Republic of Zambia

National ICT Policy 2023

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National Information & Communication Technology Policy 2023

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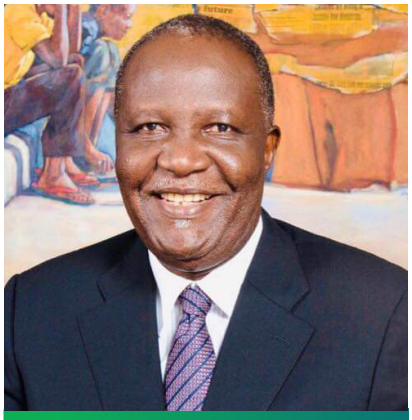
Foreword



> Government has revised the National ICT Policy of 2006. The Policy prioritises bridging the digital divide by providing a conducive environment for public and private sector participation

Information and Communication Technologies (ICTs) have been recognised as a catalyst for socio-economic transformation of nations globally. The adoption of ICTs has ushered in the Fourth Industrial Revolution (4IR) and is changing the way people live. The 4IR calls for digital transformation which changes the way the physical, digital and biological worlds interact. This is largely observed through the synthesis of emergent technologies such as Artificial Intelligence (AI), Internet of Things (IoTs), Robotics, Biotechnology, Blockchain technologies, 3D printing, Cloud and Quantum Computing among others.

Digital transformation is disrupting established practices and creating new opportunities. The technological advancements have also brought about new challenges related to information security, data privacy, and e-waste management. In the same vein, transforming Zambia into a digital economy is set to facilitate real-time and seamless socio-economic activities and commercial transactions in the country. It is envisaged that this will enhance efficiency in service delivery.

To address these emerging issues and ensure that the country's digital economy is developed in a sustainable and responsible manner, Government has revised the National ICT Policy of 2006. The Policy prioritises bridging the digital divide by providing a conducive environment for public and private sector participation. It also prioritises, among others, promoting investments in ICT infrastructure, interoperable digital platforms, e-services, digital skills, ICT-based research and development, adoption of local ICT solutions and providing incentives for ICT products and services.

With the forgoing, our aim is to promote mind-set change and inculcate a culture of information security consciousness across the general citizenry. It is anticipated that this will lead to the attainment of the Country's goal of transforming into a digital economy.

Government recognises the role of the private sector, cooperating partners and other stakeholders and will therefore apply a multi-stakeholder collaborative approach in the implementation of this Policy.

Hon. Felix C. Mutati (MP)
Minister of Technology and Science

Acknowledgement

> The Zambian Government remains committed to providing a conducive policy, institutional and legal environment for transforming Zambia into a Digital Economy

The Zambian Government remains committed to providing a conducive policy, institutional and legal environment for transforming Zambia into a Digital Economy. The review of the National ICT Policy of 2006 led by the Ministry of Technology and Science has been made possible with the support of multiple stakeholders.

Government acknowledges the efforts of the private sector, cooperating partners and the civil society among other stakeholders in complementing Governments efforts to developing the ICT Sector. In particular, Government recognises support from the United Nations Capital Development Fund (UNCDF) towards the development of this Policy.

As we embark on this transformative journey, Government is desirous to enhance its partnerships with stakeholders in the implementation of this Policy. This will enable the Sector contribute effectively to the transformation of the country into a digital economy and ultimately attain its Vision of transforming into a "Prosperous Middle Income Country by 2030".

Dr. Brilliant Habeenzu
Permanent Secretary
Minister of Technology and Science

Definitions

Computer Incident Response Team
A team of dedicated information security specialists that prepares for and responds to cyber security incidents

Cyber
A computer simulated environment or state of connection or association with electronic communications systems or networks including the internet.

Cybercrime
A crime committed in, by or with the assistance of the simulated environment or state of connection or association with electronic communications or networks including the internet

Cybersecurity
Methods of using people, processes and technology to prevent, detect, respond and recover from damage to confidentiality, integrity and availability of data or disruption of services hosted by computers in cyberspace

E-Government
The use of ICTs to deliver public services to citizens and businesses.

E-learning
Learning utilizing electronic technologies to access educational curriculum and other resources outside of a traditional classroom.

E-Service
Services provided using Information and Communication Technologies

Electronic Communication
A transfer of signs, signals, writings, images, sounds, data or intelligence of any nature transmitted in whole or in part by radio, electromagnetic, photo-electronic or photo-optical system but does not include:

a. Any wire or direct oral communication; and
b. Any communication made through a tone –only paging device;

Electronic Transaction
A transaction, action or set of transactions of a commercial or non-commercial nature, that takes place using ICTs

Emerging Technologies
Technologies that currently developing or emerging into prominence

Government Service Bus
A Government integrated ICT platform that facilitates the provision of e-services

Government-Wide Area Network
A Government - Wide Area Network connecting public service institutions

Identity Theft
The act of using or possessing an identify of another person knowingly without lawful excuse

Information and Communication Technology
The application of communication and computing technologies to the creation, management and use of information through utilizing of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information and related services

Marginalized Groups
Vulnerable populations or people that experience discrimination or exclusion to the use of ICTs

Public Key Infrastructure
A system comprising hardware, software, policies, processes, and procedures required to create, manage, distribute, use, store and revoke digital certificates and public keys.

Scarce Resources
Resources that are limited or any frequency spectrum, numbers and electronic addresses

Wide Area Network:
A large computer network that connects groups of computers over large distances.

Acronyms and Abbreviations

2G	Second Generation
3G	Third Generation
4G	Fourth Generation
5G	Fifth Generation
B2B	Business to Business
CCNA	Cisco Certified Network Associate
CIRT	Computer Incidence Response Team
CISM	Certified Information Security Manager
COP	Child Online Protection
CSO	Central Statistics Office
DECA	Digital Ecosystem Country Assessment Report
DFS	Digital Financial Services
ECT	Electronic Communication Transactions
e-Government	Electronic Government
e-Services	Electronic Services
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to Government
GIS	Geographical Information System
GSB	Government Service Bus
GSM	Global System for Mobile
GWAN	Government Wide Area Network
HMIS	Health Management Information Systems
ICT	Information and Communication Technology
ICTAZ	Information Communications Technology Association of Zambia
IEC	Information, Education and Communication
IFMIS	Integrated Financial Management Information System
INRIS	Integrated National Registration Information System
IOT	Internet of Things
ISPAZ	Internet Service Providers Association of Zambia
ITU	International Telecommunications Union
IXP	Internet Exchange Point
KPIs	Key Performance Indicators
KYC	Know-Your-Customer
M2M	Machine to Machine
MNO	Mobile Network Operators
NDP	National Development Plan
NFS	National Financial Switch
OTT	Over-the-Top
OVC	Orphans and Vulnerable Children
PAC	Policy Analysis and Coordination
PMEC	Payroll Management and Establishment Control
PPPs	Public Private Partnerships
R&D	Research and Development
SDG	Sustainable Development Goals
USAF	Universal Service and Access Fund
ZICTA	Zambia Information and Communication Technology Authority
ZMCIRT	Zambia Computer Incident Response Team

Chapter 1 — Introduction

Government recognises that Information Communication Technology (ICT) is a central part of economic growth. Information Communication Technologies have increasingly played a role in the delivery of development outcomes set out in the national development plans and vision. For this reason, Government has revised the National ICT Policy of 2006, to align the sector to the country's economic transformation agenda and leverage the benefit of ICT in the development goals.

The 2023 National Information and Communication Technology Policy has been anchored on the Vision 2030 which espouses the transformation of Zambia into a ***"Prosperous Middle-Income Nation by 2030"***. It expresses the country's renewed commitment to the development of ICT and leveraging its benefits to revolutionise key sectors of the economy. The Policy provides strategic guidance on how the development of the sector will be coordinated while ensuring that it remains inclusive, efficient and competitive. This Policy has the potential to meaningfully drive Zambia towards achieving the objectives set out in the Vision 2030 and other international obligations.

The global ICT environment has seen exponential growth in recent years, especially following the COVID-19 global pandemic. This transformative role of technology to Africa's growth has become more evident with the increase in the use of ICT, which have contributed to overcoming barriers to entry in sectors such as banking and financial services. However, most of the digitalization in the economy is accounted for in the service sectors and not in the productive sectors like agriculture, mining and manufacturing.

In Zambia, mining and agriculture continue to dominate and account for the highest share of GDP and employment, at 12.9 percent and 22.5 percent respectively (Economic report, 2022 and Labour Force Survey 2020). The ICT sector on the other hand accounts for about 3.0 percent of GDP and 0.7 percent of employment during the respective years. ICTs have played a catalytic role in transforming the economy, however gaps exist between productive and services sectors which will be addressed in this Policy.

According to the 2022 Economic Report, the ICT Sector experienced high rates of growth from 2018 to 2021 which were higher than the national growth rates during the same period. It was the best performing and highest contributor to growth during the period under review. Despite this good performance, the Sector still faces a number of hurdles that this Policy seeks to address.

An analysis of the ICT Sector in 2017, by ZICTA, revealed significant gaps limiting its potential for development, despite its prominence in both the Sixth and the Seventh National Development Plans. This Policy establishes an overarching direction to address some of these realities and simultaneously reap the benefits of a well-developed, inclusive and competitive ICT Sector. It is designed to provide a holistic approach for Government to offer strategic guidance and coordinate developments, as well as harness the potential to transform other key sectors.

The revised Policy builds on the initiatives outlined in the 2006 iteration, while encompassing technologies and ICT trends that have emerged over the last decade. It is centered around the following themes; enhancing capacity of citizens in ICTs, building an effective and responsive regulatory and policy framework, establishing an efficient ICT sector, and streamlining ICT in all sectors of the economy.

This Policy does not deviate from Zambia's global and regional contribution to the ICT sector, but rather incorporates global practices while maintaining national relevance. It provides an analysis of the sector, then gives the vision, rationale and guiding principles for the Policy. The document also outlines the objectives and the corresponding measures for their attainment; and the implementation framework.

Chapter 2 — Situation Analysis

Globally, the ICT industry has recorded tremendous growth over the years. According to the Business Research Company Information Technology Global Market Report 2022, the global ICT market size was expected to grow from $8.384 trillion in 2021 to $9.325 trillion in 2022 at a Compound Annual Growth Rate (CAGR) of 11.2 percent. This growth has mainly been driven by developed countries that have invested heavily in perfecting their solutions and built human capacity to maintain and enhance the systems and services.

In 2021, the investment capital of Africa tech start-up sector recorded growth of 206 percent from 2020. This represented investment capital of about US$2.15 billion (UN) with Fintech accounting for almost half of this investment and most of this is in four countries namely, South Africa, Nigeria, Egypt and Kenya.

Zambia's own ICT Sector has also experienced some growth, with ZICTA's 2022 annual market report estimating a year on year growth of 18 percent in the mobile phone subsector, valued at ZMW7.8 billion. The 2021 Economic Report records that the ICT Sector experienced high growth rates of 40.1 percent in 2018 and 19.7 percent in 2021 while the national average was 4 percent and 3.6 percent respectively. This made ICT the best performing sector during the period under review and the highest contributor to growth. Most of this growth in the ICT Sector is accounted for by the expansion of digital financial services which has recorded exponential growth.

Following the implementation of the National ICT Policy of 2006, the country recorded significant progress in the deployment of ICT infrastructure and services. Government facilitated investment in infrastructure supporting second generation (2G), third generation (3G) and fourth generation (4G) technologies and nationwide fiber backbone network. As at December 2022, the country had 92 percent population coverage of mobile communication based on the gap analysis undertaken by ZICTA. This enabled the delivery of various services such as e-services in the public sector such as e-Government, health care, education, agriculture, and financial services. Table 1 below shows statistics of the ICT performance in 2006, 2017 and 2021.

Table 1 - ICT Sector Performance Statistics: 2006, 2017 and 2021

Performance Indicators	2006	2017	2021	2022	Q2-2023
Mobile Subscriptions	1.7 million	13.4 million	20.2 million*	19.8 million*	20.2 million*
Internet Subscriptions	12,000	7.7 million	10.4 million	11.1 million	11.4 million
Internet Penetration rate	0.1%	47.1%	56.3 %	56.8%	58.3%
Smart Phone Penetration		13.5%	29.6%	36.8%	36.8%
Volume of Mobile Money Transactions (million)		172	834	1,518	-
Value of Mobile Money Transactions (ZMW' million)		7,288	169,351	295,828	-
Mobile Network Population Coverage		78%	86%	92%	92%
Number of Communication Towers		2,510	3,417	3,548	3,532
Telecommunication Infrastructure index		0.12	0.34	-	-
Cybersecurity index		43.6	68.8	68.8	68.8
Average Broadband Speeds		1.16	2.73	-	-
Fixed Telephone Line Services	93,427	101,444	65,913	96,284	88,946
Fixed Internet Subscription	11,996	36,108	80,611	86,446	82,254

*Consist of 7.5 million for 2021, 8 million for 2022 and 12.8 million for Q2-2023 of unduplicated subscriptions

Despite above achievements, the supply side of the ICT sector still remains weak as the country is yet to grow its base for home grown solutions to address its challenges. Structural gaps also exist between productive sectors of the economy such as manufacturing, agriculture and mining and ICT service sectors.

2.1. Access and Usage of ICT Products and Services

During the implementation of the National ICT Policy of 2006, the country focused on interventions that were aimed at increasing access and usage of ICT products and services by the citizens. This concentrated on the provision of basic services of voice and text messages, the technology that was available. Among the interventions included the construction of communication towers to the unserved and underserved areas, and the extension of the ZESCO fiber network to improve connectivity. Consequently, the country developed a relatively widespread fiber network backbone with a total length extending over 18,000 km in 2022, compared to only 565 km in 2006. These increased the country's network coverage of 2G service to 93 percent of the population. In addition, the Universal Access and Service Fund, established under the ICT Act No. 15 of 2009, has to date facilitated the construction of 229 towers in unserved and underserved areas.

In order to further enhance investment in infrastructure, Government encouraged the participation of private sector through licensing. The current licensing framework for providers of ICTs allows for the licensing of infrastructure. Consequently, service providers have outsourced the largest proportion of their infrastructure with a view to focus on providing core services to the customers. This has increased the spread of available infrastructure.

Zambia has a central geographical location which allows for international data connectivity with eight different countries through the undersea cable network. The country has successfully interconnected its optic fiber network to the undersea cables through Namibia, Botswana, Zimbabwe, Malawi, Angola, Democratic Republic of Congo and Tanzania. This presents an opportunity for the country to become a hub for international data transit as well as enhance its resilience for disruptions in connectivity.

The ICT Act of 2009 provided for enhanced regulations in the tariff structure for both voice and data service provision. These have contributed to reduced costs, which have in turn increased the total mobile subscriptions from 1.7 million subscribers in 2006 to 20.2 million subscribers in 2023 consisting of 12.8 million unduplicated subscriptions.

Despite the progress made, the existing infrastructure has remained inadequately distributed, dilapidated and of lower grade. Challenges also exist in the coordination of the deployment of infrastructure, leading to duplication in some areas. The lower grade infrastructure does not support the application of emerging technologies such as Block Chain, Internet of Things (IOT), Machine Learning (ML), Big Data, and Artificial Intelligence (AI). In addition, Internet connectivity has remained basic for advanced applications such as WhatsApp, Twitter, U-Tube and e-learning. In terms of coverage, only 83 out of 116 districts have fiber points of presence in the country. These are inadequate as some of the facilities, such as those in education and health, are not connected. The National Global System for Mobile (GSM) Geographical coverage is estimated at 69.9 percent while the population coverage is higher at 92 percent.

There is currently one Internet Exchange Point (IXP) located at ZAMTEL which is operated by the Internet Service Providers Association. This is inadequate and cannot support the connection of all Internet Service Providers (ISPs) in the Country. This contributes to the high cost of data and does not provide for backup in the event of failure.

Access and usage of ICTs is also characterized by inequalities. Lower levels of access are particularly noted in marginalised groups such as rural populations, lower-income households, women, youth, and persons living with disabilities. Lack of universal coverage and device and service affordability are among the key barriers to driving increased access. The usage of ICT is also affected by the ownership of phones among the population which have shown wide disparities.

The 2022 demand side survey undertaken by ZICTA and ZAMSTATS, on access and usage of ICTs by households and individuals, indicated that 63.3 percent of the adult population had access to mobile phones. Only 36.8 percent of the population with mobile phones owned smartphones.

The survey further revealed that 82.1 percent of male headed households own at least one working phone, compared to 76.9 percent of female headed households. These disparities are extended to individual phone ownership, with 57.3 percent of males reported to own a mobile phone compared to 47.4 percent of females. This gender disparity in relation to access was also seen in internet usage statistics, with 29.0 percent of males having used the internet before, while 22.0 percent of females had used the internet before. At institutional level, Government introduced compulsory ICT education in 2015. However, only 39.4 percent of schools own computers and 5.9 percent had access to the internet as at 2020. These statistics are similar in the health sector where 17.9 percent of health facilities own computers and only 11.1 percent have internet access. These statistics are more apparent in the rural areas.

Further to the challenges affecting ownership of gadgets to enable access and usage of ICTs, the standard of products at the local is inadequately regulated. This has resulted in the market being stocked with gadgets of poor quality and in some cases of counterfeit models. This has not only affected the cost of the gadgets to the people, but also their durability.

Reliable and extensive electricity supply is important for the provision of ICTs, but the 2022 ZICTA National ICT survey estimated that only 34.1 percent of all the households in the country had access to electricity from the national grid. Rural households had the least access with only 11.2 percent connected to the national grid while 66.0 percent of households based in urban areas are connected. Further, some areas that have access to electricity through the national grid still struggle with unreliable supply which adversely affects productivity, increases costs and has potential to reduce output.

2.2. Human Development and ICT Skills

The Government recognises that digital skills and literacy are a requisite requirement for the country to make greater use of ICTs in its digital transformation agenda. Thus, it has implemented a number of interventions to improve ICT access and utilization at all levels of education. In this regard, ICT was mainstreamed in schools, the new competency-based national curriculum was made and ICT was made a compulsory subject. A number of institutions have been established that are involved in education and training of human resources in both academic and Vocational ICT skills development. Private institutions have also been established offering various ICT related courses. Work based capacity building in ICTs has also contributed to the development of the skills. In 2018, Government established the Information and Communications Technology Association of Zambia (ICTAZ) under the ICTAZ Act No. 7 of 2018 which provides for the registration of ICT professionals and regulation of their professionals.

A number of institutions have made efforts to develop their human capacity to work with ICT tools such as computers. The COVID-19 pandemic caused institutions to enhance the use of digital platforms for learner and lecturer interaction. In academia, online libraries were made available for student use including course delivery. In the vocational education side online tools were developed to deliver courses that otherwise needed practical hands on training.

However, ICT skills in the country have remained inadequate. This has been attributed to the fact that the ICT curriculum for Early Childhood Education and primary Education level has not fully been mainstreamed. More recently, the Government approved an ICT competence framework for teachers, based on the framework developed by UNESCO. However, these initiatives did not have adequate institutional capacity and resources for their implementation. A gap still remains for the capacitation of teachers/lecturers with requisite digital skills for effective course/lesson delivery. This is compounded by limited ICT awareness programmes among the youth. Furthermore, other skills such as digital entrepreneurship skills remain low.

Further, learning institutions do not have adequate connectivity to the internet and do not have adequate access to devices. Further, it has been observed that teachers have limited knowledge of how to use ICT in teaching and learning.

In addition, the higher learning sector does not offer adequate programmes to meet the ICT market demand. The State of Higher Education Report of 2020 indicated that ICT learning programs were only 4.1 percent of the total learning programs offered at higher education level. Female enrollment in ICT programs in the nine public and 53 private universities was only 21 percent compared with an overall female enrollment of 48.5 percent across all programs (Digital Ecosystem Country Assessment Report, 2022) Training institutions have limited capacity to accommodate all applicants into their programs, thereby turning down the majority. DECA interviews also noted a low quality of training at the secondary education level.

Where skills are provided, the skills acquired by the people do not meet the demand for specialized skills on the market. In order to address this gap, employers have developed institutional training/upskilling schemes which are mostly based on international professional certifications such as Certified Information Security Manager (CISM) and Cisco Certified Network Associate (CCNA). However, the compatibility of such programmes with the Zambian education curriculum and industry is still very limited.

Further, a gap still remains in the provision of ICT skills as there is no digital competence framework. This makes specialist skills such as research, development, production, management and maintenance of software systems inadequate. The ZICTA 2022 ICT survey found that the majority of the people had foundational digital skills, while only 7 percent were proficient in specialised skills such as programming.

2.3. Security and Data Privacy

The increased adoption of ICTs in the country such as mobile devices, digital platforms, Supervisory Control and Data Acquisition (SCADA) systems and the internet have led to increased exposure to cyber risks. The prevalence of mobile money scams and rising number of cyber incidents in critical sectors is a prominent example of exposure to such risks. There is equally a growing demand for Personal Identifiable Information (PII) to be stored on cloud platforms which are not within the jurisdiction of the republic.

The Government has over the last years embarked on strengthening the policy, legal and regulatory framework aimed at building a safe, resilient and secure cyber space. The repealed Electronic Communications Transaction (ECT) Act No. 21 of 2009 was the first legislation which had some provisions that touched on information security, cybercrimes and data protection. However, the ECT Act of 2009 was not adequate to holistically address new dynamics of cyberspace and data privacy such as critical information infrastructure protection and data privacy principles, respectively. Hence Zambia adopted the SADC Model Law framework as a tool used in reviewing and revising the ECT Act of 2009. Consequently, the National Cyber Security Policy of 2021 was formulated which sets out the broader aspiration of the Government to address cyber security and resilience. Subsequently, legislation governing cyber security in Zambia was enhanced through the development of these pieces of legislation which are the Cyber Security and Cyber Crimes (CSCC) Act No. 2 of 2021, the Electronic Communications and Transactions Act No. 4 of 2021 and the Data Protection Act No.3 of 2021.

To provide a structured framework for responding to cyber incidents, the country established the Zambia Computer Incident Response Team (ZmCIRT) in 2012. These developments have been demonstrated in the improvement of Zambian's Global Cybersecurity Index (GCI) from 43.6 percent in 2017 to 68.8 percent in 2021. The GCI is a tool used by the International Telecommunications Union (ITU) to measure a country's cybersecurity readiness.

Zambian's Global Cybersecurity Index (GCI)
43.6% — 2017
68.8 — percent

To improve citizens' cyber hygiene, Government has undertaken a number of cyber safety awareness programmes aimed at sensitizing the populace on cyber risks as well as how to mitigate cyber threats. Additionally, a Child Online Protection (COP) Strategy was developed in 2020 to enhance the safety of children online.

In spite of the noted progress, there are still a number of challenges that require redress if the country is to enhance its cyber security. The recently enacted legislation is yet to be fully operationalized through subsidiary legislation and guidelines to ensure that the provisions of the law take full effect. In addition, the institutional arrangements required to effectively respond to the aspirations of the Policy are inadequate. Challenges also exist around gaps and overlaps in the institutional provision and allocation of functions of the various institutions such as the Zambia Cyber Security Incidence Response Team (ZmCIRT) and the National Cyber Security Advisory and Coordinating Council as well as allocation of functions among various government institutions engaged in the cyber security space.

Further, the country has challenges related to information security that require a holistic approach to securing information. A National Information Security Assessment and Survey undertaken by ZICTA between 2017 and 2018 highlighted that most critical sector institutions have not adopted information security management systems leading to significant exposure to information security risks. Additionally, gaps were noted in areas of information security awareness, national cyber incident response mechanisms, business contingency planning, transaction authentication with digital signature certificate mechanisms, and the inadequate protection measures in processing of Personal Identifiable Information (PII). These gaps have increased the exposure of such entities to cyber related risks and pose a potential threat to the economic and financial sustainability of not only these organisations but also the entire economy. Between 2020 and 2022, Cyber Incidents have led to recorded losses of over than K200 million and these have been as a results of cyber threat actors hacking information systems.

The first National Cybersecurity Risk Assessment (NCRA) Report of 2022 highlighted that Zambia is exposed to somewhere between 0.01 percent and 12.17 percent of its GDP if a significant cyber-attack affected many organisations for a sustained period. A sustained and cascading cyber-attack on Critical Information Infrastructure (CII) would have an estimated US$6 billion GDP impact. At over 6 percent GDP based on the 2022 Economic report by the Ministry of Finance and National Planning, the Financial services sector has the biggest potential exposure of US$2.5 billion with the Government sector estimated to have a potential exposure of US$1.9 billion impact.

2.4. ICT Research, Innovation and Entrepreneurship

Research is critical in the ICT sector to provide data on the impact of ICTs on society, support the development or improvement of products and services in the country as well as to continuously generate evidence to inform policy on the development of the sector. The increased usage of ICTs, including mobile devices have opened up new areas of research. For most economies, innovation informed by research has led to economic growth arising from enhanced productivity, open opportunities for new industries and the creation of new jobs. There are also very strong linkages between innovation and entrepreneurship as new business opportunities can arise from such improvements or developments.

The Ministry responsible for Technology and Science has the overall mandate to establish policies aimed at supporting research, technology and innovation development in the country. This Ministry, in collaboration with other line Ministries, coordinates and promotes science, technology and innovation development programmes for the citizens, and particularly the youths and early stage start-ups. The Ministry is also responsible for the promotion of the commercialisation of research, technology and innovation products. The private sector also plays a role in supporting technology and innovation development through institutions such as Bongo hive, Jacaranda hub and the Women's Entrepreneurship Access Centre (WEAC), among others. Recently, the United Nations Development Programme (UNDP) together with a number of local partners and other development corporation agencies launched the National Innovation Initiative (NII) which also supports innovations with high social and economic impact. Additionally, a few corporate entities have also established in-house initiatives to support innovation and entrepreneurship activities.

In spite of the foregoing positive developments, a mapping exercise conducted by the International Trade Centre (ITC) in 2020 revealed that the participants in the innovation ecosystem are significantly fragmented resulting in limited coordination in the support of ICT related innovations and entrepreneurs in the country. This has led to geographical imbalances in the research and innovation activities being undertaken. Most of these initiatives are largely concentrated in the commercial centres of the country. Further, the linkage between industry and research is equally weak as there are no industry driven initiatives to support research and entrepreneurship development.

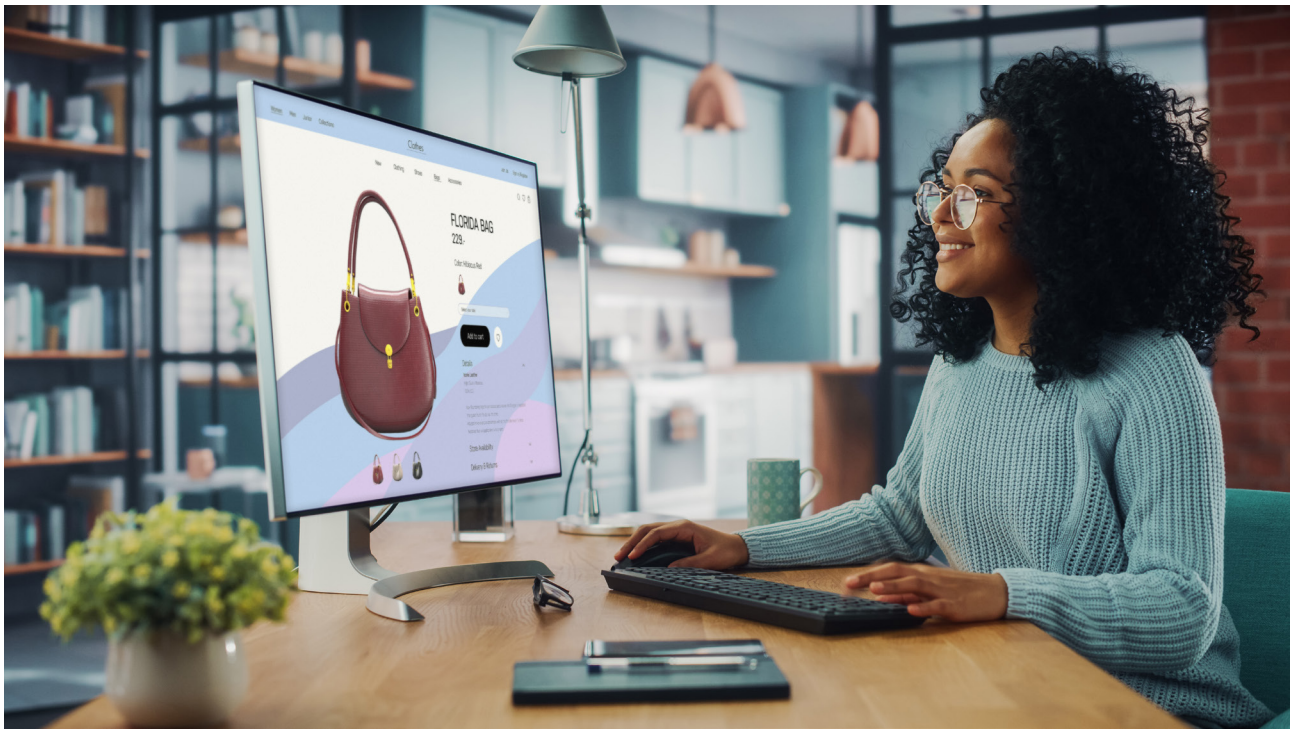
Generally, there is a growing interest to venture into innovation and entrepreneurship in Zambia, especially amongst the youths who form the largest part of the country's population. This provides an opportunity for the country to build its entrepreneurship capacity. However, the majority of the youth have limited entrepreneurship skills. The curricula at most higher learning institutions is less aligned to entrepreneurship. A related challenge to the education system, especially in higher learning institutions is that technologies and innovations developed as school research projects are not harnessed.

There is also limited linkages between the existing critical mass of software developers and the expected target industries. In this regard, the developers are not able to respond to specific industry needs or any social challenges in the country as these gaps are not clearly identified and well disseminated.

An often overlooked segment of entrepreneurs that leverage on technology are the high number of enterprises seeking to scale. Most of these entities have established their own small or medium sized businesses which have the potential to grow. However, they face a number of challenges which limit their potential for growth which include restricted exposure to markets, and limited technical and inadequate financial capacity, limited infrastructure and other facilities necessary to develop and test prototypes. Other challenges include inadequate access to equipment and devices with the required capacity, Application Programme Interfaces (APIs) that would simulate a real environment, short codes, fast and stable internet connectivity and cloud hosting space for applications, affordable financing and prohibitive interest rates. Despite the existence of designated public funds aimed at supporting research and development, these funds are inadequate and not specifically aligned to technology related innovation. There are also some coordination gaps on how the funds are applied. In addition, there is very limited market intelligence data available on some sectors which has led to marginalisation in the responses to innovation.

Most use of technology solutions has largely relied on sourcing solutions from foreign-based providers. This has made it difficult for local ICT businesses to grow. Further, there are inadequate incentives and preferential conditions for ICT local businesses. With regards to outsourcing critical systems from foreign providers, evidence shows that in most instances foreign providers have dominated provision systems and services. Furthermore, outsourced systems and services have proved very costly due to the large pool of external human resources required for maintenance and the licensing fees involved.

2.5. E-Services



There have been some notable developments in the deployment of electronic services in both the private and public sectors in Zambia. In the private sector, the financial sector has demonstrated the most progress through the extensive adoption and use of digital financial services. A financial switch was developed in 2021 aimed at facilitating interoperability in the payment systems. This removed barrier for users of Digital Financial Services (DFS) to be locked to transacting with only one provider as well as reduced the cost of transacting across providers.

According to the latest Finscope study for Zambia undertaken in 2020, financial inclusion increased from 59.3 percent in 2015 to 69.4 percent in 2020 signifying a 10.1 percentage point increment. Mobile money adoption, which grew from 14.0 percent of the total population to 58.5 percent during the same reference period, had the largest impact on the financial inclusion outcome. This is expected to have a positive effect on increasing economic activities, reducing poverty as well as reducing inequalities in the country. According to statistics from the Bank of Zambia, the volume of mobile money transactions in 2022 reached 1.5 billion while the value of the transactions was ZMW295 billion. This represented more than a six-fold increment from an estimated volume of 116 million transactions and a value of ZMW7.3 billion in 2017.

There have also been some notable improvements in the provision of services facilitated through digital applications. The emergence of applications such as Yango, Ulendo and Zecab which facilitate the provision of transportation services has enhanced the use of digital services. This has introduced efficiency in service delivery, created employment opportunities and reduced the cost of services. There has also been some noted improvement in the use of online platforms such as online stores for the purchase goods and services. This has enhanced the growth prospects for e-commerce. During the COVID-19 pandemic, the delivery of education services using digital platforms equally increased. This ensured that learning remained uninterrupted and ensured the availability of education content for students in different localities.

In the public sector, the Government has made progress in embracing electronic services by cutting down on paper-based and in-person access to services through the implementation of the Government Enterprise Service Bus (GSB) and the Government Payment Gateway. The 2021 E-Government Division Annual Report highlighted that the Government, through the GSB, collected a total amount of ZMW632.15m as non-tax revenue from payments for various public e-services. The Government also digitalised the payment of various taxes through the Zambia Revenue Authority. This was done to improve the ease of tax payers in making payments in real time and in location. The Ministry of Health introduced various e-health programmes such as SmartCare for the management of patient records in public hospitals. In addition, the Government introduced the Zambia Integrated Agriculture information management system (ZIAMIS) as an integrated platform to support management of various agricultural programmes that contribute to accelerated growth of the sector.

Despite the progress highlighted above, there are some challenges associated with the deployment of electronic services as well as opportunities yet to be realized. The absence of a framework to coordinate the evolution and development of electronic services in the country has created fragmentation in the deployment and in some cases duplication of resources not optimally applied. Some sectors such as tourism, mining, education, commerce, healthcare, and transport and logistics have not received significant attention in the development of electronic services and have not registered much progress despite the existence of opportunities for digitalisation in these sectors. The absence of a coordinated ecosystem and infrastructure to support the growth of ecommerce has also slowed down the pace of growth for ecommerce. Notably, the absence of a structured addressing system to support the efficient delivery of parcels has adversely affected the growth of ecommerce in the country.

In addition, the platforms in both the private and public sector used to support the deployment of electronic services are not well interconnected to leverage on each other to deliver services efficiently. This has led to duplication of infrastructure, increased costs of development as well as loss in opportunities to leverage on information that is stored on different platforms.

The current national identity system has been faced with challenges related to limitation in authentication both online and offline, ownership by citizens, as well as the ability to facilitate linkages in information sharing with various electronic services. Currently citizens are required to manually submit information regarding their identity at various points of public service delivery, which not only delays the delivery timelines but also increases the cost of providing services. This has reduced the potential benefits likely to arise from the provision of interconnected electronic services. As a response to these challenges the country has made progress to have a digital identity system. However, the implementation of the national digital identities system is yet to be fully implemented.

There have been some noted challenges related to customer service support, quality and reliability of service among others. Consumers also face challenges in getting redress for poor service delivery or complaints as they are subjected to various regulators or unclear redress channels.

2.6. Policy, Legal and Institutional Framework

Zambia has made several strides in establishing an enabling environment for the growth and development of the ICT sector. This is evidenced by Government's enactment of key pieces of legislation that provide a framework for the development of the sector. These include the Information and Communication Technolgies Act No. 15 of 2009, the Cyber Security and Cyber Crimes Act No 2 of 2021, the Data Protection Act No. 3 of 2021, the Electronic Communication and Transactions Act No. 4 of 2021 and the Electronic Government Act No. 41 of 2021 and the Information Communications and Technology Assoication of Zambia Act No. 7 of 2018. In order to operationalise these pieces of legislation, various regulations and guidelines relating to licensing, registration, infrastructure sharing, tariffs, universal access, numbering resources management, and type approval among others have been developed. These pieces of legislation have been able to faciliate increased investment into the ICT sector, provide for the protection of consumers as well as support the overall development of the sector.

During the implementation of the 2006 Policy, a number of policies aimed at complementing the ICT Policy of 2006 in shaping the development of the sector were developed. The Postal Services Policy of 2021 was developed to coordinate developments in the postal and courier sector while the Cyber Security Policy of 2021 was developed to respond to the emerging challenges related to cyber security and safety in the country. The Child online protection strategy of 2021 was also developed to respond to specific needs of children when using the internet.

The Ministry of Technology and Science is resposible for the overal oversight of the ICT sector and is supported by various government agencies such as the Zambia Information and Communication Technology Authority and the E-Government Division. There are also a number of institutions that have a complemenatry role in supporting the operation of the ICT sector mainly arising form convergence in technology and economywide adoption of ICTs.

One of the key challenges that however remain, is the limited coordination among the various institutions responsible for the development of the sector. This has led to duplication of efforts during implementation, inefficiencies in service delivery, and some aspects of transformation being neglected. The convergence of digital technologies has enhanced synergy in service delivery due to the use of common infrastructure for various uses. This has however, also led to regulatory overlaps among various agencies tasked with the oversight of digital technologies and services. For instance, broadcasting services overseen by the Independent Broadcasting Authority (IBA), being provided on digital platforms which are overseen by ZICTA. Similarly, digital fiancial services such as mobile money regulated by the Bank of Zambia runs on digital platforms which are regulated by ZICTA.

Following the enactment of the highlighted pieces of legislation, subsididray legislation is yet to be developed to fully operationalise the laws. The fast pace of evolution of digital technologies as well as the changing business models adopted by operators coupled by emerging risks and challenges related to the adoption of digital technologies such as the growing stock of electronic waste demand that the legal and regulatory framework is responsive and adequate. There are also new and emerging challenges related to data privacy and sharing of personal identifiable data to required to faciliate investment but which may have adverse implicationson consumer protection if not regulated.

In line with international practice, Zambia has signed digital Protocols, Conventions and International Agreements such as the African Union Convention on Cyber Security and Personal Data Protection.. While these strides have been made, there is opportunity to draw from global best practices in digital transformation through increased collaboration with international partners.

Chapter 3 — Vision, Rationale and Guiding Principles

3.1. Vision

"An integrated ICT ecosystem for Zambia's digital economy"

3.2. Rationale

The review of the ICT Policy of 2006 has been necessitated by the rapid changes in technology and developments in the ICT Sector. Recent developments include artificial intelligence, big data, machine learning and robotics, and nanotechnology as well as the changes in the business models adopted by providers of various ICT services. These technologies have presented opportunities that enable advancements in economic and human development.

However, the rapid pace of technological advancements has brought about new challenges related to information security, data privacy, and e-waste management, among others. The Policy, therefore, seeks to address these emerging issues and ensure that the country's digital economy is developed in a sustainable manner. In particular, the Policy aims to accelerate the development of Zambia's digital economy by enhancing opportunities and local participation in digital platforms, services, skills, infrastructure investment, innovation, entrepreneurship, and research and development.

3.3. Guiding Principles

The National ICT Policy shall be guided by the following principles:

Good Governance and Integrity: Embracing tenets of good governance and upholding ethics in the implementation of the National ICT Policy

Collaboration: Adopting a comprehensive ecosystem that creates linkages and applies requisite elements for ICT utilization

Transformative: Accelerating adoption and usage of ICT technologies to harness socio-economic development.

Inclusive: Provision of ICT technologies shall not discriminate against any citizen on the basis of sex, gender, age, race, tribe, differently abled or any other form of discrimination as enshrined in the national Constitution.

Innovative: The Policy will drive innovative solutions in all spheres of society in the application of ICTs

Adaptability: Responding to changes and adjusting to emerging conditions in the environment through the use of new and/or existing ICT technologies

Sustainability: The ICT Policy will be premised on meeting the needs of the present generation without compromising the needs of future generations.

Transparency and Accountability: ICT Policy shall be implemented in an open and accountable manner with the engagement and participation of all relevant stakeholders including state, private sector and non-state actor

Chapter 4 — Policy Objectives and Measures

4.1. List of Objectives

1. To increase availability, accessibility and usage of ICT products and services
2. To enhance human development and ICT skills in all sectors
3. To promote ICT research, innovation and entrepreneurship
4. To promote the development and utilisation of e-services in both public and private sectors
5. To ensure a safe and secure ICT environment
6. To enhance the policy, legal and institutional framework.

4.1.1. Access and Usage of ICT Products and Services

Objective 1: To increase availability, accessibility and usage of ICT products and services
Measures
1. Enhance availability, capacity and reliability of ICT infrastructure; 2.Ensure equitable access, genuine and distribution of ICT products and services; 3.Ensure availability, affordable, genuine and quality ICT products and services on the market; 4.Promote the adoption and usage of ICT products and services by consumers; 5.Promote a shared and integrated approach to infrastructure usage and development; 6.Strengthen e-waste management; and 7. Promote capacity of the energy sector to support ICT infrastructure;

4.1.2. Human Development and ICT Skills

Objective 2: To enhance human development and ICT skills in all sectors.
Measures
1. Promote uptake of basic, intermediate and advanced ICT skills in learning institutions and communities; 2.Enhance ICT capacity building programmes; and 3.Promote the development of appropriate local ICT solutions and content.

4.1.3. Information Security and Data Privacy

Objective 3: To ensure a safe and secure ICT environment.

Measures

1. Strengthen institution mandate to coordinate Cybersecurity;
2. Ensure the protection of Critical Information Infrastructure (CII) and Critical Information (CI);
3. Enhance information security awareness;
4. Ensure implementation of National Public Key Infrastructure (NPKI) and;
5. Enhance data privacy and protection.

4.1.4. ICT Research, Innovation and Entrepreneurship

Objective 4: To promote ICT research, innovation and entrepreneurship.

Measures

1. Enhance ICT Research and Development;
2. Facilitate adoption of emerging technologies;
3. Strengthen coordination in the innovation ecosystem to support the growth of innovation and entrepreneurship in the ICT sector;
4. Promote and commercialise locally developed ICT technologies and innovations; and,
5. Promote growth of local enterprises in the sector.

4.1.5. E-Services

Objective 5: To promote the development and utilisation of e-services in both public and private sectors.

Measures

1. Promote the use of e-services in public and private sectors;
2. Facilitate the integration and harmonisation of systems and the establishment of data sharing framework;
3. Facilitate e-commerce in the public and private sectors;
4. Promote the development of a digital identity systems; and,
5. Enhance Consumer protection.

4.1.6. Policy, Legal and Institutional Framework

Objective 6: To enhance the policy, legal and institutional framework.

Measures

1. Strengthen existing policy and legal frameworks;
2. Enhance competitiveness in the ICT sector;
3. Harmonize ICT sector institutional arrangements;
4. Enhance local and international collaborations; and,
5. Establish an independent statutory body to oversee cyber security.

Chapter 5 — Implementation Framework

5.1. Institutional Framework

This Policy will create a conducive environment for the development of the country through increased adoption of ICTs across all sectors of the economy. The implementation of the Policy will require an effective institutional framework to deliver on the intended outcomes. In this regard, the Policy will seek to realign institutions in line with increasing role of ICT to increase access, improve service delivery and increase safety of the cyber space. In view of the increasing exposure of the economy to digital activities, the Government will establish an agency responsible for ensuring cyber security and safeguarding the cyber space.

The Policy will be achieved through the participation of various stakeholders which include the following Government ministries, departments and agencies, cooperating partners, regulators, private sector, professional bodies, utility service provider, civil society and consumers:

Ministry responsible for ICTs
The Ministry shall be responsible for policy coordination, implementation, monitoring and evaluation. The Ministry shall also be responsible for quality, cyber safety and the well-being of people in the use of ICTs.

Cabinet Office
Cabinet office shall promote the active participation of women and girls in ICT programs. It shall also monitor and evaluate the implementation of this Policy.

Ministry responsible for Finance
The Ministry shall coordinate resource mobilisation for mainstreaming of ICTs in all sectors of the economy in order to transform Zambia into a digital economy.

Ministry responsible for Commerce
The Ministry shall coordinate the development and growth of e-commerce in the country.

Ministries responsible for National Security and Defence
The Ministries shall ensure that security concerns associated with ICTs are adequately addressed during the development and implementation of this Policy.

Ministry of Justice
The Ministry shall facilitate the review and development of the ICT laws of the country.

Ministry responsible for Education
The Ministry shall promote and facilitate acquisition and utilisation of ICT skills in all areas and across all levels of education.

Ministries responsible for Youth and Community Development
The Ministries shall promote access and usage of ICT products and services for youths and other marginalized groups.

Ministry responsible for Commence
The Ministry shall promote the adoption of e-commerce across all sectors of the economy.

Other Line Ministries
The Ministries shall create a conducive environment for the adoption of ICTs in order to further the digitisation agenda. They will also facilitate the provision of various electronic services such as e-health, e-learning, e-agriculture, e-commerce, e-tourism and e-border management in line with their mandate.

Electronic Government Division
The Division shall coordinate implementation of e-Government services.

Zambia Information Communications Technology Authority
The Authority shall be responsible for overall regulation of the ICT sector and security of all ICT platforms.

Zambia Bureau of Standards
The institution shall develop and promote of standards for the ICT sector.

Zambia Environmental Management Agency
The Agency shall formulate measures to minimise the environmental impact of activities carried out in the ICT sector.

Independent Broadcasting Authority
The Authority shall regulate content taking into account convergence of technologies.

Bank of Zambia
This institution shall be responsible for regulating digital financial services.

Competition and Consumer Protection Commission
The commission shall be responsible for promoting fair competition and protecting consumers in the ICT sector.

Judiciary
The Judiciary shall be responsible for the efficient adjudication of ICT related crimes.

Information and Communication Technology Association of Zambia
The Association shall regulate and govern the conduct of ICT professionals and practitioners.

Private sector
Private sector shall compliment Government efforts towards the implementation of the Policy.

Cooperating Partners
Cooperating partners shall provide technical and financial support to ensure effective implementation of the Policy.

Civil Society organisations
Civil society organisations shall provide advocacy on the rights of the general citizenry with regard to access and use of ICT products and services.

5.2. Legal Framework

Zambia has been applying ICTs across the various sectors premised on the following pieces of legislation:

Information and Communications Telecommunications Act No 15 of 2009
Provides for the regulation of information and communication technologies. The Act also facilitates for the provision of universal access to ICTs and protects the rights and interests of service providers and consumers. The Act requires revision to facilitate recent developments in the industry and enhance the adoption of new and emerging technologies.

Cyber Security and Cyber Crimes Act No. 2 of 2021
Provides for regulation of cybersecurity, cybercrime and the protection of critical information infrastructure in Zambia. The Act requires revision to address public concerns related to digital and human rights as well as its implications on the business environment.

Data Protection Act No. 3 of 2021
Provides for an effective system for the use and protection of personal data and regulates the collection, use, transmission, storage and processing of personal data.

Electronic Communications and Transactions Act No. 4 of 2021
Provides for the development of a safe, secure and effective environment for the consumers, business sector and Government to conduct and use electronic communications.

Electronic Government Act No. 41 of 2021
Provides for the management and promotion of electronic Government services and processes.

Independent Broadcasting Act No. 17 of 2002
Provides for the regulation of broadcasting and diffusion services. The Act requires review to address regulatory overlaps that have arisen as a result of convergence of technologies.

Business Regulatory Act No. 3 of 2014
Provides a set of principles and interventions to guide regulatory agencies when regulating and licensing business activities.

Bank of Zambia Act No. 43 of 1996
Provides for issuance of the currency of the Republic and the formulation and implementation of a monetary policy that will ensure the maintenance of price stability; and to provide for matters connected with or incidental to the foregoing. Following the emergence and rapid adoption of digital financial services in the country, there is need to harmonise the Act with the ICT Act to address the dual regulatory challenges associated with digital financial services particularly mobile money.

Public Private Partnership Act No.14 of 2009
Promotes and facilitates joint investment between the public and private sector.

Environmental Management Act No.12 of 2011
Provides for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources.

Zambia Development Agency Act No. 11 of 2008
Fosters economic growth and development by promoting trade and investment in Zambia.

Customs and Excise Act Chapter 322 of the Laws of Zambia
Provides for the imposition, collection and management of customs and excise duty.

Competition and Consumer Protection Act No 24 of 2010
Safeguards and promotes competition and protects consumers against unfair trade practices.

Copyright and Performance Rights Act No 44 of 1994
Provides for protection of copyright on matters related to ICTs.

The Public Procurement Act No 8 of 2020
Provides for the promotion of participation of citizens in public procurement.

Citizen Economic Empowerment Act No. 9 of 2006
Provides for the promotion of economic empowerment of targeted citizens, citizen empowered companies, citizen influenced companies, and citizen owned companies.

5.2. Resource Mobilization and Financing

The successful implementation of the National ICT Policy shall be dependent on the availability of adequate financial resources. Therefore, a multi-sectoral approach to financing the implementation of the Policy will be required. In this regard, financing for the implementation of the Policy will be secured from the following sources:

i. Government national budget;
ii. Bilateral and multilateral financing sources;
iii. Foreign direct investment;
iv. Private sector finance;
v. Local Capital markets;
vi. Public private partnerships; and
vii. Any other alternative funding sources.

5.4. Monitoring and Evaluation

To effectively monitor and evaluate the implementation of the ICT Policy, a comprehensive M&E framework shall be developed. The framework will emphasize ongoing monitoring and periodic in-depth evaluation of the Policy to ensure that the expected outputs, outcomes and impact are achieved. The Ministry responsible for ICTs shall be responsible for the coordination and oversight of all aspects of Policy implementation monitoring and evaluation.

Notes

Republic of Zambia

National Information & Communication Technology Policy 2023