

Federal Ministry of Education

# National Digital Learning Policy

Enrich teaching and learning by leveraging digital technology to mitigate the impact of natural and man-made disruptions to learning systems and stimulating adoption of various innovative educational technology tools in the delivery and consumption of education services.

May 2023



# National Digital Learning Policy

*Inquisitiveness, Innovation, Inclusion*



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## 1. Foreword

As we stand on the precipice of a new era in education, driven by the transformative power of technology, it is with great anticipation and enthusiasm that I present the National Digital Learning Policy. This policy sets forth a strategic framework to harness the potential of digital learning and ensure its effective implementation across Nigeria's diverse educational landscape.

The advent of the Covid-19 pandemic has not only disrupted traditional modes of education but also highlighted the urgent need to accelerate our efforts in leveraging digital learning as an alternative means of delivering quality education. The Federal Ministry of Education (FME) recognizes the critical role of technology in mitigating the impact of the pandemic and ensuring continuity of education for both urban and marginalized populations.

In this rapidly evolving 21st-century learning landscape, characterized by changing pedagogical and technological approaches, it is the responsibility of policymakers, school administrators, and teachers to equip learners with the necessary skills for an ever-changing world. The National Digital Learning Policy is a comprehensive response to this demand, emphasizing the facilitation of learning in a technology-rich environment where learners and teachers can achieve powerful outcomes.

While several agencies, including those not under the supervision of the Federal Ministry of Education, have also embraced digital learning to varying degrees, the need for quality standards, infrastructure, and measurement of digital learning solutions has become apparent. As the mandated authority for national education policies and regulation of curricula, the FME must take the lead in formulating and updating policies and strategies concerning ICT in education.

Building upon existing policy and strategy documents such as the National IT Policy, National Information Technology Education Framework, National Policy on Education, ICT in Education Policy, the Ministerial Strategic Plan, and the Nigerian National Broadband Plan, the National Digital Learning Policy consolidates and aligns efforts to ensure a cohesive and sustainable approach.



The primary objectives of this policy revolve around four key areas. Firstly, it aims to bridge the digital divide and reach underserved communities, particularly in a country like Nigeria with the largest out-of-school population in the world. Secondly, it seeks to create an innovative digital learning ecosystem, fostering local skills development and sustainable systems deployment. Thirdly, it emphasizes the availability and production of quality digital content as a cornerstone of digital learning sustainability. Finally, the policy recognizes the pivotal role of teachers and aims to develop clear pathways for their capacity building.

The National Digital Learning Policy addresses a broad spectrum of stakeholders, including the Federal Ministry of Education and its associated agencies, state governments, schools and institutes, teachers, learners, parents, international development partners, NGOs, and the private sector. By fostering collaboration and coordination among these stakeholders, we can collectively realize the vision of a vibrant and inclusive digital learning ecosystem.

In conclusion, I extend my heartfelt appreciation to all participants, particularly the Permanent Secretary (FME), the Department of ICT which anchored the work, our international partners UNESCO and UNICEF, members of the National Digital Learning Policy Committee, who have dedicated their expertise, time, and energy to craft this policy. Together, let us embrace this new chapter in education, leveraging the power of technology to create a future where every learner in Nigeria has access to quality education, regardless of their background or geographic location.

**Mallam Adamu Adamu**  
**Honourable Minister of Education**  
**May 2023**



## 2. Preface

In an era defined by rapid technological advancements and unprecedented global challenges, education stands at the forefront of transformation. As we navigate through the complexities of an ever-changing world, the Federal Ministry of Education presents the National Digital Learning Policy (NDLP)—a visionary framework that seeks to revolutionize the way we deliver education in Nigeria.

The genesis of this policy can be traced back to the nation’s initial foray into e-learning or digital learning several years ago. However, the outbreak of the Covid-19 pandemic compelled us to reimagine our strategies and accelerate our efforts in embracing alternative means of imparting knowledge. This new normal highlighted the urgency to bridge the gaps in education, ensuring learning continuity for both urban and marginalized populations. The FME recognizes the profound impact that digital learning can have in this regard, propelling us towards a more inclusive and resilient education system.

Our collective commitment to shaping the future of education is underpinned by the understanding that 21st-century learning necessitates innovative pedagogical approaches and the integration of Information and Communication Technology (ICT). It is incumbent upon policy makers, school administrators, and teachers, to equip learners with the skills they need to thrive in an ever-evolving landscape. By embracing a technology-rich environment and leveraging its potential, we can unlock powerful learning outcomes that prepare our students for the demands of the digital age.

As we embarked on this transformative journey, we observed that various agencies—some of which operate independently of the FME have already embarked on their digital learning endeavours through infrastructure and access devices provisioning, yielding mixed results. This realization prompted us to reevaluate our strategies and ensure the establishment of robust standards for the quality of education delivery, requisite equipment, and measurement of digital learning solutions. Given the FME's mandate to provide national education policies and regulate curricula from basic to tertiary education, it becomes our imperative to formulate and update policies and strategies, particularly those pertaining to ICT in education.



The rapid advancement of technology, particularly in the realm of artificial intelligence (AI), has significantly influenced the landscape of digital learning. AI-powered tools and algorithms have the potential to transform education, offering personalized learning experiences, intelligent tutoring, and enhanced data analytics to inform instructional practices. Recognizing the immense opportunities and challenges that AI presents, the NDLP integrates considerations for AI adoption and implementation. By leveraging AI technologies responsibly and ethically, we aim to enhance the effectiveness, efficiency, and inclusivity of digital learning in Nigeria.

While the existing ICT in Education Policy (2019) outlines the challenges of effective implementation, it also underscores the need for detailed sub-policies to guide this implementation process. It is with this realization that the NDLP emerges as a response to the evolving educational landscape and an endeavour to address the gaps that have hindered the realization of our vision.

Drawing inspiration from various existing policy and strategy documents, such as the National IT Policy, National Information Technology Education Framework, National Policy on Education, ICT in Education Policy, the Ministerial Strategic Plan, and the Nigerian National Broadband Plan, our Digital Learning Policy amalgamates and aligns efforts to forge a cohesive and sustainable approach.

This policy outlines five major pillars that will shape the future of digital learning in Nigeria; policy direction and general guidelines, digital learning platforms development, local digital content provisioning, infrastructure and access devices and capacity building. By focusing on these key areas, we aim to lay the foundation for an education sector that is resilient, inclusive, and technologically empowered.

To achieve this vision, collaboration among stakeholders is vital. We recognize the invaluable contributions of the Universal Basic Education Commission, National Universities Commission, Nigerian Educational Research and Development Council, other federal agencies, state governments, schools, teachers, learners and parents, international development partners, non-governmental organizations, and private sector partners. It is





through collective efforts that we can create a vibrant and inclusive digital learning ecosystem that leaves no learner behind.

On behalf of the Federal Ministry of Education, I extend my deepest gratitude to all participants, especially the members of the National Digital Learning Policy Committee, who dedicated their expertise and passion to shape this transformative policy. Let us embrace this new chapter in education, where technology and innovation converge to empower every learner in Nigeria with quality education, regardless of their background or geographic location. By fostering collaboration and leveraging the potential of digital learning, we can build a brighter future for our nation, equipped with a knowledgeable and productive workforce prepared to meet the challenges and opportunities of the 21st century.

Andrew D. Adejo  
Permanent Secretary,  
Federal Ministry of Education



### 3. Acknowledgement



## 4. Acronyms & Definitions

### 4.1. Acronyms

### 4.2. Definitions



## 5. Introduction

### 5.1. Context

5.1.1. Before the onset of the COVID-19 pandemic, 48% of the world’s children – and 90% of children in low-income countries – were *learning poor*, unable to read and understand a simple text by age 10<sup>1</sup>. The global figure is expected to rise to 58% as a result of the pandemic<sup>2</sup>.

5.1.2. Inaction not only threatens efforts to achieve Sustainable Development Goal 4 – to ensure inclusive and equitable quality education – but is also contrary to the Convention on the Rights of the Child and General Comment No. 25 on children’s rights in the digital environment. Recognizing the importance of meaningful access to digital technologies, including in educational settings, it points out that “if digital inclusion is not achieved, existing inequalities are likely to increase, and new ones may arise.”

5.1.3. Major barriers to digital learning persist. During school closures, more than two-thirds of children globally were unable to access online learning<sup>3</sup>. Lack of electricity (particularly in Africa), connectivity, affordable data and devices are compounding factors that impede equitable access to digital learning. Parents’ lack of literacy and digital skills and reluctance to let children – girls in particular – access the internet are added obstacles. Children’s own lack of digital skills, even in wealthier countries, can also stand in the way. Children from the poorest families feel less confident in their capacity to cope with digital learning activities<sup>4</sup>.

5.1.4. Designing content for a specific context and learning goals are vital for effective learning platforms. Incentivized by the pandemic and school

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<sup>1</sup> World Bank, 2019.

<sup>2</sup> Azevedo, 2020.

<sup>3</sup> UNICEF and ITU, 2020.

<sup>4</sup> Vuorikari et al. 2020.



closures, the digitalization of education is leading to profound changes. Evidence increasingly shows that digital learning is more effective when embedded in a clear pedagogical framework supporting teachers<sup>5</sup>. It raises new challenges regarding the role and required skills needed for teachers to effectively deploy the technology.

5.1.5. Shifting to more digital learning can change children’s daily routines. Unless well-managed, this can challenge their well-being and development in the long run, especially among the most deprived. Children’s time on the internet also generates growing volumes of data which raises risks in relation to cybersecurity, safety, privacy, data ownership and data privacy.

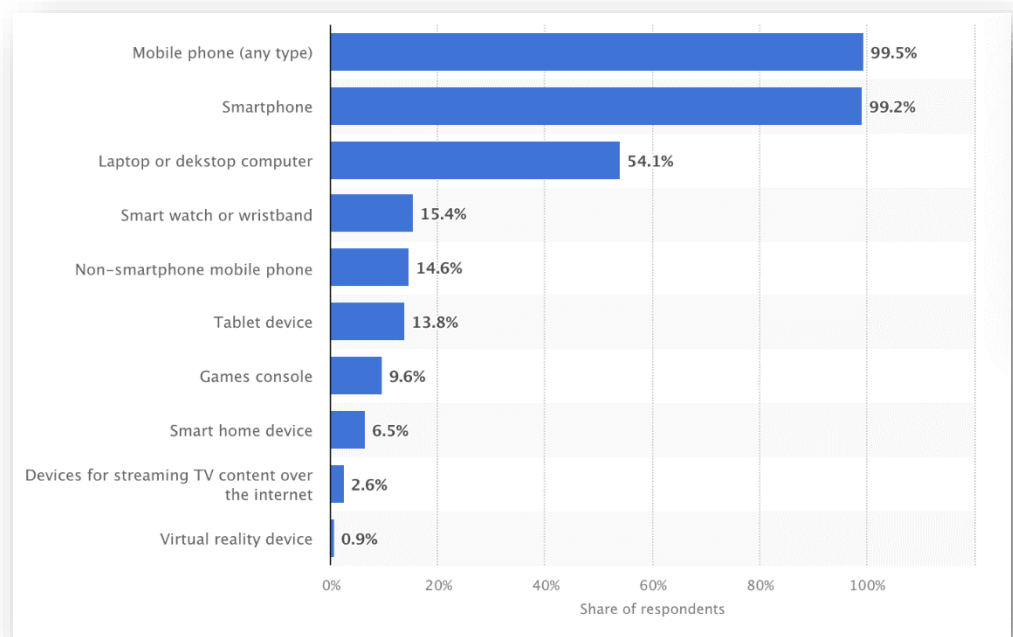
5.1.6. While evidence has shown some positive results for the use of technology-enabled adaptive learning, significant evidence gaps remain, especially in low-income settings. Specifically, evidence is still largely missing on (i) the most efficient models and implementation strategies to reduce the digital divide; (ii) the optimal conditions for the effectiveness of digital learning solutions within large-scale education systems – namely, to look beyond the technology itself to its integration within education professionals’ skills, practices and pedagogy; (iii) the impact of digital learning solutions (used either remotely or in the classroom) on learning outcomes in adverse settings, especially those areas with low or no connectivity and (iv) the impacts of the increased use of digital technology on children’s safety, well-being, security and privacy.

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<sup>5</sup> Tamim et al., 2011



5.1.7. Ownership rate of selected digital devices among internet users in Nigeria as of the 3rd quarter of 2020.



5.1.8. As of the third quarter of 2020, 99.5 percent of internet users aged 16 to 64 years in Nigeria owned a mobile phone of any type. According to the same survey, 99 percent had smartphones, while another 15 percent owned non-smartphone mobile phones.<sup>6</sup>

5.1.9. Access to the Internet and digital devices have been identified as critical factors to enhancing learning for today’s youth as they prepare for the future of work. This was discussed during the EdTech Summit edition of 2021 hosted by the Federal Ministry of Education with support from UNICEF. The platform facilitates critical conversations on the use of technology for teaching and learning by bringing together key stakeholders, including policymakers, edtech entrepreneurs, teachers, and parents.

<sup>6</sup> Source: statista.com



## 5.2. Digital Learning Definition

- 5.2.1. Digital learning is learning that is facilitated, enabled, or mediated by technology. It can involve different methods, such as online classes, social learning, virtual meetings, X reality aids, online exams, and blended learning. It can also give learners some control over time, place, path, and pace of their learning.
- 5.2.2. Digital learning can help users prepare for the workforce of the future, which will increasingly require digital skills.

## 5.3. Policy Approach

- 5.3.1. The aim of providing a National Digital Learning Policy to guide the Federal Ministry of Education and other stakeholders is informed by the critical role the organization plays in providing a knowledgeable and productive workforce for the country. In order to tackle the requirement for a measured paradigm shift from traditional methods to a technology-assisted pedagogy, a planned and cohesive approach is essential. It must take into account the complexities of Nigeria's diversity in communities, economic access and the gap in telecommunication infrastructure availability.
- 5.3.2. Secondly, to reach underserved communities as a major index in assessing developing nations such as Nigeria, which has the largest out of school population in the world. The approach is designed to underpin the effort of the government to create an innovative ICT ecosystem, both in the general drive for local skills development and sustainable systems deployment.
- 5.3.3. Although the Federal Ministry of Education (FME) started its drive towards e-learning several years ago, the advent of Covid-19 has heralded a new



normal - compelling a rethink and acceleration of strategies in alternative means of delivering learning. It is against this background that the FME wishes to articulate a Digital Learning Policy.

- 5.3.4. E-learning will assist the overall effort of the Federal Government to accelerate prevention and mitigation of the impact of the COVID 19 pandemic on the education sector, ensuring continuation of learning especially for both urban and marginalized populations.
- 5.3.5. 21st century learning demands new pedagogical and technological approaches to using ICT for learning. It is the responsibility of policy makers, school administrators and teachers to prepare learners for the demands of an ever-changing world, through facilitating learning in a technology-rich environment, where learners and teachers use it to achieve powerful learning outcomes.
- 5.3.6. Several agencies - including some that are not under the supervision of the FME - have embraced the e-learning concept and dived headlong into the endeavour with mixed results. This has necessitated a refocus on strategies to ensure baselines for quality of education delivery, equipment and measurement of e-learning solutions.
- 5.3.7. The Federal Ministry of Education is mandated to provide national education policies and regulate all education curricula from basic to tertiary education, in consultation with the states. Therefore, it behoves the FME to ensure new policies and strategies are formulated and updated, especially concerning ICT in education.
- 5.3.8. The current ICT in Education Policy (2019) outlines that a major challenge is effective implementation. Equally, gaps include the lack of refining the policy by providing detailed sub-policies to guide this implementation. It is therefore essential for the FME to formulate a National Digital Learning Policy to address this.





5.3.9. The Digital Learning Policy will be given life from several existing policy and strategy documents that are not limited to the underlisted:

- National IT Policy (NITDA, 2012)
- National Information Technology Education Framework (2010)
- National Policy on Education (2013)
- ICT in education Policy (2019)
- Education for Change: A Ministerial Strategic Plan 2018-2022 (FME, 2019)
- The Nigerian National Broadband Plan (2020)
- The National Cybersecurity Policy & Strategy (2021)
- The Nigeria Cloud Policy (2019)

5.3.10. In order to achieve the objectives of the Digital Learning Policy the ease of assimilating the policies, guidelines and strategies must remain simple even though an aim to approach the objectives comprehensively is also essential. Care was taken not to weigh the implementation strategy with segments covered in other national policies that may simply be referred to. Digital Learning depends on several key factors:

- Infrastructure
- Platforms
- Devices
- Content
- Capacity Building & Advocacy

5.3.11. The Nigeria National Broadband Plan (NNBP, 2020-2025) is designed to deliver data download speeds across Nigeria of a minimum 25Mbps in urban areas, and 10Mbps in rural areas, with effective coverage available



to at least 90% of the population by 2025 at a price not more than N390 per 1GB of data (i.e. 2% of median income or 1% of minimum wage).<sup>7</sup>

5.3.12. Infrastructure and access devices are critical components of the Digital Learning Policy. The infrastructure comprises the core facilities that form the foundational layer on which digital learning in the country will be built. These include facilities such as data centres (which provide housing for servers, racks, storage and other computational and storage equipment), network exchange points (where different telecommunication services providers interconnect), and other physical, middleware and software infrastructure.

5.3.13. A major challenge for the nation concerning digital learning is a comprehensive access devices policy. The National Digital Learning Policy will brush on specifics of the overall access devices requirement.

## 5.4. Stakeholders

5.4.1. The National Digital Policy addresses all Nigerians with specific emphasis on the following stakeholders:

- i. Federal Ministry of Education (FME) - as the supervising ministry of 23 education sector agencies and driver of the strategic implementation of any project(s) emanating from the policy.
- ii. Universal Basic Education Commission (UBEC).
- iii. National Universities Commission (NUC).
- iv. Nigerian Educational Research and Development Council (NERDC).
- v. National Secondary School Education Commission (NSSEC).
- vi. The Federal Ministry of Communications and Digital Economy (FMoCDE).

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<sup>7</sup> Nigerian National Broadband Plan 2020-2025



- vii. Other Federal Agencies - that play roles in the regulation, supervision and funding that are pertinent to the NNDLP. Examples include NTI, TRCN, NBTE, CPN and NITDA, Nigeria Communications Commission (NCC) and TETFund.
- viii. State Governments - represented by SUBEBs as beneficiaries and partners in the national basic education sub-sector.
- ix. Schools and institutes from basic to tertiary level.
- x. Teachers - as one of two focal points of the proposed policy - the other being learners.
- xi. Learners & Parents - firstly learners; as the second focal point of the proposed policy. Secondly parents; as beneficiaries and feedback targets.
- xii. International development partners as providers of funding and a variety of expertise; other non-governmental organizations (NGOS).
- xiii. Vendors - as service providers, consultants and contractors to the Nigerian digital learning ecosystem.

## 5.5. Vision

Inclusive and ubiquitous digital learning for all Nigerians.

## 5.6. Mission

To leverage basic and applied research in digital pedagogy to enhance digital learning ecosystems that facilitate equitable access to quality education for learners, promoting global competitiveness, nurturing a culture of continuous learning and innovation.

## 5.7. Values

Our values are guided by the Three 'i's:

**Inquisitiveness** - We challenge every status quo to advance **digital pedagogy**

**Innovation** - We are driven by innovation to establish ubiquitous **digital learning**

**Inclusion** - We leave no learner behind so that they can **always** learn at **anytime, anywhere and on any device**



## 5.8. Objectives

The objectives of the Digital Learning Policy are to:

- 5.8.1. Improve access to digital learning for all learners regardless of location and socioeconomic status by bridging the digital divide.
- 5.8.2. Improve the quality and relevance of digital learning by ensuring the provision of quality content while supporting educators to integrate technology into teaching and learning process.
- 5.8.3. Mitigate the impact of natural and man-made disruptions to learning systems through effective use of digital learning and technology.
- 5.8.4. Enhance the global competitiveness of the graduates of our educational systems by expanding use of quality digital learning.
- 5.8.5. Leverage digital learning and technological innovations to facilitate data-driven, evidence-based education management, research and development across all levels.

## 5.9. Policy Thrust

The government will undertake the following policy thrusts:

- 5.9.1. Promote research & development into digital pedagogy at all levels of education by establishing specific administrative structure that will collaborate with existing content regulation entities to standardize digital learning curricula.
- 5.9.2. Incentivize the development of rich and interactive content for a ubiquitous digital learning experience.
- 5.9.3. Provide necessary infrastructure required for the smooth running of digital learning across the nation.
- 5.9.4. Institutionalize a funding mechanism for the implementation of this policy.



5.9.5. Provide the legal, regulatory, operational and M&E frameworks for the successful implementation of the policy.

5.9.6. Collaborate with agencies responsible for power generation, regulation and research to ensure that consideration is given to making sustainable renewable energy available in educational institutions.

5.9.7. build symbiotic relationships with relevant multilateral, donor agencies and private sector organizations for the successful implementation of this policy.

#### 5.10. Focus Areas

The Digital Learning Policy is resolved into the following focus areas:

- Capacity Building and Advocacy
- Infrastructure and Access Devices
- Content and Platforms

#### 5.11. Implementation

The implementation strategies for the focus areas are treated in **(11) Implementation Strategies and Guidelines** section.



## 6. Capacity Building and Advocacy

It is essential that requisite capacities for a sustainable digital learning are built in both education and business sectors. Various approaches, such as train-the-trainer, mentorship, instructor-led learning, self-paced online learning, school-based learning amongst others will be adopted to ensure that the right groups of resources are adequately prepared through advocacy.

### 6.1. Policy Statement

The Federal, states and local governments will put in place a robust, but continuously, systemic and mandatory, sustainable capacity building and advocacy framework for digital learning in the education and business sectors to ensure the policies of the Digital Economy Policy and Strategy<sup>8</sup> are achieved.

### 6.2. Strategies

- 6.2.1. Define and identify a stakeholder base for the implementation of the Digital Learning Policy.
- 6.2.2. Conduct a baseline needs assessment for all educators in the education and business sectors.
- 6.2.3. Develop a remediation plan for all identified gaps in the skill sets of formal, informal sectors and inclusive education among the educators.
- 6.2.4. Develop a self-paced, online learning curriculum for digital learning, ensuring the inclusion of indigenous languages material.
- 6.2.5. Develop home-grown or leverage a sustainable international certification framework that will be used to certify the various skills levels of all educators in the national digital learning space.

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<sup>8</sup> <https://www.ncc.gov.ng/docman-main/industry-statistics/policies-reports/883-national-digital-economy-policy-and-strategy/file>



- 6.2.6. Engage agencies mandated with regulation, registration and development of the IT sector and IT companies to produce curricula tailored to identified areas and levels of both education and business sectors.
- 6.2.7. Collaborate with state governments on each of the strategies to ensure reach, accessibility and localization.
- 6.2.8. Provide training and guidelines for online safety for users across all levels and cadres of the NDLP.
- 6.2.9. Encourage the funding participation of non-governmental organizations and the private sector in complementing government efforts in capacity building and advocacy.
- 6.2.10. Provide a framework on advocacy inclusiveness for all traditional institutions and other platforms.
- 6.2.11. Provide an impact assessment framework for all capacity building and advocacy.



## 7. Infrastructure and Access Devices

The success or failure of a digital learning plan is strongly attached to the availability or otherwise of the requisite infrastructure and devices for accessing content. The National Broadband Plan 2020-2025 has projected that, by 2025, optic fibre Cable will be within 5 kilometers reach of all tertiary institutions, 50% of all secondary schools, and 25% of all primary schools are projected to be within this range.

### 7.1. Policy Statement

Government shall incentivize deployment of the requisite ICT infrastructure and access devices for digital learning to all levels of education.

### 7.2. Strategies

- 7.2.1. Ensure the targets set for the optical fibre reach to educational institutions are met with the support of relevant stakeholders.
- 7.2.2. Ensure that all educational institutions are geo-located and digitally mapped to identify them and to enable add-on services for both M & E, infrastructure, access and planning purposes. This is also in line with the requirements of the Nigeria National Broadband Policy on fibre point-of-presence connectivity to institutions.
- 7.2.3. Promote the adoption of the Cloud First strategy in education institutions and local traffic is kept local.
- 7.2.4. Encourage shared services model among educational institutions by strengthening existing infrastructure such as the Nigeria Research and Educational Network (NGREN).
- 7.2.5. Collaborate with the Federal Ministry of Communications & Digital Economy and the Nigerian Communications Commission to create data concessional plans for the education sector with quality assurance guarantees specified.





- 7.2.6. Implement the Access Devices Policy detailing incentivized guidelines for in-country manufacturing/assembling of rugged, type-approved but affordable access devices for students across all levels of education using various financial and offtake policies.
- 7.2.7. Enforce Mandatory Use of NIN (National Identity Number) in education as stipulated by the relevant sections of the National Identity Management Commission (NIMC) Act 2007 as well as other regulations issued by NIMC.
- 7.2.8. Provide guidelines for infrastructure security, using existing national security policies and guidelines.
- 7.2.9. Ensure institutionalization of sustainable technical support for the various components of the deployed infrastructure and access devices for the NDLP.
- 7.2.10. Ensure that all critical components of infrastructure are properly insured.
- 7.2.11. The Nigeria National Broadband Policy recognizes that the availability of reliable and affordable power supply is crucial to the successful deployment and sustainability of broadband infrastructure. The policy document highlights that the high cost of power supply and the unreliable nature of electricity in Nigeria have been significant barriers to the development of the telecommunications sector.

### 7.3. Access Devices

- 7.3.1. The aim of providing an access device policy is informed by the need to tackle the requirement for measured paradigm shift from traditional methods to a technology-assisted teaching and learning. A planned and cohesive approach is essential. The policy will take into account the complexities of Nigeria's diversity in communities, economic access and the gap in telecommunication infrastructure availability.



7.3.2. The lack of access devices - mobile devices, PCs, projectors, etc - used in providing access to digital content, is a major gap in the effort by all education stakeholders to embrace digital learning.

## 7.4. Challenges to Access Device Programmes

7.4.1. Over the past 3 decades, government has proffered varying solutions at different levels to computing equipment acquisition and provision across all the three tiers. Challenges identified generally include but are not limited to:

7.4.2. Lack of needs assessment leading to:

- i. Mis-specification
- ii. acquisition and distribution mis-alignment
- iii. Mis-alignment with existing infrastructure
- iv. Over-invoicing
- v. Misappropriation
- vi. Lack of stakeholder engagement and ownership
- vii. Lack of a maintenance or sustainability plan

7.4.3. The Federal Ministry of Education and its agencies like UBEC and TETFund have expended - and continue to expend considerable resources towards the provisioning of access devices. End results obtained from beneficiary state governments, schools and tertiary institutions have not been to the satisfaction of these organizations or beneficiaries.

7.4.4. Advances in technology has enabled better monitoring and evaluation methods to mitigate these challenges. This policy will propose strategies that take full advantage of these advances.

## 7.5. Access Devices in Education (ADE) Framework

7.5.1. The Federal Government will encourage states, international development partners and private sector partners to create a common platform for communication and cooperation on access device strategies.



- 7.5.2. The FME will work - in line with existing harmonization efforts – towards collaboration between ICT regulatory agencies e.g., CPN, NCC, NITDA and Standards Organization of Nigeria (SON) to determine device standards for the education and skilling sector.
- 7.5.3. The Federal Ministry of Education will collaborate with the Federal Ministry of Communications and Digital Economy to come up with a framework that specifies minimum requirements for Access Devices in Education (ADE).
- 7.5.4. The ADE Framework will also provide guidelines for:
- i. Access devices sustainability plan for schools and institutions.
  - ii. Device security plan
  - iii. User regulations
  - iv. Device repair strategies
  - v. Monitoring & Evaluation plans
  - vi. Financing plans
- 7.5.5. The Federal Government will work in collaboration with state governments, international development partners, NGOs and the private sector to implement the ADE Framework.
- 7.5.6. The FME and state ministries of education will collaborate with CPN and NITDA and NCC provide device specifications and guidelines as part of regular updates to the ADE Framework.

## 7.6. Broadband Connectivity to Schools and Institutions

- 7.6.1. The Nigeria National Broadband Policy recognizes that providing high-speed broadband connectivity to schools is essential for enhancing the quality of education and improving digital literacy in the country. The policy document sets out several objectives aimed at delivering fiber connectivity to schools, including:



- 7.6.2. Encouraging the private sector to invest in the deployment of fiber connectivity to schools across the country.
- 7.6.3. Partnering with relevant government agencies, such as the Universal Basic Education Commission (UBEC), to prioritize the deployment of fiber connectivity to schools.
- 7.6.4. Working with state governments to develop policies and programs that promote the deployment of fiber connectivity to schools, particularly in underserved areas.
- 7.6.5. Promoting the use of public-private partnerships to finance the deployment of fiber connectivity to schools.
- 7.6.6. Providing incentives for telecoms companies to prioritize the deployment of fiber connectivity to schools, particularly in rural areas.

## 7.7. Power Supply

- 7.7.1. The Nigeria National Broadband Policy sets out a number of objectives aimed at improving power supply for the telecommunications sector which includes infrastructure for schools and institutions. These include:
  - 7.7.2. Encouraging the use of renewable energy sources such as solar and wind power to power telecommunications infrastructure, particularly in rural areas.
  - 7.7.3. Working with relevant agencies to provide incentives for the deployment of alternative power solutions in the telecommunications sector, such as tax breaks and import duty waivers for renewable energy equipment.
  - 7.7.4. Encouraging the development of public-private partnerships to finance the deployment of alternative power solutions for the telecommunications sector.



## 8. Content And Platforms

### 8.1. Policy Statement

Leveraging research into all aspects of Digital Pedagogy, the government shall ensure qualitative, interactive, feature-rich, multimedia educational content is made available on various secure platforms, accessible to all registered students across our educational institutions from basic through tertiary.

The Federal Government is promoting Open Data Initiative aimed at ensuring substantial amount of public data is released for transparency purpose and creation of innovative digital services that will add value to the country socio-economic development. The best and fundamental technology to promoting Open Data is Cloud adoption<sup>9</sup>.

### 8.2. Strategies

#### 8.2.1. Content Provisioning

Content is the most important component in any digital learning endeavour. A varied array and combination of technology platforms, infrastructure and implementation frameworks can be proposed but the outcomes will solidly be based on access to quality electronic content or eContent.

- i. Four assets constitute eContent; text, pictures/video/animation/simulations, web links and self-assessment.
- ii. The NDLP will encourage the creation of a digital content ecosystem by producing guidelines for digital content providers that include publishers, ICT companies, NGOs and government agencies.
- iii. Create a formal validation and certification process for econtent.

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<sup>9</sup> Nigeria Cloud Policy, NITDA (2019).



- iv. The policy will incentivize the production of econtent for the Federal Government and sub-national entities (state ministries of education, SUBEBs and LGEAs) through the eContent Partner Programme (EPP).
- v. The eContent Partner Programme (EPP) will be domiciled with the Federal Ministry of Education.

### **8.2.2. eContent Partner Programme (EPP)**

- i. The eContent Partner Programme is designed to incentivize the production of quality electronic content for the digital learning ecosystem by traditional publishers, teachers, ICT companies in content production-related fields, media production companies and individuals passionate about education content.
- ii. ePublishers will provide eContent available in formats in line with the requirements of the ICT in Education Policy (2019) of encouraging open source technology. This does not imply that such content may not be protected by copyright. The policy aims to encourage the use of open source technologies to produce and provide access to content while maintaining all digital rights management (DRM) concerns.
- iii. The EPP will define minimum entry levels for content producers or ePublishers.
- iv. EPP Desks should be established in SMOEs, SUBEBs and LGEAs.

### **8.2.3. Partner Recognition and Acknowledgement**

- i. The eContent Partnership Programme will incentivize participation of publishers, IT companies and NGOs through official recognition and acknowledgement as central to the scheme. Recognition and acknowledgement may take - but is not limited to - the following levels:

#### *01. eContent Publishing Partner*



A publishing company that contributes eContent to the Federal Ministry of Education's eCloud Project.

*02. eContent Technology Partner*

An IT company that contributes technology/econtent/consulting to the eCloud Project.

*03. eContent Sponsor*

Corporate sponsor that contributes to provisioning of eContent to the eCloud Project.

- ii. The EPP will take into account eContent Partners primarily based on the nature of agreement with the provider. The type of content, licensing and cost will determine an eContent Partner's level in the eContent Partner Programme.

**8.2.4. eContent Quality Assurance**

- i. Ensuring the emergence of structures to govern quality assurance in econtent for education and skilling is important.
- ii. The Federal Ministry of Education, the NERDC, TRCN, NUC, NBTE, NCCE, NITDA and other agencies tasked with components of econtent production and regulation in any way must put in place specific governing structures for econtent quality assurance.
- iii. Instruments - guidelines and regulations - must be developed to specify minimum standards for the various types of econtent.

**8.2.5. Licensing**

- i. Government at all levels, is a consumer of services and procurement. With regards to eContent, perpetual license models for econtent is the preferred license model for the NNDLP.
- ii. The EPP will also encourage free eContent provisioning by partners through sponsorship and incentive programmes.



- iii. This policy will encourage an update policy for acquired econtent to be included with licensing agreements. eContent providers will mention for how long they will provide updates to their econtent.

#### 8.2.6. eContent Design Standards

- i. eContent design standards include instructional design, visual design, media, writing and assessment standards. These standards will assist in implementing objectives, strategies, selecting content, interactivities, assessments, and feedback methods.
- ii. The design standards will apply to both general econtent such as ebooks and to courseware that combine all the elements outlined in (i) above. Courseware can include:
  - Material for instructor-led classes
  - Material for self-directed computer-based training (CBT)
  - Websites that offer interactive tutorials
  - Material that is coordinated with distance learning, such as live classes conducted over the Internet
  - Videos for use individually or as part of classes
  - Open Education Resources (OERs)
- iii. Agencies involved in the regulation and capacity building for teachers like NTI, TRCN, NUC, UBEC and others will collaborate to develop guides for a logical framework for training content and ensuring congruence among the instructional objectives, activities and assessments.
- iv. In line with local content policy, the NNDLP emphasizes the promotion and production of local econtent.
- v. e-Learning platforms should employ global standards for courseware development that provide interoperability and portability in the use of econtent.





- Interoperability means a course will be able to communicate with any other related course or learning management system.
- Portability is the other side of interoperability, in that it can be ported to other learning management systems.

### 8.3. Digital Learning Platform Development

Ensuring the emergence of robust e-learning platforms by leveraging open-source technology as much as possible and by chaperoning the creation of an eContent ecosystem will assure the sustainability of the NDLP and drive innovation.

8.3.1. In line with the Federal Ministry of Education ICT in Education Policy, the Digital Learning Policy will encourage the employment of open-source software in the implementation of the following components of e-learning platforms:

- Databases
- Application programming interfaces (APIs)
- File exchange protocols
- Networking protocols

#### 8.3.2. e-Learning Models

For schools, community centres and institutions, the preferred e-learning model adopted by this policy is the *Blended e-Learning Model*. One of the clear benefits of blended learning is that it supports different learning styles better and will help keep the overall cost of the implementations down. This also takes into consideration technologically under-served and disadvantaged schools, communities and institutions.

8.3.3. In the event of vacation periods or school closures for any reason, no preference is imposed. This will enable an informed choice of a model based on current situational requirements.

#### 8.3.4. Solution Providers



- i. This section is relevant to e-learning platforms, network infrastructure, cyber-security, access devices and other technology related to digital learning solutions. Solution providers (vendors) must provide clear plans that enable the focus of this policy to avoid vendor lock-in and dependency. Measures towards achieving this will include and are not limited to the following:
- ii. The employment of service-level agreements (SLAs) in implementing digital learning projects. A service-level agreement defines the level of service expected from a vendor, laying out the metrics by which the service offered is measured, as well as remedies or penalties to be imposed when agreed-upon service levels are not achieved.

#### **8.3.5. Service Level Agreements (SLAs)**

- i. This section is relevant to e-learning platforms, network infrastructure, cyber-security, access devices and other technology related to digital learning solutions. Solution providers (vendors) must provide clear plans that enable the focus of this policy to avoid vendor lock-in and dependency. Measures towards achieving this will include and are not limited to the following:
- ii. The employment of service-level agreements (SLAs) in implementing digital learning projects. A service-level agreement defines the level of service expected from a vendor, laying out the metrics by which the service offered is measured, as well as remedies or penalties to be imposed when agreed-upon service levels are not achieved.



- iii. Vendors will provide administrative training to designated systems administrators and users on the overall management of solutions they are providing. This may not include training on proprietary or overly complex sections of solutions that may be covered in an SLA separately.
- iv. Vendors will be encouraged to share results of all testing metrics and analyses conducted during the initialization, installation and final implementation of any digital learning project with a client.
- v. The following are the minimum requirements of any SLA signed between a client and a vendor.
  - Statement of objectives
  - Scope of services to be covered
  - Service provider (vendor) responsibilities
  - Beneficiary (UBEC, institute, state) responsibility
  - Performance metrics (response time, resolution time, etc.)
  - Penalties for contract breach/exclusions
  - Vendor signatories to SLAs must be signed by a manager or executive of the organization.



## 9. e-Safety

- 9.1. Internet safety or online safety or cyber safety and E-Safety is trying to be safe on the internet and is the act of maximizing a user's awareness of personal safety and security risks to private information and property associated with using the internet, and the self-protection from computer crime.<sup>10</sup>
- 9.2. Incidences of cyberbullying and other crimes committed against vulnerable groups is on the increase. As learning and business transactions moved online - further accelerated by the COVID-19 Pandemic cybercrime increased accordingly. The NDLP provides guidelines for the use of devices, infrastructure, content and software platforms in line with the National Cybersecurity Policy & Strategy (2021).
- 9.3. e-Safety concerns may be broken into two distinct categories:

### 9.3.1. Information Security

Sensitive information such as personal information and identity, passwords are often associated with personal property and privacy and may present security concerns if leaked. Unauthorized access and usage of private information may result in consequence such as identity theft, as well as theft of property. Common causes of information security breaches include malware and phishing attacks.<sup>11</sup>

### 9.3.2. Personal Safety

The growth of the internet gave rise to many important services accessible to anyone with a connection. One of these important services is digital communication. While this service allowed communication with others through the internet, this also allowed the communication with malicious users. While malicious users often use the internet for personal gain, this may not be limited to financial/material gain. This is especially a concern to

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<sup>10</sup> [https://en.wikipedia.org/wiki/Internet\\_safety](https://en.wikipedia.org/wiki/Internet_safety)

<sup>11</sup> [https://en.wikipedia.org/wiki/Internet\\_safety](https://en.wikipedia.org/wiki/Internet_safety)



parents and children, as children are often targets of these malicious users. Common threats to personal safety include: phishing, internet scams, malware, cyberstalking, cyberbullying, online predators and sextortion.<sup>12</sup>

- 9.4. The National Cybersecurity Policy and Strategy set clear directions for coordination of Nigeria's cybersecurity engagements in recognition of cyberspace as the fifth domain, and as part of efforts to protect national interests and sovereignty of the country.<sup>13</sup> Nigeria is ranked 57<sup>th</sup> on the Global Cybersecurity Index<sup>14</sup>.
- 9.5. The focus area that would be most active on e-Safety is Capacity Building & Advocacy. The need to raise awareness and provide training is the first line of defence from cybercrime.

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<sup>12</sup> [https://en.wikipedia.org/wiki/Internet\\_safety](https://en.wikipedia.org/wiki/Internet_safety)

<sup>13</sup> The National Cybersecurity Policy and Strategy (2021).

<sup>14</sup> The National Cybersecurity Policy and Strategy (2021).



## 10. Artificial Intelligence and Digital Learning

### 10.1. Introduction

While AI has the potential to revolutionize digital learning, it is essential to address concerns related to content creation, learning outcomes, and e-Safety. Additionally, the National Digital Learning Policy must consider the implications of AI to ensure that it is used safely, ethically and effectively.

Considering that large language models (LLMs) have recently become viable and available in the public domain; these concerns are critical. Unfortunately, due to the upheaval caused by these LLMs as an example of AI impact, the effect is contemporaneous with artificial intelligence research today, and as such no conclusions may be drawn by this policy.

Therefore, it is only possible and meaningful to discuss and outline the concerns as guides to the issue using current information.

### 10.2. Learning Outcomes

There are concerns about the impact of AI on learning outcomes. While AI can provide personalized learning experiences that cater to individual learning styles and needs, there is a risk that students will become too reliant on AI and lose their critical thinking and problem-solving skills. Therefore, it is important to balance the use of AI with traditional teaching methods to ensure that students are developing a range of skills.

### 10.3. Content Creation

One concern about AI in digital learning is the potential for biased or incomplete content. AI algorithms may inadvertently perpetuate stereotypes or exclude important information. Therefore, it is essential to ensure that the AI algorithms used for content creation are transparent, fair and inclusive.

### 10.4. eSafety and AI

The use of AI in digital learning also raises concerns about eSafety, such as data privacy and cybersecurity. It is essential to ensure that the systems used for digital learning are secure and that students', teachers' and administrators' data are protected.



## 10.5. Implications for Nigeria

Nigeria's digital learning policy should consider the following implications of AI:

- 10.5.1. AI can help bridge the digital divide by providing access to education for students in remote or underserved areas.
- 10.5.2. Nigeria needs to invest in training teachers and administrators to use AI effectively in digital learning environments.
- 10.5.3. Nigeria needs to ensure that the AI algorithms used in digital learning are culturally appropriate and inclusive.
- 10.5.4. There is a need for regulatory frameworks to ensure that AI is used ethically and responsibly in digital learning.
- 10.5.5. Nigeria needs to address the issue of e-Safety in digital learning by implementing strong data privacy and cybersecurity measures.
- 10.5.6. AI can provide opportunities for innovation and research in digital learning in Nigeria.



## 11. Implementation Strategies and Guidelines

### 11.1. Implementation Strategy Overview

11.1.1. The implementation of the Digital Learning Policy requires the linking together of key elements from the various sections of the policy into a cohesive and measurable action plan. In order to achieve the objectives of the NDLP, care must be taken not to weigh the implementation strategy with segments covered in other national policies that may simply be referred to.

11.1.2. This section will describe ICT infrastructure and access devices that are required, without constricting flexibility for innovation in form or function, towards efficient consumption of digital learning.

### 11.2. Implementation: Infrastructure and Access Devices

11.2.1. The policy will leverage the Nigeria Cloud Policy (2019) to address the following challenges in the digital learning infrastructure space:

- i. High cost of IT investments and poor sustainability of IT projects.
- ii. shadow IT environment that is tough to manage, difficult to operate and nearly impossible to secure;
- iii. Inefficient and unscalable IT environment;
- iv. Poor interoperability of IT systems and inability to effectively share information and IT resources;
- v. Highly competitive environment and lack of enabling business environment for local cloud service providers<sup>15</sup>.

#### 11.2.2. Scope & Expected Outcomes

a) *Hosted environment, hardware & connectivity*

This will include:

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<sup>15</sup> Nigeria Cloud Policy, NITDA (2019).





- Cloud & hosting infrastructure.

This should meet the minimum specifications issued by the Government regulator and operator for ICT services in terms of configuration, durability, scalability, reliability and security along with service performance guarantees.

- Hardware

Hardware inclusive of servers, racks, storage and other physical infrastructure which will handle compute and storage should be robust and resilient.

- Software, database and applications

In line with local content policy provisions, the NDLP will encourage local software acquisition and use, while also promoting the use of open-source technology in line with the ICT in Education Policy<sup>16</sup>.

- Connectivity

Connectivity infrastructure for digital learning comprising optic fibre cables, high-speed microwave radio, very small aperture terminal (VSAT) equipment, local area networks (LAN), wireless LANs (WLANs) and other media used for connectivity should be active, serviceable and functional.

*b) Support*

Availability of support for the installed infrastructure across multiple channels within agreeable and reasonable timelines, including:

- Phone and email support
- Online and social media
- In-person

*c) Access devices*

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<sup>16</sup> Federal Ministry of Education, ICT in Education Policy (2019).



The following types of access devices will be used for NDLP. Specifications of each of these device types should enable the minimum level of digital learning, which is text-based.

- Projectors
- Desktop computers
- Laptops
- Tablets
- Smartphones
- X-reality devices<sup>17</sup>

### 11.3. Connectivity, Computing and Storage

This objective is expected to detail the minimum network connectivity, compute and storage requirements across the three levels of learning and the skill sector in the country.

#### 11.3.1. Scope & expected outcomes

The minimum requirements for data services will follow those stipulated in the Nigerian National Broadband Plan (NNBP) 2020. This will cover:

- Minimum Download speeds for urban and rural areas respectively
- Provision for offline access to Digital Content through local servers that do not require internet connectivity.

#### 11.3.2. Access Device Specifications

- 11.3.2.1. Institutions or business organizations will be encouraged to provide guidelines detailing access device specifications for use in their respective environments.

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<sup>17</sup> The “X” in X-Reality stands for the four technologies; Augmented, Mixed, Assisted and Virtual Reality.



- 11.3.2.2. The minimum requirements will be defined for the following categories of devices: teaching, learning and special needs access devices.
- 11.3.2.3. Detailed specifications shall include memory, storage, display, processor, connectivity, camera, sound, battery, power, keyboard, etc.
- 11.3.2.4. Software specification will include operating systems (Oss), OEM software, software license status, anti-virus software, etc.

## 11.4. Infrastructure Security

This objective describes the minimum level of security to be provided for infrastructure across the different levels of digital learning. The policy also provides a guideline for categorized use cases.

- a. Formal Education i.e., basic, secondary and tertiary education.
- b. Training centres, MDA facilities, businesses and community centres, etc.
- c. Special needs, marginalized populations e.g., internally displaced persons (IDPs).

### 11.4.1. Scope for Formal Education Sector

- i. Ensure only authorized and authenticated users are allowed to access the platform through login details at all levels.
- ii. Ensure Privileged Access Management on the Digital Learning Platform
- iii. Ensure multiple levels of security installation
- iv. Promote and encourage regular security update
- v. Facilitate data protection from intentional or accidental unauthorized changes using authentication and encryption model
- vi. Develop mechanisms for confidentiality, integrity, accountability and availability of the platform.



- vii. Design and develop unified backup and redundancy mechanisms at all levels for safe keeping of all resources.
- viii. Adopt strategies for technical support, maintenance for ICT in education and business continuity.
- ix. Develop a mechanism for the disposal of unserviceable ICT equipment in educational institutions and establishments.

## 11.5. Funding Mechanism

### 11.5.1. Direct Funding

- i. Funding from the Ministry of Education and agencies of the Ministry of Education such as TETFUND, UBEC, NSSEC.
- ii. Harmonize funding from all other MDAs that provide intervention to the education sector, especially in the ICT field.

### 11.5.2. Other Considerations

- iii. Set up monitoring of Corporate Social Responsibility (CSR) initiatives and harmonize projects in the education sector.
- iv. Encourage scholarship offers for digital learning research from the Federal Scholarship Board, TETFund and other MDAs that offer scholarships as part of their mandate.

## 11.6. Identity and Access Management: The eNIN Strategy

- 11.6.1. There should be a National Identity and Access Management framework for access to digital learning platforms in Nigeria. The framework will contain a system that houses “domains of trust” with key credentials of users (students, teachers and other learners) from all institutions and acts as a system to validate the identity and authenticate and authorise user access to digital learning platforms. This objective will provide a digital identity system covering the learning ecosystem in Nigeria. It will cover teachers, learners, administrators and other critical stakeholders.



- 11.6.2. The eNIN Strategy will provide a framework to apply the National Identity Number (NIN) to integrated databases coming from the education sector.
- 11.6.3. The Committee on Citizen Data Management and Harmonization was constituted by Mr President following the US visa ban on Nigeria during the Trump administration, to address the security concerns raised by the ban notice. It concluded its assignment and submitted its report to the President in 2019.
- 11.6.4. The Committee identified 14 agencies that hold substantial citizens' data which were largely disjointed and in duplication. Amongst the recommendations to Mr President that are pertinent to FME include:
- a. Exclusive collection of biometric data by the National Identity Management Commission (NIMC) and its Licensees.
  - b. Exclusive storage of Biometric data in the National identity Database and the discontinuance of biometric data storage of new registration by all agencies and institutions in Nigeria.
  - c. Mandatory use of the NIN by all Mobile Network Operations (MNOs) for issuance of Subscriber Identification Module (SIM) with effect from 30th June 2021
  - d. Issuance of the National Identity Number (NIN) as a unique identifier for all public servants.
  - e. The National Population Commission to commence the digital birth, death and other vital registrations (marriage, divorce, adoption etc) at all hospitals and designated NPC offices in all the wards as well as integrate with the National Identity Database (NIDB).
  - f. All agencies capturing identity data should be directed to commence full enforcement of NIN as a requirement for accessing their services.



- 11.6.5. At least four of the items from the recommendations of the Citizen Data Management and Harmonization Committee to the President are pertinent to the education sector. These are **b, c, d and f** above.
- 11.6.6. The Harmonization Committee also mentions the following in its interim report; “The challenge has been the absence of an all-inclusive Identity management system leading to exclusion of many from the much-needed social service programs, inability to verify identities resulting in massive identity fraud and related malpractices.”
- 11.6.7. The 23 agencies under the supervision of the Federal Ministry of Education maintain disparate identity databases and there are no interconnections between these agencies in accessing or exchanging the identity related data of individuals they have captured for their statutory functions. These institutions also go through similar processes to collect and store these identity data leading to duplication of effort and technology infrastructure. The resulting effect is the duplication of identity data and a plethora of veracity and integrity issues. The total effect is an absence of viable accessibility and integration for interoperability to enhance delivery of services amongst these agencies.
- 11.6.8. The Federal Ministry of Education and all its agencies collect identity data from both personnel, parents, teachers and students. The imperative to use the National Identity Number (NIN) to address examination fraud and other identity, security and efficiency problems across the sector are clear.
- 11.6.9. About NIN**
- i. The National Identification Number (NIN) is a set of numbers assigned to an individual upon successful enrolment. Enrolment consists of the recording of an individual’s demographic data and capture of the ten (10) fingerprints, head-to-shoulder facial picture and digital signature,



which are all used to cross-check existing data in the National Identity Database to confirm that there is no previous entry of the same data.

- ii. Once this (de-duplication) process is completed the data is then stored with a unique NIN that was assigned to it. The NIN once issued to a person cannot be used again, (that is, it cannot be issued to another person even if the previous person is dead). It is the NIN that helps to tie all records about a person in the database and is used to check the identity verified.
- iii. The National Identification Number (NIN) consists of 11 non-intelligible numbers randomly chosen and assigned to an individual at the completion of enrollment into the National Identity Database (NIDB).
  - a. Once a NIN is assigned to an individual, it can never be reassigned, given or used by another person – that makes it unique in nature.
  - b. In the case of the demise of an individual, his/her NIN is retired once a death certificate is presented to the NIMC and the individual's death is established.
  - c. The NIN is used to tie all records about an individual in the database and is also used to establish or verify his/her identity.
  - d. All citizens and legal residents in Nigeria, from age zero (birth) and above are eligible to enrol for their NINs.
  - e. The NIN should be closely guarded by individuals and not revealed to all and sundry except to relevant authorities when requested (for instance it shouldn't be disclosed online over social media and should not be printed along with contact details on business cards or other office stationery).



#### **11.6.10. Education NIN (eNIN) Strategic Objectives**

The eNIN Strategy will provide a framework to apply the National Identity Number (NIN) to integrated databases and have a positive impact by:

- i. Establishing the veracity of personally identifiable data.
- ii. Providing verifiable student education history by maintaining unique education NINs (eNIN).
- iii. Increasing the efficiency of collaborative exchange between agencies that require personally identifiable data e.g, between FME and NYSC.
- iv. Reducing the cost component of identification and verification by enabling efficient collaboration between the FME and the National Identity Management Commission (NIMC) as the custodian of all identity issues for the nation.
- v. Providing actionable data for analysis and planning to FME and other stakeholders, as part of the Federal Ministry of Education's eCloud Project.

11.6.11. Students engaging on digital learning platforms offered within the Nigerian education ecosystem should be assigned a digital ID in the form of an eNIN that links the student to his/her key bio-information attributes and education attributes. The eNIN will be a persistent identification i.e., it remains with and is used by the student as he/she progresses through his/her academic journey from primary, secondary to tertiary education. Attributes can be added or associated with the eNIN during this progression.

11.6.12. The eNIN becomes a primary method of identifying a student verifying access to digital learning platforms and other academic services.





11.6.13. Teachers and lecturers should be assigned a digital ID with attributes that they can use throughout their careers regardless of career mobility.

11.6.14. The digital ID should adopt existing global standards for potential global interoperability.

## 11.7. Implementation Strategy: Capacity Building and Advocacy

### i. Situation Analysis

#### a. Current initiatives:

Teaching and learning using ICT is still very low and unprofessional in Nigeria's tertiary, secondary, and basic education levels. Some efforts obtainable include:

- Radio and TV presentation that teachers hurriedly put together
- WhatsApp discussion forum and interactive sessions with learners
- Massive Open Online Courses (MOOCs) and paid services
- e-Learning Platforms by government, private and non-governmental organizations

#### b. Challenges

Some challenges include:

- Lack of adequate digital skills on the part of teachers and learners
- Unstable power supply
- Exorbitant cost of data
- Poor internet connectivity
- Lack of devices

### ii. Objectives

- a. Develop the skills and confidence of educators in the appropriate and effective use of digital technology to support learning and teaching.
- b. Improve access to digital technology training and retraining for all educators.
- c. Ensure that educators use digital technology as a central consideration in all curriculum and assessment delivery areas.



- d. Empower educators to drive innovation and investment in digital technology for learning and teaching for societal development.

**iii. Expected outcomes**

- a. Learning is effectively supported using digital technology.
- b. Digital technology training and retraining opportunities are available for educators.
- c. Digital technology is central in all areas of the curriculum and delivery.
- d. Educators are empowered to drive innovation and digital technology investments.

**iv. Target, Timelines & Interim Milestones**

- a. Sensitization and advocacy for policy-makers, education managers and teachers.
- b. Capacity building for Education managers, teachers, administrative officers, and support staff.
- c. Capacity building on infrastructure, content development and delivery, monitoring and evaluation, as well as advocacy.
- d. Staff development needs will be identified through the staff development and review process of all education institutions at all levels.
- e. TRCN and CPN shall regulate digital capacity building processes.

**v. Funding and sources:**

- i. Public-Private-Partnership (PPP) is encouraged with education and other stakeholders,
- ii. Funding and technical support shall be sourced from education institutions at National, state, and international partners.

**c. Stakeholder Mapping**

- i. Stakeholders shall include Educators and education managers in both public and private schools at primary, secondary and tertiary education level and organized private sector, Civil Society Organization, and other relevant stakeholders.



**National**

**TETFUND:** Tertiary level

**Secondary Commission:** Secondary level

**UBEC:** Basic level

**States:** Ministry of Education and SUBEB

**Development partners:** National and International cut across



## 12. Monitoring and Evaluation of the NDLP

### 12.1. Terms of Reference

- 12.1.1. Provide clear objectives and strategies for the Monitoring and Evaluation of Digital Learning Policy. The objective should specify the specific evaluation questions, possible uses of the evaluation findings by various stakeholders, and intended users and stakeholders of the evaluation.
- 12.1.2. Provide detailed scope and methodology for the M&E to include the time frame of the evaluation, target groups and outline of how the review will be conducted.
- 12.1.3. Develop an M&E implementation strategy clearly articulating the responsibilities of all stakeholders.
- 12.1.4. Develop a digital end-to-end M&E framework with tools to collect and analyze data from schools, institutions and education stakeholders
- 12.1.5. Identify critical milestones, deliverables and timelines for the M&E.

### 12.2. Introduction

- 12.2.1. The governance of digital learning requires the development of standards, monitoring and evaluation framework and strategy for the effective management and administration of Digital Learning education.
- 12.2.2. The strategies involve the development and periodic review of standards and guidelines for monitoring and evaluation of Digital Learning in the education sector development of frameworks and tools to ensure effective monitoring. The framework for the M&E specifies the implementation strategies, sub-strategies, activities, deliverables, implementing agencies, timelines and key performance indicators (KPIs) for the successful realization of the M&E objectives, determination of the



skill sets necessary for the evaluators, and the funding of the M&E activities.

### 12.3. Policy Statement

The objective of monitoring and evaluation is to determine the effectiveness, efficiency, sustainability, or impact of the National Digital Learning Policy, provide appropriate M&E framework and tools to ensure the evaluation of the activities are focused on achieving the objectives of Government. Monitoring and evaluation of the process shall embrace all stakeholders in formulating plans for efficient M&E of digital learning in all sectors.

### 12.4. Implementation strategy

- 12.4.1. Provide and continually review standards and guidelines for the M&E in line with the national goals and global good practices for Digital Learning.
- 12.4.2. Monitor and evaluate digital Learning programmes and institutions.
- 12.4.3. Exploit existing funding channels, and harness partnerships with development partners for funding of M&E activities.



**12.4.4. Table: Continually review standards and guidelines for the M&E in line with the national goals and global good practices for digital learning.**

S/N	Sub-strategies	Activities/Targets	Deliverables	Responsibility	Timeline	KPI
1.	<ul style="list-style-type: none"> <li>Ensure the development of standards and guidelines for M&amp;E for Digital Learning</li> </ul>	<ul style="list-style-type: none"> <li>Constitute Standing Committee on M&amp;E standards.</li> <li>Identify national goals and global good practices in M&amp;E.</li> <li>Develop M&amp;E standards and review periodically.</li> <li>Review existing M&amp;E practices in line with national goals on Digital Learning.</li> </ul>	<ul style="list-style-type: none"> <li>Document on M&amp;E standards for Digital Learning in place</li> <li>National goals and global good practices in M&amp;E in place.</li> </ul>	FME and its Agencies, FMC&DE, SMOEs	<ul style="list-style-type: none"> <li>1 year</li> </ul>	<ul style="list-style-type: none"> <li>Standing Committee in M&amp;E in place.</li> <li>Standards for M&amp;E in place</li> </ul>

**12.4.5. Table: Monitor and Evaluate Digital Learning programmes and institutions.**

S/N	Sub-strategies	Activities/Targets	Deliverables	Responsibility	Timeline	KPI
1.	<ul style="list-style-type: none"> <li>Monitor and evaluate Digital Learning in education</li> </ul>	<ul style="list-style-type: none"> <li>Develop instruments for M&amp;E.</li> <li>Collect, collate and analyze data</li> <li>Produce and disseminate report</li> </ul>	<ul style="list-style-type: none"> <li>Instrument for monitoring and evaluation developed</li> <li>Report of monitoring and evaluation produced and disseminated</li> </ul>	<ul style="list-style-type: none"> <li>FME and its agencies (NUC, NBTE, NCCE, UBEC, Secondary Education Commission, CPN), SMOEs and other stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>1 year</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring and Evaluation Standing Committee in place</li> <li>Framework and Instrument for monitoring and evaluation in place</li> <li>Evaluation report on Digital Learning surveys</li> <li>List of Distribution of Digital Learning across the education sector ecosystem</li> </ul>
2.	<ul style="list-style-type: none"> <li>Assessment of Digital Learning programmes and education institutions</li> </ul>	<ul style="list-style-type: none"> <li>Review guidelines for evaluation periodically</li> <li>Review instruments for evaluation based on the guidelines</li> <li>carry out monitoring and evaluation exercise periodically.</li> <li>Publish M&amp;E reports</li> </ul>	<ul style="list-style-type: none"> <li>Reviewed guidelines for M&amp;E in place</li> <li>Reviewed instruments for M&amp;E in place</li> <li>M&amp;E report produced and distributed</li> </ul>	<ul style="list-style-type: none"> <li>FME and its Agencies, SmoEs, Heads of Institutions and schools</li> </ul>	<ul style="list-style-type: none"> <li>1 year</li> </ul>	<ul style="list-style-type: none"> <li>Guidelines for M&amp;E</li> <li>Instruments for M&amp;E in place</li> <li>M&amp;E reports in place</li> </ul>

**12.4.6. Table: Exploit existing funding channels, and Harness partnerships with development partners for funding of M&E activities.**

S/N	Sub-strategies	Activities/Targets	Deliverables	Responsibility	Timeline	KPI
1.	<ul style="list-style-type: none"> <li>Give priority for the funding of M&amp;E by ensuring the use of existing funding channels</li> </ul>	<ul style="list-style-type: none"> <li>Identify areas for intervention.</li> <li>Hold fora on the needs with existing intervention channels.</li> <li>Write proposal to seek intervention for the funding of M&amp;E for Digital Learning e.g TETFund, UBEC, NITDA, USPF, CBN among others.</li> </ul>	<ul style="list-style-type: none"> <li>Area of Need for M&amp;E intervention identified.</li> <li>Proposal for M&amp;E interventions submitted.</li> </ul>	<ul style="list-style-type: none"> <li>FME, SMOEs, Education parastatals, TETFund, UBEC, NITDA, Head of schools and institutions.</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of: proposals submitted</li> <li>Evidence of intervntion from funding channels.</li> </ul>
	<ul style="list-style-type: none"> <li>Seek intervention for the funding of M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>Identify areas of intervention through Needs Analysis</li> <li>Develop capacity of M&amp;E officers for proposal writing.</li> <li>Present proposal to government and development partners</li> </ul>	<ul style="list-style-type: none"> <li>Baseline study conducted</li> <li>Capacity built</li> <li>Proposal for M&amp;E interventions presented.</li> </ul>	<ul style="list-style-type: none"> <li>FME, SMOEs, Education parastatals, Head of schools and institutions.</li> </ul>	<ul style="list-style-type: none"> <li>Continuo us</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of: proposals submitted</li> <li>Capacity of M&amp;E officers built</li> <li>Interventions from partners</li> </ul>





## 12.5. Content Development

- 12.6. **Design inclusive digital learning and increase investments in learning systems that reach the most marginalized.** Critically, digital learning systems must not crowd out investments in quality education that can be used by the unconnected. Where digital solutions are used, minimize data costs and prioritize lightweight options that are usable offline and on affordable devices.
- 12.7. **Develop a clear pedagogical approach to guide the use of digital learning from a young age.** Digital initiatives work best when they are underpinned by pedagogic principles and incorporated into the educational process (Redecker et al. 2017). Co-creation between software developers and educators helps ensure that digital programmes are fit for their educational purposes (Karamperidou et al. 2020). Digital solutions – especially when scaled across different states, need to be culturally sensitive, contextualized and curated to meet learners’ needs.
- 12.8. Start with foundational literacy and numeracy and use engaging and age-relevant content to benefit learners from various levels. Personalized digital learning tools tailor education content to a student’s grade. Also, interactive platforms with games and instant feedback increase learners’ motivation, self-esteem and engagement in the learning process. Such features ensure that more advanced learners remain engaged while other learners can catch up at their own pace.
- 12.9. FME to lead the coordination in the development of adequate digital content for full realization/implementation of NDLP.
- 12.10. FME in collaboration with NERDC shall coordinate Monitoring and Evaluation of digital content development, curation, adaptation and continuous development
- 12.11. FME to simplify the process of curation and approval of digital content from private developers.
- 12.12. FME and NTI to lead in the development coordination of National content adaptation and mapping process; The content mapping must meet all criteria set



up in the Benchmark for Minimum Academic Standards (BMAS) by NUC, NBTE, NCOEE and NERDC.

- 12.13. FME shall fast track and operationalized Nigeria’s Education Cloud, all content developed by the Government or with public funding must be properly curated in the national cloud and free from any copyright issue
- 12.14. FME to ensure content development accommodate learners with special needs
- 12.15. Digital Content development areas that are not covered by private developers should be developed by FME, UBEC, NBTE, NCCE and other relevant agencies to immediately reduce digital content poverty on or before 2025.
- 12.16. FME to Engage with publishers on the provision of digital content and services to support the curriculum including services appropriate for special education.
- 12.17. FME to enable schools, teachers and students to access quality-assured open digital content from educational content providers.
- 12.18. FME to Develop and operationalize pathways and frameworks for strategic partnerships with relevant educational, cultural, religious, technology ecosystems, and sporting bodies in order to adapt relevant content into useful learning and teaching resources.
- 12.19. FME to Develop protocols for sharing digital resources between providers in collaboration with UBEC, NBTE, NCCE, NUC and JAMB.
- 12.20. All content development must meet up with the agreed content quality (this include clarity in visual, audio, flow and context) these criteria shall be determined by FME, NERDC, NTI and TRCN (FME can set up an ad-hoc committee to review content development at various time intervals).
- 12.21. FME to develop and ensure strict compliance with the National qualification framework for digital content developers.



12.22. FME to develop and coordinate one single working for any initiative related to content development (This includes all development partners, NGOs and CSOs).

S/N	Category	Sub-Category	Standard	Standard Descriptors
1.		Instructional Support	<ul style="list-style-type: none"> <li>Students are provided with instructional support to be successful in a distributed learning environment</li> <li>A clearly articulated student learning plan created by an educator is in place for each student. The student learning plan references provincial and Board/Authority Approved learning outcomes and resources required to meet them.</li> </ul>	<ul style="list-style-type: none"> <li>Registration, counselling services and program planning support are provided for all students and parents, and the process for accessing services and resources are clearly communicated in an orientation handbook.</li> <li>Open access to approved resources and/or services, including counselling services, linked to their student learning plan.</li> <li>Learners with unique needs are provided appropriate resources and services</li> <li>Student learning plans are on file for all active students.</li> </ul>
2.	Student Learning and Engagement	Pedagogy	<ul style="list-style-type: none"> <li>Instructional strategies reflect best practices and promote quality learning experiences</li> </ul>	<ul style="list-style-type: none"> <li>Students are actively engaged in their learning.</li> <li>Learners demonstrate responsibility for their own learning.</li> </ul>
		Learner performance	<ul style="list-style-type: none"> <li>Takes prior knowledge of the learner into consideration</li> <li>Matches learners' cognitive level/memory load of intended learners</li> <li>Caters for different learning styles.</li> <li>Encourages building of mental models</li> <li>Support transfer of learning</li> <li>Encourage critical thinking</li> </ul>	<ul style="list-style-type: none"> <li>Organization of content is from simple to complex</li> <li>Content encourages analytical thinking and application of intellectual skills.</li> <li>Promotes problem-solving questions in critical analysis and reasoning through tasks.</li> <li>Content uses representational media to support the transfer of learning to applied or personal context</li> </ul>
		Learning Environment	<ul style="list-style-type: none"> <li>Supportive and encourage active engagement among learners and between learners and teachers.</li> </ul>	<ul style="list-style-type: none"> <li>Educational technologies are effectively deployed to support learning engagement and achievement</li> <li>Regular educator/student and student/student interaction occurs through a variety of means</li> </ul>



		<ul style="list-style-type: none"> <li>● Opportunities to provide feedback on their learning experience</li> </ul>	<p>face-to-face engagement, online, text/audio/video exchange, instant messaging, etc.</p> <ul style="list-style-type: none"> <li>● Access to, school, district, and/or community-based sponsored curricular and extra-curricular activities or events (e.g., clubs and sports teams)</li> <li>● Formal and informal student feedback is solicited regularly</li> </ul>
	Learner Engagement and Interactivity	<ul style="list-style-type: none"> <li>● Captures learner attention and interest</li> <li>● Enables learner-teacher and learner-learner interactions</li> <li>● Stimulate and encourage creativity</li> <li>● Promotes skill in the use of a variety of media resources</li> <li>● Promotes to draw attention and reveal complex tasks/contents.</li> </ul>	<ul style="list-style-type: none"> <li>● Relevant visual, auditory stimulation using pictures, diagrams, illustrations, animations, simulations, music/sound effects.</li> <li>● Variety of interaction types: Games, role-play, case studies, questions &amp; answers, quizzes, written and oral exercises, field trips, etc.</li> <li>● Group collaboration (chart/discussion, blog, virtual classroom).</li> </ul>
	Supporting Information	<ul style="list-style-type: none"> <li>● Encourage learner and educator the relationship of activities.</li> <li>● Enable assessment of learning outcome by providing detailed support information with the use of help files</li> </ul>	<ul style="list-style-type: none"> <li>● Information and support materials for learners and educators are provided.</li> <li>● Online help to provide detailed information and educator direction.</li> <li>● Frequently asked questions (FAQ). Content and program support must be provided</li> <li>● Technical support provided</li> </ul>
	Assessment	<ul style="list-style-type: none"> <li>● Formative and summative assessment</li> <li>● Encourages self and peer assessments</li> <li>● Spans the six levels of cognition (recall, understanding, application, analysis, synthesis and evaluation.</li> <li>● Includes practice exercises with immediate feedback</li> </ul>	<ul style="list-style-type: none"> <li>● Assessment items are relevant</li> <li>● Linked to approved content for the level</li> <li>● Graduated according to the level of difficulty</li> <li>● Includes psychomotor, manipulative and affective components of study.</li> <li>● Uses a variety of methods</li> <li>● Measures demonstrable skills and abilities</li> <li>● Encourage the use of meta-cognitive skills and reflection strategies.</li> </ul>



			<ul style="list-style-type: none"> <li>• Constructive and supportive feedback mechanism</li> <li>• Allows tracking of progress in learning</li> <li>• SCORM compliant</li> </ul>	
3	Instructional Design	Content	<ul style="list-style-type: none"> <li>• Accurate and up to date</li> <li>• Course purpose and objective stated and must be based on approved curricula for the educational level</li> <li>• Correct spelling, grammar, punctuation.</li> <li>• Utilizes a variety of instructional approaches appropriate to intending learning outcome and learners</li> <li>• Design enables active participation of learners</li> <li>• Content must reflect Nigeria's social and cultural norms.</li> </ul>	<ul style="list-style-type: none"> <li>• Content is in conformity with the approved SSC E curriculum or NBC/NTC , NUC, NCCE and NBTE curricula.</li> <li>• Learner engagement in a variety of activities (hands-on practicals, group work; assignments, etc.)</li> <li>• Accommodates a variety of instructional strategies (group individual learning strategies)</li> <li>• Reflect National values</li> <li>• Use of local examples</li> </ul>
		Interface	<ul style="list-style-type: none"> <li>• Simple and intuitive structure of interface and Navigation</li> <li>• Permanent accessibility of navigation buttons</li> <li>• Consistency in style and function.</li> <li>• Consistent replacement of feature for learning path option.</li> <li>• Bookmarking options for easy location of learning path</li> </ul>	<ul style="list-style-type: none"> <li>• Navigation objects to include (main Menu, Back button, next, exit button, help, contact Us, etc.</li> <li>• Clearly labelled clickable objects (borders, instruction, text, borders, etc.</li> <li>• Mouse over icon information and help files</li> </ul>
		Visual Layout	<ul style="list-style-type: none"> <li>• Clear, consistent and accessible layout of materials</li> <li>• Good background contrast</li> </ul>	<ul style="list-style-type: none"> <li>• Uses colour to support to decorate/ visual search</li> <li>• Colours are legible over background Colours</li> </ul>



			<ul style="list-style-type: none"> <li>Clearly defined margins, no overcrowding</li> <li>Good quality graphics, consistent in size, style and treatment</li> <li>Variety of graphics charts, graphs, etc. Headers on all Screens.</li> </ul>	<ul style="list-style-type: none"> <li>Relevant, clearly labelled and consistently describes elements and objects</li> <li>Fonts should not interfere with screen readability</li> <li>Avoid the use of too many fonts/styles.</li> </ul>
4.	Technical	Accessibility	<ul style="list-style-type: none"> <li>Hardware and software requirements for contents are explicitly stated</li> <li>Media files are formatted for accessibility from common/prescribed platforms and available iprescribedplatformsity</li> <li>Text displays within commonly used browsers Text files are accessible to learners.</li> <li>Content must be tested for conformity to W3C web content accessibility guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Minimum and recommended technical requirements are content animations, sound and video track</li> <li>Texts lend themselves to viewing in both computer monitors and printed formats.to</li> <li>Require that third party software and resources are readily accessible or built into the content.</li> </ul>
		Interoperability	<ul style="list-style-type: none"> <li>Content must be consistent with specified electronic file structure (MS WORD, PowerPoint, Excel and PDF) for interoperability</li> <li>Clearly tagged and labelled for archival and retrieval from prescribed Learning Management Systems (LMS).</li> </ul>	<ul style="list-style-type: none"> <li>Meta-data tagging standards and specifications using Dublin Core Meta-data Standard and IEEE standards</li> <li>Content is organized in logical form</li> <li>Consistent</li> </ul>
5.	Copyright	Licensing	<ul style="list-style-type: none"> <li>Allows for: <ul style="list-style-type: none"> <li>Resource sharing and among teachers, students, parents.</li> <li>Content distribution among users in Nigeria.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Content is used in accordance with the Copyright Act, and any other legally recognized licenses and permissions that have been entered into in regards to the content, notwithstanding the exceptions to the Act.</li> </ul>



			<ul style="list-style-type: none"><li>• User license to clearly specify the terms of use of content should be specified.</li></ul>	<ul style="list-style-type: none"><li>• Content licensing details are stated in easily understood wording, including a description of when the license expires, where it may be used and by whom.</li><li>• Content includes complete information about the rights that the copyright owner has assigned in regards to the content, and the content contains complete information on the author(s) of the content, respecting the right of authors to use a pseudonym or to remain anonymous if so desired.</li><li>• Content includes information about the location and nature of source code required to modify the content.</li></ul>
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