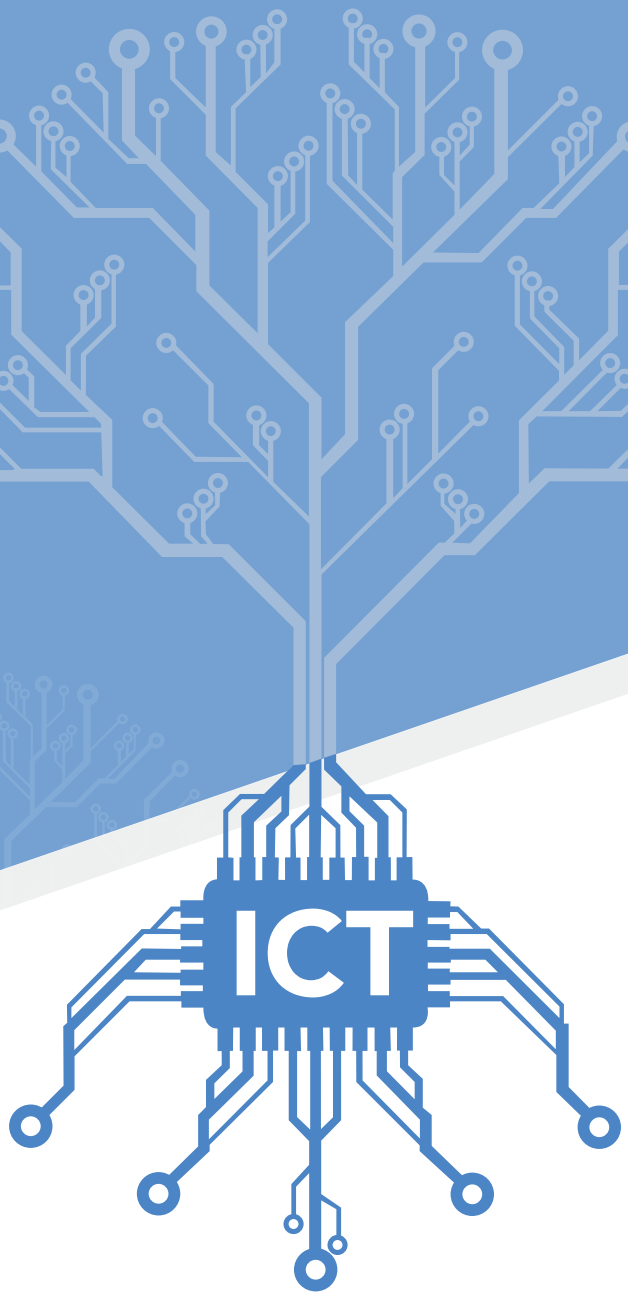
FEDERAL REPUBLIC OF SOMALIA

MINISTRY OF POST, TELECOMMUNICATIONS & TECHNOLOGY



NATIONAL ICT POLICY & STRATEGY

2019-2024

TABLE OF CONTENTS

(i)	FOREWARD BY THE PRIME MINISTER	4
(ii)	INTRODUCTION BY THE MINISTER	5
1.	THE ICT POLICY AND STRATEGY	7
1.1	Introduction	7
1.2	Alignment of ICT Policy with National, Regional & Global Commitments	9
2.0	ICT policy Vision, Mission and Principles	10
2.1	Vision And Mission Statements	10
2.2	Key Principles	10
3.0	ICT SECTOR STATUS AND OUTLOOK	11
3.1	Telecommunications & Internet	11
3.1.1	Last mile connectivity	11
3.1.2	Backbone infrastructure	12
3.1.3	Interconnection and Local Hosting	13
3.2	Broadcasting	13
3.3	Postal Services	14
3.4	Electronic Payments Platforms	14
4.0	POLICY OBJECTIVES AND STRATEGIES	15
4.1.	Policy goals	15
4.2.	Key priorities	16
4.3	Summary of strategic goals and timelines	17
5.0	INSTITUTIONAL STRUCTURES & RESPONSIBILITIES	20
5.1	Ministry of Posts, Telecommunications and Technology (MPTT)	20
5.2	National Communications Authority (NCA)	20
5.3	Telecom/Internet service providers / Local operators	21
5.4	Broadcasters	21
5.5	Other Ministries and Government Departments	22
5.6	Local ICT Companies	22
5.7	Other Entities	22
5.8	Summary of Key Institutional Arrangements	22
6.0.	POLICY FOCUS AREAS	23
6.1	Legal, and Regulatory frameworks	23
6.1.1	Policy objectives	23
6.1.2	Strategies	23
6.2	ICT Infrastructure	24
6.2.1	International & National Backbones	24
6.2.2	Fixed and Mobile Last Mile Solutions	25
6.2.3	Radio Spectrum Management	25
6.2.4	Facilitating Access to Rights-of- Way (ROW)	25
6.2.5	Leveraging Passive Infrastructure	25
6.2.6	Tower Sharing and Co-Location	26
6.2.7	Security And Reliability Of Critical ICT Infrastructure	26
6.2.8	Government Data Center	26
6.2.9	Financial Systems Infrastructure	27
6.2.10	Supporting Strategies	27

6.3 Universal Access to Voice and Broadband Internet Services 27
6.3.1 Affordability targets 28
6.3.2 Competition Policy 28
6.3.3 Strategies 28
6.4 Information safety and Cyber-security 28
6.4.1 Policy objectives 29
6.4.2 Strategies 29
6.5 Supporting Equal Access 30
6.5.1 Policy Objectives 30
6.5.2 Strategies 31
6.6 Human Resource Development 31
6.6.1 Policy objectives 32
6.6.2 Strategies 32
6.7 Innovation, Research and Development 33
6.7.1 Policy objectives 33
6.7.2 Strategies 34
6.8 E-Commerce, Protection and Data privacy 34
6.8.1 Policy objectives 34
6.8.2 Strategies 35
6.9 Digital Transformation in Government 35
6.9.1 Policy objectives 35
6.9.2 Strategies 36
6.10 E-Health 36
6.10.1 Policy objectives 36
6.11 E-Education 36
6.11.1 Policy Objectives 37
6.11.2 Strategies 37
6.12 E-Agriculture 38
6.12.1 Policy objectives 38
6.12.2 Strategies 38
6.13 Local Content Development 38
6.13.1 Policy objectives 39
6.13.2 Strategies 39
6.14 Investment and funding 39
6.14.1 Policy objectives 39
6.14.2 Summary of Strategies 39

7. POLICY IMPLEMENTATION & RESOURCE MOBILISATION 40

8. ANNEX 41

FOREWARD BY THE PRIME MINISTER



H. E. Hassan Ali Khaire, Prime Minister Federal Republic of Somalia

After decades of conflict, Somalia is able and ready to reform its key economic sectors for sustainable economic growth. Among the key enablers of Somalia's economy are information and communications technologies (ICTs), which has grown exponentially in the past two decades despite many challenges. With growing mobile penetration rate, advanced mobile money market and growing local tech companies the sector is one of the brightest spots in the Somali economy and immensely contributes to our GDP.

The development of the National ICT Policy and Strategy 2019-2024 is another milestone by the Ministry of Post, Telecommunications and Technology that will guide our country's ICT vision for the next five years. This policy and strategy is aimed at creating synergies among government ministries and agencies because in a connected global economy no society, government or national economy can function without the use of ICTs. .This National ICT Policy will serve as the linchpin that would link the economic, the social and the political dimensions of our initiatives in area of our socio-economic development.

I call upon other government ministries and agencies, private sector and development partners to help in the implementation of this policy and make their ICT-related initiatives in line with this Policy and Strategy. Such partnership and coordination are very important for mobilizing the required resources and avoid duplication.

I would like to thank the Minister, State Minister and Deputy Minister and the entire team at the Ministry for the great work they have done since 2017. My government and the people feel proud of the work they have done..

H. E. Hassan Ali Khaire
Prime Minister
Federal Republic of Somalia

INTRODUCTION BY THE MINISTER

The world has embraced Information and Communication Technology (ICT) as an enabler of social and economic development. Despite years of anarchy, Somalia had a successful ICT sector, providing one of the cost-effective voice and data service in Africa. However, the main challenge hindering the sector progress was the lack of legal, policy and regulatory framework.

From 2017, a number of bold initiatives were taken in regulating this important sector. The Communications Law – which has been before the Parliament since 2005 – has been passed and signed by President; a regulator was established; a number of regulations were passed; and local telecom operators were licensed after paying the license fees under the new law for the first time.



H. E. Eng. Abdi Ashur Hassan
Federal Minister of Post, Telecommunications & Technology

The ICT Policy and Strategy 2019-2024 is an outcome of extensive consultations and conformations with international best practices. Foremost importance has been given to the views of stakeholders to ensure the element of inclusiveness in the policy.

As the first National ICT Policy and Strategy, we aim to realize the vision of government in the making Somalia a regional leader in digital economy. This is an important step in determining the principles and objectives to be achieved by all stakeholders. Furthermore, the document aims at strengthening the central ICT co-ordination and increasing consistency and collaboration among public and private sector.

The vision articulated in the policy is availability of universal, affordable and quality ICT services provided through open, competitive and well-managed markets which can be used by people to the benefit of the economy and society.

Finally, I would like to thank the Cabinet for the approval of this policy; Federal Member States for their valuable input during the drafting process; and all other stakeholders for their feedback during the consultation process. I would also like to thank International Telecommunication Union (ITU) for their technical support to this policy.

H. E. Eng. Abdi Ashur Hassan
Federal Minister of Post, Telecommunications & Technology

ICT for development is not about computers, mobile phones, and the internet, but about help, support, and train people in linking them and communities for communication, learning, and services. This will lead to improved well-being, increased work productivity, support for innovation, and impetus for inclusive growth.



THE ICT POLICY AND STRATEGY

1.1 INTRODUCTION

This document sets out the 5-year 2019-2024 National ICT Policy and Strategy which provides the framework needed to leverage
the benefits of ICTs to support the social and economic development of Somali society.

The goal of this Policy is to facilitate Somalia's digital transformation to a knowledge-based and inclusive society, and to accelerate socio-economic development toward fulfilling the Sustainable Development Goals.

This ICT Policy and Strategy (the Policy) outlines priorities and areas of intervention to support the development of the ICT sector and to help meet overall socio-economic development goals. The broad areas of focus over the five year period are:

- Access - Cost of connectivity and coverage of networks
- Domestic digital infrastructure – interconnection/IXPs, local hosting, domain names, quality of service, cyber security
- Citizen / consumer protection – e-commerce, privacy, child protection
- Human resource development – digital literacy, ICT skills, e-education, R&D
- Content – local media online, applications and financial services,
- e-Gov – Government interconnection and open data, public e-services (e-government, e-health, e-agriculture and e-education).
  In this respect the key overarching goals of the Policy are therefore:

i To develop the critical ICT ecosystem components needed to empower Somalia's citizens with ICTs and to open up the potential for new business opportunities, thereby helping to achieve the socio-economic development goals of the National Development Plan (2017-19)

ii To speed up Somalia's use of ICTs to support increased economic and social activity, in banking and financial services, communications, health and education

iii To achieve full mobile coverage and correct the significant disparities in access and affordability to ICT infrastructure and services both within and beyond the urban centres, in line with the Somali Infrastructure Strategic Plan (2019-2063). This would incude deployment of required ICT infrastructure in all the Regional States

In 2017, the Federal Republic of Somalia passed the National Communications Law which established the regulatory authority - the National Communications Agency (NCA) - defining its structure, decision-making procedures and the key areas of its responsibilities. The National Communications Law lays the basis for a competitive and enabling regulatory environment that recognises the need to ensure citizens have access to voice, broadband and postal communication services throughout the country.

The Policy provides the strategic framework for the National Communication Law and seeks to provide all stakeholders across all levels of government, private sector, civil society and the public with a clear roadmap to drive economic, social, cultural and political transformation through effective use of ICTs. ICTs have a critical role in enabling socio-economic development with positive impacts on job creation, delivery of health care, education and research, and civic participation. However, obtaining the maximum potential from these technologies requires comprehensive policies that take a multi-sectoral view of ICTs. For example, this includes the areas of education, health, finance, empowerment and social transformation, employment and social development.

The Policy therefore aims to address ICT infrastructure and other ecosystem gaps through the use of several policy instruments and actions that make use of supply side and demand side measures. It is expected that providing the required ICT platforms and integrated support will contribute to building a cohesive and economically independent society.

SUMMARY OF KEY POLICY FOCUS AREAS:

- Policy, legal, and regulatory framework
- Public communication services – voice and broadband internet,
- Universal access strategy (use of ICTs in underserved areas and by women, youth, the disabled and marginalised groups
- Basic infrastructure in all Regional States - domestic and international backbones, radio spectrum, interconnection
- Digital infrastructure – internet exchange points, cybersecurity, payments platforms
- Consumer protection, privacy & child protection
- Human resource development – education, training, innovation, research and development
- Digital services and content – e-commerce, financial services, media, governance/public administration, health, education, agriculture
- Postal services development

1.2 ALIGNMENT OF ICT POLICY WITH NATIONAL, REGIONAL & GLOBAL COMMITMENTS

The Ministry of Planning is in the process of developing a new National Development Plan (NDP) to replace the current plan (2017-2019). This Policy will be used as a reference for the ICT components to help guide its development, and to be in alignment with. In this respect the Policy aims to support the country's long-term vision for socio-economic development and the 2030 Sustainable Development Goals (SDGs), including economic transformation, national cohesion, human development, public governance and security, and cross cutting issues (e.g., gender equality and persons with disabilities).

Globally, target SDG 9c aims to reach universal and affordable access across the world's Least Developed Countries (LDCs) by 2020. Achieving this in Somalia and many other LDCs is unlikely without concerted action to ensure that access to ICTs can facilitate the developments that are planned for all SDGs. Many national and regional agreements and commitments are aligned to this global vision of universal and affordable access to all, including those among East African countries and at the African Union level.

The goals set by the UN Broadband Commission provide more detailed targets:

- By 2025, all countries should have a funded national broadband plan or strategy, or include broadband in their universal access and services definition.
- By 2025, entry-level broadband services should be made affordable in developing countries, at less than 2% of monthly gross national income per capita.
- By 2025 Broadband-Internet user penetration should reach:

a. 75% worldwide
b. 65% in developing countries
c. 35% in LDCs

- By 2025, 60% of youth and adults should have achieved at least a minimum level of proficiency in sustainable digital skills.
- By 2025, 40% of the world's population should be using digital financial services.
- By 2025, lack of connectedness of Micro-, Small- and Medium-sized Enterprises should be reduced by 50%, by sector.
- By 2025, gender equality should be achieved across all targets

It is recognized there are many key issues that need to be addressed to achieve an optimal ICT ecosystem able to foster progress towards the SDG connectivity targets, and other commitments. For example, limited digital literacy levels, lack of local content, security issues, gender inequalities and the absence of affordable energy supply are all significant barriers that need to be dealt with. This Policy also acknowledges the need to take into account fast moving technology developments in the ICT space, such as the emerging areas of the Internet of Things (IoT), Artificial Intelligence, Robotics, and Machine to Machine (M2M) services, Net Neutrality, Big Data, Blockchain Technologies and Cryptocurrencies. As these evolve the Policy will need to be reviewed and adjusted accordingly.

2. ICT POLICY VISION, MISSION AND PRINCIPLES

2.1 VISION AND MISSION STATEMENTS

The vision of the ICT Policy and Strategy is:
To leverage the potential benefits of ICTs in support of economic development and social inclusion for all Somalis.

The mission of the ICT Policy and Strategy is:
To guide investment in the ICT ecosystem and facilitate the use of ICTs to the benefit of the Somali people.

The vision and mission encapsulates the Policy's aim to ensure the presence of resilient infrastructure that supports expanded connectivity to attract investment and promote employment opportunities. This requires measures that encourage all stakeholders – government agencies, private sector, civil society, development partners and the media - to play a role in the effort to achieve the goals of the Policy in the areas of telecommunication and Internet infrastructure development, human capacity and digital skills, content development, uptake and strategic use of services and products, online safety and privacy, quality of service and efficiency of broadband networks and social inclusion of all citizens.

2.2 KEY PRINCIPLES

- ICTs have a key role in stimulating national socio-economic development, modernization and globalization of Somalia's economy
- Effective use of ICTs can help to maximise participation by all sections of the population in governance, national cohesion and socio-economic development
- Pervasive and affordable domestic ICT infrastructure is a precondition to achieving the objectives of national inclusion and participation
- An enabling Legal and Regulatory Framework is key to facilitating investment and growth of the ICT sector
- Human resource development and digital literacy are essential to leveraging the maximum potential from ICTs
- Collaboration between the private ICT Industry and Government is vital in achieving Somalia's strategic goals and objectives, including balanced and efficient taxation of the sector which ensures that the private sector makes its fair contribution to the National Treasury

3.0 ICT SECTOR STATUS AND OUTLOOK

3.1 TELECOMMUNICATIONS & INTERNET

3.1.1 LAST MILE CONNECTIVITY

The public telecom and Internet sector in Somalia is largely composed of mobile operators and their users, which comprise 35-40% of the population, employing about 25,000 Somalis. Currently the market comprises 5 major operators (Hormud, Somtel, Golis, Telesom, NationLink) and two MVNOs (SomNet and SomLink). These are primarily Mobile Network Operators (MNOs) which provide voice and data services, mainly in urban locations and surroundings to about four million subscribers. Golis Telecom, Telesom, SomNet and Hormuud are interconnected, while Somtel is a subsidiary of Dahabshiil and is interconnected with SomLink. Nationlink has a very small market share and Somaphone is dormant, although it has an active network in Mogadishu. Amal Telecom is still becoming established - it has made investments but has not yet launched service. Currently the NCA is engaged in the important process of regularizing the market by negotiating the issuance of licenses to all of these de facto operators.

Somalia's fixed line market has only recently begun to develop, and there are now some high speed fibre access networks deployed to government, business and homes in a few urban locations.

Internet uptake in Somalia is relatively low, at about 10% of the population, partly because of the country's historic security situation, as well as lack of stable energy sources which has hindered the development of the ICT sector, along with limited demand caused by low literacy and ICT skill levels among large groups of the population. Nevertheless, ICT, and mobile in particular, is one of the fastest growing sectors, generating profits and is the third largest industry by employment in Somalia.

The key policy objectives for guiding future network development are to ensure that as all Somalis have access to affordable voice and broadband data services that meet international performance benchmarks. It is expected that private operators will fulfill needs for last mile connectivity to most of the remaining unconnected population once cost-effective and pervasive backhaul infrastructure is in place, along with the other key elements of the enabling environment, such as access to sufficient radio spectrum and regulation of companies that have Significant Market Power (SMP) in relevant geographic and product markets. To reach the poorest of the poor in the most isolated locations, additional government support may be necessary. This will be assessed during the bi-annual review of the policy.

3.1.2 BACKBONE INFRASTRUCTURE

Although some operators have built their own microwave and fibre backbone links in some areas, Somalia does not have an open competitive market in national and international capacity - a necessary precursor to the development of the ICT sector. As a result, growth in Internet-use is also constrained by both the high cost of international bandwidth and the lack of a domestic fiber optic backbone infrastructure outside of Mogadishu to link the landing stations to the other cities and towns across the country.

Once a pervasive national fibre backbone is in place, Somalia's strategic geographic location and multiple international cable links can be leveraged to the benefit of the domestic ICT industry and the public. Somalia is close to several major undersea cable networks which connect Europe, the Middle East, India and the Gulf of Aden. To maximise this potential an open stance will be taken on licensing cable landing stations, and competitive international gateways will be encouraged.

International connectivity in Somalia has already improved in recent years with the landing of the EASSy submarine cable in Mogadishu and Somcable's terrestrial fiber link to Djibouti, which takes advantage of the large number of submarine cables there to obtain low cost international capacity. In addition, the cable landing in Bosasso from Oman is used by Golis Telecom and terrestrial fiber networks from Kenya and Ethiopia have been extended to the Somali border.

In the future, the Djibouti Africa Regional Express (DARE) cable initiative will connect Djibouti, with Berbera, Bosaso, Mogadishu and Mocha (Yemen). In addition, the PEACE and AfricaOne cables and other international submarine fiber optic cables running along the East Coast, are also expected to become present in the Somali market, such as SEACOM, and TEAMs.

Deployment of domestic fibre infrastructure to connect the urban areas is a top priority, necessary to ensure inclusion of the whole country in access to affordable Internet services. Wherever feasible, the national backbone network will prioritize deployment of fiber optic cable, due to its superior network capacity - meeting the expected demand in large urban locations will be economically infeasible using non-fiber solutions such as satellite or microwave radio links. Nevertheless, in the interim before terrestrial infrastructure becomes available, and for remote rural areas as well as for TV broadcasting and backup links, traditional satellite connectivity will continue to play an important role. In the future, new high altitude platforms (HAPs) and constellations of low earth orbit satellites (LEOs) may disrupt the existing market with new low cost broadband services.

Initial estimates indicate that the envisaged fibre optic backbone network would cost between US$67-100 million to build. Combining network deployment with planned road reconstruction would provide substantial cost savings on this estimate, while reaching additional smaller cities and rural areas, as well as improving network resilience, in subsequent phases, will require additional investment.

3.1.3 INTERCONNECTION AND LOCAL HOSTING

For voice traffic, few operators in Somalia interconnect with each other, although some may do so internationally, or on a bilateral basis through private agreements. Limited interconnection results in reduced competitiveness in the market and lower quality of service. To address this situation an Interconnection Regulation with a clearly defined set of rules and guidelines for voice connections between licensed operators has been drafted.

For Internet traffic, operators interconnect internationally partly due to the currently limited quantity of domestic Internet traffic. However with the rapid growth in use, and expansion of the national backbone and hosting services, domestic Internet traffic will soon need to be routed locally, to provide along with shared caching and related services which need to be available within Somalia.

MPTT is facilitating this process with the establishment of Somalia's first Internet Exchange Point (IXP) in Mogadishu – the Somali Internet Exchange Point (SoIXP). Once operators connect to the IXP this will reduce latency, improve competition and performance, decrease the cost of network operations and provide scale for additional services.

3.2 BROADCASTING

Radio is the most important channel for broadcast communications in Somalia. There are dozens of FM radio stations, and a growing number of terrestrial and satellite television stations. Most FM radio stations in Somalia have a limited geographical coverage - in the town where they are based and a small surrounding area, with no single Somalia-based radio station providing broad national coverage.

More recently, television has become increasingly popular in urban areas, both in private homes and in public places and viewing centres. State television media is also a part of the current Somali media environment and online media has also developed with a vibrant web site and social media community, including the Somali Media Council (SMC).

To develop broadcasting law and regulations, the MPTT is working with the Ministry of Information, Culture and Tourism (MOICT), NCA which provides technical licensing, the State Ministries of Information, which is the authority responsible for content. Article 33 of the Media Law refers to Public Broadcasting Services (PBS) describing the protection of a legal framework for an editorially independent service.

Aside from ensuring equitable spectrum allocation for broadcasting is made, NCA is also responsible for migrating spectrum use away from analog services. NCA is in the process of developing a draft Digital Migration Strategy which will be implemented through consultative multi-stakeholder process to bring together government, regulator, broadcasters, signal distributors, vendors and consumer association groups to ensure harmonization in the broadcasting radio spectrum area, in line with international practice.

3.3 POSTAL SERVICES

Postal services ceased operations during the civil war, however, considering its importance for the functioning of the public and private sectors, the MPTT has re-established Posta Somalia as a fully-functioning postal service that connects Somalia domestically, and to the rest of the world via a postal gateway through Djibouti.

MPTT envisages a new approach to managing and operating postal services based on business principles, harnessing of technology to increase efficiency and forging international partnerships that benefit the Somali people by supporting entrepreneurial trade initiatives. This would take into account the promotion of private local/international postal services investment and presence. In this respect Posta Somalia is expected to be a catalyst for e-commerce in the country and will improve existing supply chains for trade and commerce, which are both priorities for the MPTT. In support of this linkages between postal services and the financial sector will be developed, which will also improve the environment for remittance businesses.

To ensure the postal sector is able to meet the expected needs for services, a separate postal services policy will need to be developed. This would include establishment of a national digital addressing system (NAS) and a National Spatial Data Infrastructure information management system which could support a national postal code addressing system.

3.4 ELECTRONIC PAYMENTS PLATFORMS

Electronic payment services are relatively well developed in Somalia. Seven out of ten regularly use their mobile device to access mobile payment services, with over 150 million transactions a month, worth $2.7 billion or 36% of GDP.

There is a need to strengthen the legal and regulatory framework in this sector to ensure:

- Increased financial inclusion
- Development of a wider range of financial services, including international payments and banking services
- Interoperability/interconnection
- Financial stability of the current system of mobile payments and
- Sufficient citizen protections.

Amendments to the 2012 Financial Institutions Law will likely be necessary in order to cover all providers of financial services, and ensure that all financial service providers are governed by the same law, and have equal levels of access to shared financial market infrastructure such as payment systems and a potential ID management system, thereby contributing towards a conducive business environment for shared services, and a level the playing field for potential new entrants into the market

4.0 POLICY OBJECTIVES AND STRATEGIES

The primary goal of the ICT Policy and Strategy is to ensure that citizens of Somalia are able to take full advantage of the tremendous potential for ICTs to accelerate development, and to create new wealth and jobs. To achieve this mission and realize the vision for this policy, a number of policy objectives have been identified covering the sub sectors of telecommunications, broadcasting, postal, electronic payments, and information management sytems, as well as other cross cutting and emerging areas.

4.1. POLICY GOALS

The broad goal is to provide an overarching framework and platform to ensure Somalia has opportunity to fully leverage the potential benefits of the information and communications revolution. The specific goals are:

- To expand ICT infrastructure to all the regions of Somalia connecting all cities and sub-regional urban areas with reliable broadband connectivity
- To ensure coordinated and harmonized deployment of ICT infrastructure avoiding unnecessary duplication and waste of resources
- To foster the development of efficient government E-services for supporting the growth of Somalia's economy
- To boost the development of a vibrant E-commerce and digital finance sector
- To develop policy and procedures and active citizen protection and cybersecurity defense measures for all ICT infrastructure
- To promote co-ordination between ICT policy administrators in the public sector
- To foster local innovations in science, digital skills and technology leading to the rapid creation of many new jobs and wealth
- To drive inclusive development of women and marginalized groups
- To actively promote universal access to both voice and Internet using the most appropriate and up to date technologies and business models
- To ensure the country adequately participates in regional and international ICT agreements and fora in order to promote ICT development. This includes WTO and ITU membership, joining EACO and signing on to the international cybercrime convention, etc.
- To ensure the active adoption of ICTs in all sectors critical to the transformation of Somalia's economy, notably in education, health, power, roads and transport, agriculture, trade, finance, industry and commerce etc.
- To enable citizens of Somalia take advantage of the full use of broadband services making them a competitive and well informed population and able to participate in the socio-economic development of the country.
- To reinforce government initiatives to boost innovation, support transparency, empower citizens, encourage accountability and improve the delivery of public services with Open Data.

4.2. KEY PRIORITIES

The key priorities for the ICT sector in Somalia are driven by the development challenges as outlined in the National Development Plan (NDP), and taking into account regional and international goals, in particular the Sustainable Development Goals (SDGs) and the government strategy to "Create a vibrant, robust and competitive private sector that contributes to the sustainable economic development of the Federal Government of Somalia". Based on these, the following are the priority policy action areas to be completed by 2024 under this policy:

- Extension of the national backbone infrastructure to connect all major urban centres with redundant/duplicate links (to ensure reliability), as well as addressing last mile challenges to ensure universal access to broadband including efficient interconnection and expansion of 3/4G mobile coverage
- Building the foundation for fiber networks in each Federal Member State in the post 2024 period
- Establishing a Government Data Center with offshore / cloud backup facilities
- Telecom operators take part in infrastructure sharing and dig-once policies, supported by other utility network development
- Ensuring critical infrastructure is protected - establishing a Cybersecurity and Privacy group to oversee the development and enforcement of national cybersecurity policies, and develop a Computer Emergency Response Team (CERT)
- Facilitating the increased role of women, youth and persons with disabilities in ICT
- Establishing online e-government services and Open Data systems
- Developing the use of ICTs in the key sectors of health, education, research, agriculture and industry
- Ensuring all laws reflect needs for promoting e-commerce, ensuring online data privacy, child protection and admissibility of electronic evidence in court.

4.3 SUMMARY OF STRATEGIC GOALS AND TIMELINES

ACTION ITEM	STRATEGIC GOALS	TIMELINE
Improving Policy/ Regulatory Frameworks	• Complete review of existing regional policies and laws with a plan for harmonization where necessary • Enact harmonization of existing policies/laws • Update existing and draft new policies and laws as required (e.g, digital financial services, postal serviced, electronic transactions, protection of children etc. and others as needed)	• Year 1 • Year 1 • Year 3
Cyber-security	• Establish a national cyber-security advisory committee • Draft cyber-security policy • Adopt cyber-security legislation	• Year 1 • Year 2 • Year 2
Digital Financial Services	• Draft a policy on digital financial services including interconnection / interoperability with telecom networks	• Year 1
Consumer Protection	• Draft consumer and child protection policy	• Year 2
Expanding and improving ICT infrastructure	• Map existing and planned fiber and passive utility infrastructure – roads, electricity grids, towers, pipelines etc • Adopt a "dig once" regulation (i.e requirement for inclusion of ducts in all new and resurfaced and existing roads where possible and provision for use by third parties of new long distance telecom infrastructure laid by operators) • Adopt passive and active infrastructure sharing guidelines for all ISPs and mobile network operators to allow for collocation of equipment • Define terms for Rights of Way access over public land • Complete the implementation of key infrastructure programs (e.g, national terrestrial backbone network etc)	• Year 2 • Year 1 • Year 1.5 • Year 1 • Year 5

	• Establish effective management of IXP, ,. So ccTLDshared services (caching, root DNS, etc)	• Year 1
Broadband access and use – Initial Targets	• Adopt affordability and coverage targets for broadband such as the Broadband Commission target of 1Gb of mobile data for 2% of average monthly income • Achieve targets for mobile broadband affordability 2 years: 15% of Somalis regularly access and use mobile broadband services (3G and higher) • 5 years: 35% of population regularly access and use mobile broadband services (3G and higher), 10% of population access and use fixed broadband services • Speed of fixed and mobile services to public institutions, the private sector and the public are sufficient to meet their needs for efficient and timely data transfer	• Year 1 • Year 2 • Year 5 • Year 3
Spectrum Management	• Develop 5 -year spectrum management plan and publish assignments • Build the capacity of the NCA to manage spectrum and develop policies which promote rural coverage, and to regularize existing spectrum allocations • Start a process for new spectrum awards in line with ITU regulations for development of 4G/5G, satellite and millimetre wave fixed wireless services, and emerging technologies such as spectrum sharing, HAPS, LEO constellations etc	• Year 2 • Year 2 • Year 3

Universal Access Strategy	• Develop the strategy for achieving Universal Access Objectives, including usage targets, gender targets and access levels for other marginalised groups	• Year 2
	• Implement the Universal access strategy	• Year 3
	• All Somalis have local access to affordable voice and Internet services	• Yea 5
Education	• Complete inventory of Internet access (and type of access) of all schools	• Year 1
	• Internet access in all secondary schools	• Year 3
	• All secondary schools offer at least 1 ICT related course or program	• Year 4
	• Tertiary education institutes offer ICT certification	• Year 3
	• All secondary school teachers trained in use of ICT to support learning	• Year 2
Innovation, Industry,	• Map key public, private and other sponsored activities that support innovation and research	• Year 1
Agriculture and Research	• Develop public and private financing and support plan for SomaliREN National Research and Education Network (NREN) to interconnect all tertiary and research institutions	• Year 1
	• Establish support programme for targeted innovation activities and spaces, particularly in agriculture and in IoT generally	• Year 2
Health and ICT	• 100% of all clinics and hospitals have Internet access	• Year 3
	• E- health strategy in place, including operational National Health Information System	• Year 2
Government Agencies	• All FGS and FMS Ministries in Mogadishu have Internet Access	• Year 1
	• All FGS and FMS local authorities have Internet access	• Year 3
	• All FGS and FMS police units have Internet access	• Year 3
	• All border posts have Internet access	• Year 3
	• All postal outlets have Internet access and a national addressing system (NAS) is in place	• Year 3
	• A common standard and access to shared platform for website development for all ministries	
	• Government portal with e-services for the public	• Year 2
	• Resiliency plan, maintenance policy and govt-wide asset management system in place	• Year 2
	• Institute national ID system	• Year 3

5.0 INSTITUTIONAL STRUCTURES & RESPONSIBILITIES

A common understanding the role of each agency of government and other stakeholders, and how the Policy will contribute to advancing their institutional agendas, is critical to ensuring full support and engagement by all organisations. This section outlines these roles and responsibilities. In this respect the key roles of government in the ICT sector are:

- Strategic leadership and coordination in promoting the use of ICT
- Ensuring there is an enabling environment for the deployment ICT infrastructure
- Providing support for ensuring access is affordable and available to all members of Somali society
- Supporting the adoption of ICTs within government, both for internal administration and for transactions with the public and business

5.1 MINISTRY OF POSTS, TELECOMMUNICATIONS AND TECHNOLOGY (MPTT)

The Ministry of Post Telecommunications and Technology (MPTT) sets the policy agenda of the sector, co-ordinating with other government institutions, private sector, civil society organizations and other stakeholders, while consulting the public in developing sector policies and strategies. The Ministry is the head of the sector, ensuring transparent, independent and efficient sector regulation and advising the Federal Government of Somalia on ICT matters, as well as representing the government on ICT policy at international conferences.

Given the crucial importance and cross-cutting role of ICTs, it is vital that leadership takes place at the top executive level, guided by cabinet and representatives from each of the key stakeholder ministries and the Federal Member States. This could take the form of the appointment of an executive position in the MPTT to lead an inter-agency ICT task team to assist with coordination and resource sharing in the ICT development activities of each government agency. Responsibility also includes coordination with the Somali Infrastructure Strategic Plan, and the task team will draw on outside expertise where needed.

5.2 NATIONAL COMMUNICATIONS AUTHORITY (NCA)

The Somalia National Communications Authority (NCA) is the regulatory authority for the ICT sector. Established by the 2018 Telecom Act, its primary responsibility is to implement the Federal Government's policies on the sector. It is required to develop Regulations, Orders, Guidelines and Rules to govern the sector in implementing national ICT policies. The Communications Law does not explicitly mention regulation of the postal sector. As result there is no regulator for this sector, although this will be considered in future amendments.

NCA'S CURRENT RESPONSIBILITIES ARE TO

- Carry out transparent, independent and efficient sector regulation and licensing
- Ensure service affordability and availability in the sector
- Protect consumer / citizen rights and promote competition
- Ensure there is a level playing field, streamlined licensing procedures and low barriers to market entry for the provision of communication services
- Promote and protect investment in the industry
- Identify essential facilities and regulate their use
- Facilitate interconnection, co-location and infrastructure sharing
- Provide efficient, forward looking and fair radio spectrum management in line with ITU guidelines
- Mandate mobile number portability
- Advise MPTT on compliance of operators, emerging policy trends and universal access strategies
- Manage and promote the use of the .so Somalia country code Top Level Domain (ccTLD)
- Ensure that ICT equipment imported into the country meets international standards
- Maintain and regularly publish up to date ICT market statistics and provide market and technical analysis to support policy making
- Define quality of service standards and ensure they are adhered to
- Represent the Government of Somalia at local and international forums relating to regulatory issues in ICT

5.3 TELECOM/INTERNET SERVICE PROVIDERS/ LOCAL OPERATORS

Access providers are an integral part of the sector. They include both fixed and mobile telecom network operators (MNOs) and commercial Internet Service Providers (ISPs). New entrants to the market are anticipated, including data center operators, metro fiber network operators, and potentially a wholesale public private partnership (PPP) to provide national open access fiber infrastructure services on a wholesale basis.

5.4 BROADCASTERS

Public and private broadcasters provide radio and television services to the public, and with the ongoing convergence in the ICT sector, are more closely aligned with content provision, which in turn has close relations with the media and the press. This brings the broadcast sector under more direct supervision by the Ministry of Information, rather than MPTT which largely has a technical role in relation to spectrum management and the contention between broadcasters and telecommunication operators for this resource. Fortunately Somalia can take advantage of the now well-advanced global migration from analogue to digital broadcasting, which makes the use of spectrum for broadcasting much more efficient. In addition, with the use of new spectrum sharing techniques based on software defined radio (SDR) this means that there is unlikely to be contention for spectrum in future.

5.5 OTHER MINISTRIES AND GOVERNMENT DEPARTMENTS

Due to the cross cutting nature ICTs, it is expected that all Federal and Government departments and member state authorities will have a role to play in maximising the potential benefits of ICTs in Somalia. To ensure full coordination and progress, an intra-governmental co-ordinating unit needs to be established to monitor progress and address challenges that may be faced through the period of implementation. In relation to national backbone development, MPTT will collaborate with the Ministries of Transport and Energy, and with NCA, telecom operators to ensure the co-location of fiber with new or resurfaced roads, power lines and other passive infrastructure, and to ensure that the barriers to obtaining the necessary Rights of Way are minimized. In addition opportunities will be explored for linking the development of infrastructure with the establishment of postal outlets for Posta Somalia.

5.6 LOCAL ICT COMPANIES

ICT private companies operating in Somalia which provide human resources, software and hardware solutions and other services are also part of the sector. These firms play a key role in providing telecom operators, broadcasters and businesses with IT solutions, the public with domestic electronic equipment, as well as specialized services such as portal development, website management, local content development, and providing expertise in building networks and hosting services.

5.7 OTHER ENTITIES

It is important to note that other entities/stakeholders are also crucial to ensure support and effective implementation of the Policy, including, among others:

- Parliamentarians
- Development Partners
- Civil Society organizations
- Media organizations

5.8 SUMMARY OF KEY INSTITUTIONAL ARRANGEMENTS

- MPTT, being a ministry with a broad mandate having oversight on telecommunications infrastructure, information policy, communications technology, broadcasting infrastructure (masts and spectrum), and postal services
- An executive ICT officer based at the Office of the Prime Minister and supported by an inter-agency task team comprising ICT representatives from each government agency
- The NCA is the ICT regulator with responsibility for telecommunications, broadcasting, radio frequencies, and postal services
- ICT Department at MPTT responsible for connectivity provision and online services in government, a national data center, as well as to set standards and strategy for government information policy and applications development

A multi-agency infrastructure coordinating team including Benadir Regional Administration and Ministry of Public Works to coordinate civil works, to agree on standards, and ensure ICT infrastructure is incorporated in all roads (existing, resurfaced and new roads), rail, electricity lines, etc Posta Somalia - national postal operator

6.0. POLICY FOCUS AREAS

6.1 LEGAL, AND REGULATORY FRAMEWORKS

Gaps currently exist in legal and regulatory support for the ICT sector which this Policy aims to address. The Policy defines the legal framework within which various aspects of the Somali ICT sector operate, in addition to the existing regulations relating to different areas of the sector and business operations more generally. For the identified activities to take place effectively, it is necessary that the legal framework is in alignment with requirements of the information economy and international best practices for engendering trust and confidence amongst all stakeholders. In this respect, the ICT regulator (NCA) will aim to ensure its credibility as independent, effective, transparent and fair in ensuring adherence to legal provisions and regulatory practices.

6.1.1 POLICY OBJECTIVES

- Universal access to affordable voice, broadband and postal services is available with quality of service levels equivalentto international benchmarks
- Critical ICT infrastructure is well protected and effective response mechanisms are in place to deal with cybersecurity issues and physical disasters
- Transparency, trust and interconnection/interoperability is present between all public networks and between different electronic payments platforms
- Citizens are well protected and have trust in using public networks and services, supported by privacy policies & regulation for general data protection, freedom of information and freedom of expression

6.1.2 STRATEGIES

- Review, and facilitate, where necessary, the modification of existing or enactment of new laws that would enhance the development of the ICT sector for national growth, and anticipates future development of the sector
- Ensure physical ICT infrastructure is legally protected and cyber-security measures are in place
- Limit the regulatory burden on the private sector with 'light touch' customer-centric regulation to promote innovation and encourage the free flow of information while ensuring the necessary checks and balances are in place that ensures the protection of the public, a level playing field and sustainability/reliability of services.
- Align legal provisions with the needs of the information economy and with international norms
- Ensure the protection of the citizen and the transparency of the industry, including in e-payments systems, government information systems, social media and other electronic platforms
- Provide support for technical training for those responsible for implementing the policy.

6.2 ICT INFRASTRUCTURE

It is imperative that Somalia has pervasive and affordable ICT Infrastructure in order to support national development goals and global competitiveness. To help address the limited availability and high cost of ICT infrastructure in Somalia the Policy focuses on the following infrastructure areas:

- Facilitating and support the development of efficient and secure nationwide communications infrastructure that provides affordable and pervasive broadband connectivity and accelerates socio-economic development in all parts of Somalia
- Ensuring that all telecommunication operators have access to

a) Fibre links between all major urban areas,
b) Multiple fibre connections to global and regional backbones,
c) Efficient local interconnection points, d) a universal access strategy which supports provision of access in underserved areas

6.2.1 INTERNATIONAL & NATIONAL BACKBONES

To ensure there is sufficient and reliable access to international and national broadband capacity in Somalia, virtually every mobile base station in the country needs to be connected to a reliable backbone network that has access to at least two physically independent upstream links. This requires a pervasive national fiber backbone with redundant loops, connected to international submarine cables and to the international capacity available across Somalia's borders. This infrastructure needs to be available to all commercial retail networks on a wholesale basis, with efficient and fair interconnection agreements and capacity costs which are minimized through infrastructure sharing regulations and dig-once policies
(see below).

Establishing a wholesale PPP to operate new backbone infrastructure where needed may be necessary, while leveraging the existing assets of the private operators and government transport/utility operators through infrastructure sharing and dig-once policies.

6.2.2 FIXED AND MOBILE LAST MILE SOLUTIONS

Aside from growing demand for mobile broadband, there is also an increasing requirement for high capacity un-metered fixed Internet in homes, businesses and other such locations across the country. Building a fiber network as a national backbone does not in itself address these needs. Collaboration with urban utility operators (roads, electricity, water) and local authorities will be needed to deliver fiber or high capacity fixed wireless links to urban end users at affordable prices. Permitting and local licensing procedures may also need to be streamlined and cost-based.

6.2.3 RADIO SPECTRUM MANAGEMENT

With the vital importance of wireless technologies in providing access to end-users, the efficient management of the radio spectrum resource is critical if it is to be used to further Somalia's ICT strategy to support national development goals. Spectrum management will to be carried out in a forward looking, transparent and evidence-based manner to guide spectrum allocation, assignment, and to monitor its use.

Identifying frequencies for mobile broadband networks resulting from the migration to digital TV broadcasting will help ensure the efficient management of national spectrum. In addition, strategies to exploit the use of shared spectrum, license exemption and dynamic spectrum assignment based on the latest capabilities of software defined radios will also be identified.

6.2.4 FACILITATING ACCESS TO RIGHTS-OF-WAY (ROW)

To support both local and long distance infrastructure deployment, obtaining rights-of-way by operators, firms and their designees to use public spaces in delivering connectivity to end users must be rapid, and fees for use need to be cost based. The Policy will encourage private landowners, local authorities and other public land owners and utility infrastructure agencies to work with operators in facilitating the building of masts or laying of fiber through their land. Efficient tower zoning and expedient ROW access needs to be provided to all public land, and standards and reporting requirements for ROW need to be established.

6.2.5 LEVERAGING PASSIVE INFRASTRUCTURE

Both local and long distance network deployment can benefit from co-ordination of fiber network build-out with deployment of other linear utility infrastructure such as roads, rail lines, power lines and pipelines. This is required, along with dig-once policies, to minimize the costs of achieving the necessary coverage.

An Infrastructure Working group which includes representatives from all relevant government departments is needed to coordinate civil works and projects, such as roads, railways, utility ducts and aerial cables to ensure all new utility infrastructure includes provisions for ducts and/or masts, and that the correct standards are adhered to in their deployment. At the same time, mechanisms to set reasonable prices for the use of the passive infrastructure, and to support their maintenance will also be established.

As civil works constitutes a significant part of the cost of laying fiber, inclusion of ducts in the design of new construction, such as road or power projects, represents an almost trivial additional cost. Collaborative efforts between the relevant ministries will ensure that all future public construction work includes the cost of a telecom or general utility duct. In addition local planning approvals procedures need to be amended to integrate dig once principles to ensure other utility infrastructure and all public buildings include the necessary ducts within the building to facilitate broadband access.

6.2.6 TOWER SHARING AND CO-LOCATION

Where technically feasible, carriers will be encouraged to co-locate towers and other facilities. This will ensure that wireless communications and broadcasting towers are not arbitrarily constructed and scarce resources are maximised while environmental impact and operational costs are reduced. Access to towers and related infrastructure (power, security) should therefore be made available for sharing at reasonable tariffs.

Guidelines need to be formulated in conjunction with relevant Ministries, NCA, local governments and operators/ owners of technology towers and buildings. Guidelines would also specify tower heights, proximity to sensitive structures (e.g. schools, hospitals), co-location, and decommissioning.

6.2.7 SECURITY AND RELIABILITY OF CRITICAL ICT INFRASTRUCTURE

Standards for laying ducts and fiber cables should be be developed to ensure integrity and reliability of the infrastructure. This needs to be augmented with appropriate legal protections against theft and vandalism. The reliable operation of Internet Exchange Points (IXPs) is also necessary as these are part of the critical infrastructure because they ensure that local traffic stays local, and that alternative routes are always available.

6.2.8 GOVERNMENT DATA CENTER

A government data center will be set to consolidate services, applications and infrastructure to provide efficient electronic delivery of Government to Government (G2G), Government to Citizens (G2C) and Government to Business (G2B) services delivered by the various government agencies through a common platform supported by core connectivity infrastructure and the government information management strategy.

In this respect the data center would need to meet a variety of needs, including the provision of a central repository of national data, secure data storage, online delivery of services, citizen service portal, government agency web hosting, a government intranet and a disaster recovery platform using an off-site backup location.

6.2.9 FINANCIAL SYSTEMS INFRASTRUCTURE

To ensure all Somalis can become full network citizens they also require reliable access to affordable carrier neutral and interconnected funds transfer and e-payments platforms. This in turn requires that mobile banking and finance regulations be updated to ensure the industry complies with current international best practice. Digital financial systems and policies for their use are required to ensure inclusion of all citizens.

6.2.10 SUPPORTING STRATEGIES

- Develop a general information management and decision support system the maps all infrastructure locations. Processes for timely submission of data by licensees would also be needed.
- Champion the rapid deployment of affordable reliable energy supplies, critical for the ICT industry

6.3 UNIVERSAL ACCESS TO VOICE AND BROADBAND INTERNET SERVICES

Lack of affordability and limited coverage are among the chief constraints to greater uptake of ICT services by the public. To help ensure everyone in Somalia has affordable access to ICTs it will be necessary to significantly reduce the cost of access and increase coverage. This will require increased competition in the sector combined with infrastructure sharing to drive down prices, supported by a combination of private and public funds to build out the network into the remote and underserved areas. In addition special attention will need to be given to vulnerable and disadvantaged populations such as women, isolated rural dwellers, those with disabilities and the poor. Community-based initiatives to self-provide infrastructure can also be an option.

A Universal Access Strategy needs to be developed to support initiatives where needed that ensure that voice and Internet access is available to every Somali citizen, including through the provision of affordable public access through Wifi hotspots and public access facilities where needed, especially in rural areas.

POLICY OBJECTIVES

- Affordable voice and broadband is becomes available to all Somali people based on agreed affordability and coverage targets
- Use of voice and broadband services contributes to development and national transformation.

6.3.1 AFFORDABILITY TARGETS

In order for the government to assess the effectiveness of the strategies to improve broadband affordability and access, it is important to have clear definitions and targets for affordability. For example, currently the Alliance for Affordable Internet proposes that 1GB of mobile prepaid data should cost at most 2% of average monthly per capita income (or "1 for 2" target). At this level, it is expected that lower-income groups would be more likely to be able to afford an entry-level mobile data plan.

6.3.2 COMPETITION POLICY

This Policy promotes the development of a solid competition policy to ensure that citizens have a choice of ICT services at an affordable cost. This involves ensuring a level playing field and open competition between market players in a fair, transparent and non-discriminatory manner. Regulations need to be developed to identify operators with Significant Market Power (SMP) and to discourage anti-competitive behavior such as collusion, with appropriate measures for breaches.

6.3.3 STRATEGIES

- Set and periodically review voice and broadband penetration targets to gauge progress
- Ensure last mile connectivity access is pervasive across the country
- Promote infrastructure sharing to reduce operator costs which in turn reduces costs to the end-user
- Create incentives to service providers to ensure rapid roll out of services
- Ensure competition rules promote affordable services and the entry of new businesses into the access market, including small - scale village based operators
- Establish a Universal Access strategy to plug gaps in voice and broadband supply with clear and transparent criteria for support
- Leverage co-ordinated connectivity building for public services (schools, clinics, police stations, libraries, public access facilities, local authorities etc) in rural areas for provision of access to the public in those areas
- Support demand building initiatives and support programs to promote public awareness, digital skills, and the provision of electricity where needed, to support connectivity requirements.

6.4 INFORMATION SAFETY AND CYBER-SECURITY

Considering the importance of ICTs and related infrastructure as a means of achieving national development goals, it is crucial that the security of the infrastructure is ensured, including the confidentiality, integrity, and availability of all data systems in use. The MPTT will draw on knowledge from experts in technology, security, privacy, law and business to define appropriate security measures while maintaining the openness of the Internet, opportunities for innovation, and the fundamental values of freedom of expression, privacy, and access to information. In this context, cyber-security threats are rapidly evolving and an effective policy must be flexible enough to deal with existing, emerging and evolving threats. In addition, information security concepts need to be factored into ICT adoption and development strategies at all levels to ensure security issues are addressed in all government systems. This will involve the development of a common approach by all government information officers.

6.4.1 POLICY OBJECTIVES

- Establish a national cybersecurity strategy and national multi-stakeholder cybersecurity advisory committee
- Ensure the protection of critical physical ICT infrastructure against vandalism and theft, and establish processes for recovery and business continuity
- Engage in regional and international collaboration to protect Somalia's cyberspace
- Secure the rights and privacy of citizens online by establishing rules for ensuring privacy of information held by government and the private sector within the context of Open Data objectives, including regulation for general data protection.
- Ensure that systems are in place for the protection of children online
- Protect the intellectual property rights of businesses online
- Ensure that procedures for registration of SIM cards and other authentication systems are in line with plans for national identification systems and international standards.

6.4.2 STRATEGIES

The level of institutional and technical resources allocated to the country's cyber-security needs to commensurate with identified threats. A first step will be to perform a risk based assessment to identify and document the national critical ICT infrastructures, systems and data assets for sufficient protection.

In order to develop the appropriate institutional framework to address the country's cyber-security needs, the government will actively assess threats against government infrastructure and institutions, as well as against private sector, civil society and other organizations.

Options will be explored to incentivize improvements in private sector cybersecurity practices, including provision of support for human resource development. An institutional framework will be developed to maintain the integrity, resilience, and security of all ICT infrastructure and assets of the Federal Government of Somalia, the Federal Member States and the other organs of government across the country as a whole, in an integrated and comprehensive manner. This will require improved inter-agency cooperation.

In terms of individual citizens, the government will ensure that efforts are made to raise awareness and improve online safety for all. This will include legislation to protect user data and devices from unauthorized access, theft, and misuse.

ADDITIONAL STRATEGIES

- Ensure that the pursuit of government's cyber-security objectives do not undermine the fundamental openness of the Internet
- Encourage the development and implementation of the government's cyber-security objectives in partnership with private sector and civil society
- Establish a cyber-security advisory council drawing on experts within government, the private sector, academia, judiciary, security services and civil society organisations to best advise the government on the implementation of these policy objectives while also raising awareness within government of the latest cyber-security concerns and issues
- Host regular public consultations on cyber-security in Somalia
- Develop an appropriate legal framework that protects citizen's data and devices which is reviewed and updated as required every two years
- Ensure that these cyber-security policy objectives do not undermine the fundamental human rights of any citizen, particularly those most likely to be subject to online abuse and harassment such as women, children and marginalised groups.
- Collaborate with cyber security groups/CERTs regionally and globally
- Ensure that all critical physical infrastructures are protected against vandalism and theft with appropriate legal penalties
- Facilitate regular training/ knowledge sharing on key cybersecurity matters with the judiciary and security services so they are adequately equipped to deal with breaches/ emerging issues

6.5 SUPPORTING EQUAL ACCESS

ICTs offer many opportunities for many disadvantaged social and cultural groups that are otherwise marginalised from mainstream society, in particular ethnic minorities, women, girls, youth and the disabled. To ensure that these groups can take maximal advantage of the technologies it will be necessary to take specific action in a variety of areas as outlined below.

6.5.1 POLICY OBJECTIVES

- The use of ICTs is leveraged to improve the lives of disadvantaged groups
- Equality is achieved in access across areas of policies and plans, from skills building to adoption and use
- Analysis conducted for developing ICT plans integrates gender and considerations of other disadvantaged groups

6.5.2 STRATEGIES

- Conduct an equity gap audit to provide a baseline assessment of the state of access and use of the internet by disadvantaged groups, especially women and girls in Somalia.
- Invest in household survey research that will help inform how Somali citizens access and use the internet. Disaggregated data would be gathered that assists with analyzing how access and use of the Internet varies by gender, income level, education level, age and other identified demographic factors
- Improve the availability of data on access and use of ICT that is disaggregated by gender, age, and other relevant criteria.
- Allocate resources to promote and support disadvantaged entrepreneurs, digital literacy training, and targeted public access and other projects to support access and use
- Ensure that skills building and training programs are developed considering the needs of disadvantaged groups across all educational levels
- Establish a scholarship programme to improve access to training by disadvantaged groups
- Ensure the online safety mechanisms are in place to support youth use of ICTs
- Ensure that e-government services and public access facilities are accessible to all - websites will follow standards for accessibility and be available in Somali
- Train ICT staff within government to make the government's ICTs facilities and services more accessible to disadvantaged groups
- Adopt the use of assistive ICTs and services in universal access strategies that are affordable for disabled persons
- Make available public communications from the Government available in accessible formats for disadvantaged persons

6.6 HUMAN RESOURCE DEVELOPMENT

Building a population and workforce that is familiar with the use of ICTs and able to take full advantage of their benefits is a key priority for all countries, including Somalia. Concerted action will be taken on a variety of fronts to ensure this takes place. As with many other countries around the world, Somalia suffers from insufficient numbers of skilled and experienced experts in ICTs and in related other professions that use ICTs extensively. To address this Somalia needs to build the ICTs skills and capabilities of its population by exploiting the potential of ICTs for training and 'just in time' learning, while aligning educational and vocational training programs with educational priorities which meet the needs of labor markets, and by ensuring any imported skills are also imparted to local citizens. This will be supported by the National Telecom Training Institute (NTI), run by MPTT, which provides short courses.

It is important to note that low cost multimedia distance education provided by broadband brings new opportunities to enhance education for all, including targeted interventions that can focus on disadvantaged groups, as well as on new teaching methodologies, simulation laboratories, public access facilities, libraries, lifelong learning and digital skill training, among others. Similarly, support is needed for higher education and research facilities to allow them to establish campus networks and high bandwidth connectivity. This will help to mitigate the problem of the lack of teaching resources for these institutions. International capacity providers need to be encouraged to provide Somalia with international capacity at discounted rates for educational purposes.

6.6.1 POLICY OBJECTIVES

- Increase the size and quality of ICT-skilled human resource base in Somalia
- Somali people make the use of ICTs as part of everyday life
- Political decision-makers, community and civil society leaders, as well as private and public sector executives have a strong understanding of ICTs
- Students have access to online education systems in schools, higher education/training facilities and public access facilities across the country
- ICT industry supports institutional training programs and research/ innovation centres
- All tertiary institutions are interconnected and offering degree courses in ICT.

6.6.2 STRATEGIES

- Integrate ICT subjects in the curriculum at all levels of education and securing access to ICT platforms for the education system
- Establish educational networks for sharing educational resources and promoting e-learning
- Facilitate Public Private Partnerships to mobilize resources in order to support e-learning initiatives
- Foster interest in research and development activities related to ICT
- Establish a national public ICT literacy campaign and expand and improve adult-education, lifelong learning and digital literacy programs, notably for retraining and re-skilling the existing workforce
- Encourage the establishment of ICT Centers of Excellence that also support research and development
- Support ICT training for decision makers, community and civil society leaders
- Provide new learning and ICT access opportunities for women and youth, the disabled and disadvantaged, particularly disenfranchised and illiterate people, in order to address social inequities, including through public access facilities and digital libraries
- Create opportunities and providing assistance for the disadvantaged, people with special needs, women and the youth to acquire IT skills
- Introduce incentives and measures to improve training in broadcasting and media
- Ensure the establishment of degree courses in ICTs and post-graduate and postdoctoral ICTs research positions
- Increase Internet access of educational institutions of all levels.

6.7 INNOVATION, RESEARCH AND DEVELOPMENT

Closely related to support for human capacity building in ICTs is the facilitation of innovation, and R&D. This has its own policy focus due to the potential for job and wealth creation through innovation in ICTs, as well as creating opportunities to improve quality of life. The establishment of well resourced 'tech parks, tech/innovation hubs, co-working spaces and accelerators which provide business incubation, access to skills and low cost ICT services to small businesses, are also an important component to support digital entrepreneurship and economic growth in Somalia. Currently there are three tech hubs in Somalia - in Hargeisa, Mogadishu, and Garowe.

In addition regular events which bring together stakeholders in different settings are important in facilitating information exchange, networking, business development and capacity building. In 2018 three such events were held:

- A Network Operators' Group (SomNOG) conference, bringing technical engineers together to discuss, share experience and collaborate on developing expertise and competency in networking and Internet Technologies.
- ICT Expo attended by ICT businesses, local domain registrars, academia and other stakeholders to network and make business. It is expected in the future the exhibition will attract major international tech companies.
- Mogadishu Tech Summit: bringing together local tech innovators and tech hubs.

The Ministry is also planning to launch a set of ICT Innovation Awards, where ICT excellence in government, private sector, women, youth, etc are recognized.

6.7.1 POLICY OBJECTIVES

- The adoption of cutting edge emerging ICT applications and systems in Somalia is accelerated, including use of IOT, and big data.
- The quantity of intellectual property outputs resulting from ICT research and development in Somalia increases
- Increases in the number of jobs in the ICT sector are evident.

6.7.2 STRATEGIES

- Conduct an assessment of innovation, research and development activities in Somalia
- Develop an innovation strategy with measurable targets through a multi-stakeholder approach
- Increase investment in ICT research and development generally
- Identify funding opportunities for increasing the number and distribution of tech/innovation hubs, co-working spaces and tech parks in Somalia
- Facilitate partnerships between public and private sectors in innovation and link R&D with private investment opportunities and business incentives in the ICT sector
- Support regular events which bring together technologists, researchers, businesses and entrepreneurs, such as the Mogadishu Tech Summit
- Review policies on taxes on ICT hardware and software needed by startups

6.8 E-COMMERCE, PROTECTION AND DATA PRIVACY

The advent of the digital economy and e-commerce offers many potential opportunities for increased efficiency of doing business and access to new markets. At the same time, e-commerce has also brought about more extensive long-distance relationships between buyers and sellers. In this environment there is even greater need for consumer protection and data privacy legislation to protect consumer rights. Somalia does not yet have these protection laws, and this will need to be addressed in line with the UN Guidelines on Consumer Protection which now emphasizes the importance of enhancing consumer confidence in electronic commerce through transparent and effective consumer protection policies and privacy, ensuring a level of protection that is the same as that afforded in other forms of commerce.

6.8.1 POLICY OBJECTIVES

- Online transactions have the same legal status as traditional physical interactions
- Regulations and procedures support electronic transactions, recognise digital signatures and effectively protect the public from unfair and deceptive marketing practices, from unwarranted use of private customer information and other invasions of privacy resulting from use of their on online data.
- Access is available to fair and timely dispute resolution mechanisms which offer expedient redress without undue cost or burden to the consumer
- Legislation defines the legalities of online transactions, child online protection and ensuring the admissibility of electronic evidence in court
- Regulations cover advertising, point of sale, billing, information disclosure, contractual requirements, complaints procedures, privacy protection, customers with disabilities, and data protection

6.8.2 STRATEGIES

- Identify and enact legislative reform needs to support e-commerce
- Ensure that consumers are able to make informed decisions at the point of sale
- Update general business laws and penal codes
- Develop and implement legal measures against unauthorized or unlawful processing of personal data and the abuse of children
- Require data collectors to disclose use of personal data to citizens
- Identify an appropriate method to allocate all urban locations with physical addresses

6.9 DIGITAL TRANSFORMATION IN GOVERNMENT

The overall goal of implementing e-Government services is to make the Government more efficient and citizen-centered. Thus the e-Government policy and strategy will focus on increased and better access to government services supported by a government information management policy and strategy which takes into account needs for privacy, data protection, linked data and data harmonisation, use of the government data centre and knowledge sharing:

Government will also use Open Data strategies, which are important for creating new entrepreneurial opportunities, promoting scientific research, increasing civic engagement with government, and increasing public accountability.

6.9.1 POLICY OBJECTIVES

The broad objectives for digital transformation of Government will be to:

- A national ID system is established
- Transaction costs are reduced for the Government, citizens and the private sector through the provision of services electronically
- Somalia's competitiveness is improved through timely information and delivery of Government services
- Access to public records, digital archives and other information held by public institutions is available in formats that can be easily accessed and used (open-data)
- One-stop centers for accessing Government information and services are available at Posta Somalia branches
- Land information systems support government, private sector and public needs for information on land ownership, for more effective and efficient planning for agriculture and natural resource management
- Digital voter registration and electoral systems improve transparency and reliability in elections

A government portal for accessing all government information and services online

6.9.2 STRATEGIES

- Establish an E-government Co-ordination Committee to kick start e-government initiatives focused on implementing projects
- Integrate ICT services into government development objectives, priorities and programs
- Expand current Internet capacity at government institutions and provision sufficient capacity at the remaining institutions without connections
- Implement an open data platform to share datasets across government and with the public
- Document operational processes in all government institutions
- Identify and document common information to be shared among institutions
- Adopt the use of the second level domain - .gov.so - by government agencies for their websites and email addresses
- Adopt a strategy for establishing land information systems in Somalia
- Assess the requirements and feasibility of a digital electoral system

6.10 E-HEALTH

Administration of health services can obtain significant benefits from use of ICTs to improve responsiveness and accuracy in diagnosis and treatment of the public. This includes more efficient patient management, speeding the transmission of medical test results, and accessing the skills of remote medical specialists. To take advantage of this, health workers need to have digital literacy and health institutions need to have good connectivity and access to timely and relevant information on patients and from medical specialists.

There are many considerations that must be made in the implementation of e-Health systems, including governance, oversight, transparency, accessibility, accountability, privacy and security. The interconnectivity and interdependence of the information systems means that it is important that standards for use and disclosure are maintained.

6.10.1 POLICY OBJECTIVES

- A national e-health strategy is adopted that leverages the use of ICTs in helping to address information andcommunication needs in the health system
- A comprehensive Health Information System is in place including patient data records
- ICT platforms that facilitate more effective administration and clinical practices are in use.

6.11 E-EDUCATION

Increased use of ICTs will help to support both administration and teaching in the educational sector. While computer literacy and skills to navigate the internet in schools and in higher education institutions are necessary, e-education also requires skills to access, analyze, integrate and communicate information in a clear and logical manner.

The shift from teacher-focused instruction to supporting the use of ICT platforms to obtain educational resources will require significant investment in new skills development, in connecting teachers and learners together and in facilitating access to quality information to expand the opportunities for learning. In addition needs for Internet capacity is high because of the requirement to access video-based learning materials

6.11.1 POLICY OBJECTIVES

- A national e-education strategy is in place that supports the use of ICTs to address the needs of educational services and programs
- Internet access is available to students in all secondary schools and tertiary institutions
- Primary schools offer at least one computer literacy subject
- Secondary schools offer at least one ICT related course or program
- Tertiary education institutes offer ICT certification
- Secondary school teachers trained in use of ICT to support learning
- Support curriculum-development to leverage the use of ICTs in education

6.11.2 STRATEGIES

- Carry out assessment of Internet access of secondary schools and tertiary institutions
- Invest in production of relevant distance learning material
- Support students with access to tablets and connectivity using a subsidy or loan programme
- Establish an ICT training center to provide support to teachers

6.12 E-AGRICULTURE

ICTs have the potential to revolutionize the management of the agriculture sector and improve food security. Support for improving information sharing flows between farmers, consumers, and agriculturists is needed, which will lead to higher yields and production that is more responsive to consumer needs, and provides greater market access for small-scale farmers. ICTs can also be used to improve planning as well as monitoring and forecasting production yields tracking and locating livestock throughout the country. This will require creating a database to register livestock levels and prevent theft and control the spread of diseases.

6.12.1 POLICY OBJECTIVES

- The agriculture sector is able to fully exploit the opportunities to use ICTs to increase agricultural production and efficiencies
- Farmers have access to market information for inputs and sales of livestock and produce
- Agricultural research is improved by better access to information
- Farmers have access to knowledge and early warning systems that improve their food security and income generation

6.12.2 STRATEGIES

- Digitize agriculture literature and records related to agricultural management
- Support the use of electronic payments platforms for agricultural and fishing producers
- Support the development of a shared online sales site for marketing and selling livestock and agricultural produce
- Provide strategic information to farmers on agro-technologies and techniques, weather forecasts, market price information
- Develop a geographical information system to record agricultural land use and manage natural resources

6.13 LOCAL CONTENT DEVELOPMENT

Provision of locally relevant content is necessary for meeting the needs of the public in Somalia and will help build demand for services. Aside from the development of e-government services, the government will promote the production of educational, cultural and scientific content, and the development of local cultural industries suited to the linguistic and cultural context of the users.

6.13.1 POLICY OBJECTIVES

- Create a critical mass of locally relevant content and applications that are useful to the public in Somalia
- Ensure access to digital archives and online resources reflect local culture and preserves cultural heritage
- Increased local production of audiovisual material in entertainment and education

6.13.2 STRATEGIES

- Ensure laws are in place to uphold intellectual property rights
- Create tax incentives for the development of local content and applications
- Support training programmes in content and applications development

6.14 INVESTMENT AND FUNDING

Ensuring sufficient investment and funding in for the policies and strategies outlined in the Policy will be critical to its success. Government has the critical role of creating an enabling environment that attracts investment and funding from these various stakeholders, and fostering a conducive environment for sustainable PPP initiatives. Although the ICT sector has seen significant investment over recent years, the current policy and regulatory framework can be improved to address uncertainties that could to discourage investors and development finance and to create a PPP framework that encourages partnership between the private sector and government.

6.14.1 POLICY OBJECTIVES

- Increased local and foreign direct investment in the ICT industry
- Increased numbers of public-private partnerships in ICTs
- Sufficient funding of government ICT projects is available through appropriate budgetary allocation and partnershipswith development finance and the private sector
- New sources of funding are harnessed such as the diaspora and crowd-sourcing

6.14.2 SUMMARY OF STRATEGIES

- Create the enabling environment, including PPP legislation, that attracts local and foreign investment
- Raise awareness of the potential investment opportunities in the ICT sector in Somalia
- Encourage development partners to align their programs with this Policy and strategic plan

7. POLICY IMPLEMENTATION & RESOURCE MOBILISATION

An effective and efficient implementation and resource mobilization strategy is vital to ensuring that this Policy achieves its objectives. This requires that the implementation is backed by adequate resource allocation and an effective monitoring and review framework complete with key performance indicators. In this respect the Policy should serve as the foundation to develop action plans for the

ICT SECTOR AND SERVE AS A GUIDE FOR DEVELOPING SECTORAL POLICIES AND SPECIFIC IMPLEMENTATION PROCEDURES.

Following public consultation and approval of the final Policy, the initial resource mobilization phase would need to consist of a mapping process to identify to what extent targets are being worked on already and sources of resources to complete the process. In addition, an assessment would be made of the level of implementation and enforcement of the relevant existing laws. Following this, an assessment of the cost implications of achieving the targets set out in the policy would be carried out by each concerned government agency, along with identification of potential sources of funds and mechanisms for raising funds domestically.

	SUMMARY OF RESOURCE MOBILIZATION OPTIONS
ACTIONABLE ISSUES	**POTENTIAL RESOURCES TO SUPPORT IMPLEMENTATION (ESTIMATED COST FOR EACH LINE TO BE DETERMINED BY RELEVANT MACS)**
Improving Policy/Regulatory Framework	• National Budget, Development Assistance and Technical Assistance
Expanding and improving ICT infrastructure	• Private sector, PPPs, Development Assistance, National Budget, Universal Access Strategy
Broadband access and use	• National Budget, Development Assistance and Technical Assistance, Private Sector, Universal Access Strategy
Spectrum Management	• NCA Budget
Cyber-security	• National Budget, Technical Assistance
Human Resources	• National budget, development assistance
Innovation and Research	• National Budget, Development Aid and Technical Assistance, Private Sector
Consumer Protection	• National Budget, Development Aid and Technical Assistance

8. ANNEX

8.1 GLOSSARY

A

ACCELERATOR: Places or institutions designed to accelerate or fast track the growth of start-ups to the market. Users/entrepreneurs in this space are provided with the appropriate tools to see their innovations go to market.

ARTIFICIAL INTELLIGENCE: The application of computer algorithms to solving problems and supporting decision-making, often by analysing large data sets.

B

BENCHMARKING: The continuous process of measuring product, services and practices against recognized standards

BLOCKCHAIN: A distributed trust system based on a chain of encrypted transactions replicated on multiple servers.

BUSINESS PROCESS OUTSOURCING (BPO): Entrusting one or more IT business processes to an external service provider.

BROADBAND: A high speed Internet connection

BROADCASTING: Transmission of visual and audio content, from a source and for reception by multiple members viewers/listeners.

CO-LOCATION: A location where different operators share common infrastructure such as towers, power, security, space etc to achieve logistic and financial benefits.

COMPUTER EMERGENCY RESPONSE TEAM (CERT): Expert groups which work together to address computer security incidents.

COUNTRY CODE TOP-LEVEL DOMAIN (CCTLD): Is an Internet top-level domain generally used or reserved for a country.

CONVERGENCE: Technological convergence is the tendency for different technological systems to evolve toward performing similar tasks, such as broadcasting over telecommunications links.

CRYPTOCURRENCY: A unit of exchange of value using a currency based on blockchain technologies.

DIGITAL BROADCASTING: Is the practice of using digital data rather than analogue waveforms to carry broadcasts over television channels or assigned radio frequency bands.

DIGITAL LITERACY: The ability to locate, organize, understand, evaluate, and analyze information using digital technology.

DUCT: A passage built underground or above ground to carry communications cables such as fiber optics or telephone cables. Other ducts carry utility lines such as electricity, water and sewer pipes.

E

E-AGRICULTURE: The use of ICTs to improve agricultural practices and productivity

E-COMMERCE: The transfer of value for goods and /or services through electronic media.

E-EDUCATION: The delivery of training or education program by electronic means, it involves the use of a computer or electronic device to provide material.

E-GOVERNMENT: Government's use of ICTs to enhance the management of its activities and delivery of services.

E-HEALTH: Health services and information delivered or enhanced through the use of ICT.

E-LEARNING: Learning conducted via electronic media, usually the Internet.

E-WASTE: The waste caused by the disposal of electronic equipment

F

FIXED WIRELESS: The operation of wireless devices or systems used to connect two fixed locations with a radio or other wireless link.

G

GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS (GSM): Is a standards based network for mobile communications

H

HARDWARE: The physical interconnections, systems and devices required to store and execute software programs.

HUB/INNOVATION HUB: Physical spaces designed to foster the success of tech projects. They are often shared spaces with the cost of running these places shared amongst users or sponsored by a funder.

I

INCUBATOR: Incubators are places designed to accelerate the growth of start-ups and in specific reference to ICT, users are given additional skills to grow their ideas.

INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT): Is an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems, as well as the various services and applications associated with them, that provide access to information.

INFORMATION AND COMMUNICATIONS TECHNOLOGY FOR DEVELOPMENT (ICT4D): The application of information and communications technologies to support social, economic, political, environment and other development related programs and interventions.

INFORMATION SOCIETY: Describes a modern population that is conversant with — and actively using — information and communications technology. A society where the creation and exchange of information is a key social and economic activity.

INTERNATIONAL TELECOMMUNICATIONS UNION (ITU): The United Nations agency that is responsible for coordinating shared global use of spectrum, setting global telecommunications standards and also for ICTs development.

INTERNET EXCHANGE POINT (IXP): A central location where networks exchange traffic with each other. Often operated by an association of Internet providers, which also share other services such as domain name servers.

INTERNET OF THINGS (IOT): The use of devices and equipment with embedded Internet connectivity.

K

KNOWLEDGE MANAGEMENT: The efficient handling of information and resources within government and related agencies.

L

LIBERALIZATION: The relaxation of Government regulation or formerly rigid or constraining degree of regulation. This creates greater freedom to market entry, providing the operators with greater flexibility toinvest, alter operations and services, and fix or negotiate tariffs.

LICENSE: An authorization granted by a regulatory authority for the provision of ICTs services or for use of the radio frequency spectrum.

LICENSEE: The acquirer of a license by a regulatory authority subjected to the obligations of the license.

N

O

OPEN ACCESS: A network providing wholesale access to telecommunications capacity on transparent and non-discriminatory terms.

P

PORTAL: A website that provides a one - stop shop to a variety of services by transferring the user to the selected application.

PRIVATE OPERATOR: Licensee of a telecommunications system that provides ICTs services.

PUBLIC PRIVATE PARTNERSHIP (PPP): Is a partnership approach bringing government and the private sector together, sharing assets, risks and rewards, to delivery a project/service/ initiative of mutual benefit.

Q

QUALITY OF SERVICE: Is most commonly used to denote the measure of performance within a communications network against international standards.

R

RADIO SPECTRUM: The word spectrum refers to a collection of various types of electromagnetic radiations of different wavelengths. Spectrum or airwaves are the radio frequencies on which all communication signals travel. Radio frequencies are used for different types of services like space communication, mobile communication, broadcasting, radio navigation, mobile satellite service, aeronautical satellite services, defence communication etc. Radio frequency is a natural resource, that will deplete when used, and will be wasted if used inefficiently.

RADIO SPECTRUM MANAGEMENT: Involves the ongoing transparent and evidenced-based allocation, assignment, and monitoring of spectrum use.

REGULATION: Refers to a rule or directive made and maintained/ enforced by an authority.

ROBOTICS: The use of machines to automate tasks normally undertaken by humans.

S

SOFTWARE: A collection of computer programs and associated data that provides the instructions for telling a computer what to do, and how to do it to achieve a particular outcomes.

SERVICE PROVIDER: A person or entity under permit or license by the that to provides an ICT service to the public or who owns or operates an ICTs network used to provide ICTs services to the public.

T

TELECOMMUNICATION: Transmission, emission or reception of information by wire, radio, optical or other electromagnetic means of communications.

TELECOMMUNICATIONS SERVICE: provision of the voice and data transmission SIM cards and Prepaid accessories equipment and facilities to customers or any form of transmission of signs, signals, text, images or other intelligence by means of a telecommunications network, but does not include a broadcasting service.

TV WHITE SPACE: Radio communications using the unused frequencies in the broadasting spectrum, based on cognitive radio devices and dynamic spectrum assignment for spectrum sharing.

U

UNIVERSAL ACCESS SERVICE: Refers to the practice of providing baseline level of ICTs services to every resident to increase access to advanced telecommunications services as far as possible, to all the people without discrimination on any basis with adequate facilities at reasonable cost.

UNIVERSAL SERVICE OBLIGATION: A legal requirement that sets specific minimum levels of attainment for service elements that serves substantially all persons.

UNIVERSAL ACCESS FUND (UAF): A fund created to facilitate the achievement of national policy goals for universal service and universal access to Information and Communication Technologies (ICT) in rural, un-served and under-served areas.

V

VERY SMALL APERTURE TERMINAL (VSAT): A very small satellite transmitting and receiving station that can transfer data, video, and voice via satellite using different frequency bands to increase internet coverage within Somalia.

8.2 ABBREVIATIONS

AI: Artificial Intelligence
API: Application Programming Interface
ATU: African Telecommunication Union

B

BPO: Business process outsourcing

C

CERT: Computer Emergency Readiness Team
CIO: Chief Information Officer

E

EAC: East African Community
EACO: East African Communications Organisation

G

GB: Gigabyte
G2B: Government to Business G2C- Government to Citizen
G2G: Government to Government
GDP: Gross Domestic Product
GSM: Global System of Mobile Communications
GOVNET: Government Wide Network
GSMA: Global Systems Mobile Association

I

ICANN: Internet Corporation for Assigned Names and Numbers
ICT: Information & Communications Technology
IOT: Internet of Things
ISM: Industrial, Scientific and Medical
ISP: Internet Service Providers IT - Information Technology
ITU: International Telecommunications Union IXP - Internet Exchange Point

L

LDCS: Least Developed Countries

M

M2M: Machine to Machine
MAN: Metro Area Network
MB: Megabyte
MNOS: Mobile Network Operator(s)

N

NCA: National Communications Authority
NDC: National Data Center
NEC: National Elections Commission
NREN: National Research/Education Network

P

PPP: Public Private Partnership(s)

R

ROW: Rights-of-Way

S

SET: Structure, Empower and Transform SDGs - Sustainable Development Goals

T

TV: Television
TVWS: Televsion Whitespace

U

UN: United Nations
UPU: Universal Postal Union
USA: Universal Service UAF - Universal Access Fund

V

VSAT: Very Small Aperture Terminal



CONTACT

MINISTRY HEADQUARTERS

JAMHURIA ROAD, MOGADISHU - SOMALIA
Address: P.O. Box 66, Mogadishu - Somalia
Email: info@mptt.gov.so
Facebook: www.facebook.com/MPTTSomalia
Twitter: @MPTTSomalia