,
- international good practices (e.g. from Estonia) can serve as inspiration for such activities.

2.7. Access to e-services, awareness-raising

To be able to benefit from the advantages a digital society brings, citizens and businesses should be able to access public services online. These should not simply be available, but also easy to access on different devices and platforms, inclusive and user-friendly.

To communicate with the public, any administration should establish a device and technology neutral digital information channel, such as a government portal, operating on different devices. This information channel is used to provide both information services and procedural services. A well-functioning digital information channel will transform government services into a single whole (one-stop-shop) and improve the availability of public services.

A basic framework to assess the state of the e-services landscape can be applied to public services, resulting in the following stages of maturity:

- Level 1: Information exists electronically about the service.
- Level 2: One-way communication: Forms can be downloaded from the internet, to be filled in and submitted manually.
- Level 3: Two-way communication: Forms can be filled in and submitted online and the public service will be triggered for the authorized user.
- Level 4: Transaction: Services can be provided fully on-line by electronically submitting filled-in forms or data for processing. The output is also delivered electronically.
- Level 5: Personalized service: The entire service can be performed online, automatically, and proactively

2.7.1. Current situation in Kenya

Making public services available online is a strategic priority for Kenya and highlighted in the Digital Economy Blueprint, National ICT Policy 2019 as well as the Digital Master Plan 2022-

2032. The latter sets out an ambitious goal of having 95% of government services online by 2032[78] (baseline data was not unfortunately available).

Supply of online public services

The gateway to online public services in Kenya is the eCitizen portal[79], which provides access to a considerable number of public services. To use online public services on the eCitizen portal, one must create an account. Four user groups can use the eCitizen portal:

- Kenyan's citizens, who can register themselves with their national ID number,
- Kenyan businesses, who have to register themselves with their business registration number,
- Foreign residents, who need a foreigner certificate to register,
- Foreigners, who need a Kenyan visa to enter the country[80].

Online services that can be used via the eCitizen portal include, for example, business name search and business name registration services; birth and marriage certificates; issuance of marriage certificate; booking for driving test as well as renewal of driving license; passport application for Kenyan adults and children as well as visa application for foreigners, etc.[81] In addition, the eCitizen portal allows its users to conveniently pay for public services using mobile money, credit cards, debit cards and online banking. Users receive email and SMS notifications every time their application has progressed.

It should also be noted that the uptake of mobile money services continues to grow, also as consumers prefer to use it due to COVID-19. According to the Communication Authority, compared to the previous year, mobile money subscriptions grew by 1.8% in December 2021, reaching a record penetration of 72.3% (35.2 million subscribers).[82]

The National ICT Policy 2019 sets out a requirement for public agencies to publish, on the website of their agency or a portal, the Service Charter – a document outlining how an organization communicates with their customers[83].

Take-up of online services and satisfaction with them

The take-up of online public services in Kenya is constantly increasing with half of the adult population having accessed at least one service[84]. The services available to date address

[78] Ministry of ICT, Innovation and Youth Affairs (2022). Kenya National Digital Master Plan 2022-2032 (p. 107)
[79] eCitizen portal at https://www.ecitizen.go.ke
[80] https://accounts.ecitizen.go.ke/register
[81] eCitizen Portal: http://evisa.go.ke/ecitizen-services.html
[82] Communications Authority of Kenya (2022). Second Quarter Sector Statistics Report for the Financial Year 2021/2022
[83] Ministry of ICT (2019). National Information, Communications and Technology (ICT) Policy
[84] Ministry of ICT, Innovation and Youth Affairs (2022). Kenya National Digital Master Plan 2022-2032

concrete customer needs, with eight of ten users surveyed stating to be "very satisfied with their quality."[85]

Besides the eCitizen portal, the Kenyan government has launched an initiative to support access to services via a physical one-stop shop. The Huduma Kenya programme is a programme that aims to provide citizens with access to public services based on a one-stop-shop concept via service centres called the Huduma Centres and through integrated technology platforms[86]. The project is implemented by the State Department of ICT, ICTA, and the State Department of Planning and Devolution. As of December 2021, Huduma centres had been established in 31 counties with 45 services being offered at the centres serving some 30,000 citizens a day[87].

According to the National Digital Master Plan 2022-2032, the challenges related to public e-service delivery are the following[88]:

- security & protection of government data and information,
- standardization of government systems and procedures,
- integration of government application systems & databases,
- sustainable management of e-government portals and websites, particularly in the context of limited financial and human resources for portal creation and maintenance,
- integration and streamlining of systems across National and County governments,
- low levels of awareness by the public on the e-government services available.

Currently the information about procedures is fragmented between separate portals and websites, making it harder for citizens to find information about their opportunities and obligations. Citizens should have access to all information on government procedures from a single point of contact. Having a public service portfolio framework in place would make it possible to have an overview of government services and their performance and ensure that services are managed according to a common standard.

2.7.2. Summary of findings

Key strengths	Opportunities for improvement
Many services can be accessed digitally through the eCitizen portal	Organize awareness-raising campaigns and programmes for people to acquire the ID card so as to make sure all citizens and residents have access to services

[85] Ibid. (p. 48)
[86] Ibid.
[87] Ibid.
[88] Ibid (p. 48)

Huduma centres as a physical one-stop shop for using public (e-)services	Digital one stop shop for information about procedures and services
Kenyan people in general open to innovation and new technologies, including e-services	Communication and messages regarding the benefits of digital services can be improved
	Considering the high illiteracy rate (literacy rate 81.54% in 2022), alternative awareness raising activities should be considered
	Implement public service portfolio management with an e-service standard and clear responsibilities for processes

2.7.3. Recommendations

- When creating new or updating existing government services
    - Promote **service design and design thinking** as part of the service development standards/guidelines
    - Evaluate when **user authentication** is actually needed and when not (e.g. open data portal)
    - Collect and evaluate **customer feedback**. Along with customer feedback and satisfaction, time for service delivery can be used as a tool to measure the success of the services and pinpoint areas where they can be improved. Making the resulting statistics available to the public would help promote government transparency and increase trust.
- To increase public awareness of government online services and/or other major e-government initiatives, carry out **awareness-raising programmes** in co-operation with the private sector. As trust towards the government in Kenya is low, people might find public IT-solutions more reliable, when the message is backed up by companies.
    - For instance, an awareness campaign about the benefits of Huduma Namba in the context of some concrete services could be carried out in such public-private collaboration. Such campaign/training could also be used to raise the awareness of the general public of privacy and cyber hygiene matters.
- To promote the adoption of digital services, **lowering the fees** could be considered.
- **Public service portfolio management framework should be implemented.** Public sector must offer different services in many different sectors across government, these services need to be cost-efficient and correspond to high expectations of users. Public service portfolio management framework consists of the service catalogue describing services, owners, users, providers, channels, input, output, financing, payment options, users' feedback, system usability scale etc., tools for service

prioritization and impact analysis together with key performance indicators and business process management rules. Information about services enables to evaluate efficiency of the service, plan modernization and digitization (incl. prioritize key services and registers), cooperate with private sector and other government organisations, create proactive services, reuse of existing data from government databases and reuse already developed services. Comprehensive approach to service development also focuses on information architecture, especially on how information is treated and keeping in mind five-star open data model, how information can be used by computers.

2.8. Telecommunications, digital infrastructure

Access to ICT is essential as a basic prerequisite for e-governance. A minimum level of ICT infrastructure capacity is needed to implement e-governance projects. Communications networks are built by commercial companies, while the state's task is to regulate the development of the networks and provide favourable conditions for residents to access the network. For example, electronic communications legislation should be developed and enforced. It is the responsibility of the state to connect all national and local government agencies, schools, libraries, hospitals, and other public authorities, using the existing network.

2.8.1. Current situation in Kenya

The Communications Authority of Kenya (CA), established in 1999 by the Kenya Information and Communications Act (1998), is the regulatory authority for the communications sector in Kenya. The CA is responsible for facilitating the development of the information and communications sectors including broadcasting, cybersecurity, multimedia, telecommunications, electronic commerce, postal, and courier services. It licenses telecommunications operators and service providers and monitors their performance. In addition, it regulates the frequency spectrum across the country and develops the national cyber security management framework. It also hosts the national computer incident response team (KE-CIRT/CC).

The Finance Act 2020 introduced a new digital services tax (DST) on income from services provided through a digital marketplace in Kenya at the rate of 1.5% on the gross transactional value. According to new Act, the digital services upon which DST shall be applicable shall include streaming and downloadable services of digital content, digital marketplaces, subscription-based media, electronic data management, online data warehousing, file-sharing and cloud storage services, online courses; etc. The DST came into effect on January 1, 2021.

In August 2020, MoICTYA published a new policy requiring foreign companies to have 30% local shareholding, a move that has been seen as a major setback for long-term foreign investments into the ICT sector. The new law further states that all government ICT procurement processes will give preference to local ICT companies in the award of tenders, including sectors such as defence and security. Further, where local businesses cannot fulfil

tender requirements, foreign companies will now be required to transfer skills and personnel to local firms. Foreign companies have until August 2023 to adhere to this requirement.

MoICTYA has launched the National Broadband Strategy (NBS) 2023, aimed at transforming Kenya into a knowledge-based economy through the provision of quality broadband services to all citizens in the country. There are currently six submarine cables, which are the core drivers of fixed internet penetration in the country, offering reliable connectivity via redundant routing.

By implementing NBS 2023, the government aims at increasing access to broadband coverage of 3G to 94% of the population by 2020, increase digital literacy in schools to 85%, expand broadband to the 47 counties, and obtain 50% digital literacy within the workforce.[89]

ICTA is also responsible for certain aspects of digital infrastructure, namely for establishing, developing and maintaining secure ICT infrastructure and systems as well as supervising the design, development and implementation of critical IT projects across the public service. ICTA includes an ICT Infrastructure Department, which covers three functions: network connectivity, network operation centre, and cloud / data centre. Terrestrial fibre has been developed through the National Optic Fiber Backbone Infrastructure (NOFBI) project, mainly to connect key government institutions at the national and county level. There are further plans to take connectivity to the ward level for better service delivery. Also, the Government Common Core Network was implemented within Nairobi to improve data sharing and exchange between ministries. In addition, ICTA has been involved in providing connectivity to schools, which is an important prerequisite for advancing ICT in education and the digital skills of pupils through other government programmes.[90]

The government has a Tier-2 Government Data Center in place to host government data and applications. It houses the most critical and sensitive data and information to support government services as a primary site. In addition, the Government is implementing a Tier-3 National Data Center at Konza Technopolis as part of the business continuity plan. The latter serves both government and enterprises and will also offer an environment for cloud computing for all MDAs.[91]

The main challenges remaining in terms of developing and providing digital infrastructure include limited coverage of national fibre infrastructure and limited internet penetration in the rural areas, network capacity constraints, lack of last mile infrastructure connectivity to all government institutions, limited access to infrastructure for private, business and educational use, cybersecurity, etc.[92]

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[89] Ministry of ICT, Innovation and Youth Affairs, Communication Authority (2018). National Broadband Strategy 2018-2023

[90] Ministry of ICT, Innovation and Youth Affairs (2022). The Kenya National Digital Master Plan 2022-2032

[91] ICTA website page 44-45 (accessed on 2 June 2022). Who we are: Departments

[92] Ministry of ICT, Innovation and Youth Affairs (2022). The Kenya National Digital Master Plan 2022-2032 (page 44-45)

2.8.2. Summary of findings

Key strengths	Opportunities for improvement
Regulators in place	Building out the last mile and connecting remote communities and schools
Good connectivity in urban areas	Continue the initiative to provide connectivity to schools
Clear plans in place for development, also in PPP	Improve access to basic infrastructure (incl. electricity – e.g. through promotion of solar energy in remote areas)

2.8.3. Recommendations

- **All public institutions need to have access to basic infrastructure components.** This includes access to stable and affordable basic services such as electricity, Internet access or cellular network coverage, but also funding for internal hardware and software needs, incl. data management and information storage demands. Public bodies should provide the appropriate central institution with a complete inventory of the ICT infrastructure and equipment needs (for both the ministry and its institutions and branches) to effectively partake in digital governance.

2.9. E-participation, e-democracy

E-democracy is an integral part of a nation's digital transformation. The smart use of digital tools enriches and transforms existing governance models and practices, increasing the transparency, responsiveness, and accountability of government. It also offers citizens an additional opportunity to take part in political processes, resulting in better political outcomes for the society as a whole. For successful e-governance it is beneficial to examine how it is possible to support civil society and encourage citizen engagement. This is a part of general computer literacy development.

2.9.1. Current situation in Kenya

The Constitution of Kenya lists democracy and the participation of the people among the national values and principles of governance. Furthermore, according to the Constitution, it is an object of the devolution of government to "enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them". The Constitution also foresees residents to be given opportunities to participate in the governance of urban areas and cities as well as at the county level. There are some good examples of these principles being applied at the county level, e.g. in the Elgeyo-Marakwet county where citizens take part in drawing up the county budget, but in most counties such provisions are not applied in practice.

The Access to Information Act (2016) provides that every citizen has the right of access to information held by (a) the State; and (b) another person and where that information is required for the exercise or protection of any right or fundamental freedom. Although certain authorities (e.g. Communications Authority) have developed their own guidelines on access to information requests, there are no guidelines across the public sector and there is no authority with the specific mandate to further and oversee (e-)participation and engagement.

Ministries and other government agencies have their own websites providing general and organizational information, information about services and service channels, announcements, and information about tenders. Many public authorities also have active social media accounts on Facebook and Twitter.

However, Kenya holds modest rankings in international indices when it comes to openness and participation. According to Transparency International's 2021 Corruption Perception Index[93], Kenya is ranked 128th (out of 180 countries) with an overall score of 30 (compared with 31 out of 100 in 2020 and a global average score of 43 in 2021). In the UN E-Participation Index (2020), Kenya was ranked 90th out of 153 countries, which is nevertheless above the world average and an improvement compared to two years prior.

In general, the government faces huge issues related to trust, considering that according to the 2022 Edelman Trust Barometer[94], only 39% of the population trusted the government (trust towards NGOs was 73%, 70% for business, and 57% for media). Some 46% of the people consider the government as divisive and not able to solve societal problems.

Kenya has taken part in the Open Government Partnership initiative since 2011. The process is nationally coordinated by the Office of the Deputy President. The current action plan for 2020-2022, which is the fourth consecutive plan of its kind, includes 8 commitments related to the publication of data on companies, transparent procurement processes, availability of data, democratic engagement in the legislative process, standards of public servants, proactive disclosure of information, access to justice, and the culture of open government within public service. More than 10 authorities are assigned as the lead implementing organizations for these commitments and many other organizations, both public sector authorities and CSOs are listed as involved actors and stakeholders. Most of the total of 55 specific milestones to fulfil the commitments are planned to be reached by mid-2022 or the end of 2022.

Despite commitments related to open data, CSOs do not consider the existing open data portal to be a success. The fact that the use of the open data portal at https://www.opendata.go.ke/ requires credentials to access any kind of content is likely to be discouraging to potential users.

A public procurement information portal is in place for tender and contract notices, but the procurement process itself is manual and cumbersome.

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[93] Transparency International (2020). Corruption Perceptions Index
[94] Edelman (2022). Edelman Trust Barometer

During meetings with public sector authorities, all of them acknowledged the need to actively engage in citizen engagement, as required by the Constitution. However, it seems that the engagement processes are not coordinated and are heavily dependent on the particular leadership of the authorities. When interviewing representatives of the private sector and CSOs, they clearly distinguished between more and less successful public sector authorities when it comes to public participation and engagement, with many highlighting the good work done by the Communications Authority.

At the same time, certain public authorities still view public consultations as a process that is a necessity required by law, where they take part to convince the stakeholders rather than to receive beneficial ideas and feedback. According to one CSO, stakeholder involvement is often limited due to short deadlines for submitting stakeholder opinions. Another issue is that the input gathered through the public consultation process is not always properly processed – it sometimes remains unclear who proposed what and what happened to the proposals. In certain cases it might also happen that people are not necessarily opposed to a certain bill but are simply not aware of it and its implications because of poor communication (cf. the Huduma Bill, which is currently being discussed in the Parliament for the Nth time and by the time of writing this report had not been adopted largely due to issues related to awareness and trust).

Yet, the general impression of the CSOs and the business sector is that the communication and cooperation with public sector authorities is improving. There are increasingly more projects and policy processes where stakeholders from other sectors are involved. Several of those interviewed highlighted the important role of the recently appointed Data Commissioner in raising trust towards the public sector as well as promoting openness and inclusion.

2.9.2. Summary of findings

Key strengths	**Opportunities for improvement**
Engagement of stakeholders is mandated by the Constitution	Proactive publishing of information and proper inclusion of stakeholders
Active civil society	Better management of the engagement processes and proceedings: overview of input received from stakeholders & feedback on its impact
	Open data to be freely accessed by everyone

2.9.3. Recommendations

- **Develop engagement guidelines for the public sector and nominate a ministry/agency responsible for ensuring their implementation across agencies.** The document should cover different steps of engagement: asking for feedback, discussing the feedback, informing the public of whether the proposals were considered or not and why, etc. In addition, civil servants must be trained to make

sure they have understood the value of engagement and know the related rules and agreements.

- **Increase the duration of the public consultation period to at least 30 calendar days** to increase participation in public consultations. Considering that the primary job of interested stakeholders is usually not policy formulation, a longer period would leave them sufficient time to acquaint themselves with documents and form an opinion on them.
- **Make the open data portal free for everyone to use.** Up to date data should be available in non-proprietary open format (3rd level of the 5-star Open Data deployment scheme[95]) and the publication of the data should be based on an analysis of private and public sector needs. Continuously developing the governmental open data model makes it possible to promote partnership with private sector enabling them to create new services based on the data government has. The same applies to public sector and has enormous effect on artificial intelligence implementation.

2.10. International cooperation

To benefit from the advantages that e-governance can provide for international relations (trade, free movement, research and education, etc.), it is important for states to take part in international cooperation (regional or other). Such cooperation helps states to learn from one another and develop joint projects.

2.10.1. Current situation in Kenya

Due to its recent progress in the digital sphere, Kenya has sometimes been referred to as the digital hub of Eastern Africa. Kenya is an active member of the International Telecommunications Union (ITU) and the World Summit on the Information Society (WSIS) as well as cooperates in UN working groups (GGE, OEWG) and interacts internationally in the field of cybersecurity (FIRST, ITU-IMPACT, cooperation with other CIRTs). Kenya was also one of the seven founding members of the Smart Africa partnership and is responsible for its flagship project on digital economy.

The need for international cooperation and regional standards has been emphasized not only in the Digital Master Plan 2022-2032 but also by President Kenyatta who has called for African economies to "harmonize their ICT standards so as to achieve interoperability of their digital infrastructure"[96].

[95] https://5stardata.info/en
[96] Presidency (2021). Kenya Hinging On Digital Technologies To Transform Its Economy, President Kenyatta Says

Despite some cross-border e-services and initiatives already existing (e.g. paperless trade[97], e-customs, digital currency[98]), it seems that the recent digitalization efforts in Kenya have been rather inward-oriented. Based on the interviews held, it seems that there is not a lot of exchange of experience and international cooperation taking place at the level of the ministries. Also, cooperation with international academic institutions should be further strengthened.

The coordination of international digital cooperation falls under the Ministry of Foreign Affairs in terms of entry into agreements and management of bilateral and multilateral relations, but also under the Treasury who coordinates the funding from international donors. MoICTYA is often in the role of an implementing partner when it comes to execution of externally funded projects. The concept of digital diplomacy is not yet clearly developed in the Ministry of Foreign Affairs[99] – there is no person or unit responsible for digital diplomacy at the ministry and there is no clear national strategy for external digital cooperation.

There is a high interest from a number of international donors to support Kenya's further digitalization. The European Commission has a long-standing partnership with Kenya and cooperates in the country's economic, security, and development policies. The EU has launched a strategic dialogue with Kenya on three areas – 1) peace, security and stability, 2) sustainable, inclusive development and SDGs, and 3) economy, trade and investment - supporting the Kenya Vision 2030[100]. All these areas foresee cooperation on digitalization: reducing the digital gap, promoting digital economy, strengthening open and inclusive digital governance and cybersecurity. A major initiative to coordinate the digital cooperation is the Team Europe Initiative on Human-Centred Digitalisation involving ten Member States and a number of development organizations[101].

Other active donors include the World Bank, the UK Government's Foreign, Commonwealth and Development Office (FCDO), and USAID.

- The World Bank is actively supporting the government's Vision 2030 development strategy. Together with GoK they are currently jointly implementing the Eastern Africa Regional Transport, Trade and Development Facilitation Program to build and rehabilitate fibre cable. Other recent projects have supported digital innovation in agriculture and digital integration in the transport sector. A digital economy acceleration project has also been planned[102].

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[97] Tralac (2021). The status of paperless trade in Kenya
[98] Capital Business (2022). Kenya Prepares For Digital Currency As CBK Hails Its Potential In Cross Border Payments
[99] Waithaka, I. N (2018). "Digital Diplomacy: The Integration of Information Communication Technologies in Kenya's Ministry of Foreign Affairs, 1963-2014"
[100] European Commission (2022). Where we work: Kenya
[101] European Commission (2022). Team Europe Initiative and Joint Programming tracker: Kenya - Digital
[102] World Bank (2020). Project Information Document (PID): P170941

- DCDO runs a Digital Access programme, which aims to catalyse more inclusive, affordable, safe and secure digital access for excluded and underserved communities in Kenya, among other countries, involving a wide range of stakeholders from Kenya[103].
- USAID conducted a Digital Ecosystem Country Assessment for Kenya in 2020[104] and has foreseen supporting digitalization in its Kenya country development cooperation strategy for 2020-2025[105].

There is also some bilateral cooperation taking place, e.g. the Germany's Digital Transformation Centre Kenya, which is implemented by GIZ and directly advises the GoK and implements projects in the areas of digital entrepreneurship and e-business, e-government, digital economy, data protection and governance as well as emerging technologies such as artificial intelligence. Also, bilateral cooperation with Estonia[106] that has resulted in a memorandum of understanding on digital cooperation between the two countries, and cooperation on youth employment (including the provision of digital platforms) with Finland[107].

2.10.2. Summary of findings

Key strengths	Opportunities for improvement
A lot of international donor attention	Strategy for international cooperation and more systematic engagement with the donor community, especially its Sectoral ICT Donor Coordination Group
Viewed as the digital hub of Eastern Africa	Practical cooperation and exchange of experience, also involving the private sector

2.10.3. Recommendations

- **The organisation responsible for international cooperation in the field of digital government should identify, analyse, and implement global best practices relevant to digitalization**. This means onboarding cooperation with countries who have successfully implemented digital government architecture and

[103] KICTANet (2022). Partnering for Effective Connectivity and Broader Digital Inclusion
[104] USAID (2020). Kenya Digital Ecosystem Country Assessment
[105] USAID (2020). Kenya Country Development Cooperation Strategy (CDCS): October 2020 - October 2025
[106] Estonian Ministry of Foreign Affairs (2021). Foreign Minister Liimets and Kenyan foreign minister discussed bilateral relations and cooperation and the impact of the pandemic
[107] Embassy of Finland, Nairobi (2022). Finland's Relations and Development Cooperation in Kenya

services, analysing their success stories and lessons learned to be able to make use of these in the Kenyan context.

- **Develop a proof of concept for cross-border interoperability** together with the private sector to improve their service provision or to ease their burden while communicating with the government (e.g. open data, business licensing, etc.).
- **Ensure that the presence of foreign policy and international relations is well represented in digital channels and on digitalization topics.** It should be considered to establish a position or a department responsible for representing Kenya and its digital transformation interests as part of Kenyan foreign policy activities. These interests should be presented towards other countries and international organisations as well as towards technology companies. G2G initiatives on international cooperation should have clearly articulated aspirations on the digital transformation of Kenya and Memoranda of Understanding between governments should include specific action points with a focus on digital initiatives.

Annex 1: List of interviews held

- Strathmore University (1 April 2022)
- Amnesty International (8 April 2022)
- KICTANet (25 April 2022)
- TESPOK (27 April 2022 and 29 April 2022)
- Ministry of ICT, Innovation and Youth Affairs (5 May 2022 and 23 May 2022)
- Attorney-General's Office* (17 May 2022)
- Judiciary of Kenya* (19 May 2022)
- ICT Authority (23 May 2022)
- Communications Authority (23 May 2022)
- Ministry of Lands and Physical Planning (23 May 2022)
- Ministry of Education (24 May 2022)
- Mzalendo Trust (24 May 2022)
- Nairobi University (24 May 2022)
- Huduma Namba Secretariat (26 May 2022)
- Office of the Data Protection Commissioner (27 May 2022)

** interviews led by GIZ and EstDev within a parallel project*