E-Readiness of SADC Member States in the Education Sector
Prepared by GESCI

Introduction

At the urging of Heads of State at the 38th SADC Summit to fast-track Member States e-readiness in key sectors, SADC Secretariat together with partners have developed a strategy and framework for assessing the ICT integration in the education sector. A key partner in this is the Global e-Schools and Community Initiative (GESCI), a UN founded NGO supporting ICT integration in education and training. GESCI is the lead agency of the ICT in Education Cluster for the African Union's Continental Education Strategy for Africa. Based on their substantial experience in implementing education initiatives in multiple African countries on digital skills development among teachers and students in schools, in non-formal youth digital programmes, and at the tertiary level in supporting post-graduate diplomas in digital and knowledge economy leadership, GESCI has drafted an interim framework for modification by SADC Member States. Using this framework, a peer-to-peer review of Member States' status of e-readiness in the education sector will ensure that this sector is capable of providing the human resources necessary for launching SADC's Fourth Industrial Revolution.

Summit approved the operationalisation of the SADC University of Transformation, in the form of a virtual university, to focus on entrepreneurship, innovation, commercialization, technology transfer, enterprise development, digital and knowledge economy, to support SADC Industrialization agenda.

Policy Context

SADC's Industrialization Strategy and Roadmap 2015-2063, as well as the revised Regional Indicative Strategic Development, places the growth of infrastructure, particularly that of ICTs, as one of the three pillars to support the new industrialisation of Member States. At the most recent 38th SADC Summit the theme of "Promoting Infrastructure Development and Youth Empowerment for Sustainable Development," reaffirmed the SADC industrialization agenda, while focusing on infrastructure development, youth empowerment and sustainable development. An aim is that, by 2025, 60% of youth and adults achieve at least a minimum level of proficiency in sustainable digital skills. The modern digital world calls for a systematic approach to the development and absorption of ICT as a tool for sustainable development.

The Digital SADC (2027) strategy addresses convergence issues and harmonisation of ICT infrastructure, services and indicators; promotes ICT usage for regional economic integration, enhancement of connectivity and access to ICT services. Aside from addressing policy, legislation and regulation, it also focused on crosscutting issues such as ensuring gender is taken into consideration, as well as capacity building programmes and the development of e-applications such as e-governance, e- parliament, e-commerce, e-education, e-health and e-agriculture. The strategy also calls for the reviewing of the status of e-readiness and e- strategies adopted by SADC Member States.

SADC's Regional Infrastructure Development Master Plan (RIDMP) (2012) is driving ICT integration across sectors. It aims to ensure that ICT technologies are accessible and affordable for all citizens in the SADC region, and that ICTs are fully able to support the national development agendas and policies of the Member States, as well as the region as a whole. This includes accelerating regional integration, inclusion of rural and isolated populations, enhancing competitiveness, maximising economic development, attaining Millennium Development Goal targets, eliminating supply side constraints and reducing the cost of doing business in the region. By the same token, by providing more universal access to communications and ICTs, the region will be better able to address its overarching objective of reducing poverty.

e-Readiness Strategy for Education Sector

The SADC e-readiness strategy, aligning itself with key RIDMP objectives, seeks to empower Member States to primarily:

- Improve the ICT policy and regulatory enabling environment of the education sector to make more efficient use of existing infrastructure, minimise its costs of use, and encourage investment in new infrastructure; and
- Accelerate the adoption of ICTs within government supported education institutions and ministries in order to increase service levels, efficiencies, and transparency

Concurrently,

- Build the digital skills of teachers, students and their communities so as to provide the necessary knowledge and expertise needed by the digital and knowledge economy.

The approach adopted is to draft a set of norms and standards for assessing or measuring progress towards an expected outcome, namely the adoption and widespread implementation of ICTs in the education sector. The e-Readiness Education Norms and Standards Assessment framework allows Ministries to identify the necessary steps, or the road-map they need to follow to ensure that there is a regulatory enabling environment which effectively maximises existing and encourages investment in new ICT infrastructure; builds on ICT enabled improvements in service levels and integrates ICTs in teaching and learning thus equipping their youth with the necessary skills for the modern workplace in the knowledge economy.

The SADC e-Readiness Assessment framework is draft and needs to be customized and approved by Member States within the Regional Economic Community, and then it will be ready to be implemented. Member States will need to provide their technical experts in Ministries of Education and ICTs to review the framework's proposed norms , standards and their appropriate levels in order to ensure that they are technically and contextually appropriate for the region. Once consensus has been obtained by the technical experts, at least two to four countries will pilot the framework with their national ICT and education teams to further refine the framework and remove any anomalies. Designed for all levels of education – schools, post-secondary and tertiary institutions – the national teams will assess and measure all levels of education delivery against the proposed standards and norms. The technical experts will ratify the framework of ICT integration of Norms and Standards Assessment for submission of approval by SADC Ministers in order to move to the next stage which is a phased roll-out to all Member States.

Implementation of the e-Readiness Framework

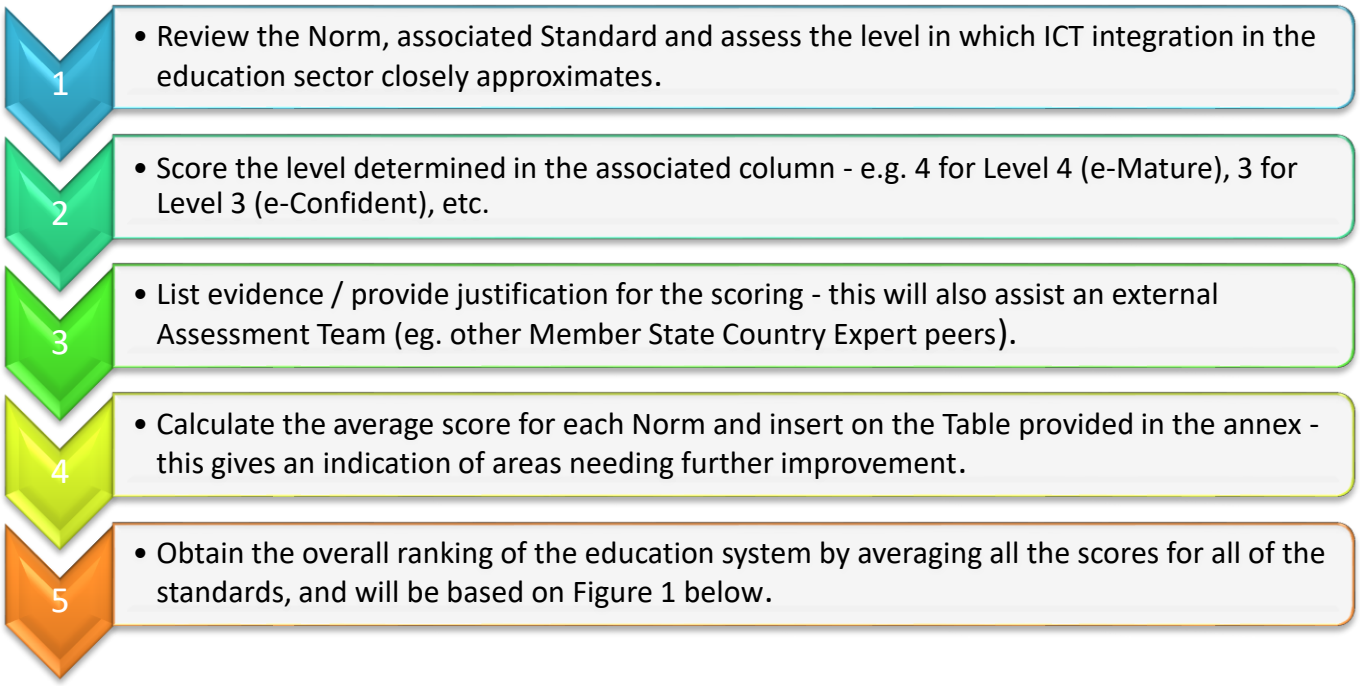
Implementation can vary depending on the voiced need by Member States. By collaboratively creating an assessment framework, Member States buy into a set of regionally agreed norms on best practice for ICT Integration. These would serve as a guide for national ministries to develop an e-strategy to shift their schools and institutions into higher digital levels. The e-readiness assessment framework can stand alone for internal national review by country key experts. Alternatively, Member States could request technical support from external experts for this as well. Having completed

the ranking, they could apply to their Regional Economic Community Secretariat to appoint other partner countries to peer review their system against the same e-readiness framework. This approach allows for greater policy dialogue and the joint final recommendations will have more weight when submitted to senior management and the responsible Minister for follow-up action.

Countries implementing the e-readiness framework will assess themselves according to the proposed standards providing evidence where possible. Each of the seven Norms includes a number of standards. Standards are high-level descriptors of a number of sub-standards ranging across a 4 point assessment scale ranging from the "Initial ICT Integration" stage (Level 1) to "E-Enabled ICT Integration" (Level 2) followed by "e-Confident ICT Integration" (Level 3) up to the ideal Standard "e-Mature ICT Integration" (Level 4). Each represents a likely stage or phase in achieving the full standard.

The steps involved in assessing the performance of a Member State against the e-Readiness Framework are outlined below.

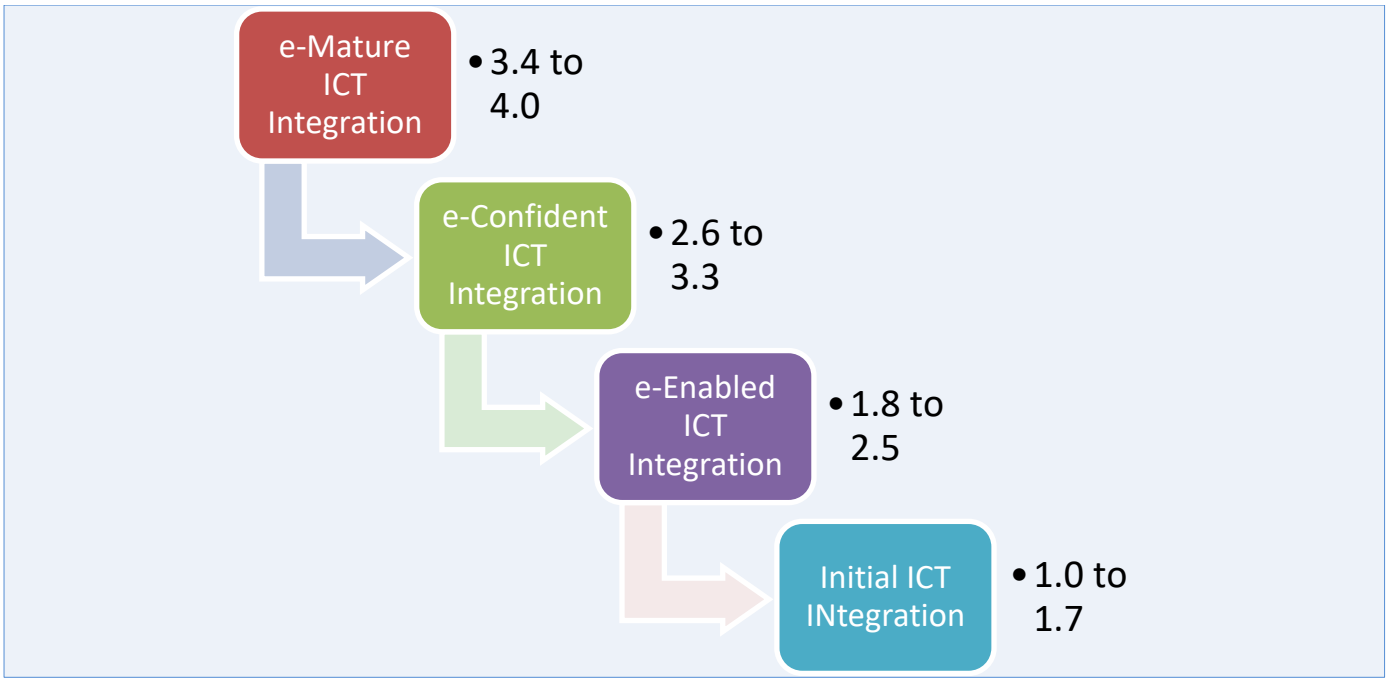
Steps to follow in scoring country performance:



Note: The Framework standards are independent of each other, making it possible for a Ministry's education system to be assessed as *Initial (Level 1)* for one standard and to have *e-Mature (Level 4)* for the next standard.

An overall average score of all the standard per norm greater than 3.3 indicates that the country has effective or *e-Mature* ICT Integration of its education system and is on the whole producing learners with 21st Century skills. Similarly, an overall average score of between 2.6 and 3.3 categorizes the country as having achieved *e-Confident* ICT Integration status among its education institutions. An average score below 2.6 and above 1.7 indicates the country education system is *e-Enabled* (Level 3) and below that is just starting on on this journey in ICTs and is at *Initial* (Level 1).

Figure 1 below provides the ranking categories, with scoring ranges for each category.



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The e-readiness framework with the graduated levels of achievement (initial, e-enabled, e-confident and e-mature) per standards provides an analysis of the government's weaknesses and strengths in optimizing an enabling regulatory e-environment, in the coverage of e-infrastructure in the sector, and the status of the human resource strategies required to ensure maximum impact on the sector. It provides decision makers a guide on which specific standards are not being reached and the next level of improvement that is needed in these areas.

Total Cost of Ownership Tool

With the rapid advancement of technology, the evolving nature of digital learning resources and their costs, ongoing improvement and models of professional development for teachers, the commercial organizations tend to strongly promote their products and services. Often the key decision makers in government are ill-equipped to do thorough due diligence on the technology options in-terms of one -time cost and recurring cost, quality of digital learning resources ,and professional development cost associated for successful integration of ICT in Education. GESCI has developed a Total Cost of Ownership (TCO) tool, combined with capacity building for key officials of Ministries, which enables well-informed plans and decisions about technology deployment, cost savings as to the best possible configurations for the particular context. This ensures more sustainable investments with an end-to-end approach which ensures that deployment is well planned, well-executed and properly maintained and monitored. The TCO tools assist the decision-making process faced by local, state or national governments and individual institutions that are considering the implementation of large scale or phased ICT in education deployment across the schools or post-secondary institutions.

Conclusion

The SADC e-readiness tool and e-strategy for the education sector ensures all Member States buy into common standards of ICT integration; that they have a tool to benchmark the status of their ICT implementation in the sector; that they can be peer-reviewed by other Member States which encourages harmonization and knowledge sharing and that in the final

instance they are provided with a sufficient analytic basis by the assessment findings to take steps to achieve higher levels of digitalization in their schools, colleges, universities and administration.

This e-strategy allows feedback to the SADC Secretariat and Ministers on ICT integration in the education sector across Member States supporting the revised RISDP strategy that all SADC citizens, in particular youth, are taught the vital digital skills needed for them to engage in a global knowledge economy which ensures the Fourth Industrial Revolution materializes in the region.

ANNEX 1 A DRAFT E-READINESS TOOL FOR THE NATIONAL EDUCATION SECTOR FRAMEWORK

Norm 1: Leadership, Planning & Management on Integration of ICTs in Education

Components		Standards	e-Readiness Assessment for the National Education Sector					
			e-Mature **Level 4**	e-Confident **Level 3**	e-enabled **Level 2**	Initial **Level 1**	**Score**	**COMMENTS**
National ICT Policy For Education	**1.1.1**	Existence of a National ICT Policy for Education	There are legal instruments (law, or policy order) on the Integration of ICTs, which cover education and training	There is a national policy on ICT Integration in education and training	There are official documents (letter, decree) on the integration of ICTs in education and training	There are no legal instruments or policies or administrative documents supporting the integration of ICTs in education and		
	1.1.2	The coverage of the National ICT Policy for Education.	The policy covers all education and training sub-sectors (+75%).	The policy covers between 50% and 75% of all education and training sub-sectors.	The policy covers between 25% and 50% of all education and training sub-sectors.	The policy covers less than 25% of all education and training sub-sectors.		
	1.1.3	The application of the policy to all sub-sectors in education	The policy is applied to cover all education and training sub-sectors (+75%).	The policy is often or sometimes applied to all education and training sub- sectors.	The policy is rarely applied.	The policy is not applied.		
Vision on the integration of ICTs in Education	**1.2.1**	There is a clear and comprehensive vision on the integration of ICTs in Education that is widely adopted and shared by all stakeholders	There is a clear and comprehensive vision on the integration of ICTs in Education that is officially documented, and widely adopted and shared by all education stakeholders	The vision on the integration of ICTs in education is formulated into an official document and adopted by some education stakeholders.	There is a clear and comprehensive vision formulated through a process of consultation and collaboration with all stakeholders and captured into an official document	There is no vision formulated but an ICT integration team has been appointed and mandated to formulate the vision through a process of consultation and collaboration with all stakeholders		

	1.2.2	There is a implementation strategy to realize the vision for the integration of ICTs in Education that is widely adopted and shared by all stakeholders	There is a well-defined and realistic implementation strategy, with clear priorities and measurable targets for the effective integration of ICTs across all education and training sub-sectors, widely adopted and shared by all stakeholders	There is a well-defined and realistic implementation strategy, with clear priorities and measurable targets for the effective integration of ICTs across all education and training sub-sectors, adopted and shared by some stakeholders	There is a implementation strategy, for the effective integration of ICTs across all education and training sub-sectors, still to be adopted by stakeholders	There is no strategy in place but there a shared understanding of and commitment among education stakeholders to the formulation of a strategy		
	1.2.3	Integration of ICTs in Education has been declared a priority in national budgetary allocations	National budgetary resources required to underpin the vision on the integration of ICTs in Education are clearly identified, prioritized and allocated through the national fiscus	National budgetary resources required to underpin the vision on the integration of ICTs in Education are clearly identified, but rarely prioritized or allocated in the national fiscus	Some none-specified budgetary allocations towards the integration of ICTs in Education	No budgetary allocations towards the integration of ICTs in Education		
Management and Governance of the National ICTs in Education Policy	**1.3.1**	Leadership has a shared understanding of the importance of integrating ICTs in Education and is committed to the implementation of the National ICTs in Education Policy	Government leadership fully understands the importance of integrating ICTs in Education and is fully committed towards the implementation of the National ICTs in Education Policy	There is a some shared understanding among the government leadership on the importance of ICTs in Education with limited commitment towards the implementation of the ICTs in Education policy	There is a some shared understanding among the government leadership on the importance of ICTs in Education but no commitment towards the implementation of the ICTs in Education policy	Government leadership does not understand the importance of ICTs in Education and is not commitment towards the implementation of the ICTs in Education Policy		
	1.3.2	Management responsibility at the Ministerial level is clearly assigned	Management responsibility at the Ministerial level has been clearly assigned and mandated for the delivery and monitoring the implementation of the National ICT in Education Policy	Management responsibility at the Ministerial level have been assigned but not yet implemented	Existing management is informal and unstructured.	There is no management structures at the Ministerial level		

	1.3.3	Oversight of policy and direction is evident	Boards of management or other governing authorities engage with questions of policy and direction in relation to the integration of ICTs in Education	Existence of Boards of management or other governing authorities concerned with oversight and monitoring of the implementation of the ICTs in Education policy is evident though not fully engaged	There is some formal and structured oversight and monitoring of the implementation of the ICTs in Education policy	Oversight and monitoring of the implementation of the ICTs in Education policy is informal		
ICTs in Education Policy and Strategy At School and Institutional Level	**1.4.1**	Existence of an e-school Strategy fully adopted and applied at primary and secondary education level	A national e-school strategy exists and is fully adopted and applied at primary and secondary education levels	A national e-school strategy exists, and is widely adopted at primary and secondary school level.	A national e-school strategy exists, but is discretely adopted at primary and secondary school level.	No national e-school strategy. Recommendations on e-school strategy in planning and supporting integration of ICTs in education.		
	1.4.2	Existence of institutional ICTs in Education Policy & Strategy at higher and tertiary education institutions	More than 75% of higher and tertiary education institutions have ICTs in Education Policy & Strategy integrated into their institutional development framework	Between 50% and 75% of higher and tertiary education institutions have ICTs in Education Policy & Strategy integrated into their institutional development framework	Between 25% and 50% of higher and tertiary education institutions have ICTs in Education Policy & Strategy integrated into their institutional development framework	Less than 25% of higher and tertiary education institutions have ICTs in Education Policy & Strategy integrated into their institutional development framework		ICT strategic policy, plans and implementation documents are available
	1.4.3	ICTs in education initiatives are well placed and implemented in TVET and Teacher Education strategies as an essential 21st Century Skill	ICTs in education initiatives are well placed and fully integrated to the TVET and Teacher Education strategies as an essential 21st Century Skill	ICTs in education initiatives formally but moderately integrated to the TVET and Teacher Education strategies as an essential 21st Century Skill	Although recognized as essential 21st century skills ICTs in education initiatives are somehow and informally integrated into TVET and Teacher Education strategies	Recommendations to integrate 21st century skills in TVET and Teacher Education exists but not yet implemented.		
NORM AVERAGE								

Norm 2: Integration of ICTs in Content and Curricula at all education levels

Components		Standards	e-Readiness Assessment for the National Education Sector					
			e-Mature **Level 4**	e-Confident **Level 3**	e-enabled **Level 2**	Initial **Level 1**	**Score**	**COMMENTS**
Integration of ICTs in Content and Curricula	**2.1.1**	Integration of ICTs in Education is evident across all curriculum areas	ICT integration has been implemented across all national curricula in primary, secondary, higher and tertiary, and teacher education	ICT integration has been consistently implemented in national curricula across at least two levels of education	ICT integration has been inconsistently implemented in national curricula across certain levels of education	ICT integration in curricula has yet to happen.		

	2.1.2	Periodic review of curricula is undertaken at all levels of education and training, with the aim of integrating and effectively using ICT technologies to support learning and teaching	Periodic review of curricula for integration of ICTs is evident at all levels of education and training	Periodic review of curricula for integration of ICTs is evident at most levels of education and training	Some review of curricula for integration of ICTs is evident at some levels of education and training though inconsistent and not periodic	No review of curricula for integration of ICTs has been undertaken.		
	2.1.3	Application of ICTs in Schools is integrated across all subject areas with a view to 21st Century learning.	Focus is mainly on supporting and facilitating personalized and self-directed learning with deliberate promotion of 21st Century skills through use of innovative practices.	Focus is mainly on supporting more comprehensive integration of ICT in all subjects, exploration of new and more effective approaches to ICT integration and preparation and use of ICT resources	Focus is mainly on supporting ICT integration in school management, teaching & learning	Focus is mainly on ICT equipment and the acquisition of basic ICT skills for all teachers		
Students' competences in ICTs	**2.2.1**	Students competence in ICTs is routinely encouraged, developed and assessed in diverse learning settings and across curricula	Student competence in ICTs is well encouraged, developed and assessed across curricula and all levels of education and training	Student competence in ICTs is well encouraged, developed and assessed across curricula and most levels of education and training, though not comprehensive	Student competence in ICTs is mainly encouraged, developed and assessed across curricula at one particular level of education and training	Student competence in ICTs is rarely encouraged or developed.		

Intellectual property and copyrights of digital content and curricula	**2.3.1**	Policies and procedures are in place to support intellectual property and copyrights when sourcing, using, and creating digital content	Formal structures, policies or procedures exists in support of intellectual property and copyrights on digital content for education and training; and are enforced and applied throughout all levels of education and training	Formal structures, policies or procedures exists in support of intellectual property and copyrights on digital content for education and training but are not consistently applied or enforced	Informal structures or procedures exists in support of intellectual property and copyrights on digital content for education and training	There are no policies or strategies to support intellectual property and copyrights on digital content for education and training		
Inclusive Education	**2.4.1**	ICTs support to Inclusive Education (IE) teaching and assessments is evident	Policy on the integration and use of ICTs and assistive technologies to facilitate the inclusion of students with special educational has been adopted and is used at all (+75%) levels of education and training	Policy on the integration and use of ICTs and assistive technologies to facilitate the inclusion of students with special educational has been adopted and is used at most (50-75%) levels of education and training	Support of ICT as a tool for learning in Inclusive Educational Needs exists but is uncoordinated and schools implement ICTs and assistive technologies on an ad hoc basis (less than 50%).	No policy exists and implementation is ad hoc.		
NORM AVERAGE								

Norm 3: Continuous Professional Development for ICTs in Education

Components		**Standards**	**e-Readiness Assessment for the National Education Sector**					
			e-Mature	e-Confident	e-enabled	Initial		

			Level 4	Level 3	Level 2	Level 1	Score	COMMENTS
Teacher Professional Development	**3.1.1**	A Continuous Professional Development (CPD) Framework which integrates ICT supported teaching and learning is provided to teaching staff at all levels of education and training	Professional development is sector-wide and targets all teaching staff at all (100%) levels of education and training through the appropriate CPD Framework supporting ICTs for Education.	A CPD Framework supporting ICTs for Education has been developed and implemented at most (50%-75%) levels of education and training.	A CPD Framework supporting ICTs for Education has been developed but is yet to be formally implemented	A CPD Framework supporting ICTs for Education, is yet to be developed and implemented. Teachers identify their own ICT professional development needs.		
	3.1.2	CPD is aligned with individual and institutional needs on integration of ICTs in Education	CPD programs address different facets of integrating ICTs in Education, and are comprehensively aligned with individual and institutional needs at all levels of education and training	There are national processes in place to identify, design and develop CPD programs that address different facets of integrating ICTs in Education, aligned with individual and institutional needs at all levels of education and training	CPD programs are not appropriately aligned to individual and institutional needs at different levels of education and training	CPD programs are generic and does not covers integration of ICTs in Education and Training		
	3.1.3	Accredited/Certified CPD opportunities in ICTs in Education are promoted at all levels of education and training	Teaching staff at all (100%) levels of education and training, are encouraged and supported to undertake CPD opportunities that contribute to enhanced skills in integrating ICTs in Education	Teaching staff at some (50% - 75%) levels of education and training, are encouraged and supported to undertake CPD opportunities that contribute to enhanced skills in integrating ICTs in Education	Promotion of CPD programs in ICTs in Education is evident although uncoordinated.	Promotion of CPD programs in ICTs in Education is lacking and non-existent		

	3.1.4	Participation of teaching staff in CPD programs supporting integration of ICTs in Education is evident	The majority of teachers (+75%) at each level of education and training have participated/regularly participate in an accredited/certified CPD program supporting the integration of ICTs in Education	Most teaching staff (75-50%) at each level of education and training have participated/regularly participate in an accredited/certified CPD program supporting the integration of ICTs in Education	Between 25%-50% of teaching staff at each level of education and training have participated/regularly participate in an accredited/certified CPD program supporting the integration of ICTs in Education	Less than 25% of teaching staff at each level of education and training have participated in an accredited/certified CPD program supporting the integration of ICTs in Education		
Community of Practice	**3.2.1**	Existence of a formal community of practice among teaching staff supporting the integration of ICTs in Education.	A formal Community of Practice (CoP) supporting the integration of ICTs in Education exists and supports teaching staff at all levels of education through a robust peer-to-peer learning system, using a Virtual Learning Environment (VLE) and other formal approaches.	Teaching staff across some levels of education and training regularly share new ideas and good practices on the integration of ICTs in Education via several platforms including staff meetings, subject teacher meetings, email and/ or social media (Facebook, WhatsApp etc.)	Sharing of ideas and good practices on ICTs in Education among teaching staff takes place in an informal manner and at isolated levels of education and training.	There is little sharing of ideas and good practices on ICTs in Education among teaching staff across the entire education sector.		
Inclusive Education	**3.3.1**	CPD programs ensure that all teaching staff at any levels of education and training are trained in assistive technologies to support students with special needs.	Through attending the CPD programs the majority of teachers (+75%) at all levels of education and training have acquired the skills to use some assistive technologies to support students with Special Educational Needs and are adapting their teaching methodologies to use ICTs in Inclusive Education	Through attending the CPD programs most teachers (50-75%) at any level of education and training have acquired the skills to use some assistive technologies to support students with Special Educational Needs and are adapting their teaching methodologies to use ICTs in Inclusive Education	Between 25%-50% of teachers at any level of education and training have completed CPD programs supporting the integration of ICTs in Inclusive Education	Few than 25% of teachers at any level of education and training have completed CPD programs supporting the integration of ICTs in Inclusive Education		

TVET and Teacher Education	**3.4.1**	CPD programs promote the integration of ICTs in Education in TVET and Teacher Education with a view of the essential 21st century skills	CPD programs have advanced to the point of supporting and facilitating personalized and self-directed learning with deliberate promotion of 21st century skills in TVET and Teacher Education	CPD programs support a more comprehensive integration of ICTs in subjects, exploration of new and more effective approaches to ICT integration and use in all TVET and Teacher Education programs	CPD programs targeting teaching staff in TVET and Teacher Education support the integrating of ICTs in education management and basic ICT skills for teaching purposes.	CPD programs targeting teaching staff in TVET and Teacher Education mainly focus on basic ICT skills		
NORM AVERAGE								

Norm 4: ICT Culture & Attitudes in the Education Sector and surrounding Communities

Components		**Standards**	**e-Readiness Assessment for the National Education Sector**					
			e-Mature **Level 4**	e-Confident **Level 3**	e-enabled **Level 2**	Initial **Level 1**	**Score**	**COMMENTS**
ICTs in Everyday Life	**4.1.1**	The development of digital literacy and the promotion of innovativeness in ICT applications is evident across various sectors at national level	The potential of digital technologies is clearly flagged and there is evident promotion for the development of digital literacy and innovative ICT applications at a national level, to support this potential and reap the dividends presented by digital technologies in the Information Era	The potential of digital technologies, literacy and innovative ICT applications is clearly flagged but exploitation of the limited	Recognition of the potential of digital technologies, literacy and innovative ICT applications is generally informal and uncoordinated.	Digital technologies, literacy and innovative ICT applications are disregarded and not exploited		

	4.1.2	Deliberate promotion of e-government concept and initiatives for everyday use	A comprehensive e-governance to enhance efficiency and quality of general civil services of education sector; sharing data and information among education administration organizations and other government departments	Promotion and implementation of e-government concept and initiatives for everyday use exists at discrete levels of education and training	There is some recognition of the potential of the e-government concept and initiatives but lack in coordination and implementation	E-government concept is not yet adopted		
	4.1.3	Availability of innovative ICT-based education technology driven by the private sector	Private sector fully partakes in the opportunities presented by integration of ICTs in Education and funds the development of innovative ICT-based education technologies	Significant support and participation of the private sector in the integration of ICTs in Education and funds the development of innovative ICT-based education technologies	Limited participation of the private sector in the integration of ICTs in Education and funds the development of innovative ICT-based education technologies	No private sector players in the development of innovative ICT based education technologies		
	4.1.4	The application of ethical standards, copyright and intellectual property in the ICT field is evident	Policies and procedures are in place to ensure that stakeholders are well informed and respect ethics, intellectual property and copyright rules in the ICTs and digital content fields	Stakeholders are well informed, respect and support the application of ethics, intellectual property and copyright rules in the ICTs and digital content fields	Ethical standards, copyright and intellectual property in the ICT field are informally applied and rarely supported by stakeholders	Ethical standards, copyright and intellectual property in the ICT field are often ignored and taken for granted		

	4.1.5	Use of ICTs in Communication	Digital technologies, telecommunications and social/professional media platforms which ensure effective communication and wider community engagement are preferably deployed and used	Digital technologies, telecommunications and social/professional media platforms and used in complement to other means of communication (e.g. face to face)	Secondary means of communications (telecoms e.g. telephone, fax) are more prominent although digital technologies are starting to gain traction	Primary means of communications (e.g. face to face, letters) are preferred and supported		
ICTs in Workplace	**4.2.1**	Recognition of ICTs as a requisite 21st century skill	There is an established recognition by key community stakeholders (individuals, businesses, and government) of the importance of ICTs as a requisite 21st century skill	Formal and coordinated recognition of ICTs as a requisite 21st century skill by key community stakeholders	Informal and uncoordinated recognition of ICTs as a requisite 21st century skill by key community stakeholders	Limited or no recognition of ICTs as a requisite 21st century skill by key community stakeholders		
	4.2.2	Prominent use of ICTs in business processes (e-commerce) across various economic sectors at national level	More than 75% of businesses across the various economic sectors and nationally have integrated ICTs in their business processes	Between 50% - 75% of businesses across the various economic sectors and nationally have integrated ICTs in their business processes	Between 25% - 50% of businesses across the various economic sectors and nationally have integrated ICTs in their business processes	Less than 25% of businesses across the various economic sectors and nationally have integrated ICTs in their business processes		Business' use of Intranet & Extranet, EDI, ERP, CRM, e-invoicing, and how these tools are integrated into its different business functions.

The use of ICT in promoting education and training	**4.3.1**	Institutions have established a dynamic online presence	The majority (+75%) of institutions at all levels of education and training have a dynamic online presence (websites, social networks, email, etc.) which are regularly updated and used by all stakeholders to support and open up learning, collaboration and information sharing	Between 50% - 75% of institutions at all levels of education and training have a dynamic online presence (websites, social networks, email, etc.)	Between 25% - 50% of institutions at all levels of education and training have a dynamic online presence (websites, social networks, email, etc.)	Less than 25% of institutions at all levels of education and training have a dynamic online presence (websites, social networks, email, etc.)		
	4.3.2	Institutions champion the development and integration of ICTs at a national level	Institutions at all levels of education and training are committed to collaboration, knowledge exchange and promotion of the development and integration of ICTs in Education; through establishing partnerships with other institutions, private and public sector organizations	Institutions are formally but partially committed to the development and integration of ICTs in Education	Institutions are informally and discretely committed to the development and integration of ICTs in Education	Limited institutional support for the development and integration of ICTs in Education at a national level		
	4.3.3	Availability of ICT training programmes	Programmes for developing ICT skills are available at all levels of education and training	Programmes for developing ICT skills are available at most levels of education and training	Programmes for developing ICT skills are available at lower levels of education and mainly concentrate on basic ICT Skills	Programmes for developing ICT skills are yet to be introduced		
	4.3.4	Established use of ICTs in Administration & Organization	Provision of an educational administrative and organizational information services at all (+75%) levels of education and training	Provision of an educational administrative and organizational information services at most (50% - 75%) levels of education and training	Provision of an educational administrative and organizational information services at some (25% - 50%) levels of education and training	Provision of an educational administrative and organizational information services is limited to less than 25% of education and training		

	4.3.5	Application of ICTs in Research	The use of ICTs in the preparation, publication and management of scientific research work and projects is evident across all levels of education and training	The use of ICTs in the preparation, publication and management of scientific research work and projects is evident across some levels of education and training	ICTs are used for the dissemination and collection of academic research information as well as preparation of scientific research	Application of ICTs in Research is limited to aiding "non-interactive" research (e.g. statistical packages, word processing, etc.)		
Acceptable Usage Policy	**4.4.1**	An Acceptable Usage Policy (AUP) is in place	The use of ICTs in Education and training, digital content, platforms and services by students and/or staff at any education and training level is regulated by a formal Acceptable User Policy (AUP) and clearly communicated at all levels	Acceptable Usage Policy (AUP) for ICT and the Internet in education has been ratified, promoted in schools but is not yet implemented.	Development of an AUP for ICT and the Internet in education is underway and commitment to implement is evident	There is no Acceptable Usage Policy (AUP) for ICT and the Internet in education		
NORM AVERAGE								

Norm 5: Infrastructure and Access to support integration of ICTs in Education

Components		**Standards**	**e-Readiness Assessment for the National Education Sector**					
			e-Mature **Level 4**	e-Confident **Level 3**	e-enabled **Level 2**	Initial **Level 1**	**Score**	**COMMENTS**

Availability of ICT infrastructure (hardware and software) for learning and teaching	**5.1.1**	Proportion of institutions with access to ICT Infrastructure (hardware and software) for learning and teaching	Majority +75% of institutions at all levels of education and training have established access to ICT infrastructure for learning and teaching	Between 50% - 75% of institutions at all levels of education and training have established access to ICT infrastructure for learning and teaching	Between 25% - 50% of institutions at all levels of education and training have established access to ICT infrastructure for learning and teaching	Less than 25% of institutions at all levels of education and training have established access to ICT infrastructure for learning and teaching		
	5.1.2	Access of ICT infrastructure to students (in and out of classrooms)	More than 75% of students at any level of education and training have access to ICT infrastructure	Between 50% - 75% of students at any level of education and training have access to ICT infrastructure	Between 25% - 50% of students at any level of education and training have access to ICT infrastructure	Less than 25% of students at any level of education and training have access to ICT infrastructure		
	5.1.3	Effective procurement planning for ICT Infrastructure and resources is evident	An effective national procurement plan is available to inform the procurement of network, hardware and software requirements for integration of ICTs in Education at all levels of training and education	A procurement plan informs the procurement of network, hardware and software requirements for integration of ICTs in Education at some levels of training and education	Some formal and coordinated level of procurement planning for ICT Infrastructure and resources exist	Basic and informal level of procurement planning for ICT Infrastructure and resources exists		
	5.1.4	Bring Your Own Device (BYOD) approaches are supported at all levels of education and training	A BYOD Policy is in place to support teaching staff and students using their own devices to access digital educational services	Although there is no BYOD Policy, BYOD approaches are supported at most levels of education and training	There are no restrictions or policies supporting or prohibiting students and teaching staff uses of personal devices to access digital educational services	Students and teaching staff are not allowed to bring and use their personal devices to access digital educational services		
	5.1.5	Availability of Network and Internet Infrastructure at institutions	Majority of institutions +75% have access to network and internet infrastructure	Between 50% - 75% of institutions have access to network and internet infrastructure	Between 25% - 50% of institutions have access to network and internet infrastructure	Less than 25% of institutions have access to network and internet infrastructure		

	5.1.6	Availability of adequate telecommunication and electricity infrastructure	There is adequate telecommunication connectivity and electricity supply to support the integration of ICTs in over 75% of institutions at all levels of education and training	Between 50% - 75% of institutions at all levels of education and training have telecommunication connectivity and electricity supply to support the integration of ICTs	Between 25% - 50% of institutions at all levels of education and training have telecommunication connectivity and electricity supply to support the integration of ICTs	Less than 25% of institutions at all levels of education and training have telecommunication connectivity and electricity supply to support the integration of ICTs		
Technical and User Support	**5.2.1**	Availability of technical, user support and maintenance of ICT infrastructure	Technical and user support is planned and integrated with the ICT Infrastructure so as to provide seamless access of content and services to teaching staff and students at all levels of education and training	Technical and User support and assistance is outsourced on a need and contract basis	Technical and User support and assistance is provided voluntarily by a semi-trained teacher	Technical and User support and assistance is outsourced voluntarily		
Inclusive Education	**5.3.1**	Assistive ICT technologies address special needs in education	Assistive technologies and appropriate digital content and curricula are available for students with Special Educational Needs at all levels of education and training	Assistive technologies and appropriate digital content and curricula are available for students with Special Educational Needs at some levels of education and training	Limited integration of ICTs and Assistive technologies to support students with Special Educational Needs	Commitment towards the integration of ICTs and Assistive technologies to support students with Special Educational Needs, though no implementation yet		
Privacy and Confidentiality	**5.4.1**	Measures to protect privacy, confidentiality and safety are well established	Appropriate policies, procedures and safeguards are in place to protect the privacy, confidentiality and safe use of ICTs in Education and Training	Policies, procedures and safeguards exist to protect the privacy, confidentiality and safe use of ICTs in Education and Training but implementation is limited	Recognition of, and consultations underway for the development of policy to protect the privacy, confidentiality and safe use of ICTs in Education and Training	Privacy, confidentiality and safe use of ICTs in Education and Training is generally promoted despite the lack of legal instruments for enforcement		Legal instruments may include Privacy Policy, Policies for Learning Analytics, etc.
NORM AVERAGE								

Norm 6: Integration of ICTs in Teaching and Learning

Components		Standards	Assessment levels of Digital Distinction				Score	COMMENTS
			e-Mature	e-Confident	e-nabled	Initial		
			Level 4	**Level 3**	**Level 2**	**Level 1**		
ICTs in Pedagogical Approaches	**6.1.1**	Expansion of pedagogical approaches using ICTs	Teaching and learning incorporates ICTs technologies to create flexible, adaptable, engaging and diverse teaching and learning practices appropriate to specific levels of education and training	Teaching and learning formally incorporates ICTs technologies to in enhancing teaching and learning at most levels of education and training	There is informal use and incorporation of ICTs technologies in enhancing teaching and learning at discrete levels of education and training	No expansion of pedagogical approaches using ICTs at all levels of education and training		Learning by playing, Learning by doing, learning by creating, use of augmented digital technologies
	6.1.2	Proportion of primary and secondary schools with ICT-qualified teachers	More than 75% of primary and secondary schools have ICT-qualified teachers	Between 50% - 75% of primary and secondary schools have ICT-qualified teachers	Between 25% - 50% of primary and secondary schools have ICT-qualified teachers	Less than 25% of primary and secondary schools have ICT-qualified teachers		
	6.1.3	Proportion of higher and tertiary education institution with ICT-qualified teaching staff	More than 75% of higher and tertiary education institution have ICT-qualified teaching staff	Between 50% - 75% of higher and tertiary education institution have ICT-qualified teaching staff	Between 25% - 50% of higher and tertiary education institution have ICT-qualified teaching staff	Less than 25% of higher and tertiary education institution have ICT-qualified teaching staff		

	6.1.4	Importance of Digital Competence in staff appraisal	Digital Competence is regarded an important factor in the performance appraisal of teaching staff at all levels of education and training. Digital competence development measures have been integrated in the national education sector plan.	Digital Competence are strategically considered an important factor in the performance appraisal of teaching staff at most levels of education and training.	Recognition of Digital Competence is informal and not used in performance appraisals of teaching staff at any level of education and training	No recognition of Digital Competence at all levels of education and training		
ICTs in Informal and Non-Formal Learning	**6.2.1**	Prior, experiential and open learning in ICTs are recognized and accredited.	Informal and non-formal learning through ICTs is recognized, accredited and valued at all levels of education and training. Existence of prior recognition and accreditation board	Prior, experiential and open learning in ICTs through Informal and non-formal learning is recognized but not formally accredited at all levels of education and training	Recognition of prior experiential and open learning in ICTs is informal and mainly recognized at the delivery point (in industry)	No recognition and accreditation of informal and non-formal learning		
Inclusive Education	**6.3.1**	Proportion of institutions with computer assisted instruction	More than 75% of institutions at all levels of education and training have computer assisted instruction for Special Education Needs	Between 50% - 75% institutions at all levels of education and training have computer assisted instruction for Special Education Needs	Between 25% - 50% institutions at all levels of education and training have computer assisted instruction for Special Education Needs	Less than 25% of institutions at all levels of education and training have computer assisted instruction for Special Education Needs		
	6.3.2	Support for under-represented groups by using ICTs in learning and teaching	More than 75% of institutions at all levels of education and training have support structures for under-represented groups through the use of ICTs in learning and teaching	Between 50% - 75% institutions at all levels of education and training have support structures for under-represented groups through the use of ICTs in learning and teaching	Between 25% - 50% of institutions at all levels of education and training have support structures for under-represented groups through the use of ICTs in learning and teaching	Less than 25% of institutions at all levels of education and training have support structures for under-represented groups through the use of ICTs in learning and teaching		
NORM AVERAGE								

Norm 7: Application of ICTs in Administration and Management

Components		Standards	Assessment levels of Digital Distinction				Score	COMMENTS
			e-Mature	e-Confident	e-nabled	Initial		
			Level 4	**Level 3**	**Level 2**	**Level 1**		
ICTs in Education Administration and Management	**7.1.1**	Application of ICTs in Academic information services	Application of ICTs in Academic information services is evident at all levels of education and training, and is supported by a formal framework and strategy	Application of ICTs in Academic information services is evident at some levels of education and training	There is partial and informal application of ICTs in academic information services	No application of ICTs in academic information services is evident		Academic Information Services such as online public access catalogue(OPAC) for e-library services, academic information management systems etc.
	7.1.2	Extent of ICT application in Student Administration	Majority +75% of institutions at all levels of education have fully automated student administration and management by using ICT database systems	Between 50% - 75% of institutions at all levels of education have fully automated student administration and management by using ICT database systems	Between 25% - 50% of institutions at all levels of education have fully automated student administration and management by using ICT database systems	Less than 25% of institutions at all levels of education have fully automated student administration and management by using ICT database systems		
	7.1.3	Extent of ICT application in Personnel/HR administration	Majority +75% of institutions at all levels of education use ICT based Personnel/HR administration systems	Between 50% - 75% of institutions at all levels of education use ICT based Personnel/HR administration systems	Between 25% - 50% of institutions at all levels of education use ICT based Personnel/HR administration systems	Less than 25% of institutions at all levels of education use ICT based Personnel/HR administration systems		

	7.1.4	Existence of an ICT supported Education Management Information System (EMIS) at primary and secondary education level	Majority +75% of primary and secondary schools provide their annual school census and other reports for EMIS electronically, and EMIS is administered using advanced centralized ICT tools	Between 50% - 75% of primary and secondary schools provide their annual school census and other reports for EMIS electronically, and EMIS is administered using advanced ICT tools	Annual school data primary and secondary schools is collected using a manual paper based system but data is captured and analyzed electronically at decentralized points	Annual school data in primary and secondary schools is collected using a manual paper based system		
	7.1.5	Existence of an ICT supported Higher Education Management Information System (HEMIS) covering university, TVET and teacher education	An ICT supported HEMIS exists and covers the majority of institutions (+ 75%) at university, TVET and teacher education	An ICT supported HEMIS exists and covers most institutions (50% - 75%) at university, TVET and teacher education	There is no HEMIS. Universities, TVET and Teacher Education institutions use stand-alone management systems	There is no HEMIS for Universities, TVET and Teacher Education institutions. Legacy paper based systems are still operational.		
ICTs in Learning Assessments	**7.2.1**	The scope of formative assessments and summative assessment is extended and diversified using ICTs	Use of ICTs to extend the scope of formative assessments (assessment for learning) and summative assessments (assessment of learning) is evident and fully supported	There is formal recommendations to use ICTs in extending and diversifying the scope of formative and summative assessments but no implementation as yet	There is some integration of ICTs in Learning Assessments although informal and uncoordinated	No integration of ICTs in Learning Assessments		

	7.2.2	Utilization of Learning Analytics is evident	A code of practice for learning analytics encourages the implementation of different facets of learning analytics for real time feedback to students, improving learning and remedial approaches, at all levels of education and training	Utilization of Learning Analytics is evident at some levels of education and training although not fully coordinated	A formal structure for the utilization of learning analytics is in place but not yet implemented	No structure for leaning analytics exists		
NORM AVERAGE								

Other possible Norms could include:

- Ministry of Education ensures that material, human and financial resources (both in terms of quantity and quality are commensurate with the ICT Integration programme
- Effective use of resources
- Etc.

ANNEX 2 USING THE e-Readiness Education ASSESSMENT FRAMEWORK.

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