Abridged Version

Digital Education Strategy

September 2022

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ABBREVIATIONS

Term	Description
4IR	4th Industrial Revolution
AI	Artificial intelligence
ASREN	Arab States Research and Education Network
AU	African Union
CERT	Computer Emergency Response Team
CESA	Continental Education Strategy for Africa
DigCompEdu	Digital Competency Framework for educators
DOTSS	Digital connectivity, Online and offline learning, Teachers as facilitators and motivators of learning, Safety online and in schools and Skills focused learning
DTSfA	Digital Transformation Strategy for Africa
EdTech	Educational Technology
EMIS	Education Management Information System
EU	European Union
GER	Gross Enrolment Ratio
GESCI	Global e-Schools and Communities Initiative
ICT	Information and Communications Technology
ICT-CFT	ICT Competency Framework for Teachers
IED	Infrastructure and Energy Department
NREN	National Research and Education Network
OER	Online Education Resource
PAVU	Pan-African Virtual and e-University
PRIDA	Policy and Regulation Initiative for Digital Africa
RECs	Regional Economic Communities
STC	Specialised Technical Committee
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Education Scientific and Cultural Organisation
UNICEF	United Nations International Children's Fund
WACREN	West and Central African Research and Education Network

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

The African Union Digital Education Strategy and Implementation Plan, which covers the period 2023-2028, establishes a framework for engagement and acceleration of adoption of digital technologies in alignment with the Continental Education Strategy for Africa. The Strategy proposes three core focus areas, seven strategic objectives, and fourteen measures.

The focus areas are:

1. **Digital technology appropriation in education** – accelerating the adoption of digital technologies for teaching, learning, research, assessment and administration, and

2. **Education in digital technology for digitally empowered citizens/ for the digital economy and society** – strengthening digital literacy and skills for all, especially for teachers and students.

3. **Building the capacity of AU Member states in digital infrastructure (networks and devices)** for digital education.

The strategic objectives include:

i. Stimulate the development of integrated curriculum-aligned digital content and secure and engaging platforms, respecting privacy and ethical standards across Africa.

ii. Support AU Member States' efforts to develop national digital education strategies that serve as a basis for investment in digital education. This strategic area also promotes regional efforts that facilitate online safety and cybersecurity policies and other guidelines and legislation for digital education.

iii. Address AU Member States' education data and analytics capacity.

iv. Advance AU' Regional Economic Communities (RECs)' and Member States' roles in stimulating the education technology enterprises (EdTech) sector.

v. Move evidence-based digital education forward by establishing regional platforms and centres of excellence to exchange research insights on the digitalisation of education in the continent.

vi. Facilitate regional competency and certification frameworks for teachers to ensure that digital literacy and skills become a core competency of every teacher on the continent and that teachers are certified and recognised for their digital literacy and skills.

vii. Accelerate competency-based digital literacy and skills for students at all levels, from early childhood education, basic, TVET, and higher education to formal and informal learning. This initiative also aims to leverage schools, colleges and TVETs to accelerate digital literacy and skills of community, lifelong learners and leaders.

Finally, the Strategy proposes AU' and RECs' driven regional forums for mobilising financial and technical resources for digital education.

The Digital Education Strategy and Implementation Plan recognise that key supporting functions at the AU and RECs levels need to change to achieve changes at Member States levels. The successful implementation of the above building blocks of digital education requires prioritisation, coordination, resource mobilisation, knowledge mapping, management and sharing at AU, RECs and Member States levels.

1. INTRODUCTION AND CONTEXT

1.1 Introduction

The AU Digital Education Strategy and Implementation Plan discussed in this document establish a holistic framework for an integrated and transformative regional plan for the digitalisation of the education sector for the period 2023-2028. The Strategy and Implementation Plan drew on an extensive situation analysis of education and digital technology application in Africa. The situation analysis reviewed infrastructure, policies, data management and use, digital literacy and skills, education technology enterprises (EdTech) innovation, and digital platforms for teaching and learning in all AU Member States.

The Strategy and Implementation Plan have also benefited from consultation with members of an ICT Task Force hosted by the African Union's Education, Science, Technology and Innovation (ESTI) Department and the Infrastructure and Energy Department (IED), which included members of the Continental Education Strategy for Africa's (CESA) ICT cluster hosted by the Global E-schools and Communities Initiative (GESCI). A team drawn from the African Union's Education Division and the Information Society Division provided ongoing substantive input and support to the development of the Strategy and Implementation Plan. Partners such as the European Union (EU) and the United Nations Children's Fund (UNICEF) have also provided invaluable inputs. The Policy and Regulatory Initiative for Digital Africa (PRIDA), funded by the European Union, provided technical assistance and analysis for the development of the Digital Education Strategy and Implementation Plan.

1.2 Education Sector Context

Education is a sector that is fundamental to all other sectors. Today, digital technologies are imperative for working, learning, socialising, participating in societal debates and accessing information and public services. As such, a nation needs to ensure that its citizens are digitally empowered and capable of confidently participating in the digital economy and society and promote a digitally skilled workforce for a thriving knowledge-driven economy.

The context and the AU Member States' aspirations in expanding access, and improving learning outcomes, relevance, and affordability of education define digital education's overall goal. In the last three decades, education across all levels, from early childhood to higher education, has expanded dramatically in the continent, with variation across countries and subregions. School participation has improved, especially with near-universal primary education at 98.9% by 2021, but this has not been replicated within subsequent levels. As a result, the average Gross Enrolment Ratio (GER) falls from 98.9% in primary education to 43.4% in secondary education and 9.4% in tertiary education compared to 101.6%, 76%, and 38.8% at the global level, respectively. There is also limited participation in early learning in the region, with slightly more than one-quarter (27%) of children between the ages of three and five attending some form of early childhood education.[1]

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1   Borgen Magazine, Increasing Access to Early Childhood Education in Africa, https://www.borgenmagazine.com/increasing-

Technical Vocational Education and Training (TVET) is seen as a means of overcoming economic and social challenges, including poverty and unemployment, especially among youth and women, in and out of school. However, participation in TVET is still meagre in Africa. On average, the percentage of young people between 15 and 24 years old enrolled in vocational education is 3%. TVET access is subject to limited opportunities, and hampered by a low literacy rate. In 2018, about one in three people aged between 25 and 64, and one in five young people aged 15 and 24, were illiterate.[2]

Beyond its limited capacity to absorb a growing number of secondary education graduates, higher education faces special challenges—including low quality, unpreparedness for the digital age, and poor linkage between education, research, innovation, and socio-economic development. Equity of education remains a critical issue across all levels of education. Girls, children from the poorest backgrounds, children with disabilities and children on the move face more challenges in accessing and successfully completing the different levels of education. Apart from unequal access between boys and girls, Water, Sanitation and Hygiene (WASH) facilities related challenges such as schools without toilets and latrines, where girls cannot cope with physiological periodic needs, and socio-cultural and economic factors prevent girls from continuing their education once they reach adolescence.

1.3 Digital Technology in Education in Africa

Digital education can contribute to the African Union (AU) Member States' efforts in bridging the low level of access to education, especially for those living in remote areas, for girls, children and adults with disabilities and those on the move due to conflicts and natural disasters, enabling numerous out of school youth to learn, reducing the high adult illiteracy rate, lowering the limited participation in technical and vocational education and alleviating the limited number of skilled teachers, low completion rates, meagre learning outcomes and reducing the disconnect between higher education and the demand for relevant research and skills for the knowledge economy.

Experience within the AU Member States like Kenya, Mauritius, Morocco, Tunisia, South Africa and worldwide shows that, when planned well and implemented sustainably, digital technologies can improve children's access, quality, engagement and learning in early childhood, primary and secondary education. Digital technologies provide more outlets for creativity and learning at the early childhood and primary education levels, yet, in Africa, access to digital education is deficient due to unpreparedness to integrate digital technologies in early learning, which includes, inter alia, limited platforms and services, high cost of equipment and teachers' lack of skills unpreparedness to integrate digital technologies in early learning.

Secondary schools fare better than primary schools regarding access to digital tools thanks to the "one lab per school"[3] and other initiatives launched by government and development agencies to introduce ICTs to this level. Again, the extent to which digital technologies are used for teaching and learning and for enhancing specialised ICT as well as coding skills has been

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access-to-early-childhood-education-in-africa/.

2   African Union and UNICEF, Transforming Education in Africa, An Evidence-Based Overview and Recommendations for Long term Improvements, https://www.unicef.org/reports/transforming-education-africa

3   https://panafricanvisions.com/2016/08/zimbabwes-ict-lab-per-school-project-enhances-digital-technology/

hampered by the absence of a competency framework for students and teachers, the lack of integration of digital literacy and skills into the curriculum, and the limited number of skilled teachers to deliver ICT courses.

TVET institutions are expected to offer digital literacy and skills training for the youth and, at the same time, leverage ICT tools for teaching and learning in other fields such as woodwork, electrical work, metalwork, leather-craft, garment manufacturing, culinary, photojournalism, etc. Tools such as simulations, 3D immersive virtual reality, open educational resources, videos, collaboration platforms and mobile phones can make TVET training much more engaging than conventional delivery modes. Yet, African TVET institutions remain largely untouched by digital technologies, which are still viewed with scepticism by most trainers and mentors. The digital competence of teachers and trainers is a core limiting factor for TVETs' integration of digital technologies in the teaching and learning process.[4]

African higher education is embracing digital technologies gradually, but the innovation lags progress in other regions such as Latin America and Asia. Experience of some online universities like the Virtual University of Tunis[5] and the Virtual University of Senegal[6] indicate that digital technologies allow out of school youth' access to higher education. The Virtual University of Senegal, for example, comprises a headquarters in Dakar, and five additional Open Virtual Spaces (ENO) scattered across the country to allow men and women in the Dakar suburbs, Saint Louis, Thiès, Kaolack and Ziguinchor access to quality online higher education.

A situation analysis of the development of National Research and Education Networks (NRENs) indicates that although many countries established NRENs, a few countries such as Algeria, Egypt, Kenya, Morocco, South Africa and Tunisia have built advanced connectivity to facilitate teaching, learning and research collaboration nationally and internationally. Further, the continent has limited digital infrastructure such as High-Performance Computers (HPC) that can be used by researchers to perform studies in different areas of fundamental and applied sciences. Beyond connecting educational institutions, NRENs will play critical roles in promoting open science- facilitating collaboration, enabling research communities and sharing data on global challenges like climate change and epidemics.

In sum, the assessment of digital technology use from early childhood learning to higher education and lifelong learning in Africa indicates that the imminent digitalisation requires multi-faceted actions—programs that deliver digital infrastructure for teaching, and learning and assessment, the development of digital learning materials and their availability through integrated and easy to use online learning platforms, improvement in data and analytics, EdTech private sector development, innovation and entrepreneurship and government commitment and capacities to articulate, implement and enforce policies, legislations and strategies. These elements are critical for all AU Member States, regardless of their state of digital maturity.

The equitable use of digital technologies by girls, women, marginalised people in rural areas and those on the move and students with disabilities, requires concerted and multi-faceted regional efforts. Increasing the number of female educators and those with disabilities that use

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4   International Labour Organisation, The Digitalisation of TVETs and Skill Systems, https://www.ilo.org/wcmsp5/groups/public/----ed_emp/---emp_ent/documents/publication/wcms_752213.pdf
5   https://www.uvt.rnu.tn/en/
6   https://www.uvs.sn/

digital solutions can play a crucial role in encouraging more girls to participate in digital technology-driven education and accelerate the availability of assistive technologies for students with disabilities. At the same time, all educators should tackle stereotypes and actively promote the inclusion of women and girls and those with disabilities through encouragement and promotion of assistive technologies.

1.4 Regional Policy context for Digital Education

The AU Digital Education Strategy and Implementation Plan themes are crafted to facilitate the achievement of AU' Continental Education Strategy for Africa' (CESA 16-25) strategic objectives and underpinned by the Digital Transformation Strategy for Africa (DTSfA).[7] The African Union's Continental Strategy for Technical and Vocational Education and Training[8] further emphasises the importance of ensuring the relevance of training to respond to the demand for social and economic development, of which digitalisation will be a crucial component. The Strategy conforms to the **D**igital connectivity, **O**nline and offline learning, **T**eachers as facilitators and motivators of learning, **S**afety online and in schools, and **S**kills focused learning (DOTSS) framework[9] endorsed by the African Union's Specialized Technical Committee (STC) in response to the COVID-19 pandemic. The Strategy and Implementation Plan also leverage continental initiatives like the AU cybersecurity strategy and the Interoperability Framework for Digital ID that establish the foundation for safe digital education and interoperability between data systems.

The African Union has also launched an Agenda 2063 flagship project -the Pan African Virtual and E- University (PAVEU) that leveraged digital technologies to bring education to large number of students and professionals and professionals in multiple sites simultaneously- anywhere, anytime. PAVU, among others, aims to increase access to quality tertiary and continuing education and raise pedagogical and research capacity of African tertiary education institutions.[10]

Digital education is also an important focus area of ICT policies of the Regional Economic Communities (RECs). Digital education aligns with initiatives for equipping the workforce in Central Africa, facilitating school-work transition in Eastern Africa, modernisation of education sector in North Africa, improving the quality of education in Southern Africa and investing in human capital in alignment with future market needs in West Africa. RECs will play significant roles in promoting digital transformation in education, particularly in supporting countries' efforts to articulate and implement digital education strategies, harmonising digital competencies and skills frameworks, and promoting students and employee mobility.

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7   African Union, Digital Transformation Strategy, https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030
8   African Union, Continental Strategy for TVET, https://au.int/en/documents/20181022/continental-strategy-technical-and-vocational-educational-and-training-tvet
9   African Union, Policy Guidelines for Digitising Teaching and Learning in Africa, https://au.int/sites/default/files/documents/38788-doc-policy_guidelines_final.pdf
10   https://pau-au.africa/institutes/virtual-and-e-university

2. BUILDING BLOCKS FOR DIGITAL EDUCATION IN AFRICA

2.1 Building Blocks

Digitalisation impacts education and employability. The future workforce will require people who have received the highest quality education and excellent digital literacy and skills regardless of location, background or ability. Based on this logic, the strategy proposes the need for:

i. **Digital technology appropriation in education** – accelerating the adoption of digital technologies for teaching, learning, research, assessment and administration, and

ii. **Education in digital technologies for digitally empowered citizens/ for the digital economy and society** – strengthening digital literacy and skills for all, especially for teachers and students.

iii. **Building the capacity of member states in digital infrastructure and networks**.
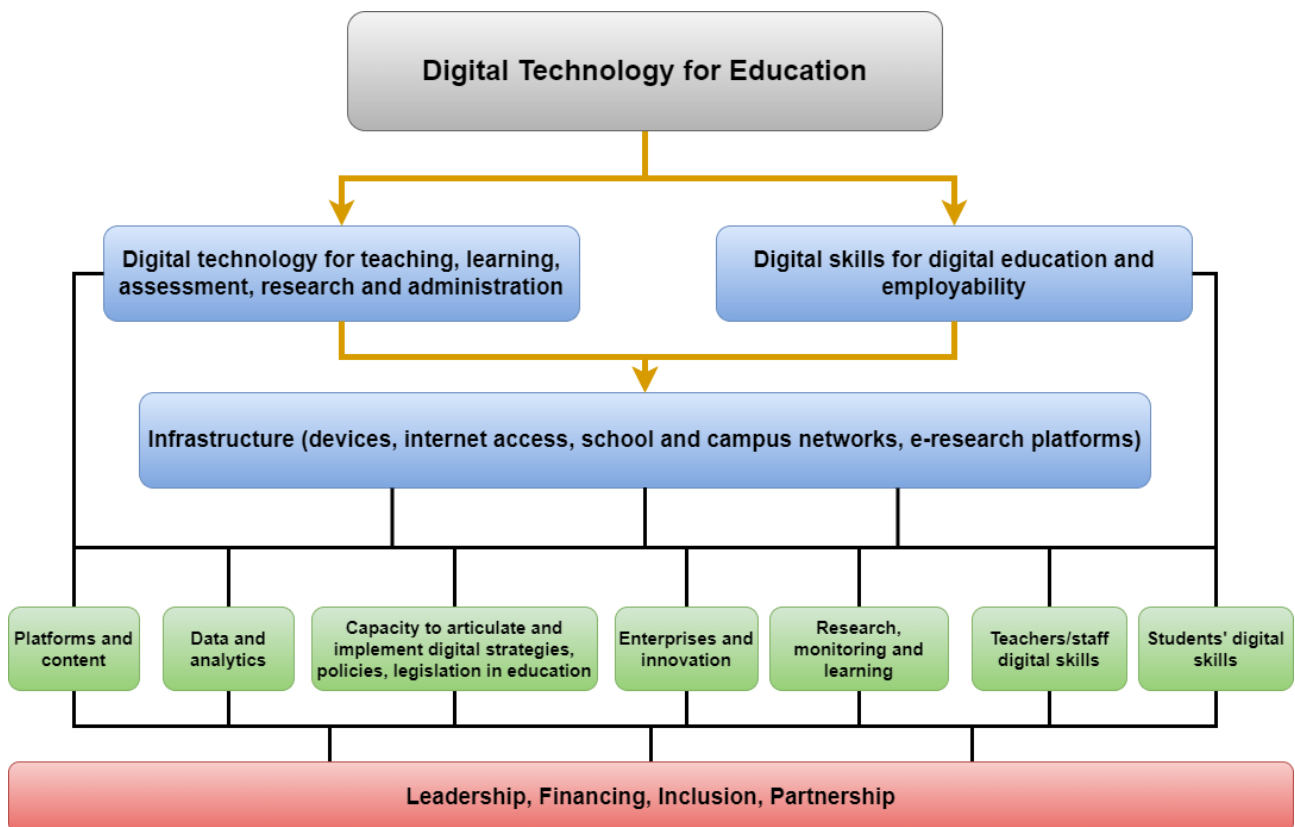

Figure 1: AU Framework for Digital Education

The digital determinants of education such as infrastructure, data and analytics and digital literacy and skills can further be grouped into seven building blocks (shown in green in Figure 1):

i. Digital content and platforms, including locally developed curriculum-aligned online

learning content, e-assessment applications, freely available Open Educational Resources (OER), public or private driven learning content and platforms and a host of other EdTech solutions like virtual reality, interactive blackboard, etc. that enable creation, management and sharing of content and facilitate blended learning. Educational platforms should be secure and safe (ensuring ethical AI and data usage, and ensuring children's rights) and provide access to high quality, learner-centred / interactive, curriculum-aligned digital content.

ii. Education data and analytics for decision-making at national, sub-national, institutional (schools, TVETs, colleges, universities and in classrooms) levels.

iii. National, regional and institutional capabilities to articulate and implement digital education strategies, develop policies, laws and guidelines and enforce them.

iv. Developing an enabling environment for EdTech sector development.

v. Research, monitoring and learning about how digital education can be implemented efficiently and effectively, and the impacting on inclusion, equity, quality education outcomes and employment/entrepreneurship

vi. Digital literacy and skills for educators, and

vii. Digital literacy and skills for students, communities and leaders.

Digital infrastructure, including networks and devices and e-research infrastructure such as High-Performance Computing (HPC), are the critical cross-cutting requirement for the successful digitalisation of education in Africa. Access to computing devices and affordable high-speed connectivity at the campus or school levels with regional and international reach are crucial building blocks for implementing learning platforms, data ecosystem and building digital literacy and skills.

Digital education should involve long term, multi-faceted efforts by government, development partners and the private sector, with the attention to the **inclusion** of rural and remote schools, gender equality and women's empowerment and inclusive approaches to meet the needs of children and adults with disabilities, and those on the move due to conflict and natural disasters. **Leaders** must provide the vision, resources, and accountability to ensure that ICT-led education involving the building blocks is planned and implemented.

Funding of digital education is critical because integrating digital solutions in teaching, learning, assessment, and administration and building digital skills require devices, connectivity, learning platforms and adaptable campus networks that in turn demand substantial financial resources. Typically, effective planning and implementation of digital technology initiatives can result in significant cost savings in the long run despite the high up-front costs. Thus, efforts need to be made to secure digital education financing from the public budget, universal access funds, private investment or donors grants to cover the upfront costs and ensure digital technologies are upgraded and maintained.

2.2 Theory of Change of the Regional Digital Education Strategy

The Digital Education Strategy and Implementation Plan envisions that:

i. All African countries develop National Digital Education Strategies that serve as a basis

for investment in accelerating digital infrastructure and ICT integration in teaching, learning, assessment, research and administration.

ii. At least 50% of educational institutions attain safe and secure high-speed connectivity with costs way below $25 per Mbps/month.

iii. Digital devices are accessible to at least 20% of students and 50% of teachers in the continent by 2027 and a third of students and all teachers by 2030. This also assumes the availability of digital assistive devices for a similar proportion of students and teachers with disabilities.

iv. NRENs developed and sustained in all countries by 2027.

v. All countries develop an integrated curriculum-enabled digital learning content and platforms for teaching, learning and assessment for teachers and students by 2028.

vi. All countries transitioned from headcounts and aggregated education data to granular individual-level data on students, teachers, institutions and processes underpinned by unique identity, intra and inter-education data integration and use of analytics to support decision-making at national, sub-national and institutional levels, including in the classrooms.

vii. Digital literacy and skills become core competence of teachers in Africa, and

viii. All students attain a minimum level of digital literacy and skills corresponding to their levels.

ix. Leaders and member of the community acquire relevant digital literacy and skills.

Figure 2 shows the Theory of Change (ToC) for digital education. The ToC assumes that the AU in partnership with RECs and development partners will support coordinated regional efforts towards designing and implementing national digital education strategies. A coordinated regional effort towards the availability of affordable, safe, secure digital devices, connectivity, content, and platforms, elevated data and analytics and competency-based digital literacy and skills for students and teachers will contribute towards accelerated digitalisation in education. The AU will promote the collection of evidence to measure progress in digital education.
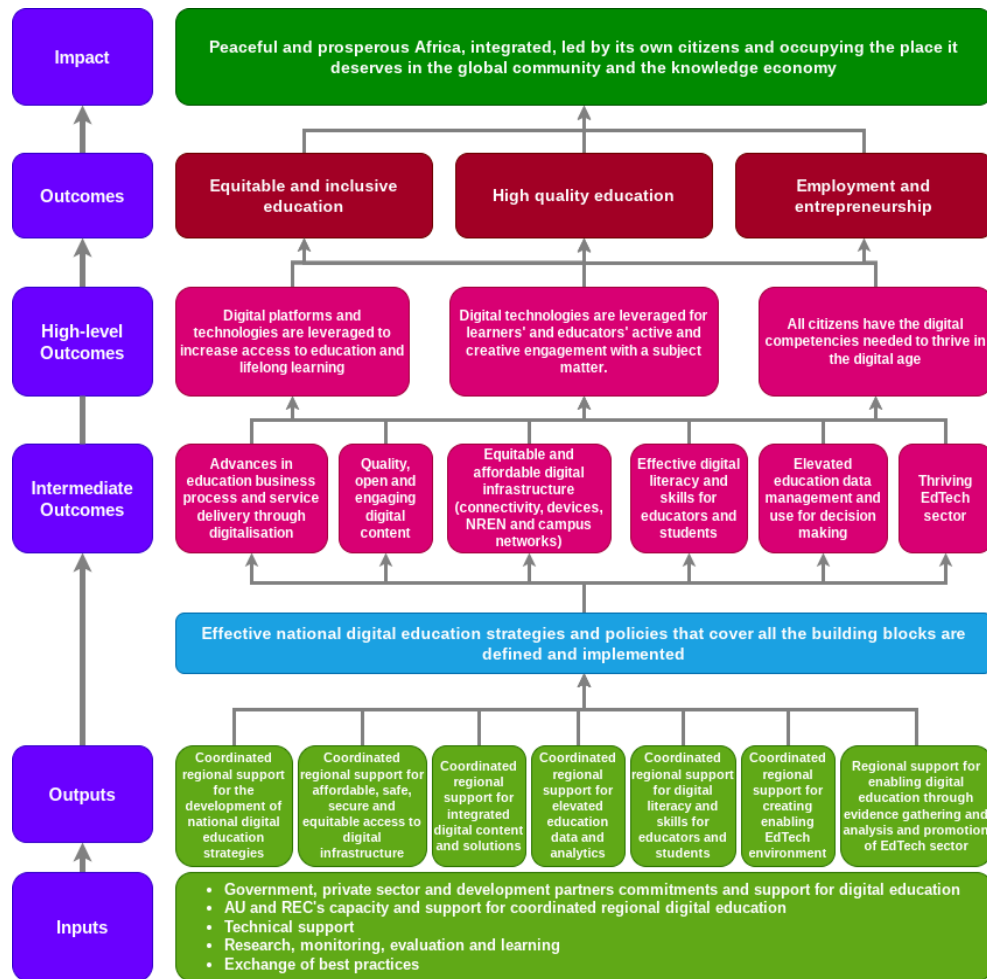
Figure 2: Theory of Change for Digital Education in Africa

The ToC is based on the assumption that adequate resources are available from public, private, and development partners and from the AU itself to implement regional programmes. Political will, coordination and partnerships, especially with governments and development partners will be present to ensure digital technologies impact how to teach and learn and what to learn in the continent.

3. DIGITAL EDUCATION STRATEGY

3.1 Vision and Mission

Vision:

The African Union envisions **"a peaceful and prosperous Africa, integrated, led by its own citizens and occupying the place it deserves in the global community and the knowledge economy."** Digital education will contribute to this AU Vision and enhance access, quality, relevance, and education affordability. Digital education (competencies, literacy and skills) will be built at all levels to promote digital citizenship, facilitate ICT use for teaching, learning and research, and enhance Africa's competitiveness.

Mission:

The Mission of the AU Digital Education Strategy is to **harness digital technologies to achieve the strategic objectives of the Continental Education Strategy for Africa—**namely: revitalising the teaching profession, improving learning outcomes, inclusion and equity, adult literacy, promoting Technical and Vocational Education and Training for employability and expansion of tertiary education, research and innovation and **providing all citizens with the digital competencies and skills needed to thrive in the digital age.**

3.2 Guiding Principles

The following principles will guide AU' and RECs' support of digital education in the continent:

i. **Digital education should promote the core goals of education**—namely: equity and inclusiveness, access to education, affordability, and improved learning outcomes and employment.

ii. **Digital education should be guided by a rigorous national digital education transformation strategy** that is aligned with regional standards and initiatives - to be used as the basis for a costed action plan and coordination among multiple stakeholders.

iii. **Investment in digital education, including connectivity, devices, capacity, literacy and skills, should consider everyone**, especially those in rural areas, girls, children from the poorest backgrounds, children and adults with disabilities, and children and adults in settings of fragility, conflict and violence. In addition, particular attention should be given to reducing gender inequality in digital competence at all levels as this can help enhance girls' and women's employability and empowerment; and prosperity.

iv. **Digital technology should be harnessed to facilitate flexible, accessible learning opportunities (e.g., micro-credential, alternative learning pathways)**, especially for out of school youth, adult learners and professionals, to help them re-skill, up-skill or change careers.

v. **Digital competence should be a core skill for all educators.** Regardless of the level, all educators should be given the necessary digital competencies in leveraging digital

technologies in teaching, learning, assessment, and research. Teachers need to have the capability to apply digital technologies in an effective and sound pedagogic approach that improves educational outcomes. In addition, women educators should be encouraged to excel in digital literacy and skills to serve as role models.

vi. **Students' digital skills are essential to access education and online information, navigate the Internet safely and critically evaluate online information, participate in society, and employability in the digitalised world.** Competency-based digital literacy and skills should be given to all students at all levels to enable them to develop personally, engage actively in society, use public services, and exercise their fundamental rights.

vii. **The education system should promote advanced digital skills and soft skills to ensure national and regional competitiveness, as outlined in the AU Agenda 2063**. Leaders should acquire the necessary digital literacy and skills to promote digital education at institutional, national and regional levels.

viii. **The education system should provide integrated high quality, relevant and inclusive digital education content for all in alignment with the curricula.** The digital content should respect personal data protection and ethics and follow agreed standards at both national and regional levels. It should incorporate accessibility to ensure those with disabilities have an equal opportunity for ICT-driven education. Digital education platforms should integrate all content available through TV and radio channels and e-content. Digital education should facilitate high quality technology-assisted assessments.

ix. **Digital education is a task of everyone involved in education.** It should be underpinned by partnership and dialogue between different stakeholders, including educators, the private sector, researchers, civil society, and decision-makers.

x. **Digital education should be driven by evidence and data to promote inclusion, ensure high-quality education outcomes and improve employability.**

3.3 Strategic Objectives, Actions and Outcomes

The Strategy proposes nine objectives that are built around the building blocks shown in Figure 3, to which a resource mobilization objective is added.

Strategic Objectives and Actions
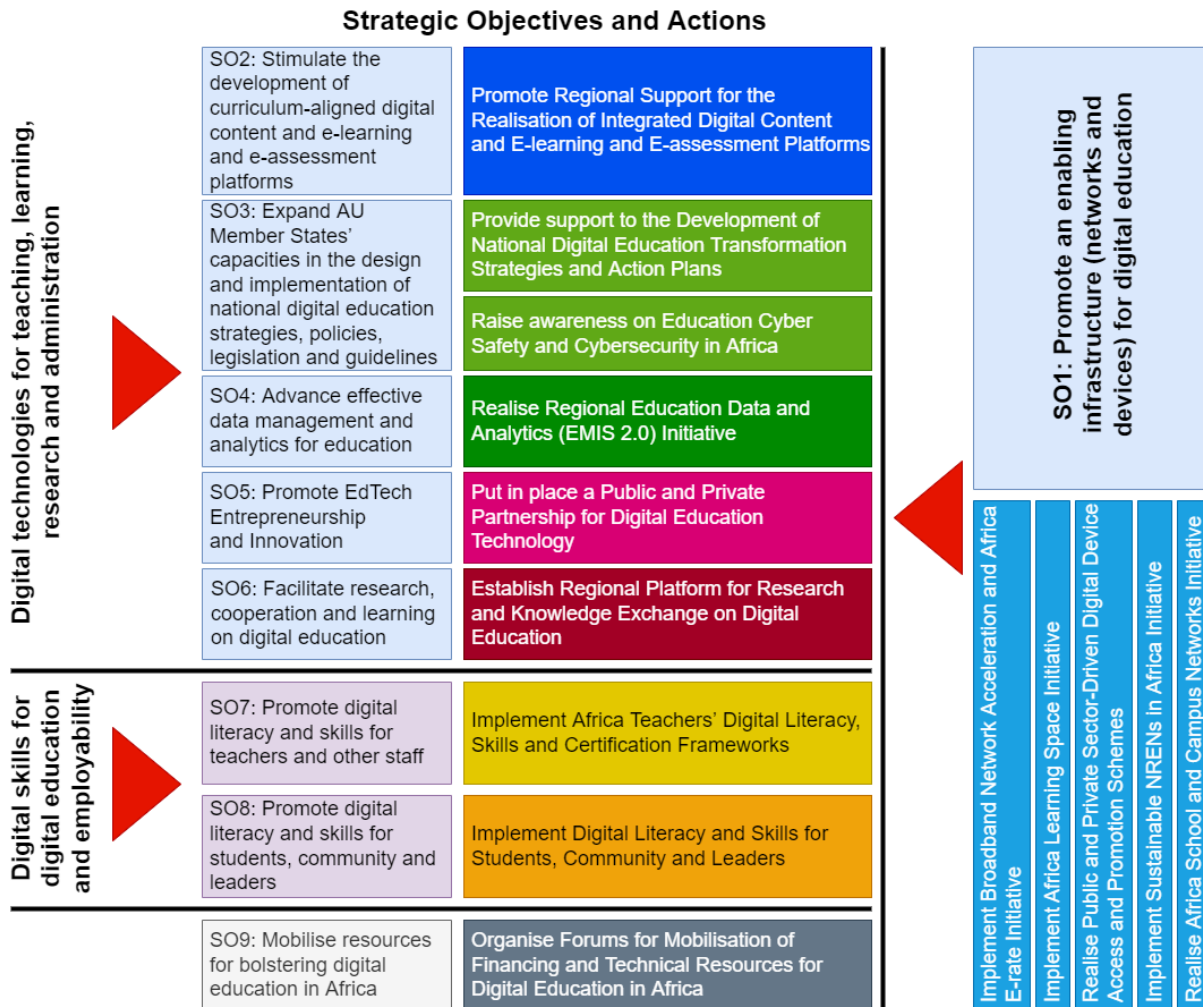
Figure 3: Digital Education Strategy Objectives and Action Area

The Strategy proposes nine objectives that are built around the building blocks shown in Figure 1 and an objective related to resource mobilization. It comprises the following:

Strategic Objective 1: Promote an enabling infrastructure for digital education. This strategic objective will focus on (i) the expansion of infrastructure at national and regional levels, through public and private partnerships, regional cooperation and, infrastructure sharing, (ii) reduction of the cost of Internet connectivity, (iii) improvement in the availability of devices, (iv) tackling bottlenecks in school and campus networks design and implementation, (v) accelerating the development of National Research and Education Networks (NRENs) and related e-research infrastructure, including strengthening existing ones NRENs and (vi) promoting digital education-friendly learning space (i.e., from well-designed classrooms to evidence-based construction and renovation of educational institutions for the digital age).

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Africa Broadband Network Acceleration and E-rate Initiative • Study broadband availability, models of connectivity and bandwidth cost • Identify strategies for affordable bandwidth • Prepare policy brief to raise awareness on increasing broadband and reducing the high cost of connectivity to education • Share the experience.	• Reduced cost • Increased demand and use of digital education, • Increased awareness of bandwidth cost	Cost lowered below $25 per Mbps/month in all countries by 2027
African Learning Space Initiative • Develop an advocacy paper on the learning space for competency based and blended learning • Regional learning space design workshops and contest	• Modernisation of learning space • Resources reallocation • Support for a new mode of education – competency- based learning, blended learning	Half of the buildings meet minimum learning space guidelines by 2028
Public and Private Sector-driven Digital Device Access Promotion Schemes • Estimate cost and devices and outline access and maintenance issues including potential for local production and e-waste • Devise devices access schemes that involve private sector, development partners and parents and various strategies including subsidies, local device production, etc. • Raise awareness • Forge partnerships • Establish an assistive technology fund	• Availability of devices • Availability of assistive technology tools • Knowledge shared on devices schemes, maintenance standards	Devices will be available for 50% of students and 100% of teachers by 2030 Assistive devices available for 50% of students in 2030
Sustainable NRENs in Africa Initiative • Develop and implement NREN roadmap and business plans by leveraging expertise and experience of UbuntuNet Alliance, WACREN and ASREN • Promote e-research infrastructure • Support new and fledging NRENs • Promote platforms for an exchange experience	• NRENs developed and strengthened across Africa • E-research infrastructure accelerated	Sustainable NRENs by 2027
Africa School and Campus Network Initiative • Create academia and private sector-led platform for the design of school and campus networks, and • Share best practices and guidelines.	• Well-designed school network • Africa campus network platform	At least half of the school networks will be designed based on service ready architecture by 2028

Strategic Objective 2: Stimulate the development of curriculum-aligned digital content and e-assessment and e-learning platforms. Core activities include enlisting teachers, curriculum designers, textbook publishers and others to develop and share digital content, developing standards, promoting national and regional networks for the exchange of open educational resources, accelerating the availability of digital learning for tertiary education by

strengthening PAVU and launching initiatives that help countries build integrated platforms for sharing online learning resources, e-assessment and e-learning experiences.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Regional Digital Content Exchange Platforms • Conduct assessment on e-learning content and e-assessment and e-learning platforms • Establish guidelines on e-learning and e-assessment • Train and motivate teachers • Curate and organise curriculum-aligned resources • Accelerate distance, hybrid and blended form of learning • Support sharing of experience on sustainable and integrated national and regional e-learning platforms that leverage existing platforms of institutions, private sector and partners.	• Wider availability of curriculum-aligned content • Experience and resource sharing on e-assessment applications, e-learning content and integrated e-learning platforms • Reduced cost of access to online content	Integrated high quality online learning platforms for students and teachers for basic education in all AU Member States by 2025 from the low quality or non-existent e-learning solutions in 80% of countries in 2022. At least three regional platforms for exchange of online learning content, e-learning and e-assessment platforms by 2025 from no platform in 2022.

Strategic Objective 3: Expand AU Member States' capacities in the design and implementation of national digital education strategies, policies, legislation and guidelines. National capacity to design and implement digital education strategies, policies and legislations is critical because these will serve as a basis for investment in and guide of digital education. This strategic area also promotes regional efforts that facilitate online safety and cybersecurity policies, and other related guidelines and legislations for the education sector.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Support for the Development of National Digital Education Transformation Strategies and Action Plans • Support countries' effort to design and implement national digital education strategies through technical assistance • Share experience in the developing and implementing national digital strategies	• Digital education is based on articulated strategies and action plans	All Member States develop their national digital education strategies and action plans by 2024
Africa Education Sector Safety and Cybersecurity Awareness Initiative • Conduct in-depth review of cyber safety awareness in education • Conduct a full review of cybersecurity awareness in education • Develop guidelines on cybersecurity and cyber safety in education in alignment with regional and national guidelines, policies and regulation • Raise awareness on cyber safety and data privacy • Support multifaceted initiatives for	• Regional guidelines on cyber safety and data privacy • Awareness on cyber safety and privacy • Guidelines and experience sharing on cybersecurity in education in Africa • Increase investment in cybersecurity in education	Regional and national cybersecurity and cyber safety guidelines followed by at least 50% of education institutions by 2027

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
raising awareness on cybersecurity and cyber safety		

Strategic Objective 4: Advance effective data management and analytics for education.

This strategic area supports a transition from EMIS 1.0, which primarily focuses on statistical data collection on headcounts, to EMIS 2.0, which pays attention to individual-level learners, staff, and institutional data from all levels from all levels of education including Early Childhood Education, primary and secondary education, TVET, higher education, informal learning required to measure access, equity, learning outcome, relevance, and affordability of education. In addition, EMIS 2.0 will leverage advances in web-based platforms, experiences in other sectors like health (e.g., DHIS2), hybrid learning data, digital identity, education data models/metadata, emerging technologies like artificial intelligence, etc. for establishing functionally integrated and high-quality data for decision-making at institutional, regional and central levels.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Regional Education Data and Analytics (EMIS 2.0) Initiative • Conduct review of education data and analytics situation, including school, TVET and University-based information systems • Develop EMIS 2.0 framework • Mobilise support to strengthen education data and analytics based on EMIS 2.0 framework and advocate for optimal use of existing data to support policy formulation and implementation and accountability	• EMIS 2.0 architecture in place • Support for digital education powered data and analytics mobilised	At least half of the countries will graduate from current data systems to data and analytics based on granular data powered by unique IDs, data models (EMIS 2.0) by 2027.

Strategic Objective 5: Promote EdTech innovation and entrepreneurship.

This Strategic Objective will leverage AU' and Regional Economic Communities (RECs)' roles to stimulate the EdTech sector and innovations by promoting regional platforms for knowledge exchange and encouraging Member States to create conducive environments for vibrant EdTech start-up development.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Public and Private Partnership for a Digital Education Technology • Assess EdTech entrepreneurship and EdTech training • Review potential collaboration between African EdTech/ universities with their peers worldwide and initiate joint programmes	• Improved collaboration between African EdTech/Universities and their peers worldwide on solving education challenges • Increased competitiveness of EdTech sector in Africa	At least ten enterprises delivering integrated solutions for education in all countries by 2027. Revised EdTech curriculum informed by global practices in at least half of the African countries by 2025.

Strategic Objective 6: Facilitate research, cooperation and learning on digital education.
This strategic objective will move evidence-based digital education forward by establishing regional platforms and centres of excellence for the exchange of research insights on the digitalisation of education.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Regional Platform for Digital Education Research and Knowledge Exchange • Conduct a systematic review of evidence-based digital education in Africa • Funding for research on digital education • Establishing platforms for collaboration on evidence-based digital education	• Increased understanding of current research and gaps in digital education • A platform for the exchange of experience and collaboration on evidence-based digital education is created and promoted	A systematic review published by 2024 A platform for exchange of evidence on digital education created by 2025

Strategic Objective 7: Promote digital literacy and skills for teachers and other staff. This strategic objective will facilitate regional competency and certification frameworks to ensure that digital literacy and skills become a core competency of every teacher on the continent and that teachers are certified and recognised for their digital literacy and skills.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Africa teachers' digital literacy, skills and certification framework • Assess teachers' digital literacy and skills gap • Review and adopt UNIESCO ICT-CFT or DigCompEdu digital literacy and skills competency frameworks for teachers, • Develop and implement teachers' digital literacy and skills competency framework for Africa • Review certification scheme for teachers' digital literacy and skills • Implement an African Certificate for Digital Education Teachers.	• Understanding of teachers' digital literacy and skills training gaps • Publication and use of African teachers' digital skill competency framework • Teachers are certified based on an African Certificate for Teachers Digital Education	All AU Member States adopt and implement teachers' digital literacy and skills competency framework by 2024 AU Members adopt African Certificate for Digital Education Teachers by 2026

Strategic Objective 8: Promote digital literacy and skills for students, community and leaders. This strategic objective will accelerate competency-based digital literacy and skills for students at all levels. It aims to leverage school, TVET and university digital infrastructure to accelerate digital literacy and skills of the community, lifelong learners and leaders. It fosters digital entrepreneurship skills in close alignment with the industry.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Digital Competency and Coding for Students • Digital Skills for Students, Community and Leaders	• African students' digital literacy and skills competency framework published and adopted • Education leaders and	At least half of the AU Member States adopt and implement digital competency frameworks and guidelines for students' digital

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
• Review and adapt the competency framework for students' digital literacy and skills • Review and implement digital literacy and skills for communities and leaders • Develop guidelines for skills at TVET and higher education in close alignment with market and industry demands. • Stimulate specialised ICT skills and coding in Africa	community receive digital literacy and skills • Job related digital skills are developed at TVET and higher education levels • Inclusive coding promoted at education levels	literacy and skills. Increase in the number of coders (including girls and students with disabilities) by at least 10% on an annual basis in all African countries.

Strategic Objective 9: Mobilise resources for bolstering digital education in Africa. The above activities will not be achieved without concerted effort in mobilising funding and other technical resources for the accelerated adoption of digital technologies in education. Planning and investing in digital education should be country-led and context-specific. Sustainable financing of digital education is, therefore, a responsibility of AU Member States. Governments should ensure that all the building blocks of digital education, ranging from infrastructure to skills to data and analytics, are funded adequately using local financial resources and a mixture of investment models, including universal access funds and public and private financing and development aid, as appropriate. This Strategic Objective will focus on communicating and advocating for digital education at national and regional levels and mobilising financial resources locally and internationally for implementation of regional and national initiatives.

Strategic Actions and Tasks	Outcomes	Indicative Target and KPI
Forums for Financing Digital Education • Develop promotional materials and proposals for funding digital education • Communicate, advocate and raise awareness on digital education • Organise two forums on financing digital education in Africa (2023 and 2026) • Encourage private sector participation in financing digital education	• AU Digital Education Strategy and Implementation Plan funded • Financial and technical resources are mobilised for priority digital education projects in the Member States.	At least 50% of the AU Digital Education Strategy funded by 2024.

3.4 Coordination Capacity for Digital Education

The AU Digital Education Strategy and Implementation Plan recognise that essential supporting functions at the AU's Department for Education Science, Technology and Innovation (ESTI) and RECs levels need to evolve to achieve changes at the Member States level. Implementing the different building blocks of digital education discussed in this strategy requires considerable coordination, convening, resource mobilisation, knowledge mapping, management and sharing

at AU and RECs levels.

3.4.1 Digital Education Coordination Capacity of the AU

The AU realises that digital education is a fast-moving target. Therefore, an adequate internal capability is critical for the AU to discharge its outreach, international cooperation, resources mobilisation, coordination, convening, performance tracking and knowledge sharing roles in this area. To achieve this:

i. First, the AU/ESTI will work with its partners to strengthen its internal digital education programme formulation and implementation capacity around the themes of digital education. In the beginning, this will be achieved through mobilising technical assistance on the different topics, in particular in the design and implementation of national digital education strategies. The technical assistance team will work closely with the AU staff to support the co-creation and co-design of digital education programmes in Member States.

ii. Second, the AU/ESTI will allocate resources to strengthen staffing in the digital education domain to provide ongoing technical assistance to Member States and coordinate different initiatives with partners. Specifically, the AU will strengthen its capacity in at least two aspects at the beginning—"digital education infrastructure and policy" and "digital education skills and applications."

iii. Third, the AU/ESTI will strengthen its knowledge mapping, management and sharing expertise on the different building blocks of digital education to serve as an information hub for its Member States. This will also allow the AU and its Member States to gather data and track progress on different themes of digital education.

3.4.2 Building RECs' Capacity in Digital Education

The Digital Education Strategy and Implementation Plan entrust responsibilities to the RECs in supporting and coaching their Member States in developing and implementing national digital education strategies, mobilising resources, and promoting cooperation at sub-regional levels. This demands a complete understanding of the different aspects of digital education. To achieve this:

- RECs will strive to develop the internal capacities through technical assistance to support their Member States' efforts to design and implement national digital education strategies.
- RECs will allocate resources to recruit a permanent digital education specialist to support Member States' efforts in this growing and dynamic area.
- RECs will improve interaction with their peers in other continents, especially in Asia and Latin America, on digital education planning and implementation support practices at national levels.

3.4.3 Building the Capacity of Member States

The AU Member States will have the ultimate and critical responsibility in developing their digital education ecosystem. The diversity of African countries in digital infrastructure, education

systems, policies and legislation, geographical location (islands, land-locked etc.), and digital education maturity means that AU's support to its Member States will be tailored to these different national settings.

The AU, RECs, technical assistance experts and Member states' stakeholders will work together to develop national digital education strategies through an iterative and consultative process-where all stakeholders set targets and develop priority programs around the different building blocks of digital education. The AU and RECs will ensure that relevant Ministries, Departments and Agencies, especially the Ministry of Education and Ministry (or Ministries) in charge of ICT, coordinate the realisation of digital education. Drawing on these experiences, the AU and RECs will develop step-by-step guidelines that other countries can use to develop and implement their national digital education strategies. The AU and REC will also facilitate sharing best practices and organise regional forums, where decision-makers exchange experience on digital education.

The AU will also support Member States' efforts to mobilise financial and technical resources for priority digital education programmes. Drawing on its experience, the AU will develop a guide on mobilising financial and technical resources for digital education at national levels. The AU Member States are also expected to benefit from active participation in the forums for financing digital education in Africa proposed in this Strategy and Implementation Plan.

3.5 Digital Education Implementation Plan

The Digital Education Strategy Implementation Plan proposes a five-year timeframe between 2023 and 2028 to carry out the fourteen actions divided into three horizons, as shown in Figure 4. Horizon 1, which will start in early 2023, will focus on setting the foundations and communicating digital education priorities with Member States. This will include preparation for carrying out different action plans, building the capacity of the AU and RECs, promoting digital education across Africa, mobilising financial and technical resources and initiating the first set of actions, such as the Africa E-rate drive, device access promotion schemes and design of national digital strategies in at least one country per region.

Horizon 2, which will occur between 2024 and 2026, will roll out all the proposed strategic actions in the Digital Education Strategy in coordination with RECs and development partners. Horizon 3 will commence in 2027. It will see the consolidation of all the initiatives. This stage will focus on the review lessons learned during the four years of implementing the strategy and mobilising additional resources.

The Implementation Plan also envisages improved capacity of AU, RECs and the Member States during these phases. At first, AU', RECs' and Member States' capacities will be built through technical assistance. Horizon 2 envisages that the AU and RECs engage permanent staff to support the Member States' efforts in different aspects of digital education and promote knowledge sharing. Horizon 3 foresees that the AU and RECs staff support Member States in the actual implementation of the different digital education programmes and measuring progress.
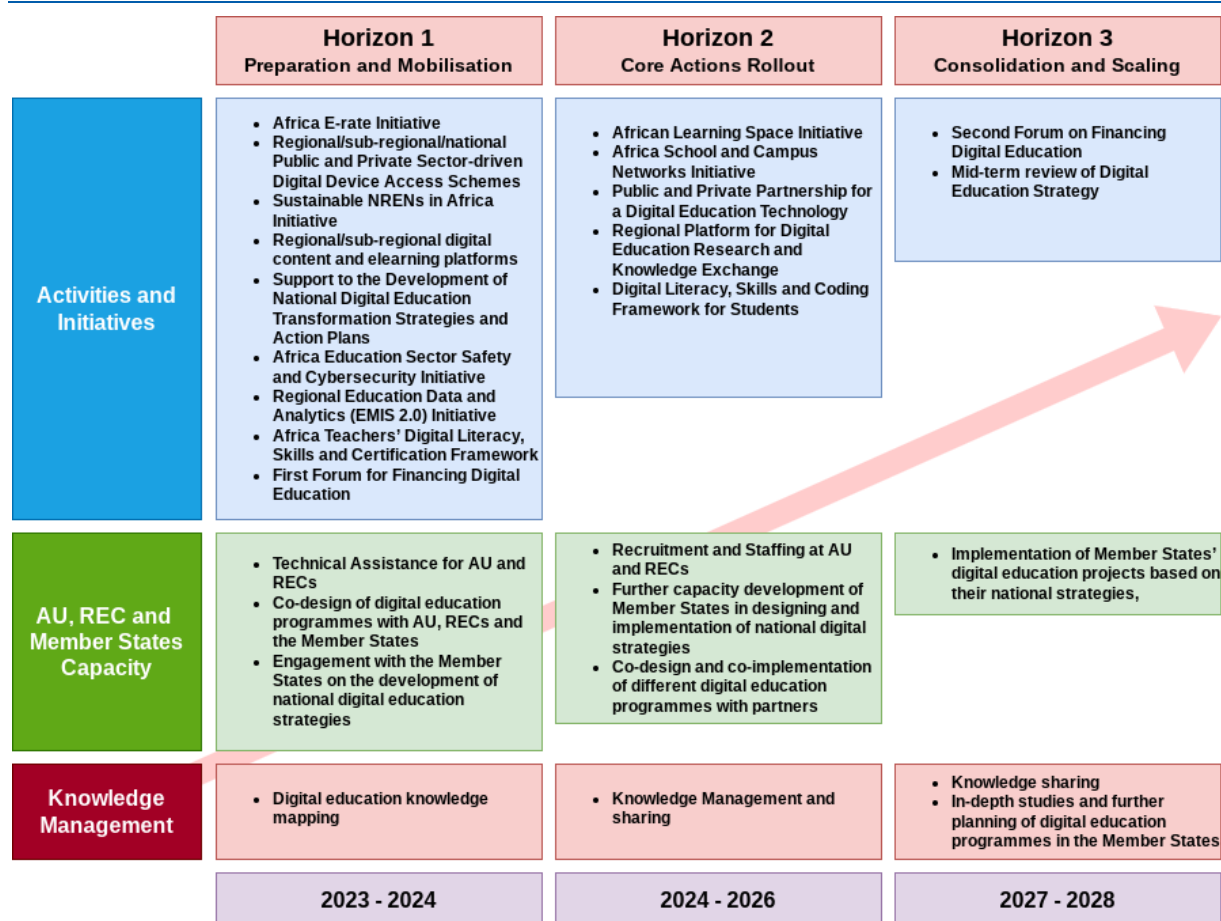
	Horizon 1 **Preparation and Mobilisation**	**Horizon 2** **Core Actions Rollout**	**Horizon 3** **Consolidation and Scaling**
Activities and Initiatives	• Africa E-rate Initiative • Regional/sub-regional/national Public and Private Sector-driven Digital Device Access Schemes • Sustainable NRENs in Africa Initiative • Regional/sub-regional digital content and elearning platforms • Support to the Development of National Digital Education Transformation Strategies and Action Plans • Africa Education Sector Safety and Cybersecurity Initiative • Regional Education Data and Analytics (EMIS 2.0) Initiative • Africa Teachers' Digital Literacy, Skills and Certification Framework • First Forum for Financing Digital Education	• African Learning Space Initiative • Africa School and Campus Networks Initiative • Public and Private Partnership for a Digital Education Technology • Regional Platform for Digital Education Research and Knowledge Exchange • Digital Literacy, Skills and Coding Framework for Students	• Second Forum on Financing Digital Education • Mid-term review of Digital Education Strategy
AU, REC and Member States Capacity	• Technical Assistance for AU and RECs • Co-design of digital education programmes with AU, RECs and the Member States • Engagement with the Member States on the development of national digital education strategies	• Recruitment and Staffing at AU and RECs • Further capacity development of Member States in designing and implementation of national digital strategies • Co-design and co-implementation of different digital education programmes with partners	• Implementation of Member States' digital education projects based on their national strategies,
Knowledge Management	• Digital education knowledge mapping	• Knowledge Management and sharing	• Knowledge sharing • In-depth studies and further planning of digital education programmes in the Member States
	2023 - 2024	**2024 - 2026**	**2027 - 2028**

Figure 4: Overview of the Implementation Plan

The AU will build on baseline information gathered during a situation analysis to design this Strategy and Implementation Plan, to assemble further data, analyse, update, manage and share knowledge on the digital education experiences of its Member States. Horizon 2 will add in-depth information on Member States' activities in formulating and implementing their national digital education strategies. It is also envisaged that the AU, Member States and researchers will use the knowledge gathered during the first two phases to generate insights on digital education.

3.5.1 Summary of Actions and Outcomes

The Digital education Strategy and Implementation Plan estimates the need for al least US$60 million[11] to enable the AU and its partners to launch and implement the different regional actions in coordination with its Member States. The AU will work with all partners to mobilise financing, technical assistance, data and knowledge for the different aspects of digital education. It will mobilise its Member States' efforts through well-articulated digital strategies. It will accelerate its knowledge management and sharing, which will serve as a basis for engagement and monitoring progress.

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11   Estimates are available in separate document

3.5.2 Monitoring, Evaluation and Learning

The Digital Education Strategy and its Implementation Plan emphasise the importance of evidence-based digital education in Africa. Strategic Objective 6 stresses the need to gather data, track progress, and generate insight on the link between investment in digital and the access, equity, affordability, relevance, and learning outcome challenges in education in Africa. The AU will draw on existing baseline data on digital education to track progress. It will partner with universities and research institutions (e.g., centres of excellence in digital education) to develop indicators and promote studies on different themes of digital education. Monitoring, evaluation and learning of the Digital Education Strategy will be assured further by:

   i. Developing indicators to monitor the progress of Member States in all priority area of digital education shown in Figure 1.
   ii. Integrating and monitoring and evaluation in the implementation of all the actions outlined in this Strategy and Implementation Plan.
   iii. Conducting a midterm review of the Digital Education Strategy and Implementation Plan in 2025 to evaluate progress and refine the different tasks in alignment with Member States' needs and technological progress.
   iv. Mapping, managing and sharing knowledge on digital education.

Based on data and the above, the AU will establish a web platform with a dashboard that shows progress in digital education across its Member States.

4. CONCLUSION

The technology-driven changes impact every aspect of education—teaching, learning, research, assessment and administration and also teaching contents, to include basic digital competencies and advanced digital skills. The COVID-19 crisis has shown that the impact of technology can be felt even in the remotest part of Africa. It has also revealed that failing to support technology integration in education means failing to prepare for the future.

When carefully applied, digital technologies can potentially impact learning by reducing the low access to and high cost of education. In addition, they can play supportive role in reducing the disparities between boys and girls, and allowing more inclusiveness of marginalized or vulnerable groups. They can improve the and low level of learning outcomes, overcoming the limited number of qualified teachers. Digital literacy and skills will also impact youth employability, contributing to achieving the AU Agenda 2063 goals.

The AU Digital Strategy and Implementation Plan outlines recommendations for accelerating the African digital education ecosystem in the region over the next five years. The recommendations are intended to be carried out over three horizons—beginning with creating the foundations, including communication and advocacy of digital education, building the capacities of AU and RECs, developing Member States' capacities in articulating and implementing national digital education strategies, and mobilising resources.

The Digital Education Strategy and Implementation Plan proposes 14 regional actions grouped around the building blocks. It advocates for the design and implementation of national digital education strategies and implementation plans that respond to the different contexts of Member States with attention to — infrastructure, learning content, data and analytics, innovation and entrepreneurship, research, teachers' digital literacy and skills, students' digital literacy and skills and improvement of application and systems. Further, it stresses that digital education's success depends on innovative leadership at all levels, a shared forward-looking vision for digital education, partnerships and collaboration between Member States and development partners in mobilising technical and financing resources to bring about the desired optimal impact. Digital education must pay particular attention to inclusion issues, especially to the empowerment of girls, children and adults with disabilities and those affected by conflicts and natural disasters.

Financing and evidence-based policymaking are the principal enablers for digital education. The AU Digital Education Strategy and Implementation Plan foresee the requirement for US$60 million over five years to implement different programmes discussed in this document at regional levels, which will serve as a catalyst for further resources mobilisation and actions at national levels.