REPUBLIC OF KENYA

MINISTRY OF EDUCATION

POLICY ON
INFORMATION AND COMMUNICATION TECHNOLOGY IN EDUCATION AND TRAINING

2021

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FOREWORD

Provision of quality education is critical towards attainment of the Kenya's Vision 2030 and for production of globally competitive human capital. The government has made heavy investment in education through budgetary allocation to ensure quality education that is accessible, relevant and equitable to all. It is acknowledged that for these reform measures to succeed, Information Communication Technologies (ICTs) will play an integral role in the delivery of quality education. It is in this breath that the government has continued to substantially invest in ICT in education and training.

The National Education Sector Plan (NESSP), 2018-2022 acknowledges ICT as a priority area to achieve Sustainable Development Goal (SDG) No 4. Information and Communication Technology (ICT) in the education sector has been mainstreamed in both curriculum delivery and education management. Digital literacy has been identified as a core competence from early years of learning, implying that ICT need to be incorporated in subsequent levels of education and training. Education Management Information Systems (EMIS) have been developed to mainstream data management for informed decision-making.

This policy, which is all-inclusive, will ensure sustainable practice of integrating ICT in education and training. Further, it will enhance achievement of desired outcomes of education and training. The policy gives a framework to make ICT have an impact in bridging the digital divide and be used as a tool for curriculum delivery and education management.

This policy provides a framework for implementation of ICT in education and training across all levels. It is expected to enhance access to ICT infrastructure, provision of adequate and appropriate digital resources, enhance capacity of teachers, trainers and lecturers as well as enhance research and innovation. Subsequently, the ultimate goal is to develop digital literacy and competencies among learners and trainees. Successful implementation of this policy will require concerted efforts from all education providers, implementers and stakeholders. It is our sincere belief that this policy will provide an opportunity for a co-ordinated approach to implementation of ICT in education and training.

Prof. George A.O. Magoha, EGH
Cabinet Secretary, Ministry of Education

PREFACE

Kenya's Vision 2030 stipulates the government's goal of transforming the country into a globally competitive and prosperous nation with a high quality of life. This is also stipulated in the Sessional Paper No. 1 of 2019, which states that education shall be transformed to meet the 21st Century needs for the country. It is in this context that the government endeavours to integrate ICT in educational institutions. The government has over the years invested heavily in the requisite ICT infrastructure, capacity building, development of digital content and institutional management. As indicated in NESSP 2018-2022, institutions would use ICT as a pedagogical tool to enhance teaching and learning. It is envisaged that this policy will guide the sector in realising provision of quality and all-inclusive education through ICT integration.

The purpose of this policy is to provide a framework that will guide ICT integration in education and training. It is through this policy that education, culture and rote learning will be transformed to education that stimulates critical thinking, creativity and innovation to meet the challenges of the 21st Century. The policy further seeks to underpin the vision and mission of the Ministry of Education with a view of identifying how the sector will use ICT to develop the requisite human resources for the country to meet the demand of the labour market, locally and globally.

This policy document is organised into seven chapters. Chapter One discusses the background and situational analysis. Chapter Two contains legal and policy context, status of ICT in education and training, rationale, scope and objectives. Chapter Three outlines policy provision as follows: equity and access to ICTs; quality and relevance in ICTs; research and innovation; ICT security, safety and Ethics; and ICT in learning institutions and community. Chapter Four presents resource mobilisation and partnerships. Chapter Five outlines monitoring, evaluation and reporting aspect. Chapter Six discusses governance and management of ICT in education and training, while Chapter Seven outlines the institutional policy implementation framework that creates an institutional structure to co-ordinate and manage the implementation of this policy.

In addition, implementation guidelines for the policy have been provided. It is expected that these sector ICT initiatives will be implemented in a sustainable and cost effective manner. At the same time, there will be co-ordination to eliminate duplication and wastage. I wish to call upon all stakeholders to ensure that the policy is fully implemented to transform education and training in Kenya.

Julius O. Jwan, PhD, MBS

Principal Secretary, State Department for Early Learning and Basic Education

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The development of this policy has been successful through concerted effort within the education sector. I take this opportunity to appreciate the participation of all state departments of the Ministry of Education in ensuring the policy is developed.

I take this opportunity to thank the Cabinet Secretary, Prof. George A. O. Magoha for his able leadership during the development of this policy, together with Chief Administrative Secretaries; Ms. Mumina Gallo Bonaya, Dr. Sarah Ruto and Mr. Noor Hassan. Principal Secretaries Dr Julius O. Jwan, State Department for Early Learning and Basic Education, Dr. Margaret Mwakima, State Department for Vocational and Technical Training, Amb. Simon Nabukwesi, State Department for Post Training and Skills Development, Mr. Alfred K. Cheruiyot, State Department for Post Training and Skills Development and Prof. Fatuma Chege, State Department for Implementation of Curriculum Reforms.

I also appreciate the Chief Executive Officers, Teachers Service Commission and ICT Authority, Directors of SAGAs under the Ministry of Education, Council of Governors, all Directors in the Ministry and their staff for their contribution towards the development of this policy. Special thanks go to Dr. Silverster Mulambe, Director, Policy, Partnerships and East African Community Affairs for co-ordinating the Technical Working Team.

Further, I would like to commend the efforts of the sector Technical Working Team for tirelessly working towards the development of this policy, as well as the National ICT Innovation and Integration Centre (NI3C) for midwifing the entire process of developing this policy.

Finally, I wish to acknowledge the efforts of other stakeholders who may not have been mentioned here, for their invaluable contribution during the policy development process.

Dr. Elyas J. Abdi, OGW

Director General, State Department for Early Learning and Basic Education

ABBREVIATIONS AND ACRONYMS

BoM	Board of Management
CA	Communications Authority
CDACC	Curriculum Development Assessment and Certification Council
CEMASTEA	Centre for Mathematics, Science and Technology Education in Africa
CUE	Commission for University Education
DLP	Digital Literacy Program
EFMIS	Education Financial Management Information System
EMIS	Education Management Information System
ESP	Economic Stimulus Program
GoK	Government of Kenya
GSM	Global System for Mobile Communication
ICT	Information and Communication Technology
ICTA	Information and Communication Technology Authority
INSET	In-Service Training
KEMI	Kenya Education Management Institute
KICD	Kenya Institute of Curriculum Development
KISE	Kenya Institute of Special Education
KNEC	Kenya National Examinations Council
LMS	Learning Management System

MDAs	Ministries, Departments and Agencies
ME&R	Monitoring, Evaluation and Reporting
MoE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
NCPWD	National Council for Persons with Disabilities
NEPAD	New Partnership for Africa's Development
OERs	Open Educational Resources
ODeL	Open, Distance and e-Learning
PA	Parents' Association
PTE	Primary Teacher Education
SDGs	Sustainable Development Goals
SLAs	Special Legal Agreements
SMS	School Management System
SNE	Special Needs Education
STEM	Science Technology Engineering and Mathematics
STI	Science Technology and Innovation
TNA	Training Needs Assessment
TSC	Teachers Service Commission
TTC	Teacher Training College
TVET	Technical Vocational Education and Training
TVETA	Technical Vocational Education and Training Authority
WSIS	World Summit on the Information Society

DEFINITION OF TERMS

Access	Right to acquire and use ICTs.
Administrators of Educational Institutions	Refer to heads of educational institutions, deputy heads of educational institutions and/or heads of departments.
Affirmative Action	Action or policy instituted for government and educational settings to ensure that members of minority groups within a society are able to participate in all provided ICT in education and training opportunities.
Assistive Technology	Devices for people with disabilities while also including the process used in selecting, locating and using them.
Bring Your Own Device (BYOD)	Involves allowing learners and educators to bring their own computing devices such as smartphones, laptops and tablets to learning institutions in addition to or instead of institutions' supplied devices.
Blended Learning	A mode of learning delivered via electronic and online media as well as traditional face to face teaching.
ICT Champion	An educator with a high passion for ICT integration in education based in a defined region to support integration of ICT in teaching, training and education management.
Digital Learning Resources	Materials included in the context of a curriculum that support the learner's achievement of the intended learning objectives. These materials include but are not limited to graphics, images or photos, audio and videos, simulations, animations and programmed learning modules.
E-book	An electronic version of a printed book, which can be read on a computer or a specifically designed handheld device.

E-Learning	Is when the learners and the instructor interact with each other in real time, from different locations and can complete self-paced online learning asynchronously.
Education Manager	A person who heads an institution of education or training.
Education Provider	An organisation that delivers education and training programmes.
Future Skills	These are personal, people applied knowledge and workplace skills necessary for success in future where a changing landscape for work, learning and living merge. They include resilience, social intelligence, cognitive load management and computational thinking, among others.
21st Century Skills	These are abilities that today's learners need in their careers during the information age. They include critical thinking, creativity, communication, collaboration, digital literacy and innovation.
Educator	A teacher, tutor, instructor, trainer or lecturer who imparts knowledge and skills to learners and/or trainees.
Electronic Waste (E-Waste)	Electronic products that have become unwanted, non-working or obsolete and have essentially reached the end of their useful life.
E-Readiness	Capacity and preparedness of an educational institution to integrate ICTs in all its teaching and learning operations.
ICT Ethics	A set of moral principles that govern an individual or a group on what is acceptable behaviour while using digital devices.
ICT Infrastructure	All computer and communications hardware and software used to execute administrative, management and other operations across the education sector.

ICT Integration in Education	Seamless incorporation of information and communication technologies to support and enhance the attainment of curriculum objectives, to enhance the appropriate competencies including skills, knowledge, attitudes and values, and to manage education effectively and efficiently at all levels.
ICT Security	A set of techniques used to protect the integrity of networks, programme and data from attack, damage or unauthorised access.
Inclusive ICT Education	Teaching, learning and training that utilises ICT tools and strategies to enable all learners to participate actively in regular learning and training setups, regardless of their diverse abilities.
Incubation	Process that enables teams using structured approaches to innovations to accelerate the process from beginning to maturation of the new ideas.
Information and Communications Technology or Technologies (ICTs)	Communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems, among others as well as the various services and applications associated with them, such as video conferencing and distance learning.
In-service Training	Training that is given to employed individuals in order to build their capacity.
Learning Institution	Include spaces providing education at ECDE, primary schools, secondary schools, VTC, TVC, TTI, NP and universities.
Knowledge-Based Economy	An economy in which the production of goods and services is based upon knowledge intensive activity, which rely on collection, analysis and synthesis of information.

Open Educational Resources (OERs)	Educational materials that are in public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them.
Pre-service Training	Education and training provided to individuals before they are engaged in gainful employment.
Remote Learning	Is where the student and the educator, or information source, are not physically present in a traditional classroom environment.
Special Needs Education	Education that provides appropriate modification in curriculum delivery methods, educational resources, medium of communication or the learning environment to cater for individual differences in learning.
Stakeholder	A person, group or organisation that has interest and concern in ICT in education and training. This could include County Governments, parents, learners, educators, communities, civil societies, NGOs, faith based organisations and development partners supporting education in Kenya.
Virtual Learning	A learning environment with a set of teaching and learning tools designed to enhance a learner's experience by including computers and the internet in the learning and training processes.

CHAPTER ONE: INTRODUCTION

1.1 Background

Kenya's long-term development blue print, Vision 2030, aims to transform the country into an industrialised middle income economy that offers a high quality of life to its citizens. ICT is identified as an enabler or foundation for socio-economic transformation as envisioned.

The objective of the Ministry of Education (MoE) is to provide quality education and training that prepares learners and trainees to competitively thrive within a highly integrated, technology-oriented and information-based global economy. Technology is to be used in educational institutions to support the teaching, learning and management processes. Further, ICTs are enablers in the acquisition of 21st Century skills in the implementation of the Competency Based Curriculum (CBC) and Competency Based Education and Training (CBET). Seamless integration of ICT in education and training will improve learning outcomes across all levels. Policy formulation, capacity development, digital content and ICT infrastructure are critical pillars for the integration of ICT in education and training.

The Sustainable Development Goal (SDG), No. 9 recognises the need to develop knowledge societies where everyone has opportunities to learn and engage with others. It also highlights the need for investing in ICTs. The 2030 Agenda further calls on states to "build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation."

The World Summit on the Information Society (WSIS), 2014 Target 2 underscores the importance of connecting all schools with ICTs. Information and Communication Technology connectivity in schools provides learners with new resources and pedagogical tools, allows them to acquire the skills required for the information society, improves administrative processes and supports teacher training. Outside school hours, connected schools can provide access to ICTs for the community, including marginalised groups. Moving beyond connecting schools with ICT, Target 7 reflects on the need for countries to invest in human resources and provide adequate training to ensure that teachers have appropriate skills required to adapt national curricula to ICT-assisted instruction. It also reflects on the general shift amongst both developed and developing countries from using older forms of ICT-assisted instruction to newer and more interactive forms of ICT-assisted instruction that rely on computers and the internet.

UNESCO Education Strategy, 2014-2021 strategic objective One emphasises developing of education systems to foster quality and inclusive lifelong learning for all. To achieve this, significant increase in access to information and communication technology, and striving to provide universal and affordable access to the internet in least developed countries is paramount. One thematic area is expanding learning opportunities and quality of education and training through ICT.

The Africa Agenda, 2063 and the Continental Education Strategy for Africa (CESA), 2016-2025 emphasises the use of ICT as an important tool in the achievement of quality education. CESA strategic objective Three emphasises harnessing the capacity of ICT to improve access, quality and management of education and training systems, issues that this policy seeks to address. It further envisages that African countries will formulate policies for ICT integration in education and training, build capacity for ICT integration, develop mobile education and training platforms and accessibility to all learners. In light of this, policy on ICT in education and training has focused on the areas of capacity building on the use of ICTs as well as governance and management of ICT in education and training to ensure all learners access quality education.

The Kenya Vision 2030 has emphasised science, technology and innovation as the key levers to drive the country into the middle income economy. Its realisation hinges on the role of education and training in producing a highly skilled human resource that can transform the Kenyan society to a knowledge-based economy. Information and Communication Technology provides an avenue for this transformation as clearly portrayed in this policy.

The National Education Sector Strategic Plan (NESSP), 2018-2022 made a very strong representation of the role of technology in a modern, vibrant and successful society. This plan envisioned a solid technology base through ICT to be reflected within the curriculum at all levels, its delivery and the system support mechanisms. Since then, the government has implemented Competency Based Curriculum (CBC) that emphasises development of skills and knowledge and application of competencies to real life situations of which digital literacy is a core competency.

1.2 Situational Analysis

The National ICT Strategy for Education and Training, 2006, notes that access to ICT facilities was one of the major challenges in Africa, Kenya being no exception. While the ratio of one computer to 15 students was the norm in most developed countries, the ratio in Africa stood at one computer to 150 students. This ratio was even bigger in disadvantaged regions and areas. It was also recognised that access to ICTs varied according to the various sub-sectors of education. In Kenya, the ratio for universities and colleges was one computer to 45 students,

one computer to 120 students at secondary school level while access at the primary school level remained much more limited at one computer to 250 students.

Investment by the government on ICT in education and training has increased across all levels leading to improved access to devices. During the 2013/14 financial year, MoE rolled out ICT integration in all public primary schools under the Digital Literacy Programme (DLP). The Computer for schools programme was rolled out in secondary education, which has equipped over three thousand schools with ICT devices (MoE 2019). The device to pupil ratio in primary schools was approximately 1:8 by January 2020 (ICTA, 2020). According to the e-readiness survey conducted in 2016, secondary schools have a computer to student ratio of 1:92. In TVET, the student to computer ratio ranged from 1:4 to 1:50 (ICT Infrastructure Review Report, 2017). At the same time, e-reading Survey of Kenyan Universities indicated that every 100 university students had access to 4 computers owned by the University and 53% of the students had personal laptops (KENET, 2014).

According to needs assessment report for development of policy on ICT in Education and Training (2018), 76.8% of education institutions had access to ICTs. However, availability of ICT facilities for Special Needs Education (SNE) was very low across all levels of learning and training. On digital learning resources, the survey found that digital content was available in 64.5% of the institutions. The report further established that 52% of the heads of institutions were aware of the National ICT Strategy for Education and Training of 2006 but only 17.3% actualised the strategy. The major challenges identified in the report were: inadequate ICT equipment; lack of or poor internet connectivity; inadequate ICT integration capacity among educators; inadequate online safety and security of learners; inadequate digital content; high maintenance costs of ICTs; limited parental and community involvement in ICT matters; high acquisition cost of ICTs; unreliable power supply and negative attitude towards technology. Other challenges from the report included inadequate mechanisms of ensuring prudent and efficient utilisation of ICT resources and ineffective management systems to ensure the intended goals are achieved.

This policy provides a framework to address the challenges and gaps identified as well as institutionalising the use of ICT in learning, training and management of education and training. The policy also seeks to harmonise the implementation of ICT integration in education and training.

CHAPTER TWO: LEGAL AND POLICY CONTEXT

2.1 Introduction

The Government of Kenya (GoK) is committed to utilisation of ICTs to provide quality, relevant and accessible education and training to its citizens. To ensure effective utilisation and co-ordination of ICTs in education and training, this policy is anchored on existing legal framework in Kenya.

2.1.1 Legal Provisions

This policy is anchored on the existing Constitution, legislation and policies in Kenya as well as international protocols.

The Constitution of Kenya, Article 43(1) (f) guarantees education as a right to every Kenyan. Article 53 (1) (b) stipulates that 'every child has a right to free and compulsory basic education.' Integrating ICT in education and training will actualise the constitutional provision.

The Basic Education Act, 2013 in Section 95(3) (k) provides for the promotion, development, management and governance of education through ICT Integration and Education Management Information System (EMIS) and statutory structural adjustment. This policy provides a framework that promotes utilisation of ICT in management of educational institutions.

The Sessional Paper No. 1 of 2019 calls for integration of ICT in education, training and research; and management, teaching and learning at all levels. It underscores the utilisation of ICT in transforming education and highlights the challenges of access, quality, relevance and equity that the education system faces. The paper also articulates the need for inclusion in acquisition of ICT infrastructure, capacity building, security and management of ICTs and adaptation of digital content for learners and trainees with special needs. This policy provides strategies for access to ICTs, capacity development, safety, security and ethical issues, among others, in order to ensure a transformed education system.

The Technical Vocational Education and Training (TVET) Act, 2013 recommends for integration of ICT to improve access and training capacity. This policy provides strategies for integration of ICT to improve access and training capacity across the TVET sector.

The Universities Act, 2012 recognises Open Distance and e-Learning (ODeL) as a mode of

delivery. This policy provides strategies to promote the provision of inclusive blended, open, distance and e-learning.

The Science, Technology and Innovation (STI) Act, 2013 mandates the National Commission for Science, Technology and Innovation (NACOSTI) to regulate and assure quality in the science and technology sector. This policy provides for the promotion of research, innovation and entrepreneurship in order to meet the ICT needs of learners and trainees.

The KICD Act, 2013 provides for the development, evaluation and dissemination of curriculum and curriculum support materials, which includes digital learning resources. This policy intends to promote the utilisation of ICT in curriculum development, implementation, evaluation and assessment.

The Computer Misuse and Cybercrimes Act, 2018 provide for offences relating to computer systems; to enable timely and effective detection, prohibition, prevention, response, investigation and prosecution of computer and cybercrimes; to facilitate international co-operation in dealing with computer and cybercrime matters. The ICT in education and training policy provides for promotion of safe, secure and ethical practices.

Data Protection Act, 2019 provides for regulation of the processing of personal data, rights of data subjects, obligations of data controllers and processors and for connected purposes. This policy provides strategies for data management.

The Industrial Property Act, 2001 provides for the promotion of inventive and innovative activities, to facilitate the acquisition of technology through a grant and regulation of patents, utility models, technovations and industrial designs. The policy provides strategies to promote protection of intellectual properties which include digital content and other e-learning resources.

The Copyright Act, 2001 rev. Ed., 2014 makes provision for copyright in literary, musical and artistic works, audio-visual works, sound recordings and broadcasts. This policy provides strategies that aim at promoting and protecting developed digital resources from plagiarism and copyright infringement.

The Standards Act, Chapter 496 of the Laws of Kenya mandates Kenya Bureau of Standards (KEBS) to, among other functions, promote standardisation in industry and commerce, as well as to encourage or undertake educational work in connection with standardisation. This policy is aimed at enhancing the quality and standard of utilisation of ICT in education and training.

The E-Waste Management Regulations, 2013 provides guidance in management of electronic waste in Kenya. This policy intends to enhance e-waste management in education and training.

Sustainable Development Goal (SDG) No. 9 provides for resilient infrastructure and promotion of inclusive and sustainable industrialisation, as well as foster innovation. This

policy provides a conducive environment for the implementation of strategies aimed at realisation of sustainable development goals and other national aspirations.

Africa's Agenda, 2063 emphasises on the need for Africa to revise and adapt its development agenda in the face of changing global contexts such as ICT revolution. This policy provides strategies to enhance the capacity of policy makers and education managers on integration of ICT in education, training and management.

United Nations Conference on Trade and Development (UNCTAD), Data protection regulations and International data flows on implications for trade and development, 2015 emphasises on reviewing the current landscape and analysing possible options for making data protection policies internationally more compatible, while providing a fresh and balanced take on related issues by considering the varied perspectives of different stakeholders. This policy intends to ensure data confidentiality, integrity and availability.

2.1.2 Policy Context

The key policy documents of MoE have highlighted the need for a policy framework on ICT integration in education and training.

The Kenya Vision 2030 aims at transforming Kenya into an industrialised middle income economy. One of the strategies to realise this long-term development agenda is to embrace ICT in education and training. This policy is a catalyst to transforming the country to a knowledge-based economy.

The National ICT Policy, 2019 recognises the need for institutions to partner in the areas of research and innovation and universal access within an inclusive setting. The Digital Economy Blueprint, 2019 emphasises on digital skills and values that promote the vision of a digitally empowered citizenry. This policy is aligned to the National ICT policy and creates a framework for the realisation of a globally competitive digital economy.

The National ICT Master Plan, 2014-2017, was developed with the vision of making Kenya an ICT hub and a globally competitive digital economy. The plan highlights the need to collaborate with relevant policy makers and regulators to integrate ICT in education and training at all levels. Further, it indicates that one of the most effective and efficient methods of developing the ICT workforce are to integrate ICT in the curriculum for schools, colleges and universities for non-ICT subjects.

The National Education Sector Strategic Plan (NESSP), 2018-2022 provides for integration of ICT in education, training and research management, teaching and learning at all levels. NESSP identifies the review of the National ICT Strategy for Education and Training 2006 as key for effective implementation of programmes during the plan period. This policy will facilitate the actualisation of the proposed programmes.

The National Curriculum Policy, 2018 emphasises utilisation of technology to enhance innovation in the implementation of competency based curriculum. It proposes development of appropriate digital content and technology in teaching and learning; and building the capacity of curriculum implementers on digital instructional methods. This policy aims at providing a framework for the utilisation of ICT in the learning process, assessment and management.

2.2 Rationale for the Policy on ICT in Education and Training

The government has invested in the provision of ICT infrastructure, internet connectivity, capacity development and digital content. Despite these efforts, the number of available devices compared to the number of learners is still low, internet connectivity is still a challenge, limited and unco-ordinated capacity development of educators and other key players remains a major barrier and provision of appropriate digital content has not been realised. Further, over head costs on power, repair and maintenance and internet among others are a setback to realising ICT integration. The various initiatives by MoE on ICT in education and training have largely remained unco-ordinated, segmented and often, resulted in duplicated efforts by implementing agencies.

Key policy documents have supported ICT in education and training but have not adequately addressed pertinent issues related to policy formulation, capacity development, digital content and infrastructure in the ICT integration process.

ICT is an enabler towards learner's acquisition of the 21st Century skills such as: communication and collaboration; critical thinking and problem solving; creativity and imagination; and digital literacy, among others. In addition, the policy will ensure that relevant standards in ICT infrastructure, safety and security are adhered to. The policy ensures a co-ordinated approach in streamlining ICT integration in the sector and ultimately improved learning outcomes for global competitiveness.

2.3 Purpose

This policy provides a framework for the use of ICT in improving learning outcomes at all levels in an inclusive environment.

2.4 Vision

A digitally enabled society for sustainable development.

2.5 Mission

To integrate ICT in education, training and research for improved learning outcomes through a digitally enabled education system.

2.6 Objectives of the Policy

The objectives of this policy are to:

(i) Promote an inclusive enabling environment for ICT in education, training and management;

(ii) Enhance curriculum development, implementation, assessment and quality assurance through ICT;

(iii) Promote acquisition of relevant skills that support ICT integration in education and training;

(iv) Promote research and innovation through ICT;

(v) To enhance safe, secure and ethical use of ICT;

(vi) To empower parents and communities to support the use of ICT in education and training;

(vii) Enhance resource mobilisation to support ICT in education and training;

(viii) Provide a framework for governance and co-ordination of ICT initiatives in education and training.

2.7 Scope of Application

This policy applies to all pre-primary, primary and secondary schools, ACE, TVET, teacher training colleges, technical training colleges, universities and SAGAs within MoE. It also applies to education stakeholders in the national and county governments as well as, state and non-state actors, parents, local communities and partners in ICT in education and training.

2.8 Guiding Principles

This policy is anchored on the following guiding principles:

(i) **Inclusion and equity**: Promote inclusivity and equity in ICT to address needs of all learners, including those with special needs, disabilities, the vulnerable and the hard to reach.

(ii) **Quality and relevance**: Provide education that prepares learners to competitively thrive in a technology-oriented and information-based global economy.

(iii) **Integrity**: Ensure that ICT systems are safe and secure in education and are utilised honestly and upholding strong moral principles.

(iv) **Transparency and accountability**: Ensure that ICT in education and training programmes and resources are benefiting learners at all levels and that teachers, managers and trainers take responsibility for adequate service delivery.

(v) **Collaboration**: Promote partnerships, network and linkages among stakeholders.

(vi) **Diversity**: Ensure that all learners of different backgrounds, abilities and talents access ICT services.

(vii) **Professionalism**: Ensure that teachers, trainers and education managers uphold appropriate conduct, ethics, behaviour and attitude.

(viii) **Research and innovation:** Ensure evidence-based decision ICT in education and training for continual improvement.

CHAPTER THREE: POLICY PROVISIONS FOR ICT IN EDUCATION AND TRAINING

3.1 Equity and Access to ICT

3.1.1 Introduction

Infrastructure is an integral component of ICT in education and training. The government has continuously made huge investments in provision of ICT infrastructure especially power and fiber optic connection across the country. Introduction of the Digital Literacy Programme (DLP) and other government initiatives have increased access to ICTs in educational institutions. However, the number of computing devices is still inadequate and cost of internet connectivity remains prohibitive. Further, a number of these devices have not been adapted for learners and trainees with special needs and disabilities.

The phenomenal growth of ICTs in the education sector has resulted in significant growth of obsolete equipment in learning institutions. This will gradually become an environmental hazard if not properly managed. It is, therefore, important to create awareness on proper e-waste management and develop mechanisms to address it.

Sustainable and equitable access to ICT infrastructure and related resources by learners, teachers and education managers is necessary for effective integration of ICT in education and training. Access to ICT resources is hampered by a number of factors including: high cost of acquiring ICT infrastructure and equipment; limited access to affordable internet connectivity; poor internet connection in rural and remote parts of the country; limited access to reliable electricity supply; insecurity; lack of awareness; concern about children accessing inappropriate content; and negative attitude towards ICT in education and training. The on-going and proposed investments in ICT infrastructure call for deliberate interventions to ensure equitable and sustained access to ICT resources by all education stakeholders.

ICTs have capabilities of bridging the geographical and space gaps that inhibit access to education and training, modes like blended learning, remote learning, open, distance and e-learning (ODeL) have provided an opportunity for learners and trainees to access education through technology irrespective of their physical location.

Implementation of ICT integration in education will be anchored on these achievements.

3.1.2 Goal

To enhance inclusive access to ICTs at all levels of education and training.

3.1.2.1 Policy Objective

Provide comprehensive and systematic ICT infrastructure across all levels of education and training.

3.1.2.2 Policy Statement I

Enhance inclusive access to appropriate ICT infrastructure in education and training.

3.1.2.3 Strategies

To achieve this objective, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Facilitate acquisition of quality, relevant and adequate ICTs across all levels of education;
(ii) Facilitate provision of affordable Internet connectivity to educational institutions;
(iii) Promote development of local ICT in education solutions and make appropriate software more affordable;
(iv) Facilitate the provision of assistive and adapted technologies for learners and trainees with disabilities;
(v) Facilitate and support establishment of a national education data centre;
(vi) Collaborate with relevant MDAs to ensure access to reliable sources of power to educational institutions to enhance usage of ICT;
(vii) Promote establishment of ICT innovation centres at national, county and community levels;
(viii) Develop a support and maintenance framework for educational institutions;
(ix) Support development of Institution-based ICT policies;
(x) Promote linkages within various levels of education and training.

3.1.3 Policy Objective

Enhance participation of learners, trainees, educators and managers in an inclusive ICT enabled environment.

3.1.3.1 Policy Statement II

Enhance inclusive utilisation of ICTs in education and training.

3.1.3.2 Strategies

To achieve this objective, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote access to appropriate computing devices to learners and trainees across all levels;

(ii) Provide appropriate assistive computing devices to all learners and trainees with special needs and disabilities;

(iii) Enhance capitation to learners and trainees at all levels to support ICT in education;

(iv) Promote production of cost-effective ICT devices that allow for high bandwidth and low power consumption;

(v) Provide access to broadband connectivity and cloud technology to learners, trainees and education providers in all areas of the country;

(vi) Facilitate access to student financing for acquisition of ICT devices for learners and trainees in tertiary education;

(vii) Enhance existing remote learning opportunities for education and training through radio and TV broadcast;

(viii) Promote adherence to policies and regulations on appropriate content and cybercrimes for educational institutions;

(ix) Promote the development of computer and mobile applications that provide solutions, which support ICT in education and training; and

(x) Facilitate establishment of a National Educational Portal.

3.1.4 Policy Objective

Promote adoption of blended, remote, open, distance and e-learning approaches in education and training.

3.1.4.1 Policy Statement III

Adopt blended, remote, open, distance and e-learning approaches across all levels of education and training.

3.1.4.2 Strategies

To achieve this objective, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Establish structures for implementation of blended learning;

(ii) Enhance adoption of blended, remote, open, distance and e-learning;

(iii) Adopt innovative approaches to ensure continued learning;

(iv) Provide capacity for teachers, tutors, trainees, lecturers and education managers to deliver blended, remote, open, distance and e-learning;

(v) Enhance development and dissemination of educational content; and

(vi) Establish blended, remote, open, distance and e-learning assessment, and quality assurance mechanism.

3.1.5 Policy Objective

Provide appropriate mechanisms for management of obsolete ICT infrastructure.

3.1.5.1 Policy Statement IV

Enhance e-waste management in education and training.

3.1.5.2 Strategies

To achieve this objective, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Enhance management of obsolete ICT infrastructure in line with existing e-waste management guidelines and policies; and

(ii) Promote awareness on management of e-waste in education and training.

3.2 Quality and Relevance in ICTs

3.2.1 Introduction

Information and Communications Technologies (ICTs) have become commonplace entities in many aspects of life including provision of educational services. The use of ICTs in education lends itself to more learner-centred settings. The world is moving rapidly into digital media and information; and the role of ICTs in education and training is becoming more significant in the 21st Century. To maintain quality, access and relevance in curriculum delivery, digital learning and assessment, there is need for effective implementation of ICTs for education and training.

There is need for robust capacity-building both at pre-service and in-service levels of education and training. Effective implementation of ICT in education and training, therefore, requires that educators, administrators of educational institutions, technicians, policy makers and key stakeholders have the necessary knowledge, skills and attitudes.

3.2.1.1 Policy Goal

To provide digital enabled curriculum, digital learning resources and assessment that allows learners to harness their potential for their personal development and empowerment to be nationally and globally competitive.

3.2.1.2 Policy Objective

Facilitate use of appropriate ICTs in curriculum development and implementation

3.2.1.3 Policy Statement I

Strengthen use of appropriate ICTs in curriculum development and implementation.

3.2.1.4 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote use of ICTs in curriculum development and implementation across all levels;

(ii) Promote the adaptation of ICT integrated curriculum to cater for learners and trainees with special needs and disabilities;

(iii) Promote collaboration and partnership in curriculum development and implementation on best practices in the use of ICT in education and training; and

(iv) Establish quality assurance mechanism on ICT enabled curriculum development, implementation and assessment.

3.2.2.1 Policy Objective

Provide adequate, quality and relevant digital learning resources across all levels.

3.2.2.2 Policy Statement II

Promote and regulate development, accessibility and use of digital learning resources.

3.2.2.3 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote development of digital learning resources by educators and other providers;

(ii) Promote the use of open educational resources and adoption of creative commons licensing for educational learning materials;

(iii) Adapt digital learning resources for learners, trainees and educators with special needs and disabilities;

(iv) Enhance educator training curriculum to include skills on development of digital learning resources;

(v) Promote protection of developed digital learning resources from plagiarism and copyright infringement; and

(vi) Enhance availability, dissemination and utilisation of developed digital learning resources.

3.2.3.1 Policy Objective

Integrate ICTs in curriculum assessment process while maintaining credibility, security and integrity.

3.2.3.2 Policy Statement III

Promote use of ICTs in curriculum assessment process.

3.2.3.3 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote use of ICTs in assessments while taking into consideration examiners and learners with special needs and disabilities;

(ii) Promote archiving and backing up of assessment materials in digital formats;

(iii) Empower learners, educators, administrators and other stakeholders in ICT enabled assessments; and

(iv) Promote development and use of online assessment platforms that ensure confidentiality, integrity and availability of data.

3.2.4.1 Policy Goal

To continuously build capacity of educators and education managers on use of ICT in education, training and management at all levels.

3.2.4.2 Policy Objective

Enhance capacity of teachers, trainers, tutors and lecturers to facilitate use of ICT in teaching and learning across all levels.

3.2.4.3 Policy Statement IV

Promote capacity building of teachers, trainers, tutors and lecturers on use of ICT in teaching and learning at national and county levels.

3.2.4.4 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Review the teacher education curriculum to include use of ICT in curriculum implementation and assessment in consideration of trainees in special needs education and training across all levels;

(ii) Enhance the capacity of in-service teachers, trainers, tutors and lecturers on the use of ICT in education and training;

(iii) Enhance the capacity of teachers, trainers, tutors and lecturers on innovative pedagogical approaches and technologies;

(iv) Establish mechanisms for online professional development for education managers.

3.2.5.1 Policy Objective

Enhance the capacity of policy makers and education managers on use of ICT in education, training and management.

3.2.5.2 Policy Statement V

Promote the capacity building of policy makers, administrators of educational institutions and education officials on use of ICT in education at national and county levels.

3.2.5.3 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Enhance the capacity of policy makers, education managers on utilisation of ICT in education, training and management;

(ii) Empower education officials at national and county levels on the use of inclusive ICT in education and training;

(iii) Promote use of assistive and adapted ICTs in education, training and management;

(iv) Enhance the capacity of auxiliary staff to support ICT integration in education, training and management.

3.2.6.1 Policy Objective

Enhance the capacity of Councils, CEBs, BoMs, BoGs, PAs and other governing bodies to support use of ICT in education and training.

3.2.6.2 Policy Statement VI

Promote capacity building of Councils, CEBs, BoMs, PAs, and other governing bodies on use of ICT in education and training.

3.2.6.3 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will enhance capacity of Councils, CEBs, BoMs, BoGs, PAs and other governing bodies on inclusive use of ICTs.

3.2.7.1 Policy Objective

Enhance the capacity of ICT support personnel to develop, support and maintain ICTs at national, county and institutional levels.

3.2.7.2 Policy Statement VII

Promote the capacity building of ICT support personnel to develop, support and maintain ICTs at national, county and institutional levels.

3.2.7.3 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Strengthen the capacity of ICT support personnel on maintenance of ICT infrastructure; and

(ii) Enhance the capacity of ICT support personnel on utilisation of ICTs to support learners and educators.

3.3. Research and Innovation

3.3.1 Introduction

Technology is evolving and educationists, as well as, learners need to continually conduct research on how various emerging technological innovations in ICT can be of use in ICT in education and training. Research is critical in the development of an inclusive education in order

to come up with innovative and effective technologies that meet the needs of all learners and trainees. A conducive ICT learning environment provides learners, trainees and educators with opportunities for research and innovation in ICTs. It also increases competitiveness to the process of research, innovation and entrepreneurship. ICTs have the potential to facilitate creation of knowledge and provide various channels of sharing this knowledge online and offline.

Research on use of ICTs in education and training will be conducted to inform evidence-based decision making. Research and innovation on ICTs present an opportunity to transform education and training in our educational institutions so as to prepare learners, trainees and educators for a knowledge-based economy.

3.3.2 Policy goal

To promote research and innovation in creation and sharing of knowledge in education and training through research and innovation in ICT.

3.3.3 Policy Objective

Support use of ICT in education and training through research and innovation.

3.3.4 Policy Statement I

Promote use of ICT in education and training through research and innovation.

3.3.5 Strategies

To achieve this objective, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote use of research and innovation in the use of ICTs for curriculum development, implementation and assessment;

(ii) Promote the use of ICTs in creation and sharing of knowledge in education and training;

(iii) Promote creativity and innovation in the use of ICT in education and training;

(iv) Facilitate research and innovation in the use of ICTs for management of data in education and training;

(v) Promote access to equitable and inclusive education and training;

(vi) Promote research and innovation in the use of ICTs to transform learning and teaching environment for global competitiveness;

(vii) Institutionalise research and innovation in the use of ICT in education and training;

(viii) Strengthen the capacity of educators in the use of ICTs through research and innovation; and

(ix) Promote collaboration in research and innovation on the use of ICTs in education and training.

3.4 ICT Security, Safety and Ethics

3.4.1 Introduction

The government has continued to invest heavily in ICTs in education and training with the aim to positively impact on learning, teaching and management. In the age of "knowledge economy", information in all its forms has become a highly valuable asset and, therefore, needs to be carefully collected, securely stored and ethically used. The use of ICTs in teaching and learning can pose a great risk if ethical and safety issues are not well addressed. These issues range from unauthorised access to data, generation and sharing of inappropriate content as well as infringement on the rights of others.

The government has an obligation to protect the integrity of the user, data, processes and ICT infrastructure. In addition, parents or guardians and other stakeholders in education and training have a role to play in safety and ethical use of ICTs.

3.4.2 Policy Goal

To enhance security, safety and ethical use of ICT in education and training.

3.4.3 Policy Objective

Enhance security, safety and ethics in the use of ICTs in education and training.

3.4.4. Policy Statement

Promote security, safety and ethical use of ICTs in education and training.

3.4.5 Strategies

To achieve the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Strengthen collaboration with MDAs to enforce standards and guidelines on ICT security, safety, values and ethics in line with existing national and international policies and legal frameworks;

(ii) Enhance partnerships, networks, linkages and collaboration mechanisms in ICT security, safety and ethics;

(iii) Establish mechanisms for vetting of digital learning resources to ensure security, safety and ethics in liaison with other relevant agencies in education and training;

(iv) Enhance safe, secure and ethical use and management of data collected and generated in education and training;

(v) Strengthen the capacity of ICT users in education and training on safe, secure and ethical use of data while enhancing national values; and

(vi) Establish mechanisms to support confidentiality, integrity and availability of ICTs in education and training.

3.5 ICT in Institutions of Learning and the Community

3.5.1 Introduction

Educational institutions exist within a community, which also plays a vital role in their day-to-day functioning. It is, therefore, important that a coherent relationship exist and is maintained between the institutions and the communities. ICTs have the potential to not only improve education and training but also support the socio-economic activities within the community.

Despite the enormous investments in ICT interventions at institutional level, communities still lag behind in terms of ICT awareness and skills. This poses a challenge where the community does not relate with ICT programmes at the institutional level. Consequently, they are not able to adequately support the ICT initiatives. A collaborative approach to ICT in education and training by communities and learning institutions, can enhance access to ICTs. This is in-line with the Competency Based Curriculum which enlists parental empowerment and engagement and community service learning as curriculum support programmes. There is, therefore, need to enhance such collaborations in order to promote ICT in education and training, while providing mutual benefits to both the institutions and the communities.

3.5.2 Policy Goal

Promote mutual involvement between communities and institutions of learning in the use of ICT in education and training.

3.5.3 Policy Objective

Enhance community involvement in the implementation of ICT integration in education and training.

3.5.4 Policy Statement I

Strengthen involvement of community in enhancing the use of ICT in education and training.

3.5.5 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Promote collaboration between learning institutions and community on use of ICTs.

(ii) Promote community ownership of ICT related programmes and projects.

CHAPTER FOUR: GOVERNANCE AND MANAGEMENT OF ICT IN EDUCATION AND TRAINING

4.1 Introduction

Governance and management are essential for effective and efficient implementation of ICT in education and training. Good governance takes into account planning and creating leadership roles to promote best practices by stakeholders. It is responsive to the needs of the education and training institutions which, ensure the sustainability of ICT utilisation. There is need to enhance established leadership structures in management and governance of ICT in education and training.

The governance and management of ICT in education and training will be under the two-tier government as stipulated in the Constitution and the roles of each will be spelt out in this policy document.

4.2 Policy Goal

To promote good governance and management of ICT in education and training.

4.3 Policy Objective

Strengthen governance and management mechanisms for ICT in education and training.

4.4 Policy Statement

To strengthen governance and management in the implementation of ICT in education and training.

4.5 Strategies

To implement the above policy statement, MoE, county governments and relevant stakeholders will adopt the following strategies:

(i) Strengthen existing structures to enhance transparency, accountability, integrity and efficiency in the management of ICT resources in education and training;

(ii) Harmonise the roles of different stakeholders in ICT integration in education and training at the national and county levels;

(iii) Strengthen mechanisms for managing collaborations and partnerships in ICT in education and training; and

(iv) Strengthen advocacy and communication of ICT in education and training.

CHAPTER FIVE: RESOURCE MOBILIZATION AND PARTNERSHIPS

5.1 Introduction

The government and education partners have initiated ICT programmes to encourage the use of ICT in education and training. Effective utilisation of ICT in education and training requires investment in capacity building, ICT infrastructure, research and innovation. However, such investment is capital intensive that requires adequate and sustainable resource mobilisation through a multi sectoral-approach. Public Private Partnerships (PPPs) and bilateral arrangements by the government have in the past enhanced resource mobilisation and improved support structures for ICTs in education and training. Therefore, there is a need for improved resource mobilisation through harmonised collaboration with various stakeholders.

5.2 Policy Goal

To enhance resource mobilisation and foster partnerships for efficient use of ICTs in education and training.

5.3 Policy Objective

Enhance resource mobilisation and partnerships for use in ICT in education and training

5.4 Policy Statement

Promote resource mobilisation and partnerships to enhance the use of ICTs in education and training.

5.5 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will adopt the following strategies:

(i) Enhance budgetary allocation for acquisition and use of ICT in Education and training;

(ii) Promote effective and efficient use of ICT resources in education and training;

(iii) Enhance co-ordination of public and private partnerships for ICT resource mobilisation across all levels of education and training;

(iv) Promote public and private partnerships for provision of assistive and adaptive ICT resources across all levels of education and training; and

(v) Strengthen parental and community participation in resource mobilisation for ICTs in education and training.

CHAPTER SIX: INSTITUTIONAL FRAMEWORK

6.1 Introduction

The implementation of this policy requires a multi-sectoral approach in financing, management and co-ordination, as well as, internal systems to strengthen the capacity at national, county and institutional levels. The Ministry of Education has the overall responsibility in the implementation of this policy. However, in doing this, it will collaborate with relevant MDAs, county governments, development partners and key stakeholders.

6.2 Policy Goal

To enhance effective implementation of this policy.

6.3 Policy Implementation

The Ministry of Education will oversee the implementation of this policy. The implementation guidelines of this policy charges various MDAs, county governments and other stakeholders with execution of specific components.

The following committees shall be formed to oversee the implementation of the policy:

6.3.1 National Steering Committee

A national steering committee will be established with membership drawn from MoE, TSC, relevant MDAs and county governments. It will comprise the following members;

- Cabinet secretary in charge of Education.
- Cabinet secretary in charge of ICT.
- Cabinet secretary in charge of National Treasury.
- Cabinet secretary in charge of Interior and Coordination of National Government.
- Principal secretaries MoE.
- Chief Executive Officer TSC.
- Chair Council of Governors.

The steering committee will:

(i) Provide leadership in the implementation process;

(ii) Provide oversight in the implementation of this policy; and

(iii) Co-ordinate resource mobilisation for the implementation of this policy.

6.3.2 Inter-Agency Technical Implementation Committee

The Inter-Agency Technical Implementation Committee will be established with membership drawn from the State Departments under MoE and its SAGAs, TSC, CoG and relevant MDAs.

The committee will be chaired by the Director General, nominated by the Cabinet Secretary in charge of education.

The Inter-Agency Technical Implementation Committee will:

(i) Implement, monitor and report on ICT in education and training policy activities;

(ii) Report annually on implementation of the ICT in education and training policy to the national steering committee; and

(iii) Make recommendations to the national steering committee on issues related to the ICT in education and training policy.

6.3.3 ICT Integration in Education and Training Units

There will be an established ICT Integration in education and training co-ordinating unit at the state department and agency level. The units will be the secretariat to the implementation and steering committee. The committee will be chaired by the technical head of each state department/agency.

The roles of this ICT Integration in education and training unit shall be to:

(i) Prepare annual work plans and budgets on ICT integration in education and training activities for approval by the relevant PS or head of agency;

(ii) Provide framework, standards, guidelines and support for ICT integration in education and training in the organisation;

(iii) Initiate, implement and propose review of the national ICT integration in education and training policies and strategies;

(iv) Conduct and co-ordinate research and development to expand the use of ICT in education and training;

(v) Co-ordinate ICT activities in education and training;

(vi) Ensure implementation of systematic, comprehensive development and expansion of adequate ICT infrastructure;

(vii) Ensure implementation of public and private sector investments in ICT in education and training;

(viii) Implement ICT quality standards, guidelines and procedures, and conduct monitoring and evaluation for all ICT in education and training processes;

(ix) Prepare training framework and guidelines for capacity building on ICT in education and training; and

(x) Prepare annual reports on ICT in education and training activities and share with the Inter-Agency Technical Implementation Committee.

6.3.4 County ICT in Education and Training Implementation Committee

The County ICT in education and training implementation committee will comprise of membership from MoE, TSC, KATTI, TTCs Rep, University Rep, KESSHA, KEPSHA, KPSA, CD TVET and County Government. The committee will be chaired by the County Director of Education (CDE).

The roles of the County ICT in education and training implementation committee will be to:

(i) Co-ordinate implementation of ICT in education and training programmes and activities at the county level;

(ii) Monitor and evaluate ICT in education and training programmes and activities in the county;

(iii) Prepare and submit quarterly reports to the MoE and county government on ICT in education and training activities in the county;

(iv) Liaise with the national steering committee and the county government to mobilise resources at the county level; and

(v) Promote research and innovation programmes in ICT in education and training in the county.

6.3.5 Institutional ICT in Education and Training Committee

This committee will be chaired by the head of institution with membership drawn from all departments and any other relevant member within the institution. The staff in charge of ICT in education and training at the institutional level will be the secretary.

The roles of this committee will be to:

(i) Develop and review institutional ICT policy in line with the ICT in education and training policy framework and other existing ICT policies and regulations where applicable;

(ii) Implement ICT integration in education and training;

(iii) Co-ordinate ICT in education and training programmes in the institution;

(iv) Spearhead resource mobilisation for ICT in education and training;

(v) Collect and submit data on ICT in education and training activities in the institution annually or on need basis;

(vi) Conduct ME&R of ICT in education and training in the institution;

(vii) Compile and submit annual reports on ICT in education and training activities in the institution;

(viii) Promote research and innovation in ICT in education and training in the institution; and

(ix) Conduct action research to address ICT related concerns.

CHAPTER SEVEN: MONITORING, EVALUATION AND REPORTING

7.1 Introduction

Monitoring, Evaluation and Reporting (ME&R) is critical in informing evidence-based decision making and ensuring effective use of ICT in education and training. It also forms a basis for continuous identification of gaps, improvement, review and further research. ME&R will ensure that ICT in Education and Training initiatives are implemented as planned and emerging issues are promptly addressed.

7.2 Policy Goal

Monitor, evaluate and report on ICTs in education and training.

7.3 Policy Objective

To monitor, evaluate and report the progress in use of ICT in education and training.

7.4 Policy Statement

Promote monitoring, evaluation and reporting on ICTs in education and training.

7.5 Strategies

To implement the above policy statement, MoE in collaboration with relevant stakeholders will employ the following strategies:

(i) Enhance mechanism for effective ME&R of ICTs in education and training; and

(ii) Promote multi-agency approach in undertaking ME&R of ICTs in education and training.

7.6 Policy Review

This policy will be reviewed from time to time as need arises in line with international, regional and national trends, and also address pertinent and contemporary issues. It will also be reviewed in line with government policies and priorities.

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IMPLEMENTATION GUIDELINES

Introduction

These implementation guidelines have been developed to aid systematic actualisation of the Policy on ICT in education and training. The document provides guidance and practical demonstration of how relevant government ministries, departments and agencies (MDAs) will implement the policy statements and strategies. It provides a roadmap to implement the policy and ensure realisation of the benefits of ICTs to enhance access, relevance, quality and inclusive education and training.

The guidelines are structured in seven policy areas, namely: Equity and Access in ICTs; Quality and Relevance in ICTs; Research and innovation; ICT security, safety and ethics; ICTs in learning institutions and the community; Resource mobilisation and partnerships; and monitoring, evaluation and reporting. The guideline structure outlines policy area, goal, statements, objectives and strategies. The guidelines have also identified activities to be carried out by relevant MDAs and partners to achieve the policy goals.

Equity and Access in ICTs

Goal: To enhance inclusive access to ICTs across all levels of education and training.

ICT Infrastructure	
Policy Statement I: Enhance access to appropriate ICT infrastructure in education and training.	
Objective: Provide comprehensive and systematic ICT infrastructure across all levels of education and training.	
Strategies/Activities	**Responsible**
(i) Facilitate acquisition of quality, relevant and adequate ICTs across all levels of education.	
(a) Conduct a baseline survey on the status of ICT infrastructure across all levels of education and training.	• MoE
(b) Disseminate the baseline survey reports.	• MoICT
(c) Develop and enforce standards and regulations for acquisition, use, storage, maintenance and disposal of ICTs with relevant MDAs.	• KEBS

(d) Develop minimum ICT equipment standard guidelines for all levels. (e) Negotiate for budgetary allocation and subsidies for ICT facilities across all levels. (f) Enhance capitation to learners at all levels to support ICT in education. (g) Acquire ICTs across all levels.	• Universities • National Treasury • KNBS • NEMA
(ii) Facilitate provision of reliable and affordable internet connectivity to institutions of learning.	
(a) Conduct a baseline survey on the state of internet connectivity across all levels. (b) Develop guidelines for engaging Internet Service Providers and partners. (c) Engage local Internet Service Providers (ISPs) to provide subsidised internet connectivity. (d) Negotiate with relevant MDAs to facilitate provision of affordable internet to educational institutions. (e) Incentivise internet connection to educational institutions. (f) Increase the vote head for ICT to cater for internet connectivity in capitation.	• MoE • MoICT • ISPs • CA • National Treasury • KENET
(iii) Promote development of affordable local ICT in education solutions and software.	
(a) Organise competitions where learners can showcase innovations in ICT in education and training. (b) Engage partners to collaborate with learning institutions to support development of software and other local ICT solutions. (c) Strengthen existing concessions between the government and ICT partners. (d) Create an opportunity for use of ICT solutions emanating from learning institutions and other local developers.	• MoE • MoICT • Universities • TVETs • BOMs • PA • CoG • KPSA

(iv) Facilitate the provision of ICT assistive and adaptive technologies for learners and trainees with special needs and disabilities.	
(a) Conduct a baseline survey on the status of deployment and use of ICT assistive technologies across all levels. (b) Disseminate the baseline survey reports. (c) Negotiate for increased budgetary allocation for ICT assistive and adaptive technologies across all levels. (d) Acquire assistive and adaptive technologies. (e) Develop a criteria for equipping learning institutions with ICT assistive and adaptive technologies.	• MoE • TSC • MoICT • KEBS • KISE • NCPWD • KIB
(v) Facilitate and support establishment of a national education data centre.	
(a) Benchmark on establishment of a national education and training data centre. (b) Source for funds to establish a national education and training data centre. (c) Establish a national education and training data centre. (d) Create awareness on the existence of a national education and training data centre. (e) Engage institutions of learning on the national educational data centre utilisation.	• MoE • CUE • KICD • MoICT • CA • KNEC
(vi) Collaborate with relevant MDAs to ensure access to reliable and affordable sources of power in educational institutions to enhance usage of ICT.	
(a) Engage relevant agencies to provide power in learning institutions. (b) Engage relevant agencies to provide subsidised rates of electricity in learning institutions. (c) Sensitise members in learning institutions on power use and conservation. (d) Identify and use innovative sustainable sources of power in learning institutions. (e) Monitor power utilisation in learning institutions.	• MoE • Ministry of Energy • Kenya Power • REA • National Treasury

(vii) Promote establishment of ICT innovation centres at national and regional levels.	
(a) Assess the ICT infrastructure needs for ICT innovation centres at the national and regional levels. (b) Establish regional ICT innovation centres. (c) Upgrade existing innovation centres with the latest ICT in education technologies. (d) Mobilise resources to facilitate smooth running of the centres. (e) Identify and place personnel with requisite qualifications to offer services. (f) Capacity build the personnel in the innovation centres. (g) Develop innovations incubation framework. (h) Establish model institutions of ICT integration. (i) Deploy appropriate emerging technologies for use in the education and training sector. (j) Sensitise stakeholders on available opportunities to access ICT innovation centres.	• MoE • CUE • TVETA • Universities • KICD • TSC • KEMI • CEMASTEA • KISE • TTCs
(viii) Develop a support and maintenance framework for ICT in education and training.	
(a) Develop a user support and operation procedure for resolving technical issues. (b) Train identified institutional staff on basic troubleshooting skills. (c) Establish technical support centres at the regional level. (d) Enter into Service Level Agreements (SLAs) at the relevant level to manage, repair, support and maintain ICTs. (e) Develop linkages with technical institutes and universities to provide support to learning institutions.	• MoE • Universities • TTIs • BoMs • IT Service Providers

(ix) Support development of Institution-based ICT policies.	
(a) Develop a standard ICT institutional policy guide. (b) Sensitise personnel on development of institutional ICT policy. (c) Develop an institutional policy on acquisition, usage, maintenance and disposal of ICT facilities. (d) Develop ICT in education and training user guides for both learners, teachers, trainees, trainers and lecturers. (e) Implement the institutional ICT policy in education and training. (f) Monitor the implementation of the institutional ICT policy in education and training.	• MoE • BoMs • Universities
(x) Promote linkages across various levels of education and training.	
(a) Develop a framework of engagement for support between universities, TVET institutions and institutions of basic learning. (b) Establish linkages with universities and TVET institutions to promote ICT in education and training.	• MoE • BoMs • BoG • Councils • Universities • TTIs

Access and Equity in ICTs	
Policy Statement II: Enhance inclusive utilisation of ICTs in education and training.	
Objective: Enhance participation of learners, trainees, educators and managers in an inclusive ICT enabled environment.	
Strategies/Activities	**Responsible**
(i) Promote access to appropriate computing devices to learners across all levels.	
(a) Develop a criteria for equipping institutions with ICT facilities to ensure equity. (b) Develop ICT facilities' utilisation schedules to equitably facilitate learning at the institutional level. (c) Initiate mobile ICT classrooms to increase access and equity. (d) Encourage "Bring Your Own Device" (BYOD) concept. (e) Engage other MDAs and stakeholders to review policies and regulations that prohibit use of personal portable computing devices in institutions of learning. (f) Develop regulations on use of personal portable computing devices in institutions of learning.	• MoE • KICD • MoICT • Universities • BoMs • KNEC • TVET • BoMs • PA • CoG
(ii) Provide appropriate assistive computing devices to all learners with special needs and disabilities.	
(a) Provide and encourage use of ICT assistive technologies. (b) Sensitise stakeholders on use of assistive technologies. (c) Monitor utilisation of assistive technologies.	• MoE • KICD • MoICT • National Treasury • Ministry of Industrialisation • Universities

(iii) Promote production of cost effective ICT devices.	
(a) Encourage acquisition of ICT equipment from local assembly plants. (b) Provide access to broadband and cloud technology to learners and education providers in all areas of the country. (c) Sensitise education providers and community on use of ICT education and training.	• MoE • KICD • MoICT • National Treasury • Ministry of Industrialisation • Universities
(iv) Provide access to broadband and cloud computing technology to learners and education providers in all areas of the country.	
(a) Acquire appropriate software to enhance broadband and cloud computing technologies. (b) Facilitate acquisition of infrastructure that support broadband and cloud computing.	• MoE • MoICT • Universities • BoMs • BoGs • TVET
(v) Facilitate access to student financing for acquisition of ICT devices for learners in Tertiary education.	
(a) Negotiate for budgetary allocation. (b) Develop criteria for ICT student financing. (c) Collaborate with partners to support ICT students financing. (d) Monitor the student financing initiatives.	• MoE • KICD • MoICT • National Treasury • Ministry of Industrialisation • Universities

(vi) Enhance existing remote learning opportunities for education and training through radio and TV broadcast.	
(a) Upgrade content dubbing and duplicating systems. (b) Acquire and install redundant broadcast link with Kenya Broadcasting Corporation. (c) Acquire electronic news gathering (ENG) and electronic field production (EFP) equipment. (d) Upgrade digital archiving (Video and Audio materials repository). (e) Recruit radio and TV producers for all curriculum subjects. (f) Build capacity of educational content producers.	• MoE • KICD • MoICT • National Treasury • Universities • Content developers
(vii) Promote adherence to policies and regulation on appropriate content and cybercrime for educational institutions.	
(a) Develop guidelines on appropriate content and cybercrime. (b) Sensitise stakeholders on the appropriate content and cybercrime guidelines. (c) Collaborate with relevant agencies to disseminate cybercrime regulations and policies. (d) Monitor compliance with existing polices.	• MoE • KICD • MoICT • National Treasury • Ministry of Industrialisation • Universities
(viii) Promote the development of computer and mobile applications that provide solutions that support ICT in education and training.	
(a) Encourage acquisition of applications that support ICT in education and training. (b) Promote production of applications that support ICT in education and training. (c) Provide incentives to developers of applications that support ICT in education and training. (d) Sensitise education providers and community on use of applications that support ICT in education and training.	• MoE • Universities • MoICT • KICD • TSC • KNEC • CEMASTEA

(ix) Facilitate establishment of a National Educational Portal.	
(a) Establish and document user requirements. (b) Establish a national educational portal based on best practices. (c) Sensitise stakeholders on the educational portal. (d) Create guidelines for operationalisation of the portal.	• MoE • Universities • MoICT • KICD • TSC • KNEC • CEMASTEA
Policy Statement III: Adopt blended, remote, open, distance and e-learning approaches across all levels of education and training.	
Objective: Promote adoption of blended, remote, open, distance and e-learning approaches in education and training.	
Strategies/Activities	**Responsible Actors**
(i) Enhance adoption of blended, remote, open, distance and e-learning.	
(a) Develop standards for blended, remote, open, distance and e-learning for adoption by all institutions. (b) Create awareness for educators and learners on use of blended, remote, open, distance and e-learning. (c) Equip blended, remote, open, distance and e-learning centres with the necessary infrastructure. (d) Establish partnerships with blended, remote, open, distance and e-learning providers at national and international levels.	• MoE • CUE • TVETA • Universities • KICD • TSC • KEMI • CEMASTEA • KISE • TTCs

(ii) Establish structures for implementation of blended learning.	
(a) Review the existing structures for implementation of blended learning. (b) Develop guidelines for implementation of blended learning. (c) Build capacity of curriculum implementers on blended learning. (d) Implement blended learning. (e) Monitor the implementation of blended learning.	• MoE • CUE • TVETA • Universities • KICD • TSC • KEMI • CEMASTEA • KISE • TTCs
(iii) Adopt ICT innovative approaches to ensure continued learning.	
(a) Develop guidelines for implementation of ICT enabled alternative modes of curriculum delivery. (b) Sensitise educators and managers on creation of flexible learning environment using ICTs. (c) Engage entrepreneurs and innovators in ICT in education and training activities. (d) Benchmark on best innovations and adopt best practices. (e) Create incentives and reward systems to encourage innovations. (f) Create a variety of scientific fairs. (g) Identify ready markets for innovations. (h) Create awareness on innovation patenting and copyrighting.	• MoE • CUE • TVETA • Universities • KICD • TSC • KEMI • CEMASTEA • KISE • TTCs

(iv) Enhance capacity for teachers, trainers, lecturers and education managers to deliver blended, remote learning, open, distance and e-learning;	
(a) Develop comprehensive training materials on delivery of blended, remote learning, open, distance and e-learning. (b) Sensitise teachers, tutors, lecturers and education managers on blended, remote learning, open, distance and e-learning approaches. (c) Sensitise stakeholders on the available blended, remote learning, open, distance and e-learning programmes. (d) Monitor the effectiveness of content delivery. (e) Report the findings on the effectiveness of blended, remote learning, open, distance and e-learning implementation.	• MoE and agencies • Universities • TSC
(v) Enhance development and dissemination of education digital content.	
(a) Develop appropriate digital content and programmes. (b) Disseminate digital content and programmes through various channels. (c) Expand educational platforms and channels to cover across levels.	• MoE and agencies • MoICT • Universities
(vi) Establish assessment and quality assurance mechanisms for blended learning, remote learning and ODeL.	
(a) Develop quality assurance framework for blended, remote learning and ODeL. (b) Develop guidelines and standards for blended, remote learning and ODeL. (c) Build capacity for education managers on blended, remote learning and ODeL. (d) Develop standards assessment tools for blended, remote learning and ODeL. (e) Conduct standards assessment on blended, remote learning and ODeL. (f) Generate and disseminate reports on blended, remote learning and ODeL for decision making and continuous improvement.	• MoE and agencies • MoICT • Universities

Policy Statement IV: Enhance e-waste management in education and training.	
Objective: Provide appropriate mechanisms for management of obsolete ICT infrastructure.	
Strategies/Activities	**Responsible**
(i) Enhance management of obsolete ICT equipment in line with existing e-waste management policies and guidelines.	
(a) Establish the level of obsolete ICT equipment in educational and training institutions. (b) Liaise with NEMA to develop guidelines for management of obsolete ICT equipment. (c) Establish regional collection centres for obsolete ICT equipment. (d) Liaise with other relevant organisations for disposal of obsolete equipment. (e) Negotiate a take-back agreement on ICT equipment upon end of life with service providers.	• MoE • BoMs • NEMA • Universities • IT service providers
(ii) Promote awareness on management of e-waste in education and training.	
(a) Sensitise stakeholders on e-waste management. (b) Develop and disseminate educational materials on e-waste management.	• MoE • BoMs • NEMA • Universities

QUALITY AND RELEVANCE IN ICTs

Goal

To provide a digital enabled curriculum, digital learning resources and assessment that allows learners to harness their potential for their personal development and empowerment to be nationally and globally competitive.

Curriculum	
Policy Statement I: Strengthen use of appropriate ICTs in curriculum development and implementation.	
Objective: Facilitate use of appropriate ICTs in curriculum development and implementation.	
Strategies/Activities	**Responsible**
(i) Promote use of ICTs in curriculum development and implementation across all levels.	
(a) Conduct needs assessment to identify the gaps in the use of ICT in the curricula. (b) Develop a guide for training curriculum developers and evaluators in ICTs. (c) Continuously train curriculum developers and evaluators on use of ICT. (d) Review existing curriculum standards, guidelines and frameworks to include use of ICT. (e) Use ICT in curriculum design and delivery. (f) Develop local content. (g) Use of locally produced content. (h) Review the curriculum regularly to incorporate emerging ICT technologies. (i) Digitise learning resources for open, distance and virtual learning programmes at all levels of education and training.	• MoE • TSC • KICD • CUE • TVETA • CDACC • National polytechnics • Universities • KISE • KEMI • KNEC • APBET • DACE • CEMASTEA

(ii) Promote the adaptation of ICT integrated curriculum to cater for learners and trainees with special needs and disabilities.	
(a) Conduct a needs assessment on adaptation of ICT integrated curriculum for learners and trainees with special needs and disabilities. (b) Train curriculum developers and partners on adaptation of ICT integrated curriculum to cater for the needs of learners, trainees and educators with special needs and disabilities. (c) Adapt an ICT integrated curriculum to cater for the needs of learners with special needs and disabilities. (d) Adapt curriculum support materials for blended and ODel programmes at all levels of education for learners with special needs and disabilities.	• MoE • TSC • KISE • KICD • Universities • TTCs • CUE • NCPWD • KIB • TTIs • TVETA • CoG
(iii) Promote collaboration and partnership in curriculum development and implementation on best practices in use of ICT in education and training.	
(a) Identify partners to collaborate with and share best practices in use of ICT curriculum. (b) Initiate exchange programmes for curriculum developers and evaluators to interact with their peers. (c) Create an online community of practice for curriculum developers and evaluators.	• MoE • KICD • TVETA • CUE • Universities • KEMI • CEMASTEA • TSC

(iv) Establish quality assurance and standards mechanism on ICT enabled curriculum development, implementation and assessment.	
(a) Develop guidelines on quality assurance and standards on ICT enabled curriculum development, implementation and assessment. (b) Quality assure ICT enabled curriculum development, implementation and assessment. (c) Generate and disseminate reports on development, implementation and assessment of ICT enabled curriculum. (d) Review ICT enabled curriculum development, implementation and assessment based on feedback for continuous improvement.	• MoE • KICD • TVETA • CUE • Universities • KEMI • CEMASTEA • TSC
Policy Statement II: Promote and regulate development, accessibility and use of digital learning resources.	
Objective: Provide adequate, quality and relevant digital learning resources across all levels.	
Strategies/Activities	**Responsible**
(i) Promote development of digital learning resources by educators and other providers.	
(a) Develop a regulatory framework on development, evaluation and dissemination of digital learning resources. (b) Sensitise stakeholders on the regulatory framework. (c) Train content developers, evaluators and assessors on regulatory framework. (d) Develop procedures to provide incentives to content developers. (e) Organise exhibitions and trade fairs for educators and learners to showcase best practices and user generated content in ICT in education and training. (f) Translate digital learning resources for early years' education into indigenous languages. (g) Build the capacity of curriculum development agencies to vet digital resources. (h) Develop guidelines for a co-ordinated agency approach to vetting and evaluation of digital learning resources. (i) Collaborate with relevant agencies on protection of digital learning resources from plagiarism and copyright infringement.	• MoE • KICD • CUE • Universities • Publishers • TVETA

(ii) Promote the use of open educational resources (OERs) and adopt creative commons licensing for educational learning materials.	
(a) Develop a regulatory framework on sharing of OERs. (b) Identify appropriate OERs for use in the education curriculum. (c) Sensitise stakeholders on appropriate OERs and creative commons licensing. (d) Develop procedures to provide incentives for creation of OERs. (e) Adopt creative commons licensing for educational learning materials.	• MoE • KICD • Universities • CUE • TVETA • TSC • KEMI • CEMASTEA • Partners
(iii) Adapt digital learning resources for learners, trainees and educators with special needs and disabilities.	
(a) Develop and implement standards for adaptation of digital learning resources for learners, trainees and educators with disabilities and special needs. (b) Create awareness to stakeholders on standards for adaptation of digital learning resources for learners, trainees and educators with disabilities and special needs. (c) Train content developers to adapt digital learning resources for learners, trainees and educators with disabilities and special needs. (d) Adapt and evaluate digital learning resources for learners, trainees and educators with disabilities and special needs.	• MoE • TSC • KICD • TVETA • KEMI • CEMASTEA • KISE • Universities • Partners
(iv) Enhance educator training curriculum to include skills on development of digital learning resources.	
(a) Review the educator pre-service training curriculum. (b) Train educators on development of digital learning resources. (c) Monitor the training of educators.	• MoE • TSC • KICD • TVETA • KEMI • CEMASTEA • KISE • Universities

(v) Promote protection of developed digital learning resources from plagiarism and copyright infringement.	
(a) Develop a regulatory framework on protection of developed digital learning resources. (b) Identify appropriate protection mechanisms for digital learning resources. (c) Sensitise stakeholders on plagiarism and copyright infringement of digital learning resources.	• MoE • TSC • KICD • TVETA • KEMI • CEMASTEA • KISE • Universities • KIPI • MoICT
(vi) Enhance availability, dissemination and utilisation of developed digital learning resources.	
(a) Create and host a common portal for sharing digital learning resources. (b) Create communities of practice. (c) Develop procedures for users to utilise the developed digital learning resources.	• MoE • TSC • KICD • TVETA • KEMI • CEMASTEA • KISE • Universities

Policy Statement III: Promote use of ICTs in curriculum assessment process.	
Objective: Integrate ICTs in curriculum assessment process while maintaining credibility, security and integrity.	
Strategies/Activities	**Responsible**
(i) Promote use of ICTs in assessments while taking into consideration examiners and learners with special needs and disabilities.	
(a) Conduct a training needs assessment to identify skill gaps of assessors on ICT in education and training. (b) Develop the training materials as per the gaps identified. (c) Conduct training on use of ICTs in assessments for educators. (d) Train national examiners on use of ICT in assessments.	• MoE • TSC • KNEC • Universities • CUE • KISE • TVETA • BoMs • PA • KEMI • CEMASTEA
(ii) Promote archiving and repository of assessment materials in digital format.	
(a) Develop guidelines for archiving and repository of assessment materials in digital format. (b) Create and host a common portal for archiving and repository of assessment materials in digital format. (c) Archive and back-up assessment materials and results for learners in the data centre. (d) Train system administrators on management of data centres. (e) Create awareness to stakeholders on existence of a common portal for archiving and repository of assessment materials in digital format.	• MoE • KNEC • Universities • CUE • KISE • TVETA • KEMI • CEMASTEA

(iii) Empower learners, educators, administrators and other stakeholders in ICT enabled assessments.	
(a) Conduct training needs assessment to establish skills gaps. (b) Develop the training materials as per the gaps identified. (c) Train learners, administrators and other stakeholders involved in the assessment process. (d) Monitor the training. (e) Review the training materials based on the finding from the reports.	• MoE • Universities • KNEC • TTIs • KICD • TSC • TVETA
(iv) Promote development and use of online assessment platforms that ensure confidentiality, integrity and availability (CIA) of data.	
(a) Develop the guidelines on online assessment. (b) Acquire appropriate software for assessment. (c) Install sustainable alternative sources of power. (d) Install redundant network path for connectivity. (e) Establish secure ICT assessment systems. (f) Establish disaster recovery and business continuity procedures. (g) Upgrade the ICTs infrastructure necessary for assessment. (h) Create awareness on use of online assessment platforms.	• MoE • MoICT • KNEC • Universities • Ministry of Energy • TTIs • KICD • TVETA • TSC

Capacity Building	
Policy statement IV: Promote capacity building of teachers, trainers, tutors and lecturers on use of ICT in teaching and learning at national and county levels.	
Objective: Enhance the capacity of teachers, trainers, tutors and lecturers to facilitate use of ICT in teaching and learning across all levels.	
Strategies/Activities	**Responsible**
(i) Review the teacher education curriculum to include use of ICT in curriculum implementation and assessment in consideration of trainees in special needs education across all levels.	
(a) Conduct a training needs assessment for educators on the use of ICT in education and training. (b) Develop a training course/programme(s) in line with the needs identified. (c) Reform the curriculum to include ICT use in education and training. (d) Build the capacity of tutors and lecturers. (e) Review teacher trainee assessment to include a component in ICT in education and training. (f) Conduct training for educators. (g) Develop an ICT Competency Standards to plan appropriate training for educators. (h) Identify and build capacity for ICT champions to spearhead ICT in education and training at the institutional level. (i) Continually review the training programme(s) to align it to emerging issues.	• MoE • Universities • KEMI • CUE • TSC • TVETA • CoG • BoMs • PAs • KICD • KISE • CEMASTEA
(ii) Enhance the capacity of in-service teachers, trainers, tutors and lecturers on the use of ICT in education and training.	
(a) Conduct training needs assessment for educators on use of ICT assistive technologies for SNE. (b) Organise sensitisation forums for educators on ICT assistive technologies for SNE. (c) Develop a training course/programme(s) in line with the needs identified in the TNA. (d) Develop an ICT Competency Standards to plan appropriate training for educators. (e) Conduct training for educators on use of SNE ICT assistive technologies. (f) Continually review the training programme(s) to align it to emerging issues.	• MoE • Universities • KEMI • CUE • TSC • TVETA • CoG • BoMs • PAs • KICD • KISE • CEMASTEA

(iii) Enhance the capacity of educators on innovative pedagogical approaches and technologies for continued learning.	
(a) Conduct a study on innovative pedagogical approaches and technologies. (b) Benchmark on innovative pedagogical approaches and technologies. (c) Document the pedagogical best practices and technologies. (d) Sensitise stakeholders on pedagogical best practices and technologies. (e) Adapt innovative pedagogical approaches and technologies.	• MoE • TSC • Universities • KNEC • TVET • TTCs
(iv) Establish mechanisms for online professional development for education managers.	
(a) Conduct a baseline survey on online professional development for education managers. (b) Design online professional development programmes. (c) Implement online professional development programmes. (d) Monitor the implementation of online professional development programmes. (e) Review online professional development programmes for continual improvement.	• MoE • TSC • Universities • KNEC • TVET • TTCs
Policy statement V: Promote the capacity building of policy makers, administrators of educational institutions and education officials on use of ICT in education and training at national and county levels.	
Objective: Enhance the capacity of policy makers and education managers on use of ICT in education, training and management.	
Strategies/Activities	**Responsible**
(i) Enhance the capacity of policy makers, education managers on utilisation of ICT in education, training and management at national and county levels.	
(a) Conduct a training needs assessment. (b) Develop training materials in line with the needs identified. (c) Collaborate with relevant agencies to train. (d) Sensitise them on resource mobilisation, partnerships, linkages and infrastructure sustenance. (e) Monitor the training. (f) Train quality assurance and standards officers on the verification and validation of ICT pedagogical approaches utilised by educators. (g) Continually review the training programme to align it to emerging issues.	• MoE • Universities • KISE • KEMI • CUE • TSC • TVETA • Other MDAs • University Councils

(ii) Promote use of SNE assistive and adaptive ICTs in education, training and management.	
(a) Conduct training needs assessment on use of SNE assistive and adaptive ICT technologies (b) Develop materials in line with the needs identified. (c) Conduct training on use of SNE assistive and adaptive ICT devices. (d) Train quality education officials on use of SNE assistive and adaptive ICT technologies. (e) Build the capacity of support services staff on ICT assistive and adaptive technology. (f) Monitor the training. (g) Continually review the training programme(s) to align it to emerging issues.	• MoE • Universities • KISE • KEMI • CUE • TSC • CoG • TVETA • Other MDAs • Partners
(iii) Enhance the capacity of auxiliary staff to support ICT in education, training and management.	
(a) Conduct a training needs assessment. (b) Develop training materials in line with the needs identified. (c) Conduct the training. (d) Monitor the training. (e) Continually review the training programme to align it to emerging issues.	• MoE • Universities • KISE • KEMI • CUE • TSC • CoG • TVETA • Other MDAs • Partners
Policy Statement VI: Promote capacity building of Councils, CEBs, BoMs, PA, and other governing bodies on use of ICT in education and training.	
Objective: Enhance the capacity of Councils, CEBs, BoMs, PAs and other governing bodies to support use of ICT in education and training.	
Strategies/Activities	**Responsible**
Enhance capacity of Councils, CEBs, BoMs, PAs and other governing bodies on inclusive use of ICTs.	
(a) Conduct a training needs assessment for Councils, CEBs, BoMs, PAs, Councils and other governing bodies on the use of ICT in education and training. (b) Develop training materials in line with the needs identified. (c) Conduct the training.	• MoE • CEBs • CUE • KEMI

(d) Monitor the training. (e) Build the capacity on resource mobilisation, partnerships, linkages and infrastructure sustenance. (f) Organise sensitisation forums on adoption and adaptation of SNE assistive devices. (g) Continually review the training programme(s) to align it to emerging issues.	• TSC • TVETA • CoG • KISE
Policy Statement VII: Promote the capacity building of ICT support personnel to develop, support and maintain ICTs at national, county and institutional levels.	
Objective: Enhance the capacity of ICT support personnel to develop, support and maintain ICTs at national, county and institutional levels.	
Strategies/Activities	**Responsible**
(i) Strengthen the capacity of ICT support personnel on maintenance of ICT infrastructure.	
(a) Conduct a training needs assessment for support personnel on the maintenance of ICT infrastructure in education and training. (b) Develop training materials in line with the needs identified. (c) Sensitise ICT support personnel on various ICT in education and training technologies including SNE assistive devices. (d) Continually monitor the performance to align it to emerging issues.	• MoE • Universities • KEMI • CoG • BoMs • PAs • KISE
(ii) Enhance the capacity of ICT support personnel on utilisation of ICTs to support learners and educators.	
(a) Conduct training needs assessment on the use of ICT in education and training. (b) Conduct training for ICT support personnel. (c) Continually review the training programme(s) to align it to emerging issues.	• MoE • Universities • CoG • BoMs • PAs • KICD • KISE

RESEARCH AND INNOVATION

Goal

To promote creation of knowledge in education and training through research and innovation in ICT.

Policy Statement. Promote use of ICT in education and training through research and innovation.	
Objective: Support use of ICT in education and training through research and innovation.	
Strategies/Activities	**Responsible**
(i) Promote research and innovation in the use of ICTs for curriculum development, implementation and assessment.	
(a) Provide resources for research and innovation on ICT in education and training. (b) Create partnerships and collaboration that promote research and innovation. (c) Build the capacity on use of ICT in research and innovation. (d) Use ICTs as a tool for conducting research. (e) Develop a centralised online repository for research and innovations. (f) Develop guidelines for patenting and copyrighting research and innovations. (g) Disseminate research findings through publications, webinars, websites, conferences, seminars and other forums. (h) Conduct collaborative research and sharing of findings among learners and educators to inform curriculum delivery. (i) Create exchange programme to promote research and innovations. (j) Use ICTs in creation and sharing of knowledge. (k) Institutionalise use of ICTs in research and innovation in learning and training. (l) Document and share action research at the institutional level. (m) Create network and linkages in use of ICT in research and innovation.	• MoE • NACOSTI • KIPI • TVETA • CUE • Universities • KNBS • KIPPRA

(ii) Promote creativity and innovation in use of ICT in education and training.	
(a) Review and implement guidelines for identifying, harnessing, incubating and commercialising innovations in ICT in education and training. (b) Develop an incentive scheme to recognise researchers who excel in research, publication, innovation and patents as well as community service. (c) Create forums for educators and learners to showcase their innovations in ICT in education and training. (d) Initiate mentorship programmes for learners and educators on research and innovations. (e) Use national and regional ICT innovation centres as research and innovation hubs.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities
(iii) Promote creativity and innovation in use of ICT in education and training.	
(a) Review and implement guidelines for identifying, harnessing, incubating and commercialising innovations in ICT in education and training. (b) Build the capacity of educators in use of ICTs through research and innovation. (c) Develop an incentive scheme to recognise researchers who excel in research publication innovation and patents and community service. (d) Create forums for educators and learners to showcase their innovations in ICT in education and training. (e) Initiate mentorship programmes for learners and educators on research and innovations. (f) Use the national and regional ICT innovation centres as research and innovation hubs.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities
(iv) Promote access to equitable and inclusive education and training through research and innovation in ICTs.	
(a) Document research findings. (b) Create knowledge management systems. (c) Disseminate and share knowledge through education portals.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities

(v) Facilitate research and innovation in the use of ICTs for management of data in education and training.	
(a) Document research findings. (b) Disseminate and share knowledge through existing education portals.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities
(vi) Promote access to equitable and inclusive education and training through research and innovation in ICTs.	
(a) Identify needs of learners and educators with special needs and disabilities. (b) Determine the appropriate softwares and devices for use by learners and educators with special needs and disabilities. (c) Adapt ICT learning devices in line with the needs of the learners with special needs and disabilities.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities
(vii) Institutionalise research and innovation in the use of ICT in education and training.	
(a) Enhance the ICT integration units at the institutional level to be able to conduct research in the use of ICT in education and training. (b) Conduct training on research at the institutional level. (c) Develop collaboration and partnership framework for research and innovation on the use of ICTs in education and training.	• MoE • NACOSTI • KIPPRA • KIPI • TVETA • CUE • Universities

ICT SECURITY, SAFETY AND ETHICS

Goal

To enhance security, safety and ethical use of ICTs in education and training.

Policy Statement: Promote security, safety and ethical use of ICTs in education and training.	
Objective: Enhance security, safety and ethics in the use of ICTs in education and training.	
Strategies/Activities	**Responsible**
(i) Collaborate with MDAs to enforce standards and guidelines on ICT security, safety and ethics in line with existing national and international legislations.	
(a) Conduct baseline survey to establish gaps in ICT security, safety and ethics within the sector. (b) Develop guidelines on ICT security, safety and ethics and adapt for institutions in line with the Computer and Cybercrimes Act, 2017 and other relevant legislations. (c) Develop a risk management plan related to ICT security, safety and ethics. (d) Sensitise stakeholders on ICT security, safety and ethics. (e) Mainstream issues of ICT security, safety and ethics in the curriculum across all levels. (f) Monitor adherence to ICT security, safety and ethics standards. (g) Continuously review guidelines to be in line with global trends on ICT security, safety and ethics.	• MoE • MoICT • ICTA • CA • BoMs/BoGs • CoG • Universities • CUE • KEMI • CEMASTEA • KICD • KNEC • TSC • TVETA • Service providers

(ii) Enhance partnerships, networks, linkages and collaboration mechanisms in ICT security, safety and ethics.	
(a) Develop procedures for partnership linkages and collaboration in ICT security, safety and ethics. (b) Identify agencies to partner with in addressing issues related to cyber security. (c) Create awareness on the role of various partners in mitigating cyber security. (d) Creating forums for partners to engage on emerging issues on cyber security to learning institutions.	• MoE & SAGAs • BoMs/BoG • Universities • MoICT • ICTA • CA • TSC • MoIC&NG • Service providers
(iii) Establish mechanisms for vetting of digital learning resources to ensure security, safety and ethics in liaison with other relevant agencies in education and training.	
(a) Develop procedures for vetting of digital learning resources to ensure security, safety and ethics. (b) Apply filters to ensure that only appropriate digital content is accessed by learners and educators. (c) Create awareness on use of parental controls for applications and digital content. (d) Submit digital content online to make vetting easier and ensure security, safety and ethics. (e) Conduct peer review for digital learning resources at institutional level.	• MoE • CA • MoICT • ICTA • KFCB • BoMs • PAs • KICD • TSC • Universities • Heads of Institutions
(iv) Enhance safe, secure and ethical use and management of data collected and generated while using ICTs in education and training.	
(a) Create awareness on safe, secure and ethical use of data. (b) Sensitise stakeholders on existing legislation on information security. (c) Liaise with relevant MDAs to enforce existing legislation on information security. (d) Review existing ICT security measures regularly. (e) Undertake risk management to inform decision making in governance and management of ICT in education and training. (f) Reinforce security of ICT in education resources.	• MoE and Agencies • CA • MoICT • ICTA • BoMs • TSC • Universities • Heads of Institutions

(v) Capacity build users of ICTs in education on safe, secure and ethical use of data.	
(a) Carry out a needs assessment. (b) Develop a training manual based on the needs assessment report. (c) Create awareness using the developed materials.	• MoE • CA • MoICT • KFCB • BoMs • PAs • KICD • TSC • Universities • Heads of Institutions
(vi) Establish mechanisms to support digital trust for ICT enabled environment.	
(a) Develop ICT in education and training to safeguard measures. (b) Maintain a conducive ICT enabled environment. (c) Identify key attributes on security safety and ethical measures. (d) Create awareness on the security safety and ethical measures put in place. (e) Convert learners, educators and education managers to digital advocates. (f) Exhibit transparency in ICT in education and training. (g) Build a culture of confidentiality. (h) Manage risks in digital platforms in education and training.	• MoICT • KFCB • BoMs • PAs • KICD • TSC • Universities • Heads of Institutions

ICT IN LEARNING INSTITUTIONS AND THE COMMUNITY

Goal

Promote mutual community involvement in the use of ICT in learning institutions.

Policy Statement: Promote community involvement to enhance use of ICT in learning institutions.	
Objective: Enhance community involvement in use of ICT in learning institutions.	
Strategies/Activities	**Responsible**
(i) Promote collaboration between the learning institutions and community on use of ICTs.	
(a) Develop guidelines for community involvement. (b) Organise institutional-community ICT open days. (c) Create community awareness on ICT in education and training. (d) Constitute community-institution ICT in Education committee.	• MoE • Educational institutions • Community • Partners
(ii) Promote community ownership of ICT related programmes and projects.	
(a) Develop ICT sharing guidelines between the community and the educational institution. (b) Involve communities in educational ICT programmes and projects. (c) Create opportunities where educational institutions and Communities mutually benefit from ICT services. (d) Continuous sensitisation on new and ongoing ICT in education programmes.	• MoE • Educational institutions • Community • Partners

GOVERNANCE AND MANAGEMENT OF ICT IN EDUCATION AND TRAINING

Goal

To promote good governance and management of ICTs in education and training.

Policy Statement: Strengthen governance in the implementation of ICT in education and training.	
Objective: Strengthen the governance and management mechanisms for ICT in education and training.	
Strategies /Activities	**Responsible**
(i) Strengthen existing structures to enhance transparency, accountability, integrity and efficiency in the management of ICT resources in education and training.	
(a) Develop a framework on advocacy and communication on ICT in education and training to promote ownership. (b) Review the existing structures in the management of ICT resources in education and training. (c) Build capacity of data management personnel in education and training across all levels. (d) Upgrade Education Management Information System (EMIS) to enhance data management. (e) Incorporate data management systems in education and training. (f) Create inter-agency collaboration. (g) Use ICT in education facilities prudently to enhance efficiency.	• MoE • MoICT • KEBS • ICT4E • ICTA • Educational institutions • BoMs
(ii) Establish the roles of different stakeholders in ICT in education and training at the national and county levels.	
(a) Review the roles of different stakeholders in ICT in education and training. (b) Assign staffs based on knowledge and skills to manage ICT in education resources. (c) Sensitise BoM, parents and communities on laws governing ICT in education and training.	• MoE • MoICT • KEBS • ICT4E • ICTA • Educational institutions • BoMs

(iii) Strengthen mechanisms for collaborations and partnerships in ICT in education and training.	
(a) Develop guidelines for collaborations and partnerships. (b) Sensitise the relevant ICT in education and training stakeholders. (c) Monitor the collaborations and partnerships on ICT in education and training.	• MoE • MoICT • KEBS • ICT4E • ICTA • Educational institutions • BoMs
(iv) Ensure alignment of ICT in education initiatives to global and regional conventions to maintain relevance.	
(a) Create awareness on existing ICT strategies at the global, regional and national level. (b) Align ICT in education and training initiatives and strategies to the global and regional conventions. (c) Continually review ICT in education and training strategies to align to the global and regional conventions.	• MoE • National Treasury • Ministry of planning • BoMs • Partners
(v) Strengthen advocacy and communication of ICT in education and training.	
(a) Develop advocacy and communication programmes for ICT in education. (b) Create awareness and sensitisation forums on ICT in education and training.	• MoE • The National Treasury • Ministry of planning • BOMs • Partners

RESOURCE MOBILISATION AND PARTNERSHIPS

Goal

To enhance resource mobilisation and foster partnerships for efficient use of ICTs in education and training.

Policy Statement: Promote resource mobilisation and partnerships for efficient use of ICTs in education and training.	
Objective: Enhance resource mobilisation and partnerships for efficient use of ICT in education and training.	
Strategies/Activities	**Responsible**
(i) Enhance budgetary allocation for use of ICT in education and training.	
(a) Review annual budgetary allocation and vote heads on ICT in education and training across all levels. (b) Develop a proposal on financing of ICT in education and training. (c) Sensitise relevant agencies on the need for enhanced budgetary allocation. (d) Provide budgetary allocation and vote heads for ICT assistive and adaptive technologies across all levels of education and training. (e) Develop modalities for cost reduction of ICT resources for education and training across all levels.	• MoE and Agencies • The National Treasury • Ministry of planning • CoG • Universities • TSC
(ii) Promote effective and efficient use of ICT resources in education and training.	
(a) Develop annual costed work plan for integration of ICT resources (b) Monitor utilisation of ICT resources in education and training. (c) Annual audit on the use of ICT resources in education and training.	• MoE • The National Treasury • CoG • TSC • SAGAs • Universities • Institutions of Learning • Development Partners

(iii) Enhance co-ordination of public and private partnerships for ICT resource mobilisation across all levels of education and training.	
(a) Develop a resource mobilisation strategy. (b) Map stakeholders and partners in ICT in education and training. (c) Conduct a survey on status of ICT in education and training partner programmes. (d) Disseminate the baseline survey report. (e) Develop and continually update a database of stakeholders and partners involved in ICT in education and training. (f) Review terms of engagement with new and existing partners. (g) Create linkages between the partners and the relevant MDAs to support activities in ICT for education and training.	• MoE • The National Treasury • CoG • Universities • KEMI • CUE • TSC • TVETA • BoMs • KICD • KISE • CEMASTEA • Partners
(iv) Promote public and private partnerships for provision of assistive and adaptive ICT resources across all levels of education.	
(a) Map stakeholders and partners in ICT assistive and adaptive technologies for learning. (b) Develop and continually update a database of stakeholders and partners in ICT assistive and adaptive technologies for learning. (c) Review terms of engagement with new and existing partners. (d) Create linkages between the partners and the relevant MDAs to support activities related to ICT assistive and adaptive technologies for education and training.	• MoE • The National Treasury • CoG • Universities • KEMI • CUE • TSC • TVETA • BoMs • KICD • KISE • CEMASTEA • NCPWD • Partners

(v) Strengthen community participation in resource mobilisation for ICTs in education and training.	
(a) Sensitise communities on their role in supporting ICT initiatives in education and training. (b) Engage communities in resource mobilisation to support ICT in education and training. (c) Involve communities in implementation of ICT initiatives in education and training. (d) Create opportunities for communities to utilise ICT infrastructure in the institutions as a way of resource mobilisation.	• MoE • National Treasury • Ministry of Planning • CoG • Universities • KEMI • CUE • TSC • TVETA • BOMs • KICD • KISE • CEMASTEA • Partners

MONITORING, EVALUATION AND REPORTING

Goal

To monitor, evaluate and report on ICTs in education and training.

Policy Statement: Promote monitoring, evaluation and reporting on ICTs in education and training.	
Objective: Monitor, evaluate and report the progress of ICT in education and training programmes.	
Strategies/Activities	**Responsible**
(i) Enhance mechanism for effective ME&R of ICTs in education and training.	
(a) Develop a national ME&R framework. (b) Conduct a baseline survey on all performance indicators of this policy. (c) Assess ICT in education and training interventions based on performance indicators. (d) Disseminate and share impact assessment report with stakeholders. (e) Implement intervention measures.	• MoE and SAGAs • TSC • Treasury • MoICT • MoP • KNBS • Partners • Universities
(ii) Promote multi-agency approach in undertaking ME&R of ICTs in education and training	
(a) Build capacity of educational practitioners in carrying out ME&R. (b) Conduct annual M&E on ICT interventions in education and training. (c) Disseminate and share the report findings with the stakeholders. (d) Conduct periodic impact evaluation to assess the transformation resulting from the ICT interventions in education and training. (e) Review ME&R framework to assess ICT in education and training interventions.	• MoE and SAGAs • TSC • National Treasury • MoICT • MoP • KNBS • Partners • Universities

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