Federal Ministry of Education

NATIONAL POLICY ON INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION

MAY 2019

FEDERAL MINISTRY OF EDUCATION

NATIONAL POLICY ON INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION

May 2019

ii

TABLE OF CONTENTS

FOREWORD

The development of the National Policy on ICT in Education was informed by the need to have a standardized and coordinated deployment of ICT in Education. The policy identifies the critical role of ICT towards the attainment of the National Vision within the context of the Constitution of the Federal Republic of Nigeria, the National Policy on Education, Ministerial Strategic Plan: Education for Change and Sustainable Development Goals (SDGs). The policy thrust devolves into a number of focal areas geared at ensuring the attainment of qualitative education for the enhancement of sustainable socio-economic development, global competitiveness and the individual's development and fulfillment.

A multi-sectoral approach was adopted to facilitate the development of a credible and implementable policy document. The various stakeholders that collaborated with the Federal Ministry of Education for the development of the policy document include Education Parastatals, other relevant Federal Ministries, Departments and Agencies, State Ministries of Education, IT Professional Bodies, Private Sector, Non-Governmental Organizations and International Development Partners.

This policy provides the needed guidance on expectations from all stakeholders in the entire process of ICT integration in education. Its implementation therefore, should lead to a speedy transformation of teaching, learning, research and administration. Consequently, this will ensure that graduates at all levels of education possess the required competencies for socio-economic development, global competitiveness and self-reliance.

As a demonstration of the commitment of the Federal and State Governments in providing leadership for effective and sustainable implementation of the policy across the nation, the National Council on Education and the Federal Executive Council approved the policy

document in 2010 for the development and deployment of ICT in education. However, emerging challenges, new trends and developments in Education and ICT have necessitated the review of the policy.

Now that the milestone of reviewing the National Policy on ICT in Education has been achieved, I implore all stakeholders in the Education sector to consider an ICT-enhanced Education as top priority for the actualization of our national goals.

Mallam Adamu Adamu
Honourable Minister of Education
May 2019

ACKNOWLEDGMENT

The review of National Policy on ICT in Education is a milestone for the development and deployment of ICT in the sector. This achievement would not have been accomplished without the help of the Almighty.

The Federal Ministry of Education wishes to acknowledge the immense contributions of Federal and State Ministries and agencies, the Private Sector, Non-Governmental Organizations and International Development Partners to the policy. These include: Federal Civil Service Commission (FCSC), Federal Ministry of Communications, Federal Ministry of Interior (FMI), Federal Ministry of Justice (FMJ), Federal Ministry of Agriculture and Social Development (FMASD), Federal Ministry of Environment (FMEnv), Ministry of Budget and National Planning (MBNP), Ministry of Defence (MOD) and States Ministries of Education (SMOE).

Special thanks also go to the National Universities Commission (NUC), National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE), Universal Basic Education Commission (UBEC), Nigerian Educational Research and Development Council (NERDC), National Teachers' Institute (NTI), Computer Professionals [Registration Council of Nigeria] (CPN), Teachers Registration Council of Nigeria (TRCN), National Mathematical Centre (NMC), Joint Admissions and Matriculation Board (JAMB), West African Examination Council (WAEC), National

DEFINITIONS

(i) **ICT**

ICT refers to the art and applied sciences that deal with data and information. It encompasses all (equipment including computational machinery - computers, hardware, software, firmware etc., tools, methods, practices, processes, procedures, concepts, principles and the sciences) that come into play in the conduct of the information activities: acquisition, representation, processing, presentation, security, interchange, transfer, management, organization, storage and retrieval of data and information.

(ii) **ICT-enhanced Education**

ICT-enhanced Education

• **Universally Accessible**

(i) Takes into account a variety of student characteristics, including ethnicity, race, abilities, disabilities, age, gender, language abilities and preferred learning style.

(ii) Uses proactive and inclusive way of teaching and designing courses and curricula.

(iii) Barriers to learning are removed before they can affect anyone.

(iv) Identifies and clearly expresses the essential course content, while recognizing that students can express understanding of essential course content in multiple ways.

(v) Academic rigour is not compromised.

(vi) Is consistent with universally recognized principles of good teaching.

- **Empowering**

(i) Teachers and trainers use technology to support all learning across the curriculum, functioning as coaches, mentors, advocates and managers of information;

(ii) Through on-going and comprehensive professional development, all teachers and trainers acquire the knowledge and skills to integrate technology into a challenging and interdisciplinary curriculum which addresses specific needs, developmental levels and learning styles of learners;

(iii) The teachers and trainers are transformed, through technology, from authority-experts to facilitators guiding

the students/learners to use technology to find answers online.

(iv) The students/learners are empowered to find their own answers, making the learning process to become much more interesting.

(v) Instructional repertoire is expanded allowing opportunities for multimedia and interactivity that are impossible with more traditional instructional techniques.

(vi) The students/learners are transformed from passive recipients of the knowledge of the teacher/trainer to active participants in knowledge-seeking and knowledge-construction, with the teachers/trainers often learning new technology programmes along with them.

- **Enriching**

  (i) The individual's collaborative intellectual processes, personal experiences of exploration and discovery, as part of the search for truth, are enriched;

  (ii) Increased accessibility to information is engendered. For example, the Internet provides access to considerable amount of information, media and communications and if the

students/learners have computer and internet access, assignments, activities, assessments, multimedia and so on can be provided over the web and completed anywhere, providing for a wider range of instructional opportunities for anytime, anywhere, any path and any pace learning.

- **Inclusive**

  (i) All students are welcomed by their schools in age-appropriate, regular classes and are supported to learn, contribute and participate in all aspects of the life of the school.

  (ii) Schools, classrooms, programmes and activities are developed and designed so that all students including learners with special needs learn and participate together.

ACRONYMS

CCTV	-	Closed Circuit Television
CPN	-	Computer Professionals (Registration Council of Nigeria)
ICT	-	Information and Communication Technologies
IEIs	-	Innovation Enterprise Institutions
IT	-	Information Technology
JAMB	-	Joint Admissions and Matriculation Board
LEMIS	-	Local Government Education Management Information System
M&E	-	Monitoring and Evaluation
NABTEB	-	National Business and Technical Examinations Board
NECO	-	National Examinations Council
NBTE	-	National Board for Technical Education
NCCE	-	National Commission for Colleges of Education
NEMIS	-	Nigerian Education Management Information System
NgREN	-	Nigerian Research and Education Network
NITDEF	-	National Information Technology Development Fund
NITEF	-	National Information Technology Education Framework
NOUN	-	National Open University of Nigeria

NUC	-	National Universities Commission
NUETAL	-	Nigerian Universities Electronic Teaching and Learning
Post-UTME	-	Post Unified Tertiary Matriculation Examination
PPP	-	Public-Private Partnership
PTDF	-	Petroleum Technology Development Fund
R&D	-	Research and Development
SDGs	-	Sustainable Development Goals
SEMIS	-	State Education Management Information System
TETFUND	-	Tertiary Education Trust Fund
TRCN	-	Teachers Registration Council of Nigeria
UBEC	-	Universal Basic Education Commission
USPF	-	Universal Service Provision Fund
UTME	-	Unified Tertiary Matriculation Examination
VEIs	-	Vocational Enterprise Institutions
VSAT	-	Very Small Aperture Terminal

EXECUTIVE SUMMARY

1.0   **Introduction**

Knowledge is the critical determinant of competitiveness in the world economy given the prevalent globalization and rapid technological change. Government recognizes the key role of education towards the attainment of sustainable development and has made qualitative education one of its key focuses. Thus, the realization of the National Vision and the Sustainable Development Goals (SDGs) is tied to education.

Attainment of qualitative education requires improving on teaching, learning and educational administration. This in turn requires the integration of ICT into education.

This document presents the policy of Government on ICT in education predicated on a vision for ICT in education deriving from a number of instruments:

- The National Vision
- The National Policy on Education
- The National Information and Communication Technology Policy
- The National Information Technology Education Framework, and
- The Ministerial Strategy Plan for the Education Sector (2016-2019).

2.0 **Vision**

Education that is universally accessible, empowering, inclusive and enriching.

3.0 **Mission**

To meet the human capital requirement of the nation for attaining and enhancing sustainable socio-economic development, global competitiveness as well as the individual's ability to survive in a contemporary environment.

4.0 **Objectives**

The objectives of ICT in Education are:

(i) To facilitate the teaching and learning processes.

(ii) To promote problem-solving, critical thinking and innovative skills.

(iii) To promote life-long learning and advance knowledge.

(iv) To enhance the various teaching/learning strategies required to meet the needs of the population.

(v) To foster research and development.

(vi) To support effective and efficient education administration.

(vii) To enhance universal access to information.

(viii) To widen access to education and the range of instructional options and opportunities for any-where, any-time, any-pace and any-path learning.

(ix) To promote commercialization of ICT in Education.

(x) To develop and support technical infrastructure that maximizes digital creativity, sharing and innovation.

5.0 Policy Thrust

Government shall:

(i) build and encourage the development, utilization and sustenance of the ICT manpower required to achieve an ICT-enhanced Education;

(ii) establish and sustain a common ICT infrastructure platform for education at all levels;

(iii) ensure and encourage Research and Development (R&D) in ICT and ICT in Education;

(iv) engage in and encourage regular stakeholder consultations (including the Private Sector), sensitization of the learning community, public awareness and inter-governmental relations to achieve a broad-based consensus on ICT in education;

(v) provide appropriate legal, regulatory and security framework to ensure that ICT in Education and the conduct of related

activities are focused on achieving ICT-enhanced Education;

(vi) adopt innovative and creative financing models for ICT in Education; and

(vii) use M&E as a veritable tool in ICT in Education for tracking policy implementation, efficient service delivery and compliance.

6.0 **Policy Focus areas**

The policy is resolved into the following focus areas:

- Human Capital Development
- Infrastructure
- Research and Development
- Awareness and Communication
- Governance
- Financing
- Monitoring & Evaluation

The strategies for each of the focus areas are listed under each area.

1.0   **INTRODUCTION**

Advances in Information and Communication Technologies (ICT) have turned the world into a global village and are transforming the world economy presenting challenges that were hitherto unthought-of. Nigeria aspires to attain sustainable development and enhance global competitiveness, a status that requires innovations especially in the development of human capital.   There is no gainsaying the fact that ICT has become *sine qua non* in bringing these about.

Educators and policy-makers alike agree that ICT is paramount to the future of education and that successful contributions to meeting the Sustainable Development Goals (SDGs) are most likely to be made by ICT in Education initiatives that focus on:

- increasing access through distance learning as ICT can provide new and innovative means to bring educational opportunities to greater numbers of people of all ages, especially those who over the years have been excluded, such as populations in rural areas, women facing social barriers and people with disabilities;
- creating a knowledge network for learners given the fact that information has a crucial input in the productive processes within today's economy. The efficiency by which information is acquired and applied determines economic success, and the effective use of ICT can contribute to the timely transmission of information, thereby helping education systems to meet this challenge;

- training teachers and trainers since large numbers of teachers/trainers will be needed to meet the national vision and SDGs for education as well as provide opportunities to complement on-the-job training and continuing education for teachers/trainers;
- broadening the availability of quality education materials {arising from the fact that} network technologies have the potential to increase the availability of quality educational materials. Interactivity and global reach allow for customized sharing of knowledge, materials and databases, quickly and cheaply over long geographic distances, with online resources. Thus, teachers/trainers are offered access to a vast and diverse collection of educational materials, enabling them to design curricula that best meet the needs of the students/learners; and
- enhancing the efficiency and effectiveness of educational administration and policy as new technologies can help improve the quality of administration including human resource management, student registration and monitoring of enrollment and achievement.

Therefore, Government considers qualitative education a key component of its developmental Agenda. The development of the human capital for realizing the national vision needs to be enhanced by a new set of knowledge, skills and attitude, and the individual citizen needs to be fully equipped to be competitive as well as meet the challenges of the emergent environment. This

implies a robust consideration for the integration of ICT into education.

1.1 Current State of ICT in Education

The Federal Ministry of Education is charged with policy formulation, monitoring of implementation, and setting and maintaining standards in the Nigerian education sector. However, the Constitution places education on the Concurrent Legislative List, making education a shared responsibility of the Federal, State and Local Governments. Thus, while the policy and standards with regards to ICT in education are the responsibilities of the Federal Government, the implementation of ICT in education rests heavily on the State and Local Governments.

ICT occupies a very strategic place in Education in the country. This is encapsulated in the Ministerial Strategy Plan: Education For Change and in series of initiatives and strategies targeted at integrating ICT into education.

1.1.1 Current Initiatives and Strategies

The initiatives and strategies include the following:

(i)   The use of the National Policy on ICT in Education to drive the development and deployment of ICT in Education in the country.

(ii) Provision of requisite ICT infrastructure and services such as:

- Nigerian Research and Education Network (NgREN), which has interconnected 27 universities, with a hub at the National Universities Commission.
- Campus networks in schools especially at the tertiary level.
- Functional websites, email facilities and portals for the Ministry and schools.
- Data Centres in the Ministry and in schools.
- Computers and other multimedia facilities
- Internet Connectivity through VSAT and fibre optic in all Federal Institutions.
- Alternative power supply such as solar panels, generators, inverters and so on.
- CCTV for security and safety of the education community.

(iii)   The introduction of Schemes which are targeted at the provision of computers to government staff at all levels of education at preferential rates.

(iv)   Establishment of ICT laboratories in schools and Centres of Excellence in the tertiary institutions.

(v)   Introduction of e-learning and application of ICT to Distance Education and Open Learning at all levels as follows:

- At the tertiary education level, the National Open University of Nigeria (NOUN) and other tertiary institutions offer a robust open and

4

distance learning to hundreds of thousands of students.

- The National Teachers' Institute offers distance learning to hundreds of thousands of teachers.
- The Nigerian Universities Electronic Teaching and Learning (NUETAL) platform has been established in 12 Federal and State Universities as an ICT-enabled interactive teaching and learning tool.
- At the basic and secondary education levels, e-learning is being delivered in collaboration with the private sector.
- The literacy by radio programme is used widely for nomads and other migrant groups as well as adult learners to facilitate access to education for illiterate and semi-literate Nigerians irrespective of their geographical locations, gender and cultural settings.
- Mobile learning is being implemented at the tertiary education level and in some States of the Federation.
- Computer-Based Test is being used for the conduct of Unified Tertiary Matriculation Examination (UTME), post-UTME by many tertiary institutions and professional examinations such as Teachers Professional Examinations, Computer Professional Examinations, among others, to give credibility to examination process.

(vi) ICT capacity-building for teachers and educational administrators through nationally and internationally recognized certifications.

(vii) The use of ICT to streamline the Education Delivery Management framework through:

- Establishment of the Nigerian Education Management Information System (NEMIS) at the Federal level to serve as a repository of education data across the entire education sector.
- Establishment of the State Education Management Information System (SEMIS) and Local Government Education Management Information System (LEMIS) for the collection, storage, integration, processing, maintenance and dissemination of data.
- Use of technology for item banking, management of registration, notification, validation, admission and backend automation for national examinations (JAMB, NECO and NABTEB).

(viii) The construction of e-libraries in Federal Schools and virtual libraries for universities.

(ix) The development and periodic review of the curricula for IT Education at all levels of education.

(x) The development and use of the National Information Technology Education Framework (NITEF) for categorization of IT institutions and

placement of IT professionals in the Scheme of Service of the Federation.

(xi)   The development and use of the National Standards for IT Education to set academic and professional standards for IT Education at all levels.

(xii) The establishment of ICT Department to drive the delivery of innovative technology solutions and support services within the Federal Ministry of Education and to serve as an ICT co-ordination resource for the education sector at large.

(xiii) The establishment of Innovation Enterprise Institutions (IEIs) and Vocational Enterprise Institutions (VEIs) to address skill gaps in such areas as ICT.

(xiv) The regulation of IT education and practice by the Computer Professionals Registration Council of Nigeria (CPN) in collaboration with the National Universities Commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE) for the tertiary education level as well as regulations of other formal and non-formal institutions.

1.1.2 **Challenges**

Implementation of ICT in education is plagued with many challenges. These include the following:

(i)   *Policy*: Inadequate policy implementation.

(ii) *Institutional and Administrative Capacity:* Although, capacity- building of teachers in ICT is being done, a good percentage of teachers are still not proficient in ICT. There is also, an insufficient pool of ICT professionals in the sector.

These weaknesses are compounded by inadequate ICT infrastructure for teaching, learning, research and educational administration in some institutions.

(iii) *Regulation*: IT Education, especially at the non-formal education sub-sector is still largely non-standardized, uncoordinated and unsupervised. This has resulted in the proliferation of computer training outfits which offer all sorts of certificates and programmes based on curricula that are undefined.

(iv) *Curriculum*: There is generally lack of regular review and updating of existing IT curricula, especially at the tertiary level, to meet changing societal needs. There is also low capacity of curriculum developers and implementers. The challenge of outdated curriculum is even more pronounced in view of the dynamic nature of IT.

(v) *Efficiency and Effectiveness in the Use of IT*: Teacher educators and teachers are concerned more with efficiency rather than effectiveness when they adopt ICT in education. Thus, ICT is

used to make their jobs easier instead of making learning more effective. As a result, the teaching/learning process has not embraced current educational paradigm which emphasizes student-centred instruction with the teacher as the facilitator rather than teacher as the source of knowledge.

(vi) *Equity issues*: There is a great dichotomy between urban and rural schools and between public and private schools with regards to availability of ICT personnel and resources. Urban schools and private schools tend to have more ICT personnel and resources as well as power supply.

(vii) *Research*: There is low research on ICT in education. Thus, policy-makers are not able to assess the impact of ICT on the education system.

(viii) *Funding*: Although, funds are being provided for ICT in education, they are largely inadequate to provide the drive necessary to position the sector for the attainment of the national goals.

The foregoing reveals that the state of ICT in education in Nigeria falls below global standards. This reinforces the need for focused intervention in ICT in education.

1.2   This document presents the policy of Government on ICT in Education. It is predicated on a vision for ICT in education deriving from a number of instruments:

- National Policy on Education 2013
- Education for Change: A Ministerial Strategic Plan 2016-2019
- National Information and Communication Technology Policy
- National Information Technology Education Framework 2010
- National Standards for Information Technology (IT) Education 2014

It articulates the vision and mission for ICT in education, after which it resolves the policy thrust into the following seven (7) focus areas:
- Human Capital Development
- Infrastructure
- Research and Development
- Awareness and Communication
- Governance
- Financing
- Monitoring & Evaluation

The document also specifies the implementation strategies, sub-strategies, activities, deliverables, time-lines and key performance indicators for the successful realization of the policy objectives.

2.0 **VISION**

Education that is universally accessible, empowering, inclusive and enriching.

3.0 **MISSION**

To meet the human capital requirements of the nation for attaining and enhancing sustainable socio-economic development, global competitiveness as well as the individual's ability to survive in a contemporary environment using ICT.

4.0 **OBJECTIVES**

The objectives of ICT in Education are to:

(i)   facilitate the teaching and learning processes.

(ii)   promote problem-solving, critical thinking and innovative skills.

(iii)   promote life-long learning and advance knowledge.

(iv)   enhance the various teaching/learning strategies required to meet the needs of the population.

(v)   foster research and development.

(vi)   support effective and efficient education administration

(vii)   enhance universal access to information.

(viii) widen access to education, range of instructional options and opportunities for any-where, any-time, any-pace and any-path learning.

(ix)   promote the commercialization of indigenous inventions, products and services of ICT in Education.

(x)   develop and support technical infrastructure that maximizes digital creativity, sharing and innovation.

5.0   **VALUES**

- *Quality*
  Learners are economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual well-being.
- *Integrity*
  Learners imbibe values such as avoidance of cheating or plagiarism; maintenance of academic standards; honesty and rigour in research and academic publishing.
- *Efficiency*
  Learners learn to minimize resource waste while getting the desired input.
- *Effectiveness*
  There is a match between learners stated appropriate goals and achievements.
- *Professionalism*
  Learners demonstrate behaviours which portray the knowledge and skills of the profession.
- *Resourcefulness*
  Learners apply problem-solving knowledge to new situations.
- *Inclusiveness*
  All learners are encouraged and supported to learn, contribute and participate in all aspects of life of the

school and society.

6.0 **POLICY THRUST**

Government shall:

(i)   build and encourage the development, utilisation and sustenance of the ICT manpower required to achieve an ICT-enhanced Education;

(ii)   establish and sustain a common ICT infrastructure platform for education at all levels;

(iii)   ensure and encourage Research and Development (R&D) in ICT and ICT in Education;

(iv)   engage in and encourage regular stakeholder consultations (including the Private Sector), sensitization of the learning community, public awareness and inter-governmental relations to achieve a broad-based consensus on ICT in education;

(v)   provide appropriate legal, regulatory and security framework to ensure that ICT in Education and the conduct of related activities are focused on achieving ICT-enhanced Education

(vi)   adopt innovative and creative financing models for ICT in Education; and

(vii)   use M&E as a veritable tool in ICT in Education for tracking policy implementation, efficient service delivery and compliance.

7.0 **FOCUS AREAS**

The policy is resolved into the following focus areas:

7.1   **HUMAN CAPITAL DEVELOPMENT**

ICT in Education is concerned with developing manpower and the process of creating a broad education technology ecosystem. This should not only satisfy the need for qualitative education but also for contributing significantly to national economic development.

Education is facing the challenge of severe shortage of ICT skills and personnel necessary for attaining an education that is universally accessible, empowering, inclusive and enriching. Other challenges include outdated curriculum, poor teaching and learning environment and inadequate funding.

7.1.1 **Policy Statement**

Government shall build and encourage the development, utilization and sustenance of the ICT manpower required to achieve an ICT-enhanced education.

7.1.2 **Strategies**

(i)   Restructure the environment for teaching and learning as well as education administration to be ICT-enhanced.

(ii)   Carry out and encourage the continuous and mandatory professional development of core ICT Teachers and Administrators.

(iii)   Ensure appropriate continuing ICT training including content development and delivery for all staff.

(iv)   Review the curricula periodically to reflect emerging good practices in line with national goals.

(v)   Promote ICT proficiency in mass and non-formal education with special focus on children, women and people with special needs.

(vi)   Develop and strengthen standards and guidelines for content and instructional materials in electronic media and the use of ICT tools in formal and non-formal Education.

(vii)   Strengthen and expand Open and Distance Learning as well as blended and e-learning.

(viii) Carry out needs assessment to identify skill gaps and encourage acquisition of appropriate ICT skills to mitigate the gaps.

(ix)   Encourage private sector participation in Education and Training in ICT.

(x)   Encourage ICT Education at all levels.

(xi)   Ensure periodic quality assurance in the development, utilization and sustenance of ICT in Education.

(xii)   Establish a reward system for teachers, administrators and institutions that utilize ICT to improve quality of teaching and learning.

(xiii) Review constantly the specializations in the field of Computer Science/IT to reflect global trends.

7.2 **INFRASTRUCTURE**

There is inadequate ICT infrastructure in the country in general and in the Education sector in particular. Therefore, the need to provide the infrastructure

required to support effective teaching, learning, administration and research is imperative.

7.2.1 **Policy Statement**

Government shall establish and sustain a common ICT infrastructure platform for education at all levels.

7.2.2 **Strategies**

(i) Ensure adequate supply of ICT systems for access to software applications, local and International contents and online learning resources at all educational institutions and establishment.

(ii) Ensure that all educational institutions and establishments are interconnected to create a common platform that will facilitate the sharing of resources and reduce duplication. The platform will provide a secure network for administrative purposes as well as access to the Internet for instructional and professional development.

(iii) Ensure that ICT systems for education administration are in place and all necessary common infrastructure for the storage and management of the ensuing data are provided in all educational institutions and establishments.

(iv) Promote and encourage the design, development, acquisition and hosting of indigenous content.

(v)   Facilitate data and content sharing among educational institutions and establishments.

(vi)   Ensure provision of cost effective and sustainable alternative power supply.

(vii)   Develop a mechanism for the disposal of unserviceable ICT equipment in educational institutions and establishments.

(viii)   Adopt strategies for technical support, maintenance for ICT in education and Business Continuity.

7.3   **RESEARCH AND DEVELOPMENT**

Research and Development (R&D) is pivotal to the attainment of ICT-enhanced education. However, adequate attention has not been paid to R&D in ICT generally and in ICT in education in particular. There is therefore a strong need for sustained investment and commitment to R&D in ICT.

7.3.1 **Policy Statement**

Government shall ensure and encourage Research and Development (R&D) in ICT generally and ICT in Education in particular.

7.3.2 **Strategies**

(i)   Provide legislation to ensure dedicated funding to support R&D.

(ii)   Increase fund allocation to R&D initiatives to improve new pedagogies, teaching and learning, administration techniques and tools amongst others.

(iii)   Provide and encourage opportunities for R&D initiatives that are result-oriented and geared towards meeting national needs.

(iv)   Encourage and motivate R&D personnel.

(v)   Support and encourage R&D in the adaptation and adoption of concepts, methodologies and innovations.

(vi)   Develop and promote R&D plan for ICT in Education.

(vii) Encourage the implementation of research findings in ICT in Education.

7.4   AWARENESS AND COMMUNICATION

It is important for government to engage in periodic public awareness campaign and sensitization for effective participation of stakeholders in the execution of ICT in education policies and strategies.

7.4.1 Policy Statement

Government shall engage in and encourage regular stakeholder consultations (including the Private sector), sensitization of the learning community, public awareness and inter-governmental relations to achieve a broad-based consensus on ICT in education.

7.4.2 Strategies

(i)   Ensure and promote periodic public awareness campaigns on ICT in education using appropriate media with due consideration for children.

(ii)   Ensure and promote periodic public awareness campaigns on ICT in education using appropriate media with due consideration for children, women and people with special needs.

(iii)   Establish national fora to generate and promote interest for ICT in the learning community.

(iv)   Sensitize the citizenry on their responsibilities to adhere to good ICT security practices.

(iv)   Sensitize the Private sector on the opportunities for investment and returns in ICT in Education

7.5   GOVERNANCE

Governance of ICT in Education requires the formulation of plans, adoption of efficient management framework, harmonization of institutional strategy and involvement of stakeholders for directing and controlling the use of ICT in the sector.

7.5.1 Policy Statement

Government shall provide appropriate legal, regulatory and security framework to ensure that ICT in education and the conduct of related activities are focused on achieving ICT-enhanced education.

7.5.2 Strategies

(i)   Review existing laws and enact new ones to strengthen governance of ICT in Education.

(ii)   Provide and continually review standards and guidelines for ICT in Education in line with national goals and global trends.

(iii) Review and implement ICT in Education policies in line with national goals and global trends.

(iv) Accredit and monitor ICT programmes and institutions.

(v) Develop strategies to deal with licensing, intellectual property rights, use of software, security and information dissemination issues associated with ICT in the Education System.

7.6 **FINANCING**

ICT in Education is capital intensive. Budgeting by Government should be improved upon and other relevant stakeholders should be encouraged to support the financing of ICT in education.

7.6.1 **Policy Statement**

Government shall adopt innovative and creative financing models for ICT in Education.

7.6.2 **Strategies**

(i) Allocate at least 5% of Education annual capital budget to ICT in Education.

(ii) Exploit existing funding channels/schemes such as TETFUND, UBEC, PTDF, USPF, NITDEF for ICT in Education.

(iii) Intensify the use of innovative and creative financing models such as Public Private Partnership (PPP).

(iv)   Harness partnerships with development partners for funding ICT in Education.

7.7   MONITORING AND EVALUATION

It is necessary that Monitoring & Evaluation (M&E) of programmes and projects of ICT in Education be carried out periodically to assess the impact and extent to which the objectives of the policy have been achieved. It is the process of determining the efficiency and the effectiveness of policy implementation effort as it relates to the key outcomes.

7.7.1 Policy Statement
Government shall use M&E as a veritable tool in ICT in Education for tracking policy implementation, efficient service delivery and compliance.

7.7.2 Strategies
(i)   Monitor and evaluate the implementation of the National Policy on ICT in Education.
(ii)   Carry out impact assessment of the National Policy on ICT in Education.

8.0   IMPLEMENTATION GUIDELINES

Government shall develop Implementation Guidelines for this policy using a multi-sectoral approach.