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EVALUATION OF UNESCO'S WORK IN INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION

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Evaluation period:

September 2018 – May 2019

Geographic scope and field missions:

The Evaluation covers the work of UNESCO in the field of ICT in Education at the global level, with emphasis on the work of the UNESCO Education Sector and the Communication and Information Sector. It covers work in all Member States with particular emphasis on work in African countries. Field missions were conducted in the period October to December 2018, to the IITE in Moscow, the UNESCO Regional Office for Eastern Africa in Nairobi, and to the UNESCO Asia and Pacific Regional Bureau for Education in Bangkok, covering three UNESCO regions.

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Abstract & Acknowledgements

ABSTRACT

ICT in Education is a fast-growing area globally that offers many strategic opportunities. As the leader and coordinator of the SDG 4 – Education 2030 with the aim to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all", UNESCO has the mandate and expertise needed to strategically position itself as a world leader in this field. UNESCO's work in ICT in Education aims at enhancing the quality and relevance of learning and at strengthening inclusion. While technology can facilitate wider access to education and bridge learning divides, can advance gender equality and inclusion as well as digital skills development, the rapidly changing technologies and work processes require the development of new pedagogies, both for the use of ICT for teaching and learning in the classroom and through open access and distance learning. Compared to other players, UNESCO leverages its comparative strengths in its ICT in Education interventions - especially its impartiality, convening power, and policy expertise - through an inclusive and humanistic approach to achieving quality education in coherence with Sustainable Development Agenda 2030. Its expertise across all levels of Education and its multidisciplinary potential of working across its Programme Sectors are also considered among UNESCO's specific strengths. The evaluation revealed that UNESCO achieved important results, at the level of the learning environment, at the policy level and in institutional capacity building, but it also showed that UNESCO still needs to strengthen its positioning and visibility within the wider landscape of ICT in Education. For example, UNESCO has to continue positioning itself for producing forward-looking knowledge on ICT in Education and as a laboratory of ideas for future-oriented thinking. While the evaluation came across various specific interventions successfully addressing the needs of disadvantaged groups, the evaluation found that considerations of inclusion and gender equality were not consistently mainstreamed into policy-related and capacity building interventions. Other challenges are mainly linked to the current dispersion of resources and fragmentation of expertise across different entities within the Organization, which also leads to reduced visibility. While the key entities active in this area recognize that they are working within a common theme, collaboration and coordination still needs to be improved. The strategic measures proposed by the evaluation towards an overall organizational framework for ICT in Education aim at establishing an enabling environment for inter- and multidisciplinary approaches and greater coherence and collaboration.

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Susanne Frueh
Director, IOS

Cover photo: ©UNESCO/KFIT, UNESCO KFIT project: "ICT Transforming Education in Africa."

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LIST OF ACRONYMS

AI	Artificial Intelligence
ADB	Asian Development Bank
ADG	Assistant Director General
ADEA	Association for the Development of Education in Africa
AfDB	African Development Bank
BSP	Bureau of Strategic Planning
BGK/EISD/ICT	Unit for ICT in Education, Section for Educational Innovation and Skills Development at the Asia and Pacific Regional Bureau for Education in Bangkok
CFT	Competency Framework for Teachers
CI	Communication and Information Sector
CI/KSD/ICT	Section for ICT in Education, Science and Culture at the Communication and Information Sector
COL	Commonwealth of Learning
CST	Competency Standards for Teachers
ED	Education Sector
ED/PLS/ICT	Unit for ICT, Division for Policies and Lifelong Learning Systems at the Education Sector
ER	Expected Result (as defined in UNESCO C/5 Programme and Budget)
ERG	Evaluation Reference Group
GeSCI	Global e-Schools and Communities Initiative
GEN	UNESCO Gender Equality Division
HQ	Headquarters
ICHEI	International Centre for Higher Education Innovation
ICT	Information and Communication Technologies
IICBA	UNESCO International Institute for Capacity Building in Africa
IITE	UNESCO Institute for Information Technologies in Education
INNOTECH	SEAMEO Regional Centre for Educational Innovation and Technology
IOF	International Organization of La Francophonie
IOS	UNESCO Internal Oversight Service
IT	Information Technology
KERIS	Korea Education and Research Information Service
LA	Learning Analytics
MGIEP	UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development
MIL	Media and Information Literacy
MLA	Main Line of Action
MP I	Major Programme I: Education
MP V	Major Programme V: Communication and Information
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
PAX	UNESCO Sector for Priority Africa and Relations with Member States
PI	Performance Indicator (as defined in UNESCO C/5 Programme & Budget)
PLE	Personal Learning Environment
RP	Regular Programme Resources
SEAMEO	Southeast Asian Ministry of Education Organization.
SDG	Sustainable Development Goal
STEM	Science, technology, engineering and mathematics
ToC	Theory of Change
TVET	Technical and Vocational Education and Training
UIL	UNESCO Institute for Lifelong Learning
UIS	UNESCO Institute for Statistics
UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
VLE	Virtual Learning Environment
XB	Extrabudgetary Resources

EXECUTIVE SUMMARY

UNESCO's work in ICT in Education

1. With rapidly changing technologies and work processes, ICT is of increasing importance at all stages of education[1] and throughout all dimensions of teaching and learning. UNESCO's mandate in ICT in Education has been anchored in its Constitution and is currently articulated in the UNESCO Medium-Term Strategy 37 C/4[2] aiming at contributing to the Sustainable Development Goal 4 (SDG 4) – Education 2030 to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". To achieve this aim, UNESCO has been expanding innovative learning opportunities through ICT in Education technologies that facilitate wider access to education and bridge learning divides, and that advance gender equality and inclusion as well as digital skills development.

2. Since around the year 2000, implementation of UNESCO's work in ICT in Education has been developed and rolled out across several UNESCO Programme Sectors, most notably Education (ED) and Communication and Information (CI), both at Headquarters, and in UNESCO Field Offices, especially the Asia and Pacific Regional Bureau for Education in Bangkok, and in the UNESCO Category 1 Institute for Information Technologies in Education (IITE) in Moscow. UNESCO's work in this area has constantly evolved within the different Programme Sectors and entities. UNESCO's portfolio of work in ICT in Education includes activities in different areas and covers different functions that range from policy level work, such as ICT in Education policy reviews and development and establishing an Open Educational Resources (OER) normative instrument, to providing technical assistance and capacity building for teacher competences and professional development in ICT. Furthermore, UNESCO conducts research and knowledge dissemination on mobile learning and frontier technology for SDG 4, facilitates global debates, large scale international collaboration, capacity building of decision makers and training institutions and awareness-raising on OER policies and practices. It also supports Member States in the use of adaptive technologies that offer inclusive, accessible and affordable access to information and knowledge. Providing reference frameworks and assistance to Member States to develop inclusive and sustainable digital skills development programmes are also among UNESCO's fields of work.[3]

Objectives and methodology for the Evaluation

3. Given the increasing strategic relevance and growing opportunities to mobilise funds and expand work in this thematic area, the evaluation was conducted to support UNESCO in clearly positioning the Organization in this field with a view to enhancing its potential contribution to the Agenda 2030 within the areas of its mandate and to identifying possible ways to optimise UNESCO's work in the field of ICT in Education. This includes better definition and recognition of the respective mandates and contributions of the relevant Programme Sectors, in particular ED and CI, and an adequate framework for intersectoral and multidisciplinary cooperation.

4. For this purpose, at the request of the Education Sector, and in line with the UNESCO Evaluation Policy, the UNESCO Internal Oversight Service (IOS) Evaluation Office with the support of a team of external evaluation consultants from NEXUS research cooperative, Ireland conducted a formative and forward-looking evaluation in this thematic area as part of the UNESCO corporate biannual evaluation plan.

5. The report is intended for use by a diverse audience. UNESCO's senior management, in particular the Assistant Director Generals (ADGs) for ED and for CI and other Programme Sectors as relevant, the Executive offices in ED and CI, the Director of the Bureau of Strategic Planning (BSP), the Director of the Division for Gender Equality (GEN), the Director of IITE, programme staff and Directors (at Headquarters, Field Offices, Category 1 Institutes and other

[1] From basic education, technical and vocational education, distance education, higher education to non-formal and lifelong learning.

[2] UNESCO has been working towards 'promoting access to information and knowledge' (37 C/4 Strategic Objective 9) and towards 'strengthening national capacities for the development of education systems to foster high-quality and inclusive lifelong learning' (37 C/4 Strategic Objective 1), notably by expanding innovative learning opportunities through ICT in Education.

[3] Annex B of the report provides a list of activities implemented through Major Programme I and Major Programme V that fall under the umbrella of ICT in Education at UNESCO.

centres) are considered as primary users. Member States, other UNESCO partners and networks are considered as secondary users of the evaluation.

6. The evaluation draws on multiple data collection strands including an extensive document review, semi-structured interviews and group discussions with a broad range of internal and external stakeholders, as well as three thematic case studies. Fieldwork was conducted covering three UNESCO regions i.e. to the UNESCO Institute for Information Technologies in Education (IITE), Moscow, to the UNESCO Regional Office for Eastern Africa, Nairobi, and to the UNESCO Asia and Pacific Regional Bureau for Education, Bangkok. Furthermore, an online survey was administered to all UNESCO National Commissions. The evaluation was conducted in line with gender equality and human rights-based approaches to evaluation, and in line with the United Nations Evaluation Group's (UNEG) Norms and Standards. The key dimensions assessed include UNESCO's comparative strengths in ICT, internal coordination and coherence, partnerships, cooperation and fundraising, results and sustainability, visibility and communication.

Key findings

Key Dimension 1: UNESCO's position in relation to contributing to Agenda 2030 through ICT in Education

7. Compared to other organisations active in the field of ICT in Education, UNESCO has a number of comparative strengths that it leverages to achieve a strong positioning globally especially in relation to its perceived impartiality, convening power, and policy expertise from within an inclusive and humanistic approach to quality education in coherence with Agenda 2030. UNESCO's expertise across all levels of Education and UNESCO's multidisciplinary approach across its Programme Sectors are also considered among UNESCO's specific strengths. UNESCO can furthermore capitalise on its access to expertise and resources from its dedicated entities and relevant networks and partners, such as the IITE, UNESCO Chairs, the UNEVOC[4] Network, and the MGIEP.[5] The Organization's potential for working in an intersectoral and interdisciplinary fashion provides opportunities to design holistic approaches to engagement with future technologies and the ethical and humanistic implications for education.

8. In terms of thematic areas, numerous opportunities are emerging across many areas of education, including the potential of Artificial Intelligence (AI) and big data for education, mobile learning, online and distant learning, the development of online learning materials and multi-media, and ICT platforms that better support and facilitate social and peer learning. The challenge for UNESCO is to identify where it can best exploit its intersectoral strengths and focus on the holistic, ethical and humanistic approaches and implications for education, in both forward-looking fields such as AI but also in more mature ICT technologies with major growth potential. UNESCO cannot address all future-oriented initiatives in ICT and learning. The evaluation revealed a potential for the Organization to secure a position of global intellectual leadership in the field of ICT in Education which has not yet been fully realized.

9. The importance of ICT in Education is growing globally and Agenda 2030 contains several references.[6] While some believe the potential contribution of ICTs to SDG 4 - Agenda 2030 is underestimated, the prioritization of ICT in Education within UNESCO is constrained by a number of factors. These include a somewhat reduced visibility in the current 39 C/5 Programme and budget[7], the absence of an organization-wide explicit reference to the strategic importance of ICT in Education across multiple dimensions of education and limited regular programme (RP) resources[8].

[4] UNESCO's specialized Centre for technical and vocational education and training.
[5] The UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development.
[6] Such as the strategic potential of ICTs to develop knowledge societies, to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision as indicated in the *Incheon Declaration: Framework for Action.*
[7] While in previous programme and budget documents ICT in Education was established as a separate Expected Result (i.e. 38 C/5 MP1, ER 7), since the 2018/19 biennium ICT in Education was eliminated as a separate ER and mainstreamed across several ERs as of the 39 C/5 Programme and Budget. This decision aimed to reflect its relevance across all the priority areas of the SDG 4 – Education 2030 Agenda, but to some extent reduced its visibility as a separate theme within UNESCO.
[8] The introduction with the 39 C/5 (2018-2019) of an Integrated Budget Framework (including both assessed and voluntary contributions) seeks to address this issue by providing a holistic picture of the level of resources needed to implement UNESCO's programme and achieve the C/5 expected results endorsed by Member States.

10. While the evaluation came across various specific interventions addressing the needs of disadvantaged groups including those with a focus on girls and women[9], it found that considerations of inclusion and gender equality were not consistently mainstreamed into policy-related and capacity building interventions and their related monitoring systems. Although sensitive to gender equality issues and the human rights-based agenda, UNESCO Programme staff often lack the necessary skills to effectively integrate gender equality aspects and inclusion at design and during implementation of interventions. With respect to the UNESCO Priority Africa, the evaluation observed that prioritizing countries in the African region is reflected when compared to budgets and the number of interventions in other regions. In alignment with the priorities of the African Union's 2063 Agenda[10] in particular, some larger extrabudgetary initiatives were implemented at country-level across the continent.[11]

Key Dimension 2: Internal Coordination and Coherence

11. The fact that ICT in Education is not a single programmatic area but rather a set of relatively discrete interventions undertaken by a range of units of different types and locations within UNESCO, makes the current forms of coordination and communication challenging, both in terms of coordinating and optimising the use of the skills and resources available in UNESCO. The evaluation found several areas of work where the mandates of the different key entities working in ICT in Education overlap. While this does not necessarily lead to duplication, the potential for collaboration and complementarity is not fully exploited. Current issues include a lack of clarity on roles and strengths of each entity, an absence of clear focal points as mechanisms for regular interaction, and a lack of clear guidance from UNESCO's senior management. Furthermore, the fragmentation of websites related to the theme renders UNESCO's contribution in this area less visible, not easily accessible externally, and creates an obstacle to maximising the visibility, quality and relevance of UNESCO's work under this theme.

12. While the evaluation found several examples to show that very positive results are achieved when cooperation and coordination are successfully exercised, such as in the collaborative work on the development of the ICT competency framework for teachers (CFT), limited exchange of such experiences reduces learning and the application of lessons learnt, and thus of replicating good practices across UNESCO. Most UNESCO entities involved in ICT in Education would therefore welcome several (though not necessarily all) of the features of a single programmatic area.

13. A number of issues also emerged in relation to resource distribution and financial modalities. Given the UNESCO-wide dearth of regular programme (RP) funds, the extrabudgetary (XB) funding has contributed to the development of projects and growth of staff to enhance UNESCO's global positioning in the field and play an intellectual role in priority areas such as in mobile learning and the use of AI in education. However, a more agile approach to the management of staff recruited under extrabudgetary resources could encourage sharing of resources and expertise among entities and units. Furthermore, the current primarily sector-based accountability frameworks[12] and financial management mechanisms are not facilitating enhanced collaboration and distribution of funds across UNESCO.

[9] Examples include the 'Yangon's Empowering Women and Girls through Mobile Technology' initiative in Myanmar, Scientific Camps of Excellence for Mentoring Girls in STEM, as well as the development of the Guidelines on the Inclusion of Learners with Disabilities in Open and Distance Learning, IITE's strategic programme dedicated to ICT in Health Education and Education for People with Disabilities, and several initiatives supporting the use of adaptive technologies to provide inclusive, accessible and affordable access to information and knowledge, and the participation of persons with disabilities in lifelong learning opportunities. The annual Mobile Learning Week always features ICT in Education as a way to address needs of disadvantaged groups.

[10] See African Union Agenda 2063: Aiming at developing Africa's human and social capital through an education and skills revolution underpinned by science, technology and innovation.

[11] For example the Chinese-funded UNESCO-CFIT programme for strengthening teacher training via ICTs in several African countries (Congo, Côte d'Ivoire, DR Congo, Ethiopia, Liberia, Namibia, Tanzania, Togo, Uganda, and Zambia), and the Korean-funded KFIT "ICT Transforming Education in Africa" project to foster human and social development in Mozambique, Rwanda and Zimbabwe .

[12] With the exception of truly intersectoral cooperation, as found in the field, for instance in the Nairobi office.

Key Dimension 3: Partnerships, cooperation and fundraising

14. ICT in Education has increasingly been successful in securing extrabudgetary funding, and the theme continues to be attractive to donors. However, while the evaluation identified a solid funding base that should be sustained[13],, there is scope for further broadening and diversification of funding sources, as well as for encouraging sharing of resources and expertise across projects and units in support of developments and implementation in UNESCO priority areas. Most financing is earmarked, which has to some extent been constraining activities and developments in certain UNESCO priority areas. Only a few exceptions[14] were identified where funding was secured through long-term partnerships with international entities and the private sector.

15. Project-based partnerships with the private sector[15] are increasing, and there is scope for expansion if an appropriate vision and mechanisms are in place. UNESCO is attractive for the private sector not least as private sector partners seek access to UNESCO's expertise in education, which is complementary to their own expertise in hardware and software development, as well as access to policy makers and to verified research[16.] Furthermore, being associated with the UNESCO brand ensures image enhancement. However, the key UNESCO entities in ICT in Education, individually or collectively, do not rely on specific guidance or lessons learned regarding the modalities and terms of partnership and engagement with the private sector in the field of ICT in Education. Consequently, experience with and risks of engaging in partnerships is often explored along the process of each partnership, leading to uneven modalities of engagement.

Key Dimension 4: Results & Sustainability

16. While this evaluation was not in a position to draw comprehensive conclusions across the huge range of projects and interventions undertaken by UNESCO in ICT in Education, the evidence collected points to positive achievements across different dimensions of UNESCO's projects and actions in OER and ICT CFT policy and capacity building support, as well its support for Master Plan development. In cases where the process has only partly been completed or failed to move beyond initial policy work, this resulted primarily from external factors such as larger policy developments and changes in the political environments rather than from shortcomings with the approach itself or its implementation.

17. However, despite not being a single programmatic area, the evaluation found that performance indicators (PIs) and targets for Expected Results related to ICT in Education have been fully or partially achieved. On the other hand, the reporting systems so far reveal little of whether and to what extent final or longer term outcomes are achieved; nor do they refer to the quality of these achievements. The ERs and associated performance indicators were thus not deemed adequate for assessing whether these interventions have achieved their ultimate objectives i.e. contributing to more equitable and higher quality education.

18. Furthermore, due to the lack of a validated and in-depth theory of change in reporting systems on interventions, there is little evidence available of significant in-depth analysis and learning of 'What works' and 'how' within a specific national context and other circumstances and assumptions that might contribute to the outcomes ultimately sought. This holds true both for policy support and institutional capacity building in ICT in Education, and for international policy platforms and dialogues. At the much more crowded level of ICTs in the learning environment, such as in the development and piloting of new pedagogic approaches, UNESCO also achieves more limited visibility.

19. Challenges arise when insufficient time is dedicated to the planning and design stage and insufficient attention devoted to sustainability such as by ensuring longer term, strong commitment at the national government level and through establishing partnerships with a perspective beyond the initial project duration. Obstacles for following through and going beyond initial results include insufficient funding to mainstream policy and institutional change and, especially in Sub-Saharan Africa, poor supporting infrastructure such as electricity and telecommunications.

20. The evaluation found several interventions at the level of the learning environment that successfully targeted the most vulnerable, including those most in danger of dropping out of school; refugee children; those at risk of HIV

[13] I.e.from China and South-Korea who invested in major ICT in Education projects.
[14] Such as the partnerships with the ITU in the Broadband Commission and with Commonwealth of Learning and Hewlett Foundation in the area of OERs.
[15] Among others, Intel, Microsoft, Google and Pearson.

[16] Such as the partnerships with the ITU in the Broadband Commission and with Commonwealth of Learning and Hewlett Foundation in the area of OERs.

or other infections, of bullying or discrimination; and learners from poorer communities generally[17]. All UNESCO entities involved in ICT in Education can also point to several examples of projects that target women and girls.[18] At policy and institutional capacity-building level, targeting is necessarily indirect, as direct beneficiaries are rather upstream at the policy and institutional level, reaching sometimes to the level of teacher training or curriculum development. While disadvantaged groups are cited in project documents among the final beneficiaries, it cannot be concluded that 'inclusion' is systematically mainstreamed in policy and institutional capacity building work.

Key Dimension 5: Visibility and Communications

21. The mainstreaming of key aspects of ICT in Education in the 39 C/5 resulted in a loss of visibility and although it is unlikely to be reversed, future programming cycles may offer scope for more visibility of ICT in Education as a thematic area. Current project monitoring, reporting and evaluation systems offer limited data for quantitative or qualitative analysis of outcomes and learning, that might be used to enhance such visibility.

22. UNESCO's visibility at all levels of interventions is perceived not as strong as the projects, activities and achievements would merit, individually or collectively as a theme. Most prominent are the Mobile Learning Week, the ICT Competency Framework for Teachers, the OER work, at macro level especially, and the inter-government policy dialogues. At the level of ICTs in the learning environment, in particular for some priority areas and for most vulnerable groups, UNESCO's interventions are not gaining sufficient visibility compared to other players with much larger funding envelopes. UNESCO has developed and piloted pedagogic approaches on the use of mobile learning for literacy, such as for disadvantaged teachers, and for refugees. However, not least due the funding limitations, visibility of the projects in these areas has not received adequate attention. The evaluation also found that the work of the IITE has had, up until recently, limited visibility and recognition inside UNESCO and beyond its immediate partners. However, more recently IITE has been expanding the geographic reach of its work and focuses increasingly on networking, for instance with an active role in the International Teacher's Task Force for Education 2030[19] and through its high profile event: *Global Dialogue on ICT and Education Innovation: Towards SDG 4***.**[20]

23. Despite the production of high quality publications and outputs[21], the absence of an articulated UNESCO dissemination plan and wider communication strategy is seen by many stakeholders as a particular area of weakness. Qualitative aspects of progress and success are not rendered visible through the current monitoring systems, outputs rather than outcomes are considered, and the narrative account offers little additional insights. Data from Project Monitoring and Final Reports of extrabudgetary projects add little.

Conclusions and Recommendations (The way forward)

24. ICT in Education is a fast-growing area globally that offers many strategic opportunities. As the leader and coordinator of the SDG 4 – Education 2030 Agenda, UNESCO has the mandate and the foundation capacities and expertise needed to strategically reposition itself as a world leader. Intellectually UNESCO has a role in ensuring the focus of ICT in Education remains firmly on equity, quality and humanistic principles. There is also room for further strengthening its profile in global and regional dialogue, policy support, and institutional capacity building; and raising its visibility and enhancing efforts in downstream implementation of ICT in the education and learning environment. To strengthen its positioning and visibility within the wider landscape of ICT in Education, UNESCO has to continue positioning itself as a producer of forward-looking knowledge on ICT in Education and as a laboratory of ideas for future-oriented thinking.

25. Over the last 20 years, UNESCO's activities in ICT in Education have not emerged under the umbrella of a formal programmatic framework; rather they have been initiated and evolved over time as the responsibility of various entities within UNESCO. While acknowledging the challenges and risks this

[17] For example one of IITE's five strategic programmes is dedicated to ICT in Health Education and Education for People with Disabilities, and CI/KSD has been leading several initiatives supporting the use of adaptive technologies to provide inclusive, accessible and affordable access to information and knowledge, and the participation of persons with disabilities in lifelong learning opportunities.

[18] See examples under Key Dimension 1.

[19] http://www.teachersforefa.unesco.org/v2/index.php/en/ .

[20] https://iite.unesco.org/news/ministerial-forum-global-dialogue-on-ict-and-education-innovation-towards-sdg-4/ .

[21] Detailed examples are available in Annex K; Case study 2: Policy Support for ICTs in Education, and include The 2nd World OER Congress and Satellite Events 2017: a range of policy and practice videos available from the Congress; Best practices in mobile learning; the ICT in Education Web-based Policy Platform; Towards Gender Equality in Education Policies and ICTs: An Action Brief and Toolbox.

involves, for instance in terms of the dispersion of resources and fragmentation of expertise, as well as reduced visibility, the key entities active in this area recognise that they are working within a common theme. They would welcome measures towards an overall organizational framework for ICT in Education that would establish an environment for inter- and multidisciplinary approaches and enable greater coherence and collaboration.

26. Furthermore, the evaluation concludes that ICT in Education does justify a higher priority within UNESCO. In order for UNESCO to effectively contribute through its work in ICT in Education to the Agenda 2030 and SDG 4 in particular, the Organization needs to build on the good practices of intersectoral and multidisciplinary work as well as further consolidate, better align and enhance coordination of internal capacities. This shall support the Organization in capitalising on its comparative strengths in an environment of growing importance of the field of ICT in Education as well as growing funding opportunities, and to feed into the formulation of future directions for UNESCO's work in ICT in Education. Coordination and communication across the entities engaged in ICT in Education, and externally, when clear and effective, has proven to lead to significant positive results. However, this will also require a culture shift within UNESCO, including within the four main entities involved in ICT in Education, beginning with a recognition of the need to build on the Organization's mandate in the different Programme Sectors in a thematically based and truly intersectoral and/or multidisciplinary fashion. To be successful, this process must be in line with and potentially reinforce the Strategic Transformation process underway in UNESCO.

27. An optimal role distribution across the entities that builds on existing capacities and benefits all, can result from improved horizontal communication and cooperation, under the guidance of appropriate senior management leadership. This establishes a precondition and is critical to enhancing the work in this field, irrespective of where the individual roles and capacities lie. Identifying and harnessing the comparative strengths of each entity in a coordinated manner is a first step towards optimizing complementarity of roles and responsibilities of the different entities.

28. A clear vision and objectives in relation to UNESCO's actions in ICT in Education, including an explicit statement as to what UNESCO expects to gain from partnerships and what UNESCO can offer would help identify longer-term shared goals and interests. Criteria for monitoring the success of partnerships might facilitate the process of identifying partners, and monitoring and evaluating success. More clarity on the principles and protocols for partnership would furthermore be useful, especially at the early stages of a partnership, and would help better realise this partnership potential.

The Evaluation suggests the following recommendations:

Recommendation 1: Develop an organization-wide strategic vision to clearly position UNESCO for global intellectual leadership in the field of ICT in Education, including through innovation, in the context of its multidisciplinary contribution towards achieving equitable, quality and humanistic education and learning systems in the context of the Agenda 2030.

Recommendation 2: Develop an organization-wide Strategy for ICT in Education to provide an inter- and multidisciplinary framework for the various strands of work in the different Programme sectors relating to the thematic field.

Recommendation 3: Strengthen UNESCO's function as a Laboratory of Ideas in the field of ICT in Education by focusing on future oriented research and dialogue.

Recommendation 4: Explore deploying UNESCO systems and processes to enhance organisation-wide intersectoral and multidisciplinary cooperation, knowledge management, fundraising and communication activities for the thematic area ICT in Education.

Recommendation 5: Enhance aspects of Gender Equality and inclusion in ICT in Education Interventions, both through projects that are focused on gender equality and inclusion, as well as through consistently mainstreaming gender equality and inclusion across all ICT in Education projects and activities.

Recommendation 6: Reinforce efforts, at the planning stage, to devise mechanisms and build partnerships to enhance medium to longer term sustainability, in particular for policy support and institutional capacity-building interventions.

MANAGEMENT RESPONSE

Overall management response	
This evaluation is welcome and timely given the need for UNESCO to scale-up its support to Member States to leverage ICT to achieve SDG4. This requires a clear leadership and focal points for supporting Member States in the different fields linked to ICT in Education. The emphasis put by the evaluation on reinforcing inter-sectoral coordination is welcome. It confirms the directions taken by the Education and Communication and Information Sectors in different programmes including OERs and Artificial Intelligence. Both Sectors welcome the recommendations of this evaluation, which will be beneficial in fine-tuning the Organization's strategic vision for intersectoral and multidisciplinary work in this fast evolving field, which is of key importance for UNESCO in its contribution to the 2030 Agenda. The recommendations of the evaluation will be implemented in close alignment with the currently ongoing UNESCO Strategic Transformation Process	
Recommendations	**Management response**
Recommendation 1: Develop an organization-wide strategic vision to clearly position UNESCO for global intellectual leadership in the field of ICT in Education, including through innovation, in the context of its multidisciplinary contribution towards achieving equitable, quality and humanistic education and learning systems in the context of the Agenda 2030. *Addressed to:* *UNESCO Senior Management, especially the ADGs of the Education and Communication and Information Sectors.*	***Accepted*** Given the gaps in achieving SDG4 Education 2030 Agenda, there is an urgent need to define priorities and scale-up innovations, including digital innovations to accelerate the achievement of SDG 4 and other related SDGs across the Agenda 2030 for which ICTs are recognised as critical. Based on its global coordinating role for SDG 4 and the multi-stakeholder architecture of the Steering Committee for SDG 4, an organization-wide multidisciplinary strategic vision will be articulated in the wider framework of UNESCO's work in the field of education and innovation. This requires a clear leadership and focal points for supporting Member States in the different fields linked to ICT in Education. UNESCO will continue investing and further reinforcing capacities to secure a position of global intellectual leadership in this field.
Recommendation 2: Develop an organization-wide Strategy for ICT in Education to provide an inter- and multidisciplinary framework for the various strands of work in the different	***Accepted*** An internal organization-wide strategy for innovation including through digital technology will be articulated in the wider framework of UNESCO's work in the field of education and innovation and covering all strands of ICT in education work. The financial and administrative implications of an effective implementation of the various strands of ICT in

Programme sectors relating to the thematic field. *Addressed to:* *UNESCO Senior Management, Directors and Heads of Entities involved in ICT in Education.*	education interventions in the different Programme sectors will be defined within an intersectoral and multidisciplinary approach, and in line with the UNESCO Strategic Transformation process.
Recommendation 3: Strengthen UNESCO's function as a Laboratory of Ideas in the field of ICT in Education by focusing on future oriented research and dialogue. *Addressed to:* *Senior management and management and staff of relevant key entities active in the field of ICT in Education.*	***Accepted*** This is a particularly welcome recommendation that will become an integral part of the above organization-wide strategy for innovation, including through digital technology. To ensure that UNESCO's foresight study on the future of education and learning will fully respond to challenges and opportunities of a digitalized and connected world, and building on previous successful programme interventions on forward-looking ideas including OER, mobile learning, and AI in education, further efforts will be deployed to produce foresight knowledge and facilitate dialogue on cutting-edge themes in the field of ICT in Education. This will also depend on internal human and financial capacities and provide opportunities for resource mobilisation.
Recommendation 4: Explore deploying UNESCO systems and processes to enhance organization-wide intersectoral and multidisciplinary cooperation, knowledge management, fundraising and communication activities for the thematic area ICT in Education. *Addressed to:* *Directors and Heads of Entities involved in ICT in Education as well as Key Programme Staff.*	***Accepted*** In the context of the ongoing organization-wide Strategic Transformation process, UNESCO will review and improve the management structure and modalities for interdisciplinary cooperation at all levels and across all entities to ensure the accountability of individual entities while maximizing intersectoral collaboration and efficient coordination. UNESCO will also review, and reinforce where needed the capacities of the concerned entities that have the responsibility and are accountable for results of ICT in education programme interventions.

Recommendation 5: Enhance aspects of Gender Equality and inclusion in ICT in Education Interventions, both through projects that are focused on gender equality and inclusion, as well as through consistently mainstreaming gender equality and inclusion across all ICT in Education projects and activities. *Addressed to:* *UNESCO staff in entities active in ICT in Education, the Division for Gender Equality, and BSP.*	***Accepted*** UNESCO set Gender Equality as a global priority and the Education and Communication and Information sectors, as well as other entities are launching new initiatives focusing on gender equality and inclusion in the field of ICT in Education. Efforts will be made to raise financial resources and launch programme interventions aimed at enhancing gender equality and inclusion in and through ICT in education and sharing data on progress and promising practices. Gender equality considerations will also be integral part of the above organization-wide vision and strategy for innovation including through digital technology.
Recommendation 6: Reinforce efforts, at the planning stage, to devise mechanisms and build partnerships to enhance medium to longer term sustainability, in particular for policy support and institutional capacity-building interventions. *Addressed to:* *Directors and Heads of Entities involved in ICT in Education, key programme specialists, the Division for Gender Equality and BSP.*	***Accepted*** UNESCO will seek to reinforce the Results-Based-Management framework with a reference to the Theory of Change model, including by specifying the required activities and sustainability strategies to ensure achievement of expected results as well as a clear coordination between implementing units which includes sharing responsibilities and resources for collective projects. As part of its policy advice and capacity building programmes planned in the 40C/5 Programme and Budget, UNESCO will also seek to build the capacities of national agencies or institutions and strengthen partnerships needed to sustain the programme interventions, including with other UN agencies.

INTRODUCTION

Background

1. ICT is growing in importance at all stages of education today: from basic education, technical and vocational education, distance education, higher education and non-formal and lifelong learning, as well as in all dimensions of teaching and learning.

2. With rapidly changing technologies and work processes, ICT is an important subject in the field of education. Perhaps more importantly, technology can facilitate wider access to education and bridge learning divides. It can advance gender equality and inclusion as well as digital skills development. This in turn requires the development of new pedagogies both for the use of ICT for teaching and learning in the classroom and through open access and distance learning, enhancing the quality and relevance of learning and strengthening inclusion. ICT can also improve education administration and governance.

3. UNESCO's mandate in ICT in Education is securely anchored in its Constitution and in various UN frameworks, and is currently articulated within Agenda 2030, Sustainable Development Goal 4 (SDG 4) that calls on the international community to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Since about the year 2000, implementation has been rolled out across several of UNESCO's Sectors, most notably Education (ED) and Communication and Information (CI). Extensive work is carried out in both Sectors at Headquarters, but also in UNESCO Field Offices, especially the Asia and Pacific Regional Bureau for Education, Bangkok, and in the UNESCO Category 1 Institute for Information Technologies in Education (IITE), Moscow.

4. Thus UNESCO's work in this area has been developed and evolved within different Programme Sectors, and is therefore currently not based on an explicit organization-wide inter-sectoral strategy for the planning and implementation of UNESCO's work in ICT in Education programmes and projects.

5. Given the increasing strategic relevance and growing opportunities to mobilize funds and expand work in this thematic area, UNESCO is seeking to clearly position the Organization in this field with a view to enhancing its potential contribution to the Agenda 2030 within the areas of its mandate and to identify possible ways to optimize UNESCO's work in the area, including through better definition and recognition of the respective mandates and contributions of the relevant Programme Sectors, in particular ED and CI, and through an adequate framework for intersectoral cooperation.

6. Therefore, the UNESCO Internal Oversight Service (IOS) Evaluation Office, at the request of the Education Sector, conducted a formative and forward-looking evaluation in this thematic area as part of the UNESCO corporate biannual evaluation plan.

Scope and Purpose

7. This evaluation examined the work undertaken in this field at global, regional and national levels, from 2014 to 2017 and to the extent data was available the beginning of the 2018/19 biennium. Given the time and resources available, it focused on a set of overarching and strategic questions concerning the entire portfolio of activities in the field of ICT in Education. A set of selected individual interventions were assessed in more depth, in particular through the thematically based case studies. In broad terms, the evaluation has internally-oriented and externally-oriented aims.

8. Internally, the evaluation focused on the positioning of ICT in Education in the current 39 C/5 Programme and Budget for 2018-19. The aim was to examine the internal coordination and coherence of the work throughout UNESCO, to look at results and sustainability, and to consider its positioning within UNESCO with a view to exploring the potential for and components of an inter-sectoral approach and strategy. For this purpose relevant projects and initiatives supported in the field by ED and CI, Category 1 Institutes and field offices were examined. Certain topics and specific dimensions were selected for in-depth exploration in Case Studies.

9. Externally, the evaluation explored how UNESCO's contribution to the field of ICT in Education could be maximised through optimizing its positioning and visibility internationally, in particular as Member States, donors and partners' interest in ICT in Education has been rising and Agenda 2030 is a strong external driver.

10. The main intended users of the evaluation are UNESCO's senior management, in particular the Assistant Director Generals (ADGs) for ED and for CI and other Programme Sectors as relevant, the Director of the Bureau of Strategic Planning (BSP), the Director of the Division for Gender Equality, the Director of IITE, as well as related programme staff and Directors (at Headquarters, Field Offices, Category 1 Institutes and other centres). Member States, other UNESCO partners and networks are considered secondary users of the evaluation.

11. The evaluation seeks to contribute to further consolidation, better alignment and enhanced coordination of internal capacities, with a view to capitalising on the growing importance of the field of ICT in Education as well as growing funding opportunities in Education, and to feed into the formulation of future directions for UNESCO's work in ICT in Education.

Evaluation Questions and Key Dimensions

12. The 21 Evaluation Questions defined in the Terms of Reference (contained in Annex A) are presented below. A complete list of all evaluation sub-questions is available in the Evaluation Matrix in Annex F. Drawing on the top-level headings, the findings of the evaluation are structured and presented around five Key Dimensions:

- **Key dimension 1: UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education**

  1.1 Is UNESCO, as compared to other organizations such as Commonwealth of Learning, the Organisation for Economic Co-operation and Development (OECD) and the European Union, best placed in terms of contributing to the 2030 Agenda through ICT in Education?

  1.2 Is ICT in Education appropriately prioritised by UNESCO in terms of its contribution to the Agenda 2030?

  1.3 How can UNESCO strategically position itself within the UN family and towards external stakeholders, in particular the private sector, considering the evolving expectations and new opportunities to expand the scope and quality of the work in ICT in Education?

  1.4 Are the two Global priorities Gender Equality and Africa effectively mainstreamed in the implementation of ICT in Education initiatives, and in particular are UNESCO interventions targeting the most vulnerable or disadvantaged groups?

- **Key dimension 2: Internal Coordination and Coherence throughout the Organization**

  2.1. Have UNESCO's organizational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way?

  2.2 Are resources adequately allocated/shared/distributed, given the comparative strengths of different sectors/units and the potential of intersectoral cooperation?

  2.3. What criteria/mechanisms could support priority setting by Member States and resource allocation for intersectoral collaboration?

  2.4. How can the Organization best manage the work in this area in the future, in a coherent and coordinated manner, in particular regarding the respective role and capacity of the ED and CI, and by best utilising the potential of IITE and other relevant Category I Institutes?

  2.5. What is the optimal role distribution among the different UNESCO entities?

- **Key dimension 3: Partnerships, cooperation and fundraising**

  3.1. Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources, in particular with a view to UNESCO's critical financial situation in recent years?

  3.2. What future opportunities are emerging and how can UNESCO best capitalise on these?

3.3. How can UNESCO further capitalise on its outreach entities and networks?

- **Key dimension 4: Results and Sustainability**

  4.1. What progress has been made in achieving the respective objectives in the field of ICT in Education, and what have been the key achievements in the different dimensions?

  4.2. What are the main challenges and enabling factors that have been and are being encountered in achieving results?

  4.3. Have UNESCO's interventions reached the intended target groups, especially those most in need, in the field of ICT and Education?

  4.4. Have UNESCO's interventions in ICT in Education reached those vulnerable groups, including girls and women?

  4.5. What provisions have been made to ensure sustainability of results?

- **Key dimension 5: Visibility and Communication**

  5.1. To what extent have UNESCO's achievements in the area of ICT in Education been visible internally and to external stakeholders?

  5.2. Are the current planning, programming, monitoring and reporting systems and tools adequate to provide the required visibility and recognition of UNESCO's work in this field?

  5.3. How does the way in which this line of work is reflected in the C/5 Programme and Budget impact on its visibility, communication and possibly, funding and longer-term impact?

  5.4. To what extent have other UNESCO networks and partners been involved in contributing to the communication?

Programme Description

13. Within the current Medium-Term Strategy 2014-2021 (37 C/4), UNESCO has been working towards "promoting access to information and knowledge" (37 C/4 Strategic Objective 9) and "strengthening national capacities for the development of education systems to foster high-quality and inclusive lifelong learning" (37 C/4 Strategic Objective 1), notably by expanding innovative learning opportunities through ICT in Education.

14. UNESCO's portfolio of work in ICT in Education includes activities in different areas and covers different functions, ranging from policy level work, such as ICT in Education policy reviews and development, the establishment of an OER normative instrument, to providing technical assistance and capacity building for teacher competencies and professional development in ICT. Furthermore, UNESCO conducts research and knowledge dissemination on mobile learning and frontier technology for SDG 4, facilitates global debates, large scale international collaboration, capacity building of decision makers and training institutions and awareness raising on OER policies and practices, and supports Member States in the use of adaptive technologies that offer inclusive, accessible and affordable access to information and knowledge. Providing reference frameworks and assistance to Member States to develop inclusive and sustainable digital skills development programmes are also among UNESCO's fields of work. An overview of activities that fall under the umbrella of ICT in Education at UNESCO is provided in Annex B.

15. ICT in Education activities are implemented through many entities in the UNESCO system. Four in particular are devoted almost exclusively to this field. These are the Section for ICT in Education at the Division for Policies and Lifelong Learning Systems in the Education Sector (ED/PLS/ICT), the Section for ICT in Education, Science and Culture at the CI Sector (CI/KSD/ICT), the Unit for ICT in Education, Section for Educational Innovation and Skills Development at the Asia and Pacific Regional Bureau for Education in Bangkok (BKG/EISD/ICT) and the Institute for Information Technologies in Education (IITE) in Moscow. The table below categorises the main areas of UNESCO's work in the field of ICT in Education, based on an analysis of ongoing and completed projects (see Annex B), indicating the ones in which these four are most active.

Table 1: Main areas of action of the four key entities in ICT in Education

Themes/Activities:	ED/ PLS/ ICT	CI/ KSD/ ICT	BKG /EISD /ICT	IITE
ICT in Education Policy Review and Development				
Convening high-level inter-ministerial events	X	X	X	X
Providing support for ICT in ED Master Plans	X		X	
Targeted policy support in OER	X	X		
Teacher Competency Standards in ICT				
Supporting ICT CFT development	X	X	X	
Teacher Training Institution capacity building	X	X	X	X
TVET and ICT skills development	X		X	
Other ICT CFT mainstreaming		X	X	
Open Education Resources				
OER Strategy, Policy and Research	X	X	X	X
OER Mainstreaming		X		
OER Resource Development	X	X	X	X
Frontier Research, Technologies and Pilot Projects				
Mobile and classroom learning using ICTs	X	X		X
Digital Citizenship Research			X	
ICT in Education to enhance gender equality	X	X		X
ICT in Education for persons with disability		X		X
ICT in Education for marginalised groups	X	X		X
ICT for health education				X

16. The table suggests – with a few exceptions – significant areas of thematic overlap across these key entities, though the reality is more complex when geographic coverage and the specificity of interventions are considered.

17. Table 2 shows the budget for the period from 2014 to 2018 of each of the four key entities.

Table 2: ICT in Education Budget of the four key entities (2014-2018)

Finance type /Year	Total allotment 2014-2018	Allotment				
		2014	2015	2016	2017	2018
ED/PLS/ICT projects						
Regular Programme	422,728	134,699	60,927	113,024	114,077	0
Additional appropriation	2,923	0	0	0	2,923	0
Extrabudgetary funds	6,779,622	63,096	577,520	944,366	2,147,987	3,046,653
Sub-total ED/PLS/ICT	**7,205,274**	**197,795**	**638,447**	**1,057,391**	**2,264,987**	**3,046,653**
CI/KSD/ICT Projects						
Regular Programme	1,468,276	164,738	462,762	244,557	331,989	264,230
Additional appropriation	320,126	n/d	n/d	n/d	n/d	n/d
Extrabudgetary funds	2,564,374	31,117	1,114,494	490,973	0	725,363
Sub-total CI/KSD/ICT	**4,352,776**	**195,855**	**1,577,256**	**735,530**	**331,989**	**989,593**
BGK/EISD/ICT (source: BKG/EISD/ICT direct communication)						
Regular Programme (average estimate)	68,000	12,500	12,500	14,000	14,000	15,000
Additional appropriation	173,182	85,000	58,182	0	0	30,000
Extrabudgetary funds	1,673,396	307,000	327,000	265,000	221,389	553,007
Sub-total BGK/EISD/ICT	**1,914,578**	**404,500**	**397,682**	**279,000**	**235,389**	**598,007**
IITE (source: IITE direct communication)						
Regular Programme	1,701,200	312,400	312,400	358,800	358,800	358,800
Russian Regular Programme to IITE	2,115,390	583,147	320,330	252,205	300,622	659,086
Russian Contribution to IITE programme	1,115,552	0	0	0	0	1,115,552
Additional appropriation	142,941	67,980	41,122	4,657	8,659	20,522
Extrabudgetary funds	552,372	0	0	76,288	122,468	353,616
Sub-total IITE	**5,627,454**	**963,527**	**673,852**	**691,950**	**790,549**	**2,507,576**
TOTAL	**19,100,082**	**1,761,678**	**3,287,237**	**2,763,871**	**3,622,914**	**7,141,830**

Source: extraction from the UNESCO SISTER and FABS databases, validated by the respective entities.

18. At the time of the evaluation, the four entities have various levels of human resources at their disposal working on ICT in Education[22]:

- ED/PLS/ICT: One fixed-term P4 (Unit Head); One seconded Programme Specialist P4, One Project Appointment P3; five Project Appointments P1; One Programme Assistant and One Administrative Support. Total 10 (1 staff, 9 temporary).
- CI/KSD/ICT: One fixed-term Programme Specialist P4; two fixed-term Programme Specialists P4 (half-time). Two fixed-term Programme Specialists P3 (half-time). Total: 3 staff (full-time equivalents).
- BGK/EISD/ICT: One fixed-term Programme Specialist P3 (Team Leader); Four international consultants; One short-term national administrative staff. Total 6. (1 staff, 5 temporary)
- IITE: One fixed-term P4 (Director), two fixed-term Programme Specialists (P3); four programme specialists and one Programme Assistant under national service contract; One fixed-term Project Coordinator; two fixed-term Project Assistants; Six administrative and support staff. Total 17. (3 Staff; 5 National service contracts, 9 Temporary)

19. Thus a total of 36 i.e. 24 professional and 12 administrative and support staff[23] are engaged in these four entities in activities related to ICT in Education, although less than half of the professional staff on fixed-term assignments.

20. Many other UNESCO entities engage to a lesser extent in ICT in Education, the following are a few indicative examples:

21. At Headquarters in the Education Sector:

- Section on Youth Literacy and Skills (ED/PLS/YLS);
- Section for Education for Inclusion and Gender Equality (ED/IPS/IGE);
- Section for Teacher Development (ED/ESC/TED)

22. The Division for Gender Equality is overseeing a specific project on digital skills for girls and women.

23. In the Bangkok Regional Office (apart from the ICT Unit), several units are partnering on specific projects:

- BGK/EISD/HE Bangkok, Educational Innovation and Skills Development Section, Unit for Higher Education with Category II Institute International Centre for Higher Education Innovation (ICHEI); *Seizing Digital Opportunities in Higher Education: Building staff capacity for ICT-driven innovation in Cambodia and Sri Lanka* (12609); and with *Shenzhen Municipal Government, China*.
- BGK/EISD/NFE Bangkok, Educational Innovation and Skills Development Section, Unit for Non formal Education; *Mobile literacy for Out-School children in Thailand* (843).

24. Regional and Cluster offices are sometimes heavily involved in implementation under the leadership of Programme Sectors at HQ, but also implement their own projects including ICT CFT policy, and formal and non-formal teacher level projects, including the following:

- Dakar (ED)
- Doha (CI),
- Nairobi (CI and ED)
- Kingston (CI and ED)
- Bangkok (EISD/NFE)

25. National UNESCO Offices, often in collaboration with Regional Offices but sometimes on their own, develop and implement projects, including for instance: Yangon's Empowering Women and Girls through Mobile Technology in Myanmar (940).

26. The UNESCO Institute for Lifelong Learning (UIL) is completing a three year project on the use of mobile ICT and tailored learning software to improve

[22] The analysis on human resources was conducted only on the basis of staff working in ICT in Education in the four key entities at the time of the evaluation. Human resources of other entities such as the Nairobi office, also working in ICT in Education, were not considered. (i.e. UNESCO Nairobi/CI, 1 fixed-term staff, 2 temporary staff working on ICT in Education).

[23] Including Programme Assistants, Project Assistants, Project Coordination and Administrative Support.

literacy, piloting it in four countries.

27. The UNESCO Category 1 Mahatma Gandhi Institute of Education for Peace and Sustainable Development, (MGEIP) supports a range of activities in a field described as Digital Pedagogies[24].

28. Nonetheless, an emphasis on the above four key entities in the context of this evaluation is justified because:

- They work almost exclusively in this field, while for other entities ICT in Education constitutes a modest part of their overall portfolio;
- They are responsible for almost all activities related to international dialogue and national policy and advocacy work, including national institution capacity-building; whereas other entities, when acting autonomously or with partners, often focus on downstream activities such as supporting pilots in the direct learning environments related to their core areas of work.

29. Nevertheless these other UNESCO entities individually and collectively make important contributions to the field, and they are frequently referenced in the analysis as and where appropriate.

Approach and Methods

30. The evaluation was conducted between September 2018 and April 2019 by two external consultants, Seán Ó Siochrú and Graham Attwell from NEXUS Research Cooperative, Ireland. Commissioned and managed by the UNESCO IOS Evaluation Office as a corporate evaluation, IOS was responsible for the management and coordination of the evaluation and provided quality assurance of the evaluation process and the deliverables.

31. An Evaluation Reference Group (ERG) was established to accompany the evaluation process and to provide feedback on and validate the deliverables. The ERG comprised representatives from: the IOS Evaluation Office, the ED and CI Sectors' Executive Offices, the ED Division for Policies and Lifelong Learning Systems, the Gender Equality Division, the CI Knowledge Societies Division, the Bureau for Strategic Planning (BSP), the UNESCO Category 1 Centre IITE, the Asia and Pacific Regional Bureau for Education in Bangkok, and the Multi-Sectoral Regional Office for Eastern Africa in Nairobi.

32. The detailed methodology applied in the evaluation is described in Annex E. It was based on the following key features as suggested and agreed in the inception report.

33. A Theory of Change (ToC) approach was adopted to guide the overall research process. In practice this enabled a sustained focus during the research on the need to understand the logical pathways between ICT in Education interventions and the outcomes sought in terms of enhanced equity and quality of education. An initial ToC map was contained in the Inception Report. This was further amended and validated, and presented in the Stakeholder Workshop in January 2019. The final version of the Theory of Change is contained in Annex G.

34. Case studies: Confronted by a multiplicity of actions that could potentially be included under the portfolio of ICT in Education, and a wide range of UNESCO entities engaging in them, a case study approach was adopted as a key feature of the methodology. This enabled in-depth understanding of selected thematic areas and core dimensions of ICT in Education, and provided insights into the level of interaction and cooperation between the respective entities on the basis of evidence collected within a specific thematic focus.

35. The selected themes for the Case Studies were:

Case Study 1: **The use of ICT for teacher development, with a focus on UNESCO's global priority Africa** (Annex J);
Case Study 2: **Policy Support for ICT in Education**; (Annex K);
Case Study 3: **Coordination, Cooperation & Collaboration in ICT in Education** (Annex L).

36. A detailed Evaluation Matrix (Annex F) specifies the evaluation questions and sub-questions and indicates the sources of information.

[24] I.e. the study and use of contemporary digital technologies in teaching and learning. It focuses specifically on the use of technology to break down learning barriers and enhance students' learning experiences. MGIEP seeks to harness pedagogical possibilities opened up by digital technologies to contribute to enabling a revolutionary shift in education from individual content acquisition to collaborative intelligence.

37. Aspects of Gender Equality were examined in some depth, in relation to ICT in Education project design, monitoring, and reporting; and in terms of compliance with the UNESCO Priority Gender Equality Action Plan.

38. The evaluation adopted a participatory approach, involving a variety of relevant stakeholders in a range of modalities in the design and consultation of the evaluation and providing multiple opportunities for consultations and exchange with key stakeholders. The ERG brought together key UNESCO stakeholders and was consulted at critical stages as outlined above. National Commissions for UNESCO, that include representatives from national Ministries and other stakeholders, were consulted by means of an online survey. It was administered to the 199 National Commissions for UNESCO across the world. 22% of UNESCO Member States responded to the survey. The results of this survey are presented in Annex I.

39. Draft case studies were also circulated to key interviewees and stakeholders for comments and validation, and other interviewees were often re-contacted for verification and triangulation of specific issues.

40. The evaluation also pursued a human rights, gender-equality and culturally–sensitive approach in eliciting and analysing evidence. Although the external evaluation team itself was not gender-balanced, it demonstrated relevant competencies in applying a gender equality lens in evaluation through ensuring that the issue was prominent in the detailed methodology and data-gathering instruments and in their implementation. Their longstanding experience and extensive fieldwork covering various geographic and cultural contexts ensured culturally sensitive considerations of the evaluation subject.

41. The exploration of the wider landscape of key institutional actors in ICT in Education globally (See Annex M) comprises another key feature of the methodology, in particular to support the considerations for UNESCO's positioning in the ICT in Education landscape.

42. Data gathering relied on a mix of tools and sources. In depth documentary analysis included consulting a range of strategic, research, academic and project documentation (a detailed list of documents consulted is available in Annex D). These enabled a full descriptive analysis of context, activities undertaken and outputs, as well as an analysis of the strategic context in UNESCO and in the wider environment.

43. One-to-one and two person interviews were completed with 100 people, 88 in person and the rest remotely (Annex C), covering a wide spectrum of stakeholders. These were based on interview protocols presented in the inception report for different types of stakeholders, and were conducted in a semi-structured manner. Interviewees were provided in advance with the relevant interview protocol (Annex H). A deep qualitative appreciation emerged from these, from a range of sometimes contrasting perspectives, of the characteristics, significance and achievements of the ICT in Education activities in UNESCO, of the obstacles they faced, and the wider environments. Interviews with non-UNESCO stakeholders yield wider views on UNESCO and on other actors and processes.

44. An initial list of entities for interview was drawn up based on suggestions from the ERG and supplemented by the Evaluation Team. Specific individuals were selected usually in communication with the appropriate officer in these entities. Interviews and other communications yielded many additional names and organisations, and these were added to the list as deemed appropriate by the evaluation team to ensure a balanced representation from all major stakeholder groups.

45. The final list of those interviewed grew to exactly 100, 48 of whom were working as UNESCO staff or secondees; and 52 of whom were external (including UNESCO National Commission Members and two Board Members of the UNESCO IITE with positions in external bodies). The breakdown between UNESCO and non-UNESCO was as follows:

- UNESCO HQ 20%; Bangkok Regional Office 12%; Other UNESCO Field Offices 12%; UNESCO Category 1 Institute IITE 4%;
- Academics and Teacher Training Colleges 18%; Private Sector 13%; UN and international bodies 9%; Ministries 8%; Others 4%.

46. The four main UNESCO entities involved in ICT in Education, accounting for the great majority of expenditure in this field, were analysed using extensive and detailed documentary analysis, a large number of the interviews (including Field Visits) with UNESCO staff and other stakeholders, and data from UNESCO's SISTER reporting system. Other activities relating to ICT in Education, beyond these four entities, were explored through the SISTER system, and interviews and enquiries to other relevant UNESCO entities.

47. The evaluation team visited UNESCO Headquarters three times for discussions with the reference group and for in-depth consultations with key stakeholders. A workshop was held with the reference group aimed at presenting findings and preliminary conclusions and recommendations, as well as presenting the results of the Theory of Change analysis. Validation Meetings were also held with UNESCO's senior management.

48. Three field visits were completed between October and November; to the Category I institute IITE in Moscow; to the UNESCO Regional Bureau for Education in Bangkok; and to the Multi-sectoral Regional Office in Nairobi.

49. Data analysis included aggregation and compilation of the SISTER data, full transcription and qualitative analysis of contemporaneous interview notes, standard documentary review and highlighting and compiling of relevant points. The online survey was quality assured, tested and administered in English and French using Survey Monkey. Triangulation comprised comparison of data from the different sources relating to specific questions, and where differences emerged, further in-depth consultation from appropriate sources.

Strengths

50. The evaluation was based on a combination of methodologies applied to gather a wide range of information and data from different sources, and data collection and analysis were thus designed along multiple lines of inquiry. Especially, the large number and variety of stakeholders consulted of which 52% external to UNESCO - including representatives from Member States national authorities, civil society, UNESCO National Commissions, relevant UN and other intergovernmental and regional organisations, as well as from the private sector – generates comprehensive evidence to duly justify the findings and conclusions of this report.

51. Furthermore, the evaluation used a case study approach to gather in-depth understanding of the working mechanism and results in specific areas covered by the case studies. In addition, the evaluation considered the findings of previous UNESCO evaluations on the topic, and of external studies, literature and research in the field of ICT in Education.

Methodological Limitations

52. The evaluation also faced a number of methodological challenges:

53. There is no clear delineation of UNESCO's ICT in Education projects and activities, since the theme does not constitute a distinct and formal programme *per se*. The area covers a heterogeneous set of interventions, varying in scale and nature and applied at all levels, local to global; and ICT are also often included as just one component of a project among others. Even the use of the term "ICT in Education" can vary across UNESCO entities. While core ICT in Education actors in UNESCO could be readily identified, it was more difficult in the case of those involved only occasionally or peripherally. These were considered on a case by case basis, and the advice of the responsible UNESCO staff was sought. Furthermore, ICT in education has also been mainstreamed horizontally across the Education sector portfolio and across some areas of other Programme Sectors. The evaluation therefore required a considerable effort in defining what belongs to UNESCO's work in ICT in Education.

54. The time and resources available did not permit an in-depth evaluation of a representative sample of individual project results, or the gathering of primary data across the entire ICT in Education portfolio. Thus existing independent evaluations were examined, alongside project reporting documentation and supported by the very large number of interviews. The number of independent evaluations of ICT in Education projects is relatively small, and the UNESCO progress and results monitoring system sometimes offers limited qualitative insights. This means that the learning that can be extracted remains largely at the overall thematic level, with limited application to individual project level.

55. The fieldwork conducted in the framework of the evaluation was limited and therefore focused on the collection of data that contributed to the elaboration of the specific case studies, but cannot be considered as representative of the full variety of ICT in Education activities implemented in the different UNESCO regions.

56. The lack of consistent collection of baseline and monitoring data and assessment of progress towards outcomes limits the ability to measure the effectiveness of UNESCO's ICT in Education activities.

57. The survey administered to the National Commissions of UNESCO also provided limited representativeness as answers were received from only 22% of Member States. Furthermore, selection bias of respondents may be assumed due to the different levels of knowledge and involvement of National

Commissions in UNESCO's ICT on Education work, as well as by the above-mentioned absence of a clearly delineated portfolio of ICT in Education. However, this was carefully taken into account during the analysis. The survey data also provided qualitative information as supportive evidence for evaluation findings.

Reading Guide

58. The Report discusses the evaluation findings in five sections organised around the five key dimensions of the evaluation from Section 2 to Section 6:

- UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education
- Internal Coordination and Coherence throughout the Organization
- Partnerships, cooperation and fundraising
- Results and Sustainability
- Visibility and Communication

59. In line with the UNESCO template for corporate evaluation reports, the main body of the report presents the findings at aggregate level with specific details and examples for illustrative purposes, while additional details and further evidence can be found in the related annexes. The evaluation also resulted in the development of a Theory of Change for the field of ICT in Education at the global level, which can be consulted in Annex G.

60. Section 7 presents the overall conclusions and Section 8 the recommendations for the future positioning and efficient and effective implementation of UNESCO's work in ICT in Education.

Key Dimension 1: UNESCO's position in relation to Agenda 2030

Is UNESCO, as compared to other organisations, best placed in terms of contributing to the 2030 Agenda through ICT in education?

Compared to other organisations active in the field of ICT in Education, UNESCO has a number of comparative strengths that it leverages to achieve a strong positioning globally especially in relation to perceived impartiality, convening power and policy expertise from an inclusive and humanistic approach to quality education, coherent with Agenda 2030. However, there is a potential for the Organization to secure a position of global intellectual leadership in the field of ICT in Education which has not yet been fully realized. At the much more crowded level of the ICTs in the learning environment, UNESCO has limited visibility.

61. The question is considered from the perspective of the implementation level of UNESCO projects and the Organization's strategic level position and influence, reflecting the views of informants, most of whom would be aware of UNESCO activities in this area. Further on, issues relating to the level of visibility of UNESCO's positioning are addressed.

62. UNESCO's actions in the field of ICT in Education gain leverage from UNESCO's wider education activities, its mandate[25] and its intergovernmental structure. These comprise:

- Ready access to, and convening power of, high-level political and other actors;
- Widespread acceptance of its role as an impartial and neutral actor in education;
- Its global scope, and in particular its focus on less developed countries;
- A core commitment to inclusiveness and quality of education from a humanistic perspective.

63. Leveraging these strengths is made possible by a high level of UNESCO expertise in specific areas of ICT in Education that is widely acknowledged by staff and external stakeholders.

64. These features, individually and collectively, mark out UNESCO's position in the field globally and differentiate it from other actors. UNESCO's comparative strengths are highlighted below, and contrasted with the positioning of others in relation to ICT in Education.

65. The underlying principles of UNESCO's approach to education (being humanistic, inclusive and of quality) ensure that ICT is always seen as a means and not an end. This contrasts with a technology-driven approach characteristic of many corporate actors. Some private sector companies interviewed recognise this tendency, and welcome the counter-balance of UNESCO expertise. It also contrasts with a more recent and wider 'disruption' approach[26], driven by sectors of the technology industry and linked to moves towards the privatisation of education. UNESCO's 2015 Report Rethinking Education: Towards a global common good[27] is cited by several as a reaffirmation of UNESCO's position, offering to Member States and others a coherent vision in line with Agenda 2030.

66. This widely acknowledged positioning is a key prerequisite to becoming the intellectual leader in ICT in Education not only in relation to Agenda 2030, but in the wider global context of all those who recognise the centrality of education to an equitable and sustainable future and the role that ICT can play.

67. UNESCO's convening power of senior policy makers is also recognised as unequalled in terms of global and regional dialogue and knowledge exchange, especially for developing countries. It gives to it a unique potential to enable South–South dialogue and exchange, in contrast to many regional and global events that emphasise North–South transfer and are often market-driven with a strong product-sales focus. South–South dialogue is highly relevant to Agenda 2030 since in general the SDGs exert much greater

[25] UNESCO's mandate in ICT in Education is anchored in its Constitution and in various UN Frameworks, and is strongly articulated within Agenda 2030 SDG 4.
[26] This is based on the analysis in Annex M "Review of ICT in Education Landscape"
[27] See http://unesdoc.unesco.org/images/0023/002325/232555e.pdf .

influence on policies and politics of developing countries as compared to those of wealthier countries. UNESCO's ICT in Education activities have achieved a high profile, for instance with the 2nd World OER Congress, the Qingdao Declaration[28], and Asia Pacific Ministerial Forum on ICT in Education and the sub-regional forums.

68. UNESCO's expertise is highly valued in the education sector generally, especially in developing countries, a point repeated during the interviews in UNESCO but also with many stakeholders outside including in other UN agencies and international NGOs. ICT in Education benefits from this general perception, but also reinforces it specifically in the policy areas of ICT in Education Master Plans and OER; and in supporting the development of ICT CFT frameworks, OER capacity and resources and more generally the capacity-building of national institutions. This expertise is underpinned by recognised impartiality, and its commitment to humanistic perspectives in education. Because of the sensitivity of education policy in general, few other actors have attained this level of legitimacy among developed countries.

69. The survey of UNESCO National Commissions largely bears out this analysis, though with some nuances. Responding to a closed set of questions related to the perceived specific strengths of UNESCO in the field of ICT in education, 80% of respondents choose "access to good practices around the world" and "expertise across all levels of education"; and 73% choose "multidisciplinary approach across UNESCO Programme Sector" and "access to relevant networks and partners". The lowest score, still at 61% went to "ensures humanistic values are preserved in the collaboration with the private sector."

70. In short, UNESCO has a number of key assets that can help to position it at the forefront internationally in relation to achieving Agenda 2030 through the use of ICTs.

71. Nonetheless its global positioning is also perceived to have a number of limitations and weaknesses.

72. A limitation referenced in several interviews relates to a lack of UNESCO follow-through on policy support and institutional capacity-building, in relation to the process of mainstreaming policies and normative frameworks introduced. Several national and international level stakeholders point out that the level of resources required is seldom available from UNESCO for full mainstreaming for instance in relation to teacher training where sustained long-term effort is required to achieve national-level outcomes. Other actors, such as World Bank, OECD or the EU are positioned to more actively influence education systems, thanks largely to the much higher level of resources they have at their disposal. Since UNESCO is not a development or funding agency *per se*¸ the issue is primarily one of perception i.e. that UNESCO can or should in the first place provide funding for mainstreaming. But it also refers to the fact that other partners are not always connected and ready to step in where UNESCO support ends.

73. While UNESCO has a high profile at the policy level, it is less prominent at ground level, particularly in the development and piloting of new pedagogic approaches, learning environments and tools for the use of ICT in practice in education. Some individual projects stand out, and the Mobile Learning Week showcases much of UNESCO's (and other players') work on the ground globally. YouthMobile[29] is a significant example of empowering young people in creating solutions to local issues through the use of mobile devices. But the level of the learning environment is extremely crowded with a variety of institutions, corporate actors, government initiatives and others, and gaining a profile is difficult. Corporate technology actors such as Microsoft and Intel, and education actors such as the World Bank and the Commonwealth of Learning, and within the UN system, UNICEF, tend to have a higher profile here.

74. But at the highest level, there are different considerations underway for the future of education.[30] The potential of ICT (in the broadest sense) as a tool for developing and extending access to education is generally acknowledged by all. With a degree of simplification, the core difference is between a belief in a holistic and humanistic view of education for human development and individual growth, and a belief that education should be primarily geared towards employability in a highly competitive economy and labour market and that

[28] I.e. the first global declaration on ICT in education, approved at the conclusion of the conference on ICT for the 2030 Education Agenda held in Qingdao, China, see https://unesdoc.unesco.org/ark:/48223/pf0000233352.

[29] See: https://en.unesco.org/youthmobile

[30] See also Case Study 1, Section 1.

education itself can also be modelled on that same economic system. This difference is reflected at various levels including international dialogues, policy development, and the role of teachers, as well as approaches to learning and pedagogy and to the role of technology within education.

75. One important area of this wider competition is in claims to have insights into and important contributions to make regarding future trends in technology and education, what might be termed as 'intellectual leadership' or 'thought leader'. This is potentially an important area since it can influence the priorities of governments, donors and others. UNESCO, despite a large volume of, and generally high regard for, its research publications, is not widely perceived to be at the forefront of future thinking and research in the domain ICT in Education, or as a 'laboratory of ideas'[31]

76. At a more mundane level, there also exists some institutional competition where the spheres of influence between different organisations overlap. For instance the field of ICT in Education is at an intersection of UNESCO, ITU, UNICEF and others. While most organisations see mutual benefit in cooperation (see below) they may compete in gaining and maintaining the attention of governments and educational institutions. They also occasionally find themselves competing to achieve a higher profile within the wider UN system[32] including the UN General Assembly and Agenda 2030. Such competition is probably unavoidable and does not necessarily impede the progression of work in the field. Indeed institutional competition can be positive more widely in terms of incentivising and prioritising advance in the field, and in generating new ideas from different perspectives. There is little or no evidence that at this point, such competition hinders cooperation where it is appropriate. The evaluation encountered numerous examples of ongoing national level cooperation between UNESCO and various UN agencies.

77. It is, however, worth noting that UNICEF, the World Bank and ADB are currently building in-house expertise in ICT in Education, which suggests that they, and perhaps others, are moving to become more active in this area, including in the policy area as well as downstream in the learning environment. At national level there are also ICT in Education working groups, under the Education Sector Working Groups that coordinates development partners. These factors should be taken into consideration by UNESCO as it seeks to position itself for the future.

Is ICT in Education appropriately prioritised by UNESCO in terms of its contribution to Agenda 2030?

ICT in Education does justify a higher priority within UNESCO. Agenda 2030 contains several references to ICTs relevant to education, the strategic potential and value-added to the field, and thus its potential contribution to Agenda 2030. However, its prioritisation within UNESCO is constrained by a number of factors, including reduced visibility in the C/5 and the absence of an explicit commitment to its strategic importance.

78. Agenda 2030 clearly recognises the potential of ICTs to "develop knowledge societies" (para. 15); Target 4b is to "substantially expand the number of scholarships available to developing countries... including… ICT… programmes"; and SDG 4 Indicator 4.4.1 comprises: "Proportion of youth and adults with ICT skills, by type of skill". The Incheon Declaration Framework for Action[33] notes "ICTs must be harnessed to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision".

79. A result of the survey of UNESCO National Commissions is relevant here. When asked if governments have increasingly prioritised ICT in Education in

[31] UNESCO's Strategic Transformation (Executive Board 204 EX/31) seeks to ensure that the "Organization resume its leading role both … as an intellectual forum and as a proactive stakeholder in global debates..." Paragraph 7

[32] An example raised during an interview concerned a presentation to the UN Chief Executives Board at their May 2018 meeting. UNICEF initially sought to present the future of education, including the role of ICTs, but in the end a joint presentation was agreed with UNESCO, with the latter covering ICT aspects. See: https://www.unsceb.org/CEBPublicFiles/CEB-2018-1-Summary%20of%20Deliberation-Final.pdf

[33] The Incheon Declaration is the commitment of the education community to Education 2030 and the 2030 Agenda for Sustainable Development, recognizing the important role of education as a main driver of development, adopted at the World Education Forum (WEF 2015) held in Incheon, Republic of Korea. The Education 2030 Framework for Action, discussed at WEF 2015 provides guidance for implementing Education 2030.

the last 4 to 6 years, a large majority of 76% responded 'significantly' with only 24% opting for 'somewhat'.

80. Given this high relevance, the majority of stakeholders interviewed during this evaluation feel that ICT in Education is not appropriately prioritised in UNESCO, and that it merits both more resources and a stronger UNESCO management focus. Several of those interviewed also believe that its full potential is underestimated in Agenda 2030; most of these interviewees are active in the thematic field, though many are also involved in education or communication and information more widely.

81. The UNESCO approved programme and budget 2018-2019 (39 C/5) saw the elimination of MLA 1 Expected Result 7 (ER)[34], and the mainstreaming of ICT in Education across several ERs. Only a few – those most directly involved – see this to be indicative of an intended lower priority for the field in UNESCO. Most believe it was unavoidable given the UNESCO management decision to align MPI (Major Programme I: Education) with the SGD 4 targets. In principle, most stakeholders at least partially welcome this decision since ICT in Education is seen as a means to enhance quality and equal access to education, and not as an end in itself. Few stakeholders raised the issue of timing of this mainstreaming: they felt it was premature, since there is a continuing need for a specific focus and visibility as a thematic priority area within UNESCO and within ED.

82. The evaluation found wider agreement among stakeholders interviewed on the implications of the move, both in practical and strategic terms.

83. In practice, mainstreaming across five other MPI MLA 1 ERs has reduced the visibility of achievements in ICT in Education within the UNESCO reporting system, and this can weaken incentives, particularly for Field Offices, to undertake activity in this area. There is a related concern that progress monitoring is made more difficult, since now PI results must be integrated across all relevant ERs[35]. The likelihood that senior UNESCO staff and management will highlight progress in the field of ICT in Education in international fora may also be affected, which may in turn make it appear that ICT in Education has become a lower priority.[36]

84. A further major concern is that the manner in which ICT in Education is represented in MPI's ERs and PIs is incomplete, inconsistent and dispersed. While there are references to ICT across 39 C/5 ER 1 to ER 5 (See Annex B, Description of UNESCO's work in ICT in Education) these are not always followed through in the PIs. More seriously according to several UNESCO staff interviewed, there is no explicit reference to the strategic importance of ICT in Education across multiple dimensions of education. A concern shared by many UNESCO staff is that the specific form of mainstreaming may in practice diminish the visibility of results of ICT in Education activities in UNESCO at a time when it is growing in importance globally, and when UNESCO's specific contribution is more needed than ever.

85. This mainstreaming affected, at least directly, only the Education Sector and not the important work in ICT in Education being pursued by the CI Sector in Major Programme V. While some intersectoral linkages are recognised in the C/5 in both MPI and MPV[37], these simply state their intention to cooperate in certain areas rather than describing substantive modalities such as joint programming and linkages across two Sectors, or including joint activities following a shared thematic goal. For instance the relevance reference in the CI Sector C/5 MP5 is:

> "The CI Sector will cooperate closely with the: Education Sector in areas such as Open Education Resources (OER) and ICT Competency Framework for Teachers, which will be used for building twenty-first

[34] "National capacities strengthened to develop and implement policies in education, particularly in teacher training and professional development"

[35] In practice the reporting responsibility for these ERs is now more likely to reside in another Unit or Section. That Unit/Section is responsible for integrating the ICT in Education PI results. Thus the ICT in Education unit need report on only the relevant PI. But the effect can be that the integration of results is somewhat disconnected.

[36] A Head of Unit pointed to a UNESCO-sponsored high-level meeting in Brussels in December 2018 on SDG 4 that produced a statement entitled *Global Education Meeting 2018: Brussels Declaration.* It made no mentioned whatsoever of the role of ICTs, and he argues, plausibly, this was influenced by the fact that ICT in Education is no longer reported as a distinct ER.
See:https://unesdoc.unesco.org/ark:/48223/pf0000366394?posInSet=1&queryId=f00bbeb5-caf0-495d-9782-e4caad1e9e0f

[37] See 39/C5 Programme and Budget 2018-2019 Approved paragraphs 01016 and 06026 respectively

century skills and institutional capacities." (06026)

86. Raising the status and visibility of ICT in Education within the C/5 might be achieved in different ways, without returning to specific dedicated ERs. For instance, ICT in Education could in principle be integrated as a horizontal theme; and this could be reflected in the C/5 narrative (including the reference to intersectorality), the ERs and PIs.

87. However, only altering the C/5 would in itself change little. ICT in Education would more readily find its own place in the C/5 in the context of a wider refocusing and theme-building process.

How can UNESCO strategically position itself within the UN family and towards external stakeholders, in particular the private sector considering the evolving expectations and new opportunities to expand the scope and quality of the work in ICT in Education?

Strengthening UNESCO's intellectual leadership through innovation in ICT in Education, emphasizing its contribution to education as a public good, would enhance UNESCO's strategic positioning.

88. According to many interviewed within UNESCO and outside, UNESCO's strategic positioning in ICT in Education is, overall, relatively modest. Within the UN system it exists alongside and sometimes in the shadow of organisations such as UNDP, UNICEF and ITU, and can be eclipsed by their high visibility and, in the case also of other external stakeholders, abundant resources. Its strengths, as outlined above - convening power, impartiality, global scope, commitment to quality and inclusion in education, and expertise in specific areas – are not always fully leveraged to bring it to the fore.

89. The potential to gain a higher profile in intellectual leadership in ICT in Education is recognised by many stakeholders, based on an appreciation of the quality of the research as the single most important step in repositioning UNESCO, and several mentioned an unrealised potential as a repository and producer of forward-looking knowledge on ICT in Education, and as a 'laboratory of ideas' for future-oriented thinking. A point differentiating UNESCO is that the research and knowledge produced is consistently projected through the lens of UNESCO's trusted core values in education: equity, quality and humanism (thus leveraging its normative strength); and focus on building the capacity of policy makers and institutional leaders in developing countries (thus leveraging its convening power, impartiality and global scope). Among other, UNESCO has helped integrate its core values on the agenda of some large commercial events, through participating for instance in the e-Learning Africa[38] and Transform Africa initiatives[39].

90. Less than optimal management of existing knowledge, from an external-facing perspective, is visible to many, as well as the absence of a communication strategy that clearly defines UNESCO's approach to this theme, and packages and disseminates UNESCO's existing expertise and knowledge.

Are the two Global priorities Gender Equality and Africa effectively mainstreamed in the implementation of ICT in Education initiatives, and in particular are UNESCO interventions targeting the most vulnerable or disadvantaged groups?

Gender equality issues are not consistently mainstreamed into policy-related and capacity building interventions, monitoring systems or PIs. Although Programme staff are sensitive to gender equality issues, they lack the skills to effectively integrate them at design and implementation states. But there are a few examples of gender-responsive projects. The Africa Priority is sufficiently reflected in terms of budgets and appropriate projects.

91. Gender equality is, at most, only nominally mainstreamed into policy-related interventions; and to a very limited degree into institutional capacity building interventions. Gender equality indicators are generally absent from project monitoring and PIs, except for levels of participation in surveys and events. An assumption was voiced a few times that since the focus of many projects is on teachers, and women comprise the majority of teachers, they benefit disproportionately anyway. This assumption is not critically scrutinised and indeed a plausible counter-argument was advanced – that the majority of participants in projects for ICT in teacher development are in fact men since they already have a higher level of technological competence.

[38] See: https://elearning-africa.com/

[39] See: http://www.transformafrica.org/

92. While UNESCO staff do take many opportunities (for instance during workshops on Master Plans and ICT CFTs) to remind policy makers and institutional actors of the importance of promoting gender equality, they seldom are in a position to make stronger demands as they lack the necessary competencies and guidance on how to integrate gender equality considerations. An independent evaluation of a teacher development initiative has pointed to limited integration of gender equality in project implementation[40], and it is clear from project documents and reporting that it is not held to be a high priority.

93. Most of the major projects in ICT in Education are classified as "gender-sensitive"[41] in their SISTER entries.[42] However, an examination of project documentation would suggest that this is a very low threshold to pass. Interviews with UNESCO staff revealed limited knowledge of how to apply UNESCO's policy on gender equality in practice.

94. Downstream and closer to the learning environment, some excellent gender-responsive and gender–transformative projects are implemented by a variety of different UNESCO entities, in addition to those working on ICT in Education. The first three of the following were initiated and planned by ED/PLS/ICT, which also raised the funds, and then decentralised for implementation:

- UNESCO's Gender Equality Division (under the Cabinet) with the Education Sector (ED/IPS/IGE): *Defining, measuring and promoting gender-transformative skills for women and girls in the digital age* (14970), part of the EQUALS partnership with ITU and others;
- UNESCO's Myanmar Office: *Empowering Women and Girls in Mobile Technologies in Myanmar* (9470);
- UNESCO Bangkok (BGK/EISD/NFE): *Mobile Literacy for Out of School children in Thailand* (7843), a partnership with Microsoft that focuses especially on girls;
- UNESCO's Nairobi Office in Kenya: Scientific Camps of Excellence for Mentoring Girls in STEM.[43]

95. CI Sector (CI/KSD/ICT) YouthMobile Initiative (2282) including numerous projects to enable young girls and boys to create mobile apps for sustainable development, in a decentralised model often run by external partners.

96. The IITE's section on health education is systematic in applying a gender lens to its activities, which are critical to reaching the audiences of young people on issues such as AIDS and gender-based violence.

97. ICT in Education initiatives are overall aligned with the Global Priority Africa. Investment in ICT in Education is strongly focused on Africa, from different funding modalities, and in particular of extrabudgetary projects. 24% and 28% respectively of all ICT on Education interventions in the past two biennia (2014 to 2017) were implemented entirely in Africa, without considering initiatives with a global scope (see Figure 1). Comparing the number of ICT in Education interventions per region, a relative majority of MPI interventions are implemented in Africa, followed by Asia and the Pacific, while similar percentages of MPV interventions are implemented in both, Africa and the Arab States regions (see Figure 2). In alignment with the priorities of the AU's 2063 Agenda, in particular some larger extrabudgetary initiatives were implemented at country-level across the continent, such as the China funded UNESCO-CFIT programmes for strengthening teacher training via ICTs, and the Korean-funded KFIT "ICT Transforming Education in Africa".

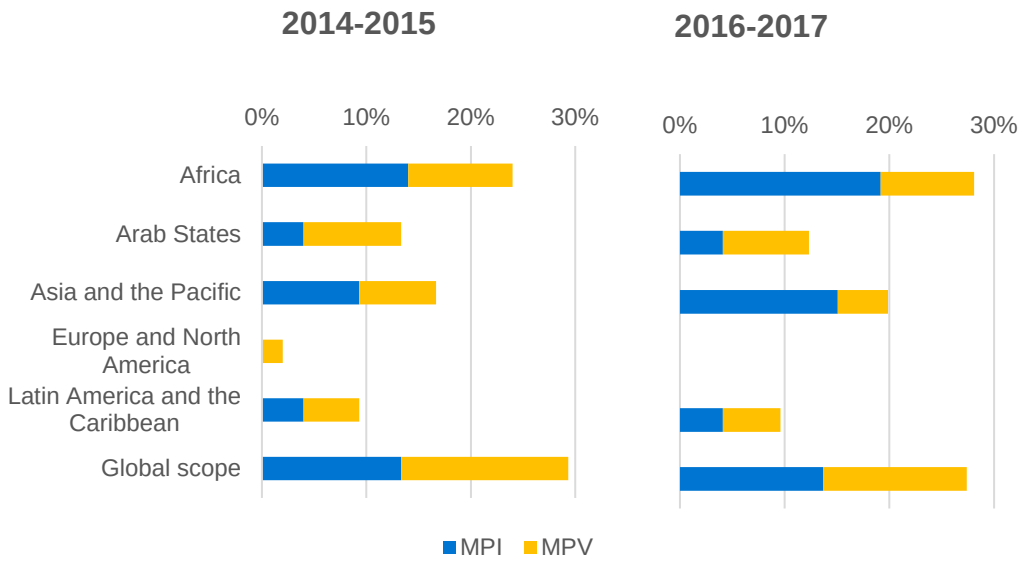
[40] Ockham IPS, ICON-Institute (2016) *Evaluation of UNESCO-China Funds-in-Trust Project: Quality Teachers for EFA –Enhancing Teacher Education for Bridging the Education Quality Gap in Africa*. (page 16).

[41] UNESCO workplans are classified as either 'gender-sensitive' (gender differences are identified and acknowledged); 'gender-responsive' (in addition, factors that address the different needs are identified) and/or 'gender-transformative' (actions are proposed that brings about changes in gender equality). Work plans that show no or only marginal contribution to aspects of gender equality are considered as 'gender-neutral'. See Guidelines for the formulation of 38 C/5 Regular Programme Workplans

[42] A review of ICT in Education main interventions (2014-2017) offered strong evidence in this regard. Of 42 projects initially identified, a total of 7 (17%) were entered in SISTER as being "gender-responsive". The remaining 35 (83%) were either marked as "gender-sensitive" (14, 67%) or as 'gender-neutral' (making no contribution) (7, 17%). None were marked as 'gender-transformative'.

[43] See: http://www.unesco.org/new/en/nairobi/about-this-office/single-view/news/scientific_camp_of_excellence_for_mentoring_girls_in_science/

Figure 2: Number of MPI & MPV ICT in Education interventions implemented per region, 2014 – 2017



Key Dimension 2: Internal Coordination and Coherence

Have UNESCO's organisational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way?

Most UNESCO actors believe that coordination and communication across the entities engaged in ICT in Education, and externally, could be improved with positive results. Issues include a lack of clarity on roles and strengths of each entity, an absence of mechanisms for regular interaction, and a lack of clear guidance from senior UNESCO management.

98. There is a widespread belief within and outside UNESCO that the current forms of coordination and communication are less than optimal, in terms of coordinating and optimising the use of the skills and resources available in UNESCO, and of maximising the visibility, quality and relevance of UNESCO's work under this theme.[44]

99. This is accounted for in part by the fact that ICT in Education is not a programmatic area but rather a set of relatively discrete interventions undertaken by a range of units of different types and locations within UNESCO. The main issues that can prevent cooperation and coordination or are a consequence of a lack of it are seen as follows.

- There exists no clear definition of ICT in Education or agreement on which projects and actions should be included under the heading;
- Clear leadership cannot emerge within the current structures; nor can a strategic overview of UNESCO's strengths, roles and direction;
- Information and resources are available on a multiplicity of websites and access points, with minimal coherence and limited links between them;
- Potential and existing partners are unclear about UNESCO's wider strategic position and find it difficult to engage beyond project level;
- A degree of non-constructive competitiveness and territorial defensiveness can enter into relations between the main entities involved;
- Ongoing interaction between the different entities involved is *ad hoc* and sporadic, with some exceptions relating to specific actions;
- Although they cover similar thematic areas at project level, exchange of experience and learning between entities is limited.

100. The key UNESCO entities are keenly aware that they often work in parallel on similar issues, and there are important instances of sharing resources and cooperation.[45] The ICT CFT Framework, for instance, is the point of departure for all entities involved in supporting Member States in the development of competency frameworks in ICTs for teacher training, though the Framework is implemented in different ways according to how each entity works with national partners and the latter's priorities and structures. Despite this autonomous approach to the work, the updating of the ICT CFT to Version 3, led by CI/KSD/ICT, was a good example of cooperation between them.

101. But there can be negative consequences. Limited exchange of experience reduces the application of lessons and learning across UNESCO, and the fragmentation of websites leaves them less visible and accessible externally. The absence of routine information sharing means that opportunities are lost and misunderstandings arise. All entities cited examples of activities undertaken by another unit in their geographical or thematic area, without information being shared in advance. For instance the Bangkok ICT in Education team reported that an event was organised by UNESCO HQ in Tajikistan directly following a CASIE policy forum that had been organised by Bangkok. Yet they were advised of it so late that they could not attend. Nor was the Bangkok team advised that UNESCO was organising an UN Internet Governance Forum in Paris in 2018. Such communication gaps can also diminish trust, which in turn further inhibits interaction. Combined with other factors (such as the predominance of the Funds in Trust modality which tends

[44] This partly motivated the request for the evaluation.

[45] See Case Study 3 Section 2. Examples include the Expert Group convened on OER that brought together CI/KSD/ICT, ED/PLS/ICT and IITE; the development and subsequent decentralisation of projects ED/PLS/ICT; and cooperation among all four key entities in the ICT CFT Version 3.

to reinforce a narrow focus on the needs and skills of a single unit[46]) opportunities for cooperation and collaboration are less likely to be sought actively, and tend to be scaled back to a minimum. Where project funding is shared between entities, it can result not in organic cooperation towards a common goal but in separate sub-projects.

102. The leaders of these entities, and senior UNESCO management, would welcome greater clarity and direction in relation to the roles and strengths of different entities. Several entities, especially those outside of HQ, look to senior UNESCO management to clarify appropriate communication protocols with others, and guidelines concerning subsidiarity and devolution.[47] They would also welcome discussion of the strategic roles that ICT in Education can play, clarity on relationships between and respective roles of and strengths of different entities, and the implications of these for the appropriate scope of thematic actions.

103. There is a willingness among all entities to engage in more cooperation and collaboration but the absence of specific enabling mechanisms and the lack of guidance from senior UNESCO management act as barriers. Without exception they recognise that benefits would flow internally and externally from a coherent Web presence, within which all would have a distinct presence but under a common theme. Yet it is not clear which of the entities could or should initiate processes to achieve these goals.

104. Thus the situation is that the key UNESCO entities involved in ICT in Education would welcome several (though not necessarily all) of the features of a single programmatic area and believe that benefits would ensue, but they lack the formal means and the clear authority to develop and operationalise such features.

Are resources adequately allocated/shared/distributed, given the comparative strengths of different sectors/units and the potential of intersectoral cooperation?

Given the UNESCO-wide dearth of RP funds, the extrabudgetary funding has contributed to the development of projects and growth of staff to enhance UNESCO's global positioning in the field and play an intellectual role in priority areas such as in mobile learning and the use of AI in education. However, a more agile approach to the management of staff recruited under extrabudgetary resources that encourages sharing of resources and expertise among entities and units would be beneficial.

105. A number of issues arise in relation to resource distribution and financial modalities.

106. Although a significant number of staff work on the theme overall, the number of fixed-term UNESCO programme specialists in ICT in Education is small, amounting to six to seven. One unit head pointed to a certain reticence among specialists in related areas to enhance their experience and expertise in the direction of ICT in Education, in part because of a (misguided) perception that it would require a background in information and communication technology.

107. The predominance of extrabudgetary funds in ICT in Education, the use of the Funds in Trust modality (see Table 2), and a fall in available RP funds[48] have a number of consequences.

- The leaders of relevant entities tend to design their respective projects to also ensure continuity for existing capacities or expand staff resources, almost all of whom are non-permanent project appointments.

[46] See Case Study 3 Section 5. Factors include: Unit leaders tend to design projects that can retain or expand existing staff; and the predominance of contract staff means there is no clear wider career path and staff strongly associate with their own units.

[47] A note from the DG in 2014 remains in force and indicates a high level of delegation of authority and subsidiarity. DG/NOTE/14/3 *Enhanced Delegation of Authority to UNESCO Field Offices and Revised Reporting Lines* See: http://unesdoc.unesco.org/images/0022/002256/225646E.pdf.

[48] While recognising that RP funding has unavoidably declined overall, some believe that success in securing extra budgetary funds in a given entity can result in a lower allocation of RP funding to that entity. Some also noted a lack of transparency in the criteria for allocating RP.

Collaborating with other units tends thus to have a lower priority that it might otherwise have;

- The predominance of contract staff and the associated absence of a clear career path in UNESCO and of ongoing professional development and mobility[49] means that such staff associate strongly with their own units, and have a strong incentive to continue to secure funding for their positions;
- There is by nature a higher level of turnover of such staff, either as contracts are terminated or as they successfully secure positions elsewhere, and an ongoing loss of expertise and knowledge to UNESCO.

108. Discussions with informants about the prospects of enhancing internal collaboration were sometimes linked to a perceived need for greater flexibility around and wider thematic based distribution of XB funds, as an enabling factor. The current primarily sector-based accountability frameworks (with the exception, of truly intersectoral cooperation, as found for instance in the Nairobi office) and financial management mechanisms were mentioned among the obstacles to enhanced collaboration and distribution of funds across UNESCO.

109. XB funding can also influence the geographic and thematic focus of UNESCO interventions in this field. Funds-in-Trust are negotiated with donors, and UNESCO management implements a project approval process to ensure that these projects are fully coherent with the current C/5. However, ERs and PIs tend to be quantitative, and geographically non-specific. This leaves considerable room for manoeuvre in terms of fitting individual donor priorities with the C/5. Countries not specified in the Funds-in-Trust projects are, in practice, less likely to receive UNESCO support. The modest level of RP available (for instance the BGK/EISD/ICT unit averages $15,000 annually in the current biennium) is insufficient to launch any significant action to accede to requests of Member States not included under Funds-in-Trust modalities. It also reduces the scope of the unit to develop their own priorities in line with a strategic assessment of needs and potential benefits.[50]

110. The current situation in which the four key entities in ICT in Education design and implement their own projects, mainly through Funds-in-Trust, largely independently of each other, is considered as less then optimal. Although it is not possible to state with certainty (since it is difficult to analyse and predict the various factors involved), there is a perception among staff interviewed that the same volume of funding could be deployed to better effect if projects were planned and implemented collaboratively, and the specialist expertise of the different units shared as appropriate.[51]

What criteria/mechanisms could support priority setting by Member States and resource allocation for inter-sectoral collaboration?

An optimal role distribution across the entities that builds on existing capacities and benefits all, will emerge only with improved horizontal communication and cooperation, and with appropriate focal points and senior management leadership. This establishes a precondition and is critical to enhancing the work in this field, irrespective of where the individual roles and capacities lie**.** Identifying and harnessing the comparative strengths of each entity in a coordinated manner is a first step for optimizing complementarity of roles and responsibilities of the different entities.

111. There is evidence that Member States that have committed heavily to funding ICT in Education would welcome improved synergy between projects they support, and which are implemented by different UNESCO entities.[52]

112. The Survey results also show that the respondents to the survey for National Commissions consider UNESCO's expertise across all levels of

[49] Temporary contract staff can be employed with the same benefits and professional development support as permanent staff (though without the employment security). The cost is much higher than for other equivalent contract staff. This option is exercised to the benefit of contract staff in ED/PLS/ICT.

[50] Significant or flagship actions/projects can take advantage of an integrated budgeting mechanism by enabling the planning and launch of a complementary modality, based on a combination of regular budget and extra-budgetary resources. Mobile Learning Week was launched on this basis.

[51] The Korean government, under the Ministry of Education, funds separate projects in Asia and Africa, under the KFIT modality, with the funds divided between headquarters and the Bangkok regional office. A representative of the Korean Ministry notes that Korea would appreciate more synergy between these projects.

[52] See Case Study 3, Section 5.

Education (78% of respondents) and UNESCO's multidisciplinary approach across its Programme sectors (73% of respondents) to be among UNESCO's specific strengths, compared to other actors in the field of ICT in Education.

How can the Organization best manage the work in this area in the future, in a coherent and coordinated manner, in particular regarding the respective role and capacity of the ED and CI sectors, and by best utilising the potential of IITE and other relevant Category I Institutes? What is the optimal role distribution among the different UNESCO entities?

113. Table 3 indicates areas in which each of the main entities has significant expertise and interventions.

Table 3: Areas of Work for Key UNESCO Entities in ICT in Education

Area of work/ UNESCO Entity	ED/ PLS /ICT	CI/ KSD/ ICT	BGK/ EISD /ICT	IITE
International dialogue/exchange fora	X	X	X	X
Master plan policy support	X		X	X
International standard setting instrument		X		
Master plan tool & resource development	X		X	
ICT CFT Toolkit development	X		X	
ICT CFT Institutional Capacity building	X	X	X	X
OER policy support and publications	X	X		X
OER platform and content support		X		
Research in the learning environment	X		X	
ICT integrated in learning environment	X			X

114. The fact that several entities are involved in a given area need not be indicative of duplication since different geographic areas and sub-themes may be involved. But it does indicate a presence of similar or complementary expertise in these areas.

115. An optimal role distribution based on their expertise, mandates and resources cannot be prescribed at this stage. It will evolve as the entities improve mutual communication and engage in cooperation across various areas, encouraged and guided by senior UNESCO management.

116. The evaluation considered a range of arguments brought forward by interviewees concerning the respective roles and capacities of ED and CI sectors, and of other entities, in relation to ICT in Education. These include:

- ICT in Education concerns the deployment of ICTs across the entire education system and the Education Sector therefore must have the role of deploying it across the sector, in all its components;
- Cutting-edge integration of ICTs into education requires expertise that is associated with communication and information technologies and can be readily provided by the CI sector;
- The CI Sector is smaller and considered more agile, and is therefore seen as responding to emerging trends more rapidly and flexibly, as for example shown in its pioneering of various technologies;
- ICT in Education activities should have a primarily horizontal function to support other UNESCO units and entities in UNESCO in understanding and implementing ICTs in their respective activities;
- OER are part of a wider suite of open resources supported by CI, including open software and open access, and there is a preference for these to be maintained together;
- All teacher training support activities are seen as a core part of educational sector activity generally, primarily implemented by the ED sector, including those that involved ICTs.

117. There are merits and limitations to each of these arguments. However, they have one thing in common: they all lose much of their force when a wider perspective is taken on the issue, a perspective raised by many of those interviewed.

118. UNESCO, like most large organisations, faces an ongoing challenge of operating within 'silos' within each entity (be it Division, Sector, Unit or Institute) with a tendency to build an internal hierarchical, self-sustaining dynamic, at the expense of a vigorous dynamic of communicating and collaborating with other

entities within and across the Organization[53].

119. The main challenge for ICT in Education is not about identify and agreeing on the role of each UNESCO entity, or about where specifically the capacities lie. Already there is clarity, for instance, on the lead role of each specific project, and the reporting roles in the context of the C/5. Tables 1 and 3 above give an indication of where the specific capacities lie (though a more detailed human resource analysis would be required to specify this in more detail and in a future oriented perspective).

120. Rather the challenge for the way forward in the shorter and longer term is how the different teams that are spread across UNESCO can work more together to achieve more effective outcomes. To put it another way: no evidence has emerged from the interviews and document review that any of the current projects or activities would be implemented more effectively if the responsibility of that project were located in another UNESCO entity. The core expertise required is present in the entities in which the work is being completed. However, many of the interviews, in different entities, revealed that, overall, UNESCO engagement in the field of ICT in Education could be enhanced if there were more interaction, cooperation and multi-disciplinary collaboration across the various entities.

121. Going beyond the individual entities, stakeholders interviewed, outside of UNESCO as well as inside, unanimously consider that inter-and multi-disciplinary cooperation within UNESCO is an important strength. Being able to blend together effectively expertise in ICTs and expertise at all levels of education within UNESCO is one of its unique strengths.

122. It follows from the above arguments that effective horizontal communication and cooperation among entities in UNESCO is a precondition and key to enhancing the work in this field, irrespective of where the individual roles and capacities lie. Addressing these issues does not necessarily require the introduction of changes to the current UNESCO structures and areas of responsibilities.

123. While roles and required capacities must be clearly defined, it is the ability to combine these across the Organization that can make the difference. This defines UNESCO's added value especially in the case of ICT in Education, as a multi-disciplinary thematic area *per se* and given its diverse origins within the Organization.

124. A number of wider organizational trends and developments within UNESCO will facilitate moves towards more coherence and coordination between the entities involved. The Strategic Transformation process currently underway in UNESCO reflects this clearly through the efforts undertaken by the specific working groups that, among other things, aim at enhancing internal and external communication and at modernisation of operational mechanisms. The process emphasises the idea of UNESCO as a 'laboratory of ideas', and seeks to expand international influence though improved communication and a more focused image. It also speaks to the holistic and multidisciplinary nature of Agenda 2030, and is reflected in the UN system reforms in response to the Agenda 2030 and to Member State's needs, factors that are expected to further facilitate progress in this direction for ICT in Education.

125. Furthermore, UNESCO senior management is deepening its commitment to an RBM approach, led by BSP, in which theory of change is integrating with the C/5 ERs and PIs, and – crucially – is moving towards a thematic C/5 structure, which shall naturally be enabling greater horizontal cooperation across the Organization.

[53] See Case Study 3; Sections 4 and 5.

Key Dimension 3: Partnerships, cooperation & fundraising

Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources, in particular with a view to UNESCO's critical financial situation in recent years?

ICT in Education has been successful in securing XB funding, but less so – with a few exceptions - in long-term partnerships with international entities and the private sector. There is likely to be scope for expansion especially with the private sector if the appropriate vision and mechanisms are in place.

126. The key UNESCO entities in ICT in Education have been highly successful in attracting donor funding, and there is evidence that considerably more could be forthcoming. Some key and lasting strategic partnerships have been developed, (see Table 4) as well as a large number to support short-term projects and events. However, while the evaluation found a solid funding base, such as from Asia, in particular China and Korea, that should be sustained, it also found that there is scope for further broadening the donor base and diversification of donors. Furthermore, so far most financing has been earmarked, which is to some extent constraining activities and developments in certain UNESCO priority areas. For instance, the extremely modest RP budget available to the Bangkok ICT in Education team (about USD 30,000 in the current biennium, itself a rise on the previous two) does not enable the Unit to respond to requests from non-earmarked Member States to undertake Master Plan preparation, such as in the case of the Small Island Developing State, Kiribati, which had submitted such a request.[54]

127. Significant and sustained financial contributions from China have been forthcoming; and Korea, a consistent supporter of education, further reinforced its contribution at the time of the Incheon Declaration. Relatively large projects have been extended and renewed and are likely to continue.

128. The main donors to the key entities in 2014 to 2018 are listed in Table 4 below.

129. In relation to partnerships with international entities, there are a few sustained examples of UNESCO working strategically in ICT in Education to achieve a common goal or area of overlapping interest. An important exception is in the area of OER, between COL, UNESCO and, often supporting with funding, the Hewlett Foundation. Among UN agencies, ITU is the most prominent. It is a long-term partner of UNESCO in the Broadband Commission, with ED/PLS/ICT in the Mobile Learning Week, and cooperates at project and activity level with BGK/EISD/ICT and IITE. It also works with regional and national level offices for instance in celebrating Girls in ICT Day and other events. Other partnerships have been developed with UNICEF, OECD, World Bank and ADB.

130. In the private sector, in addition to once off support for major events, project-based partnerships have been developed with, amongst others, Intel, Microsoft, Google and Pearson. The private sector seeks from partnerships with UNESCO some combination of the following:

- Access to UNESCO's expertise in education, and to share their own with UNESCO, especially for hardware and software companies who readily admit to a lack of expertise in the education field and that their products require adaptation and refinement.
- Access to policy makers, such as high visibility presentations at jointly-organised inter-ministerial conferences, and formal and informal opportunities to meet Ministers and senior policy staff.
- Verified research results, particularly if an independent UNESCO evaluation can demonstrate educational benefits (including cost/benefit analysis) arising from a joint project using their products (software, hardware or systems); this is valued both as a test-bed and affirmation of their products and for the credibility it offers to future promotion with policy makers and users.
- Building lasting linkages at national level: for instance, in one partnership national Microsoft and UNESCO offices are working together, with the former seeking to develop a lasting relationship.

[54] In early 2019, support for Kiribati was included in the KFIT III Project.

Table 4: Major Donors in ICT in Education (Thousands of USD)

Donor / UNESCO Entity	ED/PLS/ICT		CI/KSD/ICT		BGK/EISD/ICT		IITE	
	37 C/5	38 C/5	37 C/5	38 C/5	37 C/5	38 C/5	37 C/5	38 C/5
Government								
Bulgaria			170					
Finland - Ministry of Foreign Affairs			194	194				
Kuwait			737	708				
Libya - Ministry of Higher Education				2,106				
Republic of Korea	6,000	6,000			1,000	1,570		
KERIS					30	60		
Japan (MEXT)						450		
Slovenia				21				
Multilateral								
European Agency for Special Needs and Inclusive Education			10	28				
European Union (EU)			276	276				
Private Companies								
Independent Non-profit Organization Institute of System Analyses and Intellectual Property (ISA)							14	
CJSC "General Lockers"							3	
LLC "DPI- Projects"							19	
GIVC-TECHNOLOGY LTD							6	
INLEA PROJECT BUREAU LTD							41	
Zhejiang Yalong Educational Equipment Joint-Stock Company Ltd. (JCS Yalong)							25	
Restore								5
SVEGA-Computers LLC								4
DPG Company								5
Blue Infinity SA		3						
Chungdahm Learning					33			
Fazheng Group		350						
Hewlett-Packard	150							
Houghton Miffin Harcourt	10							
Intel	70				22			
SAP	10							
WEIDONG Group	500	2,188						
Private - Foundation								
Education Quality Foundation			25					
Nippon Foundation				15				
Open Access Scholarly Publishers Association			5					
Qatar Foundation			19					
William and Flora Hewlett Foundation			1,000	2,102				
Private Non-Governmental Organization								
G3ICT, Global Initiative for Inclusive ICTs			13					
Private Others								
ASEAN Cyber University					58			
ISACA - Information System Audit and Control Association			20					
Royal Beijing School	60							
(Empty)	350							
TOTAL	**7,150**	**8,541**	**2,469**	**5,450**	**1,143**	**2,080**	**109**	**13**

Source: SISTER Financial report

- Public relations benefits and image enhancements from being associated with a project and a UN organization pursuing the public interest.

131. Private sector organisations interviewed believe there is, in principal, further scope for building wider, sustained, multi-project partnerships, with corporate entities and foundations.

132. The public interest, as expressed by the core values of UNESCO in education, is compatible with and complementary to the interests of many key ICT corporate actors, and the potential for partnership is therefore considerable.[55] However, the key UNESCO entities in ICT in Education, individually or collectively, do not rely on specific guidance or lessons learned regarding the modalities and terms of partnership and engagement with the private sector, or of the intersection of their mutual interests in the field of ICT in Education. Rather they engage with private sector organisations individually, and explore together their mutual expectations, roles and responsibilities. As both sides gain experience of the partnering process, the process of managing mutual obligations and responsibilities becomes easier. But significant instances of misunderstandings well into a partnership were encountered in interviews, that could have been avoided had the issue been explicitly raised at the start. One large private sector partner switched from partnering with UNESCO HQ to a UNESCO Category 1 Institute, finding the latter to be more flexible and administratively less demanding. Several UNESCO entities involved in ICT in Education stated that the need to gain approval from HQ for relatively minor aspects of partnerships can act as a disincentive to formalising agreements. In one case it was preferred to press ahead on an informal basis, rather than risk delays and possible constraints on the partnership.

133. Realising this partnership potential could, according to several, be facilitated in several ways.

134. First, a clear vision and objectives in relation to UNESCO's actions in ICT in Education would be useful, preferably backed by UNESCO-wide strategy paper and senior management buy-in. This would help partners to identify long-term shared goals and interests in partnership. The work in OER could sustain the COL partnership precisely because such long-term shared goals and interests were present, and is now bearing fruit with the proposed OER Recommendation.[56]

135. Second, an explicit statement as to what UNESCO hopes to gain from partnerships with different partners and what UNESCO can offer each, along with criteria that would enable the monitoring of success from the partnership itself, might facilitate the process of identifying partners and, through a follow-up process, evaluating their success.

136. Third, for some, more clarity on the principles and protocols for partnership would be useful, especially at the early stages of a partnership. This could take the form for instance of draft guidelines or an MOU that would inform the terms of partnership and how the different interests can be pursued to mutual benefit.

What future opportunities are emerging and how can UNESCO best capitalize on these?

Numerous opportunities are emerging across many areas of education, and the challenge for UNESCO is to identify where it can best exploit its intersectoral strengths and focus on the holistic, ethical and humanistic approaches and implications for education, such as artificial intelligence (AI) in Learning Analytics (LA), Personal Learning Environments, but also in more mature ICT technologies with major growth potential.

137. The use of ICT in Education is expanding and changing fast.[57] This both complicates work in the field and offers new opportunities. It also presents a challenge to UNESCO in balancing cutting edge developments (which may or may not yield long term benefit) with support for implementing ICT based on older and more stable technologies.

138. In the last two years the educational technology sector has extolled the potential of Artificial Intelligence and big data. AI is seen as allowing

[55] The Review of ICT in Education Landscape (Annex M) Section 1 also makes the point of the importance of partnerships with the private sector especially in relation to infrastructure development in Africa.

[56] The 39th UNESCO General Conference authorised the drafting of a UNESCO Normative Instrument (Recommendation) on OER for the 40th Session. Resolution 44. 39 C/47 18th August 2017.

[57] See Annex M: Review of ICT in Education Landscape.

personalised learning programmes. There are many different applications for data in education; perhaps most prominent is Learning Analytics.

139. Mobile learning is also gaining more prominence particularly in the TVET sector. UNESCO has already funded work in the field of e-assessment and this area is likely to grow. The use of e-Portfolios for reporting on attainment is another area that will expand in future.

140. Online courses and distance learning continue to expand rapidly. Most interesting are different models and approaches to the use of ICT of distance education, including blended learning and MOOCs. Most require the development of online learning materials and multi-media, an area that has been supported by UNESCO through involvement with OERs. Although Learning Management Systems have maintained their hold over the past 15 years or so, there are signs that institutions are looking to ICT platforms that better support and facilitate learning, particularly social and peer learning.

141. UNESCO cannot address all future-oriented initiatives in ICT and learning. But its intersectoral and interdisciplinary approach gives it a potential advantage in analysing and designing holistic approaches to engagement with future technologies and the ethical and humanistic implications for education.

How can UNESCO further capitalise on its outreach entities and networks?

Some UNESCO Chairs and some other Category 1 Institutes are ready and willing to develop mutually beneficial exchanges with the core ICT in Education entities on taking advantages of opportunities. Greater clarity on the definition and current scope of ICT in Education in UNESCO and mechanisms for interaction are basic requirements for capitalising on this.

142. UNESCO's sphere of influence can, in principle, be extended significantly through its formal networks. The UNESCO Category 1 Institutes, part of UNESCO itself, are critical, and in addition to IITE, a number of other Category 1 Institutes engage in sizeable activities in ICT in Education. Most pursue these in the context of their wider remits in education and only secondarily position these projects under the theme of ICT in Education. UIL, for instance, has a three year project on mobile ICT and tailored learning software to improve literacy. IICBA is working to develop the capacity of Member States to increase the supply of qualified teachers at the level of policy, institutions and teachers. This includes the use of ICT in teacher training.

143. Some institutes would prefer to use different terminology. The MGIEP Institute, for instance, does significant work in ICT in the learning environment, including games-based learning and apps, but refers to the term as "digital pedagogies". MGIEP sees the term ICT in Education as too narrow and looking at the digital medium purely as a transmission platform while it should be seen as a transformative medium for education.

144. This is indicative of the absence, beyond the core UNESCO actors, of a clear Organization-wide message regarding the meaning of "ICT in Education" in the context of UNESCO's work. A review of projects implemented by MGIEP would suggest strong complementarity with some of those being pursued by key ICT in Education entities, but the absence of a clear definition of its scope and of mechanisms to exchange information is probably hindering common understanding and potential linkages.

145. Limited evidence from the wider UNESCO networks would reinforce this. Interviews with UNESCO Chairs active in the area of ICT in Education reveal they would welcome more information from and interaction with UNESCO and other UNESCO Chairs, and indeed feel left out of any strategic UNESCO approach in this area.[58] A better connection and integration would enable the Chairs in their own networks and forums, to extend knowledge about the activities, and possibly open additional opportunities for them and for UNESCO.

146. It is therefore assumed that greater clarity concerning the theme of ICT in Education, and an improved and coordinated communication would facilitate outreach to UNESCO's networks that could in turn add value to the work, lead to higher visibility, increased exchange and build a greater community of practice. 73% of respondents to the survey of National Commissions consider UNESCO's ability to provide 'access to relevant networks and partners' among the specific strengths.

[58] There are also examples of close working relationships. IITE has worked closely with several UNESCO Chairs in their contribution to the ICT CFT framework; and has a particularly fruitful relationship with the *UNESCO Chair of Information Literacy and Media Education of Citizens*, at the Moscow Pedagogical State University.

Key Dimension 4: Results & Sustainability

What progress has been made in achieving the respective objectives in the field of ICT in Education, and what have been the key achievements in the different dimensions?

Performance indicators for ERs related to ICT in Education have been fully or partially achieved, although the reporting systems reveal little of whether and to what extent final outcomes are achieved, nor do they refer to the quality of these achievements. A few independent external evaluations, none long-term, have been completed. The qualitative evidence from this evaluation points to positive achievements across different dimensions.

147. Under 37 C/5 MPI, covering the period 2014 to 2017, ER5 and ER7 are the key relevant results.[59] Table 5 summarises the main results from both ED Sector and IITE.[60]

Table 5: MPI ER5 and ER7: PIs, targets, and assessment against target

ER5: National capacities strengthened, including through regional cooperation, to develop and implement teacher policies and strategies so as to enhance the quality of education and promote gender equality	
PI: Number of teacher training institutions (TTIs) in sub-Saharan Africa which have been reinforced and are fully operational. **Target 2014-2017: 15 sub-Saharan African Member States**	• 10 sub-Saharan countries; 21 TTIs directly involved. Countries are beneficiaries of the UNESCO-CFIT programmes for strengthening teacher training via ICTs.
ER7: National capacities strengthened to develop and implement technology policies in education, particularly in teacher training and professional development (2014 – 2017)	
PI: Number of countries supported by UNESCO which have scaled up their ICT in Education policies or programmes. **Target 2014-2017: 25 Member States** **Target 2016-2017: Policy web portal**	• 29 countries were supported to review and develop ICT in Education policies. • a global ICT in Education Policy Platform was established.
PI: Number of countries supported by UNESCO in developing and adopting open educational resources (OER). **Target 2014-2017: 20 Member States**	• 19 countries received support to establish national OER policies or framework programmes. • An OER indicator on policy-making, monitoring and evaluating OER polices has been devised.

148. The Analytical Programme Implementation Report states that ER5 and ER7 have been fully achieved. The narrative discussion adds a few additional points:

> "UNESCO supported 61 Member States in developing and implementing ICT in education policies and programmes, standard-based programmes for teachers and OER. The UNESCO IITE has been working with the ASPnet and UNESCO Chairs on the ICT CFT, which is being revised, as well as OERs. Mobile Learning Week has become UNESCO's flagship ICT in education event." (p.15)

149. It is clear that many of the countries successfully targeted did not actually complete and approve ICT in Education policies (Master Plans) or OER policies. The wording of the ERs and reporting on achievements is non-specific in this regard: "countries were supported to review and develop …"; and "countries received support to establish…" Thus targets focus solely on the number of countries supported, and not on the numbers completing these policies and their endorsement by governments; still less on the quality of these policies or their implementation.

150. The table presents the relevant PI under MPV ER4: Member States have

[59] Drawn from the Analytical Programme Implementation Report (1 January 2014 – 31 December 2017*Executive Programme adopted by the General Conference: Part I.* 204 EX/4 Paris 9 March 2018.

[60] Minor references are excluded, such as a conference in Africa that included OER on Under MP1 ER4.

advanced universal access to information through Open Solutions.

Table 6: MPV ER4: PIs, targets, and assessment against targets

ER4: Member States have advanced universal access to information through Open Solutions	
PI: Number of Member States formulating Policy Frameworks and taking concrete measures on Universal Access to Information and knowledge using ICTs, mobile devices and Open Solutions with special emphasis on teachers, learners, researchers, information professionals and/or scientists. **Target 2014-2017:** • At least 70 Member States, including 35 in 2016-2017, adopt national or regional policies, including through the enhanced capacities of national institutions, as well as global fora in the areas of OER, OA, Open Data and Information Accessibility. • At least 100 national-level institutions, including 50 in 2016-2017, implement multilingual, accessible and scalable initiatives in OER, OA, Information Accessibility, including the development of resources, tools and capacity building for a critical mass of teachers and scientists. • 50 institutions adopt programmes on smart mobile applications for sustainable development; participatory Disaster Risk Reduction strategies based on: Open Scientific Knowledge Management, Free and Open Source Software (FOSS) tools and openly licensed Geographic Information System (GIS) data with a focus on youth, especially young women, and local communities.	• Member States adopted or took measures to adopt national or regional policies: 22 on Open Access, 25 on OER, 2 on information accessibility. • 96 national-level institutions or research organisations implemented initiatives in OER, OA, or information accessibility. • 31 institutions initiated programmes for youth on smart mobile application development, reaching more than 6,000 beneficiaries.

151. The report concludes that the targets were partially reached.[61]

152. The narrative report of MPV highlights further dissemination of the ICT CFT framework; the 2nd World OER Congress that attracted 500 participants from 100 Member States and produced the Ljubljana OER Action Plan and a Ministerial Statement, and resulted in a call from UNESCO's 39th General Conference to draft a Recommendation on OER (now underway); and the launch of the Guidelines on the Inclusion of Learners with Disabilities in Open and Distance Learning.

153. The ERs and associated PIs are thus not very helpful in assessing whether these interventions have achieved their ultimate objectives i.e. contributing to more equitable and higher quality education. The final Project Reports offer more detail on the above figures and some qualitative elaboration, but little insight into the outcomes of interventions generally. Several informants pointed to challenges facing the evaluation of policy and institutional level interventions in education generally. Concrete benefits for final target groups emerge only over a longer period of time, after project completion. During that time many factors independent of the original interventions can influence outcomes. Evaluations, especially those of Funds-in-Trust, must almost always be completed before project completion.

154. Furthermore, a few independent external evaluations were undertaken of the major ICT in Education projects completed during the period.[62] One was

[61] It is not clear whether there is duplication between the above results and those reported MPI: ER7 PI (Table 2) relating to OER policy support, though CI and ED do collaborate in this area. In Table 3 the total number of Member States that "adopted or took measures to adopt OER policies" is 25; while in Table 2 the number of Member States that "received support to establish national OER policies or framework programmes" is 19.

[62] In line with the UNESCO Evaluation Policy 2014-21, all extrabudgetary projects exceeding US$1.5 million must undertake an independent external evaluation (recommended at 3% of the budget). For projects with lower budgets a self- evaluation, or a self-evaluation with external validation must be conducted. See the UNESCO Evaluation Policy: https://unesdoc.unesco.org/ark:/48223/pf0000253907.

published in 2015 on OER interventions covering the previous years;[63] and two were completed of ICT CST (Competency Standards for Teachers) multi-country projects during the period.[64] Among the more comprehensive of these, the evaluation of the *UNESCO China Funds-in-Trust Project: Quality Teachers for EFA – Enhancing Teacher Education for Bridging the Education Quality Gap in Africa* project funded by China*,* concluded:

> "…while there are indications of impact of the CFIT project, measuring impact immediately after implementation remains difficult. It is recommended that funding is made available to study the impact in all countries after 3-5 years of implementation." (Ockham Institute of Policy Support 2016. p9)

155. The findings of the evaluations were positive with regard to the results achieved, concluding that the interventions were on the whole reaching their targets and performance indicators.

156. This evaluation is not in a position to draw comprehensive conclusions across the wide range of projects and interventions undertaken by UNESCO in ICT in Education. Nevertheless the consultants conducted 100 interviews (see Annex C), about half with UNESCO staff and the remainder with national agencies, external experts, UNESCO National Commissions, UNESCO Chairs and others; and consulted a large volume of documentation (See Annex D). We can conclude that these stakeholders agree that UNESCO projects and actions in OER and ICT CFT policy and capacity building support, and in support for Master Plan development, were making significant contributions in their respective domains. There are cases where the process has come to a halt, or failed to move beyond initial policy work. But these usually, according to the informants, resulted from larger policy and political changes or other external factors, rather than from shortcomings with the approach itself or its implementation.

157. A larger number of independent evaluations, including especially of long-term outcome assessments, would enable firmer and more specific conclusions to be drawn on specific aspects and would inform future interventions. Crucially, they would also provide definitive evidence regarding the value of the competency based approach to ICT in Education, or OERs, and more generally of the dynamic of attempting to deploy ICTs to enhance education and learning.

158. It can be assumed that because some projects have been extended and renewed over many years with each Project Document proposal building on previous ones, and although lessons learned may have been acted upon, there is little evidence of significant in-depth analysis and learning relating to the overall causal logic that might ensue from the interventions, and how, combined with other factors and assumptions, they might contribute to the outcomes ultimately sought. The same is true for the international policy platforms and dialogues. While most events would have a rationale (or concept note) outlining the context and what it is attempting to achieve, there is seldom any follow up for instance to systematically assess whether it ultimately has the types of ripple effects that are often sought, and expected to occur, through influencing policy or exchanging knowledge. Overall, the evaluation concludes that the work in ICT in Education lacks a validated and in-depth theory of change to guide future actions.

What are main challenges and enabling factors that have been and are being encountered in achieving results? What provisions have been made to ensure sustainability of results?

Better results are achieved through more attention at planning and design stage, with strong government commitment. Major obstacles include insufficient funding to mainstream policy and institutional change and, especially in Sub-Saharan Africa, poor supporting infrastructure such as electricity and telecommunications.

159. Given the small number of independent project-level evaluations, conclusions here are tentative and partial and draw from the case studies

[63] Hewlett Foundation funded an independent external evaluation in 2015 of UNESCO's support for national OER Policies in Indonesia, Kenya and Oman, just before the period covered by this evaluation. ORS Impact (2015) ORS Impact (2015) Evaluation of the William and Flora Hewlett Foundation's Investment in International Policy Advocacy for Open Educational Resources.

[64] Ockham IPS, ICON Institute (2016) Evaluation of UNESCO China Funds-in-Trust Project: Quality Teachers for EFA – Enhancing Teacher Education for Bridging the Education Quality Gap in Africa. Draft Final Evaluation, December; Lim, Cher Ping (2017) Summative Evaluation Report: Korean Funds-in-Trust (II). Project on Supporting Competency-Based Teacher training Reforms to Facilitate ICT-Pedagogy Integration.

conducted in the framework of this evaluation as well as other sources.

160. First, and this confirms conclusions of the above-mentioned CFIT evaluation, a critical factor in projects that aim to achieve policy change and institutional capacity-building is the need to devote sufficient time and resources at the planning and design stage. Planning and design are central to identifying and securing the commitment of all relevant local partners and institutions, to attaining an agreed understanding of the objectives, and for developing realistic and achievable time lines for interventions. Interviews with project managers across different regions strongly confirmed this.

161. Second, a major factor is the level of commitment of government to the policy domain. While institutional actors may welcome an opportunity to design policy and build capacity, translating these into actual change requires significant further, often long-term, resource deployment. Thus, firm government commitment, beyond that of the Ministry of Education, is needed. For this reason, countries to which policy support is offered (often negotiated with donors) are currently selected in the first place based on evidence of a strong desire to participate and of long-term commitment to pursuing change in this area. Those countries undergoing wider policy change and rejuvenation in education as a whole are thus favoured since this engenders a positive environment for policy and interventions that can leverage ICT into the process. Nevertheless, the policy environment is very often characterised by volatility and unpredictability.

162. Third, policy support and institutional capacity building in ICT in Education are just the first steps towards achieving change in an educational system, and each subsequent step can require exponentially greater investment. Developing a framework for ICT competency and a curriculum, then undertaking the training of trainers and testing and validating tools, demand relatively few resources compared to the process of mainstreaming the theme across an educational system and downstream into the learning environment and pedagogical processes. It has been observed and suggested by several interviewees that UNESCO, after successful completion of these initial tasks, fails to support the follow-through to the next stages. Some of these comments are based on a misunderstanding of the role of and resources available to UNESCO. Most acknowledge that UNESCO is not a donor organisation, but they are nevertheless concerned that without such follow-through the process will fail to take hold. Thus encouraging and assisting governments and implementation partners to prepare for this stage, and advising on different types of mainstreaming, is an important role for UNESCO.

163. Fourth, using ICT in Education requires communication, technology and energy infrastructures. Although varying greatly between countries, especially in Sub-Saharan Africa, these infrastructures may not exist or may be prohibitively expensive. This includes electricity supplies to schools, telecommunications and internet provision as well as access to computers or mobile devices. Interviewees almost unanimously regard this as the biggest barrier to the smooth development of ICT in Education.

164. Obviously interventions can be and are geared to the level of infrastructure provisions, sometimes requiring ‘work arounds’ to deal with limitations. Some Funds-in-Trust projects do provide modest investment for infrastructure provision, and UNESCO has in some cases worked with telecom providers in Africa. But large-scale and holistic solutions necessarily go beyond UNESCO current modalities and will require sustained investment from governments and telecom providers, working in coherence with other public and private sector donors to support infrastructure provision.

Have UNESCO’s interventions reached the intended target groups, especially those most in need, in the field of ICT and Education? Have UNESCO’s interventions in ICT in Education reached those vulnerable groups, including girls and women?

Most learning-environment level projects in ICT in Education, implemented across many UNESCO entities, directly target a variety of disadvantaged groups, such as ICT in Education interventions targeted at learners with disabilities. At policy and institutional capacity-building level, targeting disadvantaged groups is necessarily indirect. While disadvantaged groups are cited in project documents among the final beneficiaries, the evaluation did not find that ‘inclusion’ is systematically mainstreamed in policy and institutional capacity building work, nor does the analysis suggest a significant focus on countries that would have large disadvantaged populations .

165. UNESCO’s interventions in the field of ICT in in Education can broadly be divided into two kinds: Policy and institutional capacity building project, and

projects implemented at the level of the learning environment.

166. Those implemented at the level of the learning environment can and do successfully target the most vulnerable. Most UNESCO entities involved in ICT in Education can point to several examples of projects that target women and girls.[65] Other projects target those most in danger of dropping out of school; refugee children; those at risk of HIV or other infections, bullying or discrimination; and poorer communities generally. One of IITE's five strategic programmes is dedicated to ICT in Health Education and Education for People with Disabilities, and CI/KSD has been leading several initiatives supporting the use of adaptive technologies to provide inclusive, accessible and affordable access to information and knowledge, and the participation of persons with disabilities in lifelong learning opportunities,

167. The YouthMobile Initiative provides digital skills training, and estimates almost 7,000 beneficiaries between 2014 and 2018 in 27 countries[66]. Several publications are also relevant, for instance in 2018: "A Lifeline to Learning: Leveraging technology to support education for refugees" offers an analysis of the issues and presented many positive examples[67]; and the earlier "Learning for All: Guidelines on the Inclusion of Learners with Disabilities in Open and Distance Learning".[68] The annual Mobile Learning Week also always features ICT in Education as a way to address needs of disadvantaged groups, and the IITE has partnered with ITU to establish IT Centres for persons with disabilities in Bishkek, Kyrgyzstan, Minsk, Belarus and Yakutsk in the Russian Federation. UNESCO has worked in Rwanda to incorporate the "UNESCO Guidelines on the Inclusion of Learners with Disabilities in Open and Distance Learning (ODL)" and promote their integration into the new Rwanda Policy on Digital Talent.

168. ICT in Education projects implemented by UNESCO entities other than the four key ones tend overall to relate to the learning environment, and most of these target disadvantaged and marginalised groups. Examples include the UIL Project to promote literacy in Bangladesh, a partnership with Microsoft.[69] The evaluation also came across projects implemented by UNESCO National Offices that target disadvantaged groups, such as the Myanmar's Empowering Women and Girls through Mobile Technology in Myanmar projects with Ericsson[70].

169. Although it is impossible to identify all projects implemented across UNESCO at the level of the learning environment, of those identified a large majority explicitly target vulnerable groups.

170. The results of the survey of UNESCO National Commissions is worth mentioning here. When asked to rate the quality of different aspects of UNESCO's work, the "focus on addressing issues of disadvantaged and/or marginalised group" was ranked lowest, with 59% rating it as excellent (13%) or very good (46%), and 17% rating it as insufficient. At the other end, "Focus on gender equality issues" came in second from the top with 68% rating UNESCO's efforts as excellent (28%) or very good (40%).

171. Most of the larger and longer-term projects in ICT in Education focus at the policy and capacity building level. Disadvantaged groups are cited in project documents among the final beneficiaries here, but the direct beneficiaries are necessary well upstream from them, at the policy, and institutional level, reaching sometimes the level of teacher training or curriculum development. For these it is virtually impossible to indicate whether or to what extent specific projects have had an impact on specific target groups. The issue of how to articulate and integrate ICT in wider education structures, from the entry point at the level of education policy and of national institutes, in a manner that will ultimately benefit particular target groups is highly complex. Such targeting is less than precise, and would have to occur at every level of interventions and often in the context of mixed public/private education systems. For instance, while targeting the public education sector in a mixed system would have a general tendency to favour the less wealthy, the impact can be reduced since

[65] See examples above in under Key Dimension 1.

[66] 2018 Youth Mobile Report https://en.unesco.org/sites/default/files/youthmobile_report_2018.pdf .

[67] See http://unesdoc.unesco.org/images/0026/002612/261278e.pdf .

[68] See https://unesdoc.unesco.org/ark:/48223/pf0000244355 .

[69] See https://uil.unesco.org/literacy/mobile-technologies/advancing-mobile-literacy-learning .

[70] See https://bangkok.unesco.org/content/rural-myanmar-teachers-turn-mobile-ict .

the same teachers usually work in both public and private sectors.

172. Another approach is to consider the countries that are targeted for support by UNESCO.

173. Targeting countries most in need, and with most potential to benefit disadvantaged groups, for implementation of ICT in Education projects is not a simple process for UNESCO. As indicated above, whether a government prioritises the area is critical to success, and many of the poorest countries may have too many other pressing concerns. The negotiation of Funds-in-Trust with donors, combined with the fact that the ERs and PIs in the C/5 does not, in the Education Sector, target specific countries, may also be a barrier to selecting the most appropriate countries overall.[71]

174. Of the total of 31 countries[72] that received support between 2014 and 2017 to scale up their ICT in education programmes, eight (25%) are in Africa, seven (22%) are defined as Least Developed Countries; and six (19%) are Small Island Developing States. Although this does not take into account the size of each activity, it would suggest that interventions in this area do to some extent prioritise Africa, LDCs or SIDS.

Table 7: Countries receiving support to scale up ICT in education

Country classification*	Number of countries	%
Developed economies	7	22%
Developing economies	6	19%
Economies in transition	5	16%
Least developed countries (June 2017)	7	22%
Small island developing States	6	19%
TOTAL	**31**	**100%**

*based on World Economic Situation and Prospects 2018 and communication from

175. The same could be said for the 19 countries supported to develop and adopt OER[73], of which six (32%) are in Africa, among which four (21%) are defined as least developed; and two (11%) are Small Island Developing States.

Table 8: Countries receiving support to develop and adopt OER

Country classification*	Number of countries	%
Developed economies	1	5%
Developing economies	8	42%
Economies in transition	4	21%
Least developed countries (June 2017)	4	21%
Small island developing States	2	11%
TOTAL	**19**	**100%**

*based on World Economic Situation and Prospects 2018

176. While these do not capture all the policy and capacity-building action in ICT in Education and they give no indication of the scale of projects in each country, they do suggest some focus on Africa but not necessarily on countries that would have large disadvantaged populations.

[71] See Case Study 2, Section 6 subheading page 18 “Sources of Funding and Strategic Implications”.
[72] i.e.: Albania, Austria, Bahrain, Bhutan, Bulgaria, Cambodia, Chile, Estonia, Georgia, Hungary, Jamaica, Kenya, Kyrgyzstan, Lithuania, Mauritius, Mozambique, Papua New Guinea, Philippines, Romania, Rwanda, Seychelles, Slovenia, Solomon Islands, Sri Lanka, Nepal, Thailand, Uganda, Ukraine, United Republic of Tanzania, Uzbekistan, Zimbabwe.
[73] i.e.: Antigua and Barbuda, Bahrain, Djibouti, Ghana, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Madagascar, Oman, Philippines, Qatar, Saudi Arabia, Slovenia, Sudan, Tajikistan, Togo and Uzbekistan.

Key Dimension 5: Visibility and Communications

To what extent have UNESCO's achievements in the area of ICT in education been visible internally and to external stakeholders?

UNESCO's visibility at all levels of interventions, but especially downstream from policy and national institution capacity-building, is not as strong as the projects and activities would merit, individually or collectively as a theme. Most prominent are Mobile Learning Week and the inter-government policy dialogues, while learning-environment actions are barely visible among innumerable other actions many with much larger funding. Dissemination of research and publications, though considered to be of high quality, is not seen as effective.

177. Based on the interviews for this evaluation and a review of documentation and Web presence, the most visible of UNESCO's areas of work in ICT in Education, both internally and externally, are the following[74]:

- Mobile Learning Week is a high profile event that brings its own value to the theme, and also acts as a showcase for many of UNESCO's activities in the area - though not to all projects and not in a coherent or collective manner. It also attracts a variety of traditional and potential new partners;
- The ICT CFT Framework is widely recognised as a UNESCO product by the stakeholders involved at the institutional educational level, although awareness of the new Version 3 was found to be low not least as it has not yet been widely disseminated;
- The OER work, at macro level especially (through the Ljubljana Congress and to a lesser extent the draft Recommendation) has a high profile among stakeholders and UNESCO's role as a major global actor is recognised; the Recommendation - if approved - will considerably raise the profile of UNESCO's normative role in this area among Member States;
- Policy Dialogue and Forums in ICT in Education – global, regional and sub-regional – have, according to regional experts and stakeholders (including the SEAMEO Secretariat) achieved visibility and can influence policy-makers. The production of outputs such as the Qingdao Declaration and the Asia-Pacific Regional Strategy on Using ICT to Facilitate the Achievement of Education 2030 broaden and add longevity to the visibility; and the (now) regular and coordinated sub-regional events in Asia-Pacific also, according to several regional-level actors interviewed, build momentum and enhance visibility.

178. Activities to support Master Plan development, the implementation of ICT CFTs, and policy support in ICT in Education more generally do not actively seek a high profile beyond what is required among national stakeholders for successful implementation. They both draw on and add to the generally good reputation and high profile of UNESCO as a reliable and neutral advisor in the education sphere. Examples of publications that broaden awareness of these activities might include the Project Update Bulletins produced by the ICT Transforming Education in Africa project (9700)[75] and the ICT CFT Case Studies in Asia[76]. However, the reach and impact of specific UNESCO publications, and hence their contributions to visibility, is not regularly monitored and difficult to determine (see below).

179. The evaluation found that the work of the IITE has had limited visibility and recognition up until recently, inside UNESCO and beyond its immediate partners. A 2013 review concluded that "the Institute is far removed from becoming a truly international institution. IITE is virtually absent in the global arena and is in the process of positioning itself at the sub-regional level."[77] However, this is changing as IITE has been expanding the geographic reach of its work and focuses increasingly on networking, for instance with an active role

[74] See Case Study 2 Section 3 for detail and Section 4 for analysis.

[75] https://en.unesco.org/themes/ict-education/kfit

[76] https://bangkok.unesco.org/content/diverse-approaches-developing-and-implementing-competency-based-ict-training-teachers-case

[77] [77] Review of the UNESCO Institute for Information Technologies in Education. UNESCO IOS/EVS/PI/121 REV/ March 2013 http://www.iiep.unesco.org/sites/default/files/iiep-unesco_review.pdf

in the International Teacher's Task Force for Education 2030[78] and through its high profile event: Global Dialogue on ICT and Education Innovation: Towards SDG 4.[79]

180. The least visible area of UNESCO's expertise and contribution to ICT in Education were found to be the interventions supported and results achieved in the learning environment, formal and informal, that contribute directly to the learning experience. They comprise those numerous projects and initiatives, from many UNESCO entities, that integrate ICTs into the direct experience of education by learners. These include initiatives to develop digital literacy, to promote access and enhance inclusion through distance learning, to promote the use of ICT in the classroom and to explore new approaches to pedagogy using ICT. The YouthMobile Initiative[80] is perhaps an exception due to the high volume of small-scale training activities it supports and its decentralised model of implementation, although UNESCO itself has little control over the training provided by external partners. There are also many other projects, implemented by UNESCO entities, including several Category 1 Institutes[81] and often with private sector or other partners, intended to enhance the learning experience especially for marginalised groups.

181. It is not that these projects go entirely unnoticed. Among other, the Mobile Learning Week provides an opportunity to raise the visibility of many initiatives. There are also several publications, and a major project underway in ED/PLS/ICT, supported by the Fazheng group, to document key experiences: Best practices in mobile learning (10505).[82]

182. On the other hand, the use of ICT in the classroom and learning environment is an area of huge interest to the private sector as a future source of revenue and to some major international institutions such as Qualcomm or the Bill Gates Foundation. It is also a major subject in development assistance, in part because the nature of the work is attractive to many donors. Other organisations such as UNICEF, World Bank, the UK Department for International Development (DFiD), ADB, and USAID have much higher budgets (and hence a higher profile) as development partners in this area It is thus very crowded and highly competitive, and enhancing visibility is not easy for an organization like UNESCO. UNESCO is just one actor among many, and its comparative strengths and added value – i.e. what differentiates its contributions from those of other players – are often not clear to external actors.

183. Even with the production of high quality publications and outputs, the UNESCO dissemination and wider communication strategy is seen by many stakeholders interviewed as a particular area of weakness. While there is, understandably, no communications strategy to cover all of UNESCO's ICT in Education activities, even those of the individual entities are regarded by internal and external observers as ineffective and not sufficiently aligned. Suggested communication activities in project documents of individual were found to be vague in most cases. UNESCO's IOS 2014 Audit of UNESCO's Communications notes: "… effective communications serve to project an Organization's image and values, support resource mobilization and increase programmatic impact." Such a multi-faceted strategy and Organization-wide message is currently not evident among the key entities involved in ICT in Education.

Are the current planning, programming, monitoring and reporting systems and tools adequate to provide the required visibility and recognition of UNESCO's work in this field?

The mainstreaming of key aspects of ICT in Education in the 39 C/5 resulted in a loss of visibility and although it is unlikely to be reversed, the new 41 C/5 may offer scope for more visibility of ICT in education as a thematic area. Current project monitoring, reporting and evaluation systems offer little limited data for quantitative or qualitative analysis of outcomes and learning, that might be used to enhance visibility.

184. The decision to focus on the SDG 4 in the 39 C/5 resulted in the elimination of MPI ER 7 that had been explicitly dedicated to ICTs in Education, and lowered the visibility of the theme within UNESCO through mainstreaming of

[78] http://www.teachersforefa.unesco.org/v2/index.php/en/
[79] https://iite.unesco.org/news/ministerial-forum-global-dialogue-on-ict-and-education-innovation-towards-sdg-4/
[80] https://en.unesco.org/youthmobile
[81] See for instance the UIL Microsoft collaboration: https://uil.unesco.org/literacy/mobile-technologies/advancing-mobile-literacy-learning; and the MGIEP Difference Learning Project covering several initiatives http://mgiep.unesco.org/difference-learning
[82] https://en.unesco.org/themes/ict-education/mobile-learning/fazheng

the actions across different ERs. As noted above, although this corresponds to the notion that ICT is a means to achieve SDG 4 objectives rather than an objective in itself, many interviewees among UNESCO staff believe that this resulted in lower visibility, both internally within UNESCO, including among Field Offices and among senior UNESCO Management, and externally with donors who might perceive this move as a lowering of UNESCO's priority for the thematic area and with other international actors who may see an opportunity to move into the area.

185. Most of those interviewed believe that it is not possible or even desirable to return to a situation of a separate ER. Some argue that the manner in which ICT in Education was mainstreamed across Education related ERs poses an issue, rather than the fact that it was mainstreamed. There is thus a case to be made for refining the upcoming 40 C/5 and future Programme and Budget Planning Cycles in a manner that might give additional visibility and coherence to the theme within a multidisciplinary perspective, not just within MPI but also MPV and possibly across other sectors. This could take the form of alterations to current PIs, as well as additional narrative comments.

186. The timeframe and scope to enable such refinement within the context of the upcoming 40 C/5 is tight. But the new 41 C/4 Medium Term Strategy and related C/5 Programme and Budgets cycles will offer opportunities in the context of medium to longer term significant moves towards a more integrated, multidisciplinary thematic based programme and budget, and may offer scope to enhance the visibility of ICT in Education adequately by drawing together the various elements across ERs and MPs into a coherent thematic framework.

187. The evaluation found that there are currently limitations to the PIs used for monitoring progress at the level of outcomes across the various activities of ICT in Education.[83] Qualitative aspects of progress are not rendered visible through the current systems, only outputs and not outcomes are considered, and the narrative account offers little additional insights. Data from the level of Project Monitoring and Final Reports of extrabudgetary projects adds little to this.

188. The number of independent external evaluations completed on projects related to the field of ICT in Education is small (though in accordance with the guidelines established in the 2015 UNESCO Evaluation Policy[84]), and there are no systematic analyses across projects that are similar in nature.

189. Moreover, current planning, programming, monitoring and reporting systems and tools offer little material that could be deployed to enhance visibility.

[83] See Case Study 2: Section 5 Analysis, subsections *Monitoring and Evaluating outputs and outcomes* and *Outcomes against Expected Results and Performance Indicators*

[84] In line with the UNESCO Evaluation Policy, independent external evaluations are mandatory for extra budgetary projects with a budget of 1.5 Million USD and above. Projects with smaller budget amounts are subject to self-evaluation or self-evaluation with external validation

CONCLUSIONS

190. Over the last 20 years, UNESCO's activities in ICT in Education have not emerged under the umbrella of a formal programmatic framework; rather they have been initiated and evolved over time as the responsibility of various entities within UNESCO. While acknowledging the challenges and risks this involves, for instance in terms of the dispersion of resources and fragmentation of expertise, and reduced visibility, the key entities active in this area recognise that they are working within a common theme. They would welcome measures towards an overall organizational framework for ICT in Education that would establish an environment for inter- and multidisciplinary approaches and enable greater coherence and collaboration.

191. The evaluation concludes that now is an opportune time to build on this desire for change as a prerequisite to enabling positive movement towards an inter- and multidisciplinary environment, in particular within the framework of the upcoming UNESCO C/4 Medium Term Strategy 2022-2029 and the related C/5 Programme and Budget cycles. This will also require a culture shift within UNESCO, including within the four main units involved in ICT in Education, beginning with a recognition of the need to build on its mandate in the different Programme Sectors in a thematic-based and truly intersectoral and multidisciplinary fashion. This is fully in line with and potentially reinforces the Strategic Transformation process underway in UNESCO.

192. Specific conclusions are drawn in each of the five Key Dimensions.

Key Dimension 1: UNESCO's position in relation to Agenda 2030.

193. Compared to other international organisations active in the field of ICT in Education, UNESCO has a number of comparative strengths that it leverages to achieve a strong positioning globally. These include its perceived impartiality and strong policy expertise across all levels of Education within a humanistic and inclusive approach to education in close alignment with the SDG Agenda, its high-level convening power, and a dedicated focus on Africa and Gender Equality. UNESCO interventions in ICT in Education successfully build on and leverage these strengths, while reinforcing them with a recognised high level of expertise. The evaluation found that UNESCO achieved strong recognition in areas of national policy and institutional support. Yet it has not realized its full potential to secure a position of intellectual leadership, incorporating an emphasis on ethical, normative and public good principles. From such a position it could enhance its already recognised contribution to Agenda 2030 and more widely to the future of education.

194. At the much more crowded level of the ICTs in the learning environment, and despite a number of significant and successful interventions, UNESCO has gained less visibility among the large number of actors especially from the private sector.

195. This evaluation concludes that, given the results achieved, its developmental relevance, and the potential for further contributions, ICT in Education does merit a higher priority within UNESCO. It also found that UNESCO's strategic development of and value-added to the thematic area, and its potential contribution to Agenda 2030 and more widely to education, is being constrained by a number of factors that should be addressed by senior UNESCO management. This includes a reduced visibility of the issue within the C/5 and the absence of an explicit commitment to its strategic importance.

196. Except for a few gender equality focused activities, implementation of priority gender equality was found to be a weakness, in particular since gender equality is not effectively mainstreamed into policy-related and capacity building interventions, monitoring systems or PIs. While staff are sensitive to gender equality issues, they lack the necessary skills to integrate aspects of gender equality at design and implementation levels. Some good examples of gender-responsive and gender–transformative projects have been observed downstream from this level in the learning environment.

197. The number and size of interventions targeting needs in African countries in terms both of budgets and appropriate projects, generally demonstrate alignment with Priority Africa.

Key Dimension 2: Internal Coordination and Coherence.

198. Most UNESCO actors believe that coordination and communication across the entities engaged in ICT in Education, and externally, could be improved and that this would yield positive results. Issues include the absence of an agreed

definition and understanding of ICT in Education (or on the utility of the term itself) that might emerge from instance from a shared Theory of Change; a lack of clarity on roles and strengths of key entities involved; an absence of mechanisms to enable regular interaction; and a lack of guidance and leadership from senior UNESCO management.

199. Among the consequences are that external perceptions of UNESCO's work in the area of ICT in Education are unclear and inconsistent; interaction among different entities can be *ad hoc* rather than structured and result in miscommunication; there can be a degree of non-constructive competition and territoriality between UNESCO implementing units; and exchange of experiences is less than it might be.

200. A resource issue is that the predominance of XB funding and the Funds-in-Trust modality lead to a tendency for units to focus primarily on retaining their staff and available expertise when designing new projects, and discouraged more sharing of resources and expertise with other entities. This is reinforced by the UNESCO-wide dearth of RP funds.

201. Given the UNESCO-wide dearth of RP funds, the extrabudgetary funding has contributed to the development of projects and growth of staff to enhance UNESCO's global positioning in the field and play an intellectual role in priority areas such as in mobile learning and the use of AI in education. However, a more agile approach to the management of staff recruited under extrabudgetary resources would encourage sharing of resources and expertise among entities and units.

202. The most appropriate role distribution between entities in ICT in Education cannot be easily determined at this point, but would need to emerge from improved communication and increased understanding of complementarities between the relevant entities. Appropriate leadership from senior management will be critical to this process.

Key Dimension 3: Partnerships, cooperation & fundraising.

203. ICT in Education entities have been successful in securing XB funding from what is so far a geographically relatively narrow base of donors. There is less success overall in building strategic-level long-term partnerships, an exception being in the area of OER in a long-term relationship with COL with support from the Hewlett Foundation. Some partnerships have proven successful in supporting short-term projects or ongoing events, such as Weidong's support for the Mobile Learning Week. Similarly, there are several examples of regional organisations, such as between SEAMEO and UNESCO Bangkok, and national level collaboration with UN and other agencies in particular the ITU and UNICEF, and NGOs. However, although Microsoft and a few others have engaged in medium-term collaborations, strategic relationships with the private sector is an area of weakness.

204. The evaluation concludes that with the appropriate vision in place there is ample scope for partnership expansion especially with the private sector. Opportunities are emerging across many aspects of education, and the challenge for UNESCO is to identify where it can best exploit its intersectoral and multidisciplinary strengths with a focus on the holistic and humanistic approaches in education and ethical implications of ICT in education.

205. UNESCO's networks of Chairs, Category 1 institutes and other centres have the potential to broaden the reach of core ICT in Education entities, and many have been found ready and willing to explore ways of harnessing opportunities to mutual benefit. Greater clarity on the definition and current scope and direction of ICT in Education in UNESCO and suitable mechanisms for interaction are basic requirements for capitalising on this potential.

Key Dimension 4: Results & Sustainability.

206. Between 2014 and 2017, ERs related to ICT in Education have been fully or, in a couple of cases, partially achieved.

207. However the UNESCO SISTER reporting systems, for a number of reasons, reveal little of whether the final objectives at outcome level are being achieved. While reporting on outcomes in most cases is not feasible given the timescale and other factors, some PIs do not adequately report fully on outputs. Targets for supporting Member States policy development capacities, for instance, focus solely on the number of countries to which support was delivered, and not on the numbers developing, approving or implementing them.

208. A few independent evaluations have been completed, but the findings were positive with regard to the results achieved, concluding that the interventions were on the whole reaching their targets and performance indicators. None looked at the longer-term perspective. The qualitative evidence from this evaluation, however, tends to indicate that reaching the PI targets has been accompanied by positive achievements across different dimensions. These include for instance building capacity for developing national policy in ICT in Education; supporting its implementation in teacher education; and ensuring a wider provision of education resources at low cost through OER policies and resources.

209. Interviews, combined with the findings from independent evaluations, point to a number of enabling factors for successful project development. Better results are achieved through more attention and resources devoted to the planning and design stage. Strong government commitment is also essential. Although this is usually factored in by UNESCO when targeting which Member States to support, circumstances can change rapidly and unexpectedly. Thus specific attention may be required from the earlier stages to sustainability and mainstreaming in the medium term, involving negotiating agreements with additional partners and more intense planning and preparation by Member States.

210. This underlines the need for wider partnerships and coordinated approaches. This emerged as an issue in relation to following through on mainstreaming several aspects of UNESCO's work in policy support and institutional building. Providing support to policy development and the initial building of capacity of national institutions are only the first steps of mainstreaming ICT in Education across the system. Teacher education is a key example here. But communication, energy and computer infrastructures continue to constitute major barriers, especially in many Sub-Saharan countries and more emphases may be needed on partnership approaches.

211. A range of disadvantaged groups, including girls and women, refugees and people with disabilities, is directly targeted by learning-environment level projects in ICT in Education. These are pursued by all key ICT in Education entities, and are favoured by many other UNESCO entities since they can often reinforce their activities in different aspects of education and of knowledge society development.

212. Many private sector partners favour the visibility given by targeting these groups, and the learning achieved at that level for instance for product refinement or testing.

213. At policy and institutional capacity-building level, targeting is necessarily indirect, but the selection of countries points to the likelihood that disadvantaged groups and populations make up a large proportion of the final target beneficiaries.

Key Dimension 5: Visibility and Communications.

214. UNESCO's visibility at all levels of interventions, but especially downstream from policy and national institution capacity-building, is not as strong as the projects and activities would merit, individually or collectively.

215. Those achieving the highest visibility are the Mobile Learning Week, which showcases ICT in Education to wide audiences and attracts the attention of potential partners; and the inter-government policy dialogues and events that can produce statements and commitments of wide interest and significance and help to build momentum in national and other arenas.

216. Learning-environment actions are far less visible at the global level, most taking place among innumerable other actions many with much greater funding, and higher investments in communication. Dissemination of research and publications, though considered to be of high quality, is not regarded as sufficiently effective by stakeholders.

217. The mainstreaming of key aspects of ICT in Education in the 39 C/5 has resulted in a loss of visibility within UNESCO including among Field Offices and UNESCO Senior Management; externally with donors this may be perceived as a lowering of UNESCO's priority for the theme; and attract other international actors who may perceive an opportunity to move more strongly into the area.

218. In the context of longer term changes expected in the 40 and 41 C/5 there may be scope to enhance the visibility of ICT in Education by drawing together the various elements currently spread across ERs and MPs under a coherent thematic framework.

219. Finally, project monitoring, reporting and evaluations systems offer little in the way of quantitative or qualitative analysis of outcomes and learning that might be packaged and used to enhance visibility.

220. **To conclude:** ICT in Education is a fast growing area globally that offers many strategic opportunities. As the leader and coordinator of the SDG 4 – Education 2030 Agenda, UNESCO has the mandate and the foundation capacities and expertise needed to strategically reposition itself as a world leader. Intellectually UNESCO has a role in ensuring the focus of ICT in Education remains firmly on equity, quality and humanistic principles. There is also room for further strengthening its profile in global and regional dialogue, policy support, and institutional capacity building; and raise its visibility and enhance efforts in downstream implementation of ICT in the education and learning environment.

RECOMMENDATIONS

221. This section presents the strategic level recommendations addressed principally to UNESCO Senior management of the Programme Sectors concerned, as well as to the relevant entities responsible for their implementation. The recommendations have been developed by the evaluation team and were discussed and validated during the workshop with the Evaluation Reference Group on the basis of the findings and conclusions discussed earlier in this report. Building on the achievements in the field of ICT in Education, and with the aim of optimising the future role and opportunities for UNESCO in this thematic area, the evaluation suggests six strategic-level Recommendations. These are followed by a number of suggested action points for their implementation by the relevant entities and under the supervision of the UNESCO Senior management.

222. The implementation of these medium-term strategic recommendations will require a culture shift in the Organization, starting with the recognition of the need for UNESCO to build on its mandate in the different Programme Sectors in a true intersectoral and multidisciplinary fashion. A set of short-term actions will be necessary to address current issues and support a longer-term vision. These include measures for building trust between the entities involved, enhancing understanding and knowledge of each other's expertise and aspirations, and enabling concrete collaboration on the basis of mutual benefit and synergy in areas that build towards the strategic goal.

Recommendation 1:

Develop an organization-wide strategic vision to clearly position UNESCO for global intellectual leadership in the field of ICT in Education, including through innovation, in the context of its multidisciplinary contribution towards achieving equitable, quality and humanistic education and learning systems in the context of the Agenda 2030.

223. ***Rationale:*** The field currently covered by the term ICT in Education is growing, and will have an ever greater influence on the types and quality of education people are receiving throughout their lives, on the delivery systems, and on the approaches to learning. If UNESCO is to fulfil its mandate, it must encourage and facilitate Member States and other stakeholders in the direction of ensuring an inclusive, equitable, quality and humanistic approach for all. UNESCO has recognised expertise in core areas including policy and normative development; and it has strengths that, with appropriate organizational supports, can be leveraged to position it as an intellectual leader in the field. To achieve this, UNESCO must draw on the rich and diverse expertise across the Organization. At this same time, ICT in Education can be viewed as a 'vertical strategy' through UNESCO corporate-wide actions in ICT/Digital Development that would incorporate all Sectors. The implementation of a strategy for ICT in Education is reinforced through UNESCO strategic support for fostering the broader digital agenda cross-sectorally.

224. ***Addressed to***: UNESCO Senior Management, especially the ADGs of the Education and Communication and Information Sectors.

225. ***Possible action points include***:

226. Senior management, in particular the ADGs of the ED and CI Sectors, in consultation with relevant entities, should develop and communicate a joint Strategic Statement providing a vision on the key role of ICT in Education for Agenda 2030 and beyond, outlining the comparative strengths and commitment of UNESCO to clearly position itself as an intellectual leader and for providing thematic expertise. Such a strategy will need to be positioned within the context of a potential UNESCO corporate-wide Digital Development Strategy.

227. The following recommendations are aimed at supporting the process of clearly positioning UNESCO globally and within the context of the Agenda 2030. Furthermore, they shall be implemented in alignment with the currently ongoing Strategic Transformation process at UNESCO, and in line with evolving corporate-wide coordination mechanisms and joint initiatives.

Recommendation 2:

Develop an organization-wide Strategy for ICT in Education to provide an inter- and multidisciplinary framework for the various strands of work in the different Programme sectors relating to the thematic field.

228. ***Rationale:*** Re-positioning UNESCO globally can succeed on condition that the expertise across UNESCO in this field is deployed in a flexible, cooperative and multidisciplinary fashion, by drawing on the different disciplines and expertise across the Organization, combining resources and appropriately decentralising the work and programmes, and attracting additional resources based on a clear strategic framework and direction towards common goals.

229. ***Addressed to***: UNESCO Senior Management, Directors and Heads of Entities involved in ICT in Education.

230. ***Possible action points include***:

231. A results-based Operational Strategy for UNESCO's work in ICT in Education should be developed. This should be closely aligned with the upcoming UNESCO 40 C/4 Medium Term Strategy 2022-2029. In particular it shall:

- Articulate the organization-wide vision and objectives for the thematic area ICT in Education
- Agree on and assign leadership of both sectors, as appropriate overall and in the different sub-themes
- Incorporate a further developed Theory of Change in ICT in Education (see below), as a key component in the wider Results Based Management[85] approach
- Clarify the roles and strengths of the various entities and of their individual and joint trajectories for growth
- Enhance internal and external interaction and cooperation
- Consolidate joint resource mobilisation, including critically the development of long-term partnerships.

232. The Strategy would be supplemented by a time-bound, outcome-oriented, Action Plan.

233. . One way could be to consider positioning the UNESCO Strategy on ICT in Education as an intersectoral and/or multidisciplinary Theme or Sub-Theme in the UNESCO Programme and Budget. This would give higher visibility to the Theme as a priority within UNESCO and towards its external stakeholders. It should also enable a more rational budget allocation to the Theme and to expertise across the Organization. (see also Recommendation 4)

234. Establishing an organization-wide Task Group on ICT in Education is recommended to be responsible for drafting the strategy and action plan. (See Recommendation 4) in alignment with the current UNESCO Strategic Transformation process by aiming at facilitating multidisciplinary approaches, and strengthening visibility and adequate resource allocation for ICT in Education in future C/5 Programme and Budget documents.

Recommendation 3:

Strengthen UNESCO's function as a Laboratory of Ideas in the field of ICT in Education by focusing on future oriented research and dialogue

235. ***Rationale*:** Intellectual leadership is possible only if UNESCO is recognised by key global and regional players, and by Member States, as being at the centre of leading-edge research in sub-themes relevant to its vision. These include such areas as the ethical implications of emerging technologies for all levels of education systems, the potential implications of ICT in Education for an inclusive and humanistic approach, for equity of provision, and for holistic learning

236. ***Addressed to***: Senior management and management and staff of relevant

[85] It is to be noted that since 2016 the RBM approach as applied at UNESCO was further aligned with that of the UN system and RBM good practices.

key entities active in the field of ICT in Education.

237. ***Possible action points include***:

238. The emerging ICT in Education theme could convene, for instance, a Joint Research Group, including UNESCO Chairs, external experts and strategic partners, to define a research and dialogue agenda on future issues around ICT and technologies in education. It would address key emerging trends and explore multiple dimensions from the perspective of humanistic education. An academically oriented journal and thematic papers could help to focus global and regional dialogues.

239. UNESCO would also have to develop new products and publications in leading-edge areas of research in ICT in Education or relevance to its vision and repositioning globally.

240. Action should focus on the development of a mechanism that will simultaneously undertake the preparatory work for the above, and build trust, mutual understanding and a common agenda along the key UNESCO entities, around the emerging Theme. It also should incorporate actions to address the gender equality issues that emerged during the evaluation. (see recommendation 5)

Recommendation 4:

Explore deploying UNESCO systems and processes to enhance organization-wide intersectoral and multidisciplinary cooperation, knowledge management, fundraising and communication activities for the thematic area ICT in Education.

241. ***Rationale****:* Building a foundation for cooperation should begin by developing a common understanding of the field of ICT in Education, engaging in joint planning across all relevant UNESCO entities, and collaborating around concrete and mutually beneficial goals.

242. ***Addressed to***: Directors and Heads of Entities involved in ICT in Education as well as key Programme Staff.

243. ***Possible action points include***:

244. A Task Group on ICT in Education (see Recommendation 2) should be convened, as a minimum for the period leading up to the Strategy that would establish the way forward for the Programme on ICT in Education. It would be convened by the ADGs of CI and ED Sectors, who would also appoint a Chair to lead the process. It would involve the participation of one or two representatives from each of the four Key Entities, the Division on Gender Equality, and any other entities, such as Category 1 Institutes and other centres (i.e. MGIEP, UNESCO-UNEVOC) and field offices involved in ICT in Education related work that they invite to join.

245. Joint Initiatives such as The Mobile Learning Week could provide an opportunity for convening the group. It would be provided with the minimum level of resources required from within UNESCO budgets and could devise mechanism such as “Agile Groups” to facilitate cooperation and effective networking.

246. The Task Group would be charged with achieving the specific outputs and, once achieved, the group could be transformed into a Community of Practice in the field of ICT in Education. Outputs should include:

- Develop, document and approve a **joint Theory of Change for ICT in Education, with global application**, building on the work begun during this evaluation (Annex G), and supported by UNESCO BSP and in line with the Results Based Management approach;
- Take steps to **coordinate input into the 40 C/5** (Programme Sectors, GEN and PAX in cooperation with BSP) with a view to presenting ICT in Education as an emergent Theme in the PIs and the narrative;
- Develop a plan for building a **jointly-managed common knowledge platform for ICT in Education.** Beginning with a short feasibility study, this will present a coherent and consistent account of UNESCO’s vision, objectives and interventions, as well as organise all resources in an accessible manner. It would be managed in a distributed manner, enabling each key entity to access and manage its contributions, while maintaining central coherence and consistent visibility across the theme. A budget may be required to realise this.

- Develop **a joint communication strategy**. This would include internal communication protocols and mechanisms to ensure smooth interaction; a social media strategy across all projects and as a whole for the Theme; and the promotion and dissemination of all publications and products. Common branding could be developed for all products, and it would reach out to and incorporate wider UNESCO networks of Institutions.
- **Reconfigure the Mobile Learning Week** to systematically showcase UNESCO's work and multidisciplinary potential in this field. This would require closer collaboration in the organisation and giving an opportunity to all key UNESCO entities to present their work and organise events around an agreed sub-theme.
- Explore and assess the **level and nature of additional resources required**, in financial and especially human expertise terms, to achieve the strategic goals.
- Develop joint **Resource Mobilisation Opportunities for Collaborative Actions**. Collaboration can be consolidated best through securing joint funding for projects of interest to several partners. Different areas of intervention and expertise can be combined to broaden thematic and geographic coverage, and tackle issues of common interest including future research on the theme. The Task Group can identify opportunities, in the context of the Resource Mobilisation Strategy mechanism of the C/5, including through the Structured Financing Dialogue, to address the funding gap. It would include developing guidelines and draft MoU for collaboration with the private sector and others.
- Develop an **organization-wide Knowledge Base** in the field of ICT in Education, This should, among other things, be based on a research plan for evaluating ICT in Education intervention types that will identify outcomes and learning in a comprehensive, systematic manner, aggregated across the Organization and across projects. Effective evaluation requires a medium-term horizon that can track downstream results over time, and a cross-project or multi-project approach to maximise learning. The knowledge generated would enrich UNESCO expertise and legitimacy globally in this area.

Recommendation 5:

Enhance aspects of Gender Equality and inclusion in ICT in Education interventions, both through projects that are focused on gender equality and inclusion, as well as through consistently mainstreaming gender equality and inclusion across all ICT in Education projects and activities

247. ***Rationale:*** Despite the strong support for gender, equality and inclusion expressed among all entities working in the field of in ICT in Education, mainstreaming gender equality into project plans, implementation and reporting is considered challenging in particular in areas such as policy and institutional capacity building and further support would be appreciated.

248. ***Addressed to***: UNESCO staff in entities active in ICT in Education, the Division for Gender Equality, and BSP.

249. ***Possible action points include:***

- Final approval of projects could be subject to approval by the Gender Equality Division on the level of the Gender Equality Marker attributed to the project (gender-neutral, gender-sensitive, gender-responsive or gender-transformative).
- Specific guidance and coaching could be developed jointly with the Gender Equality Division to assist staff in designing projects with an inclusive and gender equality focus, and in mainstreaming gender equality into projects, in particular in the fields of ICT in Education policy and institutional capacity building.
- The Gender Equality Division should prioritise focused training for staff working in the field of ICT in Education.

Recommendation 6:

Reinforce efforts, at the planning stage, to devise mechanisms and build partnerships to enhance medium to longer term sustainability, in particular for policy support and institutional capacity-building interventions.

250. ***Rationale:*** UNESCO's support for policy and for institutional capacity-building is highly valued. It can also continue further downstream for instance in teacher training centres curriculum development. While a key factor in supporting a Member State is the government's commitment to follow through on this work, especially in least developed countries competition for resources is intense and the environment unpredictable. UNESCO could, from the planning stage of these interventions, collaborating closely with the Member States, help to identify and secure the conditions and financing of more sustainable project development, that would enable mainstreaming to the level of final target beneficiaries

251. **Addressed to**: Directors and Heads of Entities involved in ICT in Education, key programme specialists, the Division for Gender Equality, and BSP.

252. ***Possible action points include***:

- Project Design Guidelines for Sustainability should be developed for UNESCO specialists, including Case Studies of project designs that incorporate a longer-term vision of sustainability and approaches to securing appropriate partnerships and commitment for other international actors.
- BSP should provide support in identifying and securing sustainable partners for mainstreaming projects.

ANNEXES

A. Terms of Reference

Evaluation of UNESCO's work in Information and Communication Technologies in Education (ICT in Education)

Background

253. While significant progress has been made over the past years in increasing access to basic education, a large number of children, youth and adults is still deprived of opportunities for learning. In order to expand access to, and enhance the quality and relevance of learning throughout life, UNESCO has, among other, been promoting the adoption of technology-based solutions.

254. The mandate for UNESCO to work in the area of Information and Technologies in Education (ICT in Education) is already grounded in the Organization's Constitution[86] and based on a number of United Nations frameworks[87]. It also clearly contributes to the Agenda 2030, Sustainable Development Goal 4 (SDG 4) which calls on the international community to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". UNESCO's work in ICT in Education also contributes to relevant standard setting instruments in its fields of competence. Among other, it contributes to the Convention on the Rights of People with Disabilities (Article 24), which recognizes the rights of persons with disabilities to education.

255. The focus of UNESCO's work on the use of technologies for education is also in line with a recognition that the development of inclusive knowledge societies is founded on learning in a lifelong perspective encompassing non-formal and informal educational contexts. Thus, since 2001 UNESCO's programmes in ICT in Education have been mainly implemented by the Education (ED) and the Communication and Information (CI) Sector, but activities relevant to the thematic area are to some extent also part of the programmes of the UNESCO's Social and Human Sciences (SHS) and Natural Sciences (SC) Sectors, particularly with regard to informal and non-formal education.[88]

256. UNESCO's work in this area has been developed and evolved within the different Programme sectors, based on Member States needs in certain specific contexts and based on forward-looking views from individual Programme sectors, and despite the inter-sectoral approaches adopted for certain initiatives, the Organization's work in this area is currently not based on an explicit organization-wide inter-sectoral strategy for the planning and implementation of UNESCO's work in ICT in Education programmes. (see Annex 1: Historic background of UNESCO's work in the field of ICT in Education)

257. Within the current Medium-Term Strategy 2014-2021 (37 C/4), UNESCO has been working towards 'promoting access to information and knowledge (37 C/4 Strategic Objective 9') and 'strengthening national capacities for the development of education systems to foster high-quality and inclusive lifelong learning (37 C/4 Strategic Objective 1)', notably by expanding innovative learning opportunities through ICT in Education. In this regard, ICT in Education

[86] The purposes and functions of the Organization as stated in the UNESCO Constitution include the need to advance the mutual knowledge and understanding of peoples, through all means of mass communication and the promotion of the free flow of ideas by word and image (Article 2 a); to give fresh impulse to popular education (Article 2 b); and to maintain, increase and diffuse knowledge (Article 2 c).

[87] The Universal Declaration of Human Rights states that all people have rights and fundamental freedoms that include the right to receive and impart information and ideas through any media and regardless of frontiers (Article 19), as well as the right to education (Article 26).

[88] While the SHS and SC sectors' work in this field will be considered within an inter/cross sectoral perspective, the main focus of the evaluation will be on the work of the ED and CI sectors

activities focused on actions in the following areas[89]:

- ***ICT in Education policy review and development*:** supporting Member States in the design and analysis of comprehensive ICT in education policies, and capacity building for the use of ICT to promote inclusion, equity and gender equality in education and lifelong learning;
- ***Teacher competences and professional development in ICT**:* providing assistance to Member States willing to develop capacity building, training resources and policies to train and support teachers for the effective use of technology and developing and updating the ICT Competency Framework for Teachers;
- ***Mobile learning and frontier technology for SDG 4**:* facilitating the realization of the potential of mobile learning and other emerging frontier technology (e.g. Artificial Intelligence, Big Data, etc.) by investigating current practices, promoting innovations, and by reporting on policy developments, supporting the development of informal and non-formal capacity building initiatives, in particular with a gender equality perspective[90];
- ***Open Educational Resources (OER):*** Facilitating large scale international collaboration, capacity building and awareness raising on OER practices, supporting Member States in the development of OER relevant to UNESCO ICT in Education Teacher Training and the development of supportive policy environments for OER;
- ***ICT in education for Persons with Disabilities :*** Supporting for the use of adaptive technologies to provide inclusive, accessible and affordable access to information and knowledge, support the participation of Persons with Disabilities in lifelong learning opportunities;
- ***Developing digital skills:*** providing reference framework and assistance to Member States to develop inclusive and sustainable digital skills development programmes for decent life and work (SDG 4 target 4.4), advance gender equality in digital skills, and to map and anticipate changing needs for digital skills.

258. The CI Sector has led the collaborative work with ED Sector on the UNESCO ICT Competency Framework for Teachers (ICT CFT) which focuses on capacity building for teacher training in ICT and OER, while the ED Sector has led the work on ICT in education policy, institutional capacity building on ICT in Education and the development of a framework for digital skills. Both Sectors implement work in the area of Mobile Technologies. The ICT in education for Persons with Disabilities is implemented only by the CI Sector.

259. An inter-sectoral approach between the ED Sector and the CI Sector is undertaken where possible and relevant, as well as for inter-sectoral projects developed in this area with the SHS and SC sectors. UNESCO's work in advancing gender equality in the access to and the use of ICT and on leveraging ICT to empower women and girls has been coordinated by the Gender Equality Division under the Office of the Director General (GEN/ODG) with a direct support from both the CI and ED Sectors as well as other Sectors. Project activities led or coordinated by Headquarter (HQ) Units have been implemented based on a close cooperation with concerned field units[91].

260. The UNESCO Category 1 Institute for Information Technologies in Education (IITE) based in Moscow has focused on Programmes of promoting ICT CFT, OER and Media Information Literacy (MIL) in non-English languages, ICT in education for persons with disabilities as well as ICT in HIV prevention and health education.

Resources for ICT in Education

261. From 2011 to 2017, the regular programme resources allocated for

[89] See UNESCO 37 C/5 and 38 C/5. Approved programme and budget 2014-15 and 2016-17. Additionally, areas of ICT in education programmes were also dispersed in activities of other sections in ED such as the Section of Education for Inclusion and Gender Equality, or the Section of Youth, Literacy and Skills Development and in the Gender Equality Division of the Office of the Director General (ODG/GEN).

[90] Such as the UNESCO Youth Mobile "Searching for Martha" Project launched in Kigali to empower young, African women mobile apps entrepreneurs; the project on Empowering Women and Girls through Mobile Technology in Myanmar; or the project on Literacy and Basic Life Skills for Women and Girls in South Sudan.

[91] Including the UNESCO Institute for Information Technologies in Education (IITE) based in Moscow, the UNESCO Offices in Nairobi and Bangkok, the UNESCO International Institute for Capacity Building in Africa (IICBA) and other concerned field offices.

activities of the ED Sector and CI Sector in the field of ICT have progressively increased. Over the last two biennia the regular programme budget allocated to the ED Expected result ER 7 (i.e. national capacities strengthened to develop and implement technology policies in education, particularly in teacher training and professional development) was within a range of USD 3.2 and 3.4 Million per biennium. Over the last two biennia the regular programme budget allocated to the CI Expected result MLA 2, ER 4 (37 and 38 C/5)[92] (i.e. Member States have advanced universal access to information through Open Solutions), have had overall allocations of USD 5.8 Million for 2014-15 and USD 5.2 Million USD for 2016-17[93]; and USD 5.5 Million USD for 2018-19 (39 C/5).

262. Furthermore, in line with the Organization's evolving fund mobilization strategy, the ED Sector has mobilized more than USD 18 Million extra-budgetary funds for activities related to ICT in Education from 2011-2017. At the same time, USD 12 Million funds were raised for a project on the use of ICT for teacher training[94] and about USD 1.5 Million funds were raised for projects on the use of ICT for literacy. The CI Sector has mobilized USD 3.6 Million extra-budgetary funds for activities related to ICT in education in the period 2012 to 2017, partly in support of inter-sectoral cooperation.[95] At the same time, several public and private sector partners[96] have been cooperating technically and/or financially with UNESCO in the field of ICT in education.[97]

Rationale for the Evaluation

263. Resulting from a decade of continuous development and joint efforts of the UNESCO ED and CI Sectors, as well as the important work of the SHS and SC sectors in this area, and in cooperation with its partners, UNESCO has become the leading UN agency in supporting countries to harness ICT to support lifelong learning within the framework of relevant United Nations frameworks and UNESCO's constitution.

264. Given the increasing strategic relevance and the growing number of opportunities to mobilize funds and expand work in this thematic area, UNESCO is seeking to clearly position the Organization in this field with a view to enhancing its potential contribution to the Agenda 2030 within the areas of its mandate and to identify possible ways to optimize UNESCO's work in the area of ICT in education, including through better definition and recognition of the respective mandates and contributions of the concerned Programme Sectors, in particular ED and CI, and through an adequate framework for inter sectoral cooperation.

265. Therefore, the UNESCO Internal Oversight Service (IOS) Evaluation Office, at the request of the Education Sector, is conducting an evaluation in this thematic area as part of the UNESCO corporate biannual evaluation plan.

Purpose and Use

266. The main purpose of this evaluation is to take stock, and assess the key achievements and challenges of UNESCO's work in the field of ICT in education to date, to identify future opportunities and recommend, as/if appropriate, enhanced strategies for effective inter-sectoral cooperation in particular between ED and CI sectors while taking into account the comparative

[92] Now MLA 2 ER 5 in the 39 C/5 Programme and Budget for 2018/19.
[93] 201 EX/4 Part I Programme Implementation Report (PIR) 2014-2016, allocated regular programme budget.
[94] When the thematic areas 'Teacher Development' and 'ICT in Education' where part of the same Section in ED.
[95] Several fundraising initiatives were based on projects developed in an inter-sectoral approach (e.g. the Korean Funds in trust, KFIT Project 'ICT Transforming Education in Africa).
[96] These include UN Women, the UN High Commissioner for Refugees (UNHCR) , the International Telecommunication Union (ITU), The Commonwealth of Learning, the World Bank, the African Development Bank, the West African Economic and Monetary Union (UEMOA), the Asian Development Bank, the Inter-American Development Bank, the Arab League Educational Cultural and Scientific Organization (ALECSO), the Southeast Asian Ministers of Education Organization (SEAMEO), and The Caribbean Community (CariCom), governmental aids agencies (including Chinese Funds-in-Trust, the UK Department for International Development (DFID), the German Agency for International Cooperation (GIZ) , Japanese Funds-in-Trust, Korean Funds-in-Trust, and the Norwegian Agency for Development Cooperation), as well as private sector partners (including Ericsson, Facebook, Fazheng Group, Google or, HP, Intel, Microsoft, Nokia, Xprize) and foundations (including The Packard Foundation and Open Society Foundation).
[97] The 1st and 2nd World OER Congress benefited from in-kind support provided by the Commonwealth of Learning (1st World OER Congress) and the Slovenian Ministry of Education (2nd World OER congress).

advantage, mandate and capacities of each Sector as well as the adequate allocation of respective resources for the Programme Sectors, in headquarters and in the field. It shall provide evidence-based and future-oriented recommendations to UNESCO's senior management and other stakeholders that aim at more clearly positioning the Organization in the field of ICT in Education as well as at determining how to optimize and coordinate UNESCO's work internally. The evaluation shall assess this area of work in terms of efficiency, as well as coherence among the different entities involved, in particular the ED and CI sectors at Headquarters, the International Institute of Technology in Education (IITE), the UNESCO Institute for Statistics (UIS), the International Institute for Capacity Building in Africa (IICBA) as well as other UNESCO Category 1 Institutes and field offices. While exploring opportunities for inter-sectoral work and collaboration, the evaluation will examine the adequacy of organizational arrangements and dedicated resources in each Sector to implement ICT in Education interventions, in particular in consideration of their (expected) results.

267. The primary intended users of the evaluation are UNESCO's senior management, in particular the Assistant Director Generals (ADGs) for ED and for CI as well as other sectors as relevant, the Director of the Bureau for Strategic Planning (BSP), the Director of IITE, as well as related programme staff (at Headquarters, Field Offices, and Category 1 Institutes/Centres). In addition to contributing to further consolidate, better align and enhance internal capacities and while considering increasing opportunities in the field of ICT in education as well as growing funding opportunities, the evaluation shall feed into the formulation of future directions for the Organization's work in ICT in Education. Member States, other UNESCO partners and networks are considered as secondary users of the evaluation.

Scope

268. The evaluation will examine the work undertaken in the field of ICT in Education at a global, regional and national level in particular over the last two biennia, from 2014 to 2017, and the beginning of the 2018/19 biennium to date and will adopt both, a retrospective and a forward-looking perspective. It will also review the positioning of ICT in education in the current 39 C/5 Programme and Budget for 2018/19 to assess the way in which it is included in programming and budgeting and identify possible challenges and opportunities.[98] It will examine projects and initiatives undertaken and /or managed by the different UNESCO entities involved in this area of work, with a focus on the ED and CI sectors and with particular consideration for IITE and other Category 1 Institutes and field offices.

269. The evaluation will conduct an in-depth assessment of a number of key initiatives in ICT in Education, to be selected during the inception phase in consultation with the evaluation reference group. In addition, other projects/initiatives will be reviewed to capture the diversity and breadth of the work programme in terms of areas of work, modalities of delivery and sources of funding.

270. The evaluation will also assess UNESCO's comparative strengths in relation to the mandate and work of other global players working in ICT in education.

271. The evaluation shall assist in decision-making and help introduce improvements by making evidence based and future-oriented recommendations concerning the following key dimensions, including considerations in relation to the evaluation criteria of relevance, efficiency, effectiveness/impact and sustainability, as well as organizational coherence. UNESCO's global priorities Gender equality and Africa shall be given adequate consideration.

- ***UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education***: Is UNESCO best placed to address the related challenges in this area? Has ICT in Education adequately been considered a priority for UNESCO in contributing to the Agenda 2030? Are the two Global priorities Gender Equality and Africa effectively

[98] It is to be noted that ICT in Education, as such, is no longer identified as a specific ER in the 39 C/5 for Education, but reflected in some of the Education Sector ERs dedicated to other programme areas.

mainstreamed in the implementation of ICT in Education initiatives, and in particular are UNESCO interventions targeting the most vulnerable or disadvantaged groups? How shall UNESCO strategically position itself within the UN family and towards external stakeholders, in particular the private sector considering the evolving expectations and new opportunities to expand the scope and quality of the work in ICT in Education?

- ***Internal Coordination and Coherence throughout the Organization***: Have UNESCO's organizational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way? Are resources adequately allocated/shared/distributed? What criteria/mechanisms could support priority setting by Member States and resource allocation for inter-sectoral collaboration? How can the Organization best manage the work in this area, in the future, in a coherent and coordinated manner, in particular regarding the respective role and capacity of the ED and CI sectors, and by best utilising the potential of IITE, as well as other relevant Category I Institutes? What is the optimal role distribution among the different UNESCO entities?

- ***Partnerships, cooperation and fundraising:*** Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources, in particular with a view to the critical financial situation of the Organization over the recent years? What future opportunities are emerging and how can UNESCO best capitalize on these? How can UNESCO further capitalize on its outreach entities and networks, including Category 2 Centres (in particular INRULED[99] and ICHEI[100] in China, affiliated to ED and the Category 2 Centres in Bahrein and Brazil[101], affiliated to CI), UNESCO Chairs, UNEVOC Centres and ASPnet schools?

- ***Results and Sustainability:*** What progress has been made in the achievements of the respective objectives in the field of ICT in Education? What are the key achievements and challenges and, what factors have been influencing the achievement or non-achievement of objectives? Have UNESCO's interventions reached the intended target groups, in particular those that are most in need in the field of ICT and Education? Have UNESCO's interventions had an impact on those most vulnerable and disadvantaged groups, including girls and women? What provisions have made to ensure sustainability of results? What conditions can be put in place to enhance the potential for financial, institutional and political sustainability?

- ***Visibility and Communication:*** To what extent have UNESCO's achievements in the area of ICT in education been visible internally and to external stakeholders? Are the current planning, programming, monitoring and reporting systems and tools adequate to provide the required visibility and recognition of UNESCO's work in this field? How does the way in which this line of work is reflected in the C/ 5 Programme and Budget impact on its visibility, communication and possibly, funding and longer-term impact ? To what extent have other UNESCO networks and partners been involved in contributing to the wider communication?

272. The evaluation will be guided by the above overarching questions, which will be validated and further refined during the inception phase. A set of further sub-questions may be identified for each of these key dimensions.

Methodology

273. The evaluation will require a combination of multiple and complementary evaluative methods and strategies in order to answer the evaluation questions and meet the evaluation purpose. It is expected that the evaluation team uses a mixed method approach and collects and analyses quantitative and qualitative data from multiple sources in order to provide information that is credible and reliable. These Terms of Reference contain an indicative set of

[99] UNESCO International Research and Training Centre for Rural Education (UNESCO-INRULED)
[100] UNESCO International Centre for Higher Education Innovation, Shenzhen, China (UNESCO-ICHEI)
[101] Regional Centre for the Information and Communication Technology, Manama, Bahrain and the Regional Centre of Studies for the Development of the Information Society, Sao Paulo, Brazil

key evaluation questions based on the key dimensions to be assessed and evaluation criteria defined above. It is expected that the evaluation team, following exchanges with the Evaluation Reference Group, will further elaborate the methodology, including the full list of evaluation questions, in the Inception Report.

274. In order to better understand the causal relationships of UNESCO's initiatives and projects related to ICT in education and their contributions to the intended results, it is suggested that the evaluation adopts a Theory of Change (TOC) approach. It will be expected that the evaluation team after reconstructing the TOC and assessing its validity, refines and further develops it during the evaluation.

275. Suggested key elements for the methodology include:

- **Desk-based review.** The evaluator(s) will review all relevant documents by undertaking:
  Literature review of topical issues and global trends;
  Analysis of programme and project documents, and other related documents from UNESCO HQ and field offices to identify strategies, activities, and reported results in the area of ICT in Education such as: programme implementation reports (PIRs), financial reports as well as self-assessments, or extrabudgetary project evaluations as available;
  Review and analysis of relevant national policy documents, advocacy materials, events, statistics and trends.
- **Theory of Change.** Reconstructing, refining and further developing the Theory of Change for UNESCO's work in ICT in education.

- **Sampling strategy of key stakeholders to be consulted.** At a minimum, interviews/consultations will be held with purposefully selected partners associated with UNESCO in this field of work, other entities present in this field at international level, representatives of Member States, UNESCO management, and UNESCO staff from the CI and ED and other Sectors as appropriate, at headquarters and selected Field Offices and UNESCO Category 1 Institutes, notably IITE, UIS and IICBA.

- **Field-based data collection using a well-constructed case study approach.** In order to gain in-depth understanding of the implementation process**,** coordination mechanisms and to explain why intended or unintended results occurred, it is expected that a number of case studies on initiatives/actions[102], will be conducted. The locations for two to three field visits will be agreed upon during the inception phase, possible locations are Bangkok, Dakar, Moscow, and Nairobi while considering that at least one field visit will take place in the African region.

- **Using a combination of qualitative and quantitative methods** to obtain primary data from multiple sources including interviews (face-to-face and via Skype), focus groups, direct observations and surveys as appropriate. Semi-structured interviews with a number of key stakeholders from different internal and external stakeholder groups (identified via an initial stakeholder analysis).

- **Two to three visits to UNESCO Headquarters in Paris** will be expected: once during the inception phase, once during the data collection phase to meet and interview relevant UNESCO management and staff, and once for the stakeholder workshop for presenting preliminary findings and recommendations. If possible, one visit to UNESCO HQ should coincide with a donor coordination meeting of one of the larger extrabudgetary projects.

- **Data analysis and formulation of preliminary findings as well as evaluation recommendations.** A participatory stakeholder workshop should be held in UNESCO Headquarters in Paris to validate the findings and discuss the preliminary recommendations.

276. Particular attention will be given to the participation of a wide range of key stakeholders and primary users during the evaluation process.

277. Data collection, sampling and analysis must incorporate a gender equality

[102] For example PADTICE, a USD 12 Million project implemented by UNESCO Dakar in cooperation with AfDB and UEMOA could be subject of a case study and case studies that were conducted in the framework of the KFIT project should be considered as secondary data in the analysis.

perspective, be based on a human rights-based approach, and take into consideration the diverse cultural contexts in which the activities are being implemented.

Roles and Responsibilities

278. The evaluation will be managed by UNESCO's Internal Oversight Service (IOS) Evaluation Office with support from the ED Sector, Division for Policies and Lifelong Learning Systems, and the Executive Office of the Education sector, as well as from the CI Sector Knowledge Societies Division, and the CI Executive Office and will be conducted by a team of independent external evaluators. The evaluators are expected to contribute with specific expertise and knowledge in the field of ICT in Education as well as experience in evaluating initiatives in the field of ICT in Education. IOS is responsible for the overall management of the evaluation and quality assurance of the deliverables. The external evaluators will be expected to further develop the Theory of Change, to develop a detailed evaluation methodology including the data collection tools, to conduct data collection and analysis, as well as to conduct fieldwork and to prepare the draft and final reports and a PowerPoint presentation of the process and results in English.

279. The evaluators will comply with United Nations Evaluation Group (UNEG) updated 2016 Norms and Standards for Evaluation, UNEG Guidelines for Integrating Human Rights and Gender Equality in Evaluations and UNEG Ethical Guidelines for Evaluation.

Evaluation Reference Group

280. A reference group will be established to accompany the evaluation process and provide feedback on the Terms of Reference, the Inception Report, the methodology and the draft evaluation report. The reference group shall comprise a representative from the IOS Evaluation Office, from the ED and CI Sectors' Executive Offices, the ED Division for Policies and Lifelong Learning Systems as well as from the CI Knowledge Societies Division, from the UNESCO Institute for Information Technologies in Education IITE, from the Bureau of Strategic Planning (BSP), from the Asia and Pacific Regional Bureau for Education in Bangkok, and from the Multi-Sectoral Regional Office for Eastern Africa in Nairobi, and from the UNESCO Gender Equality Division. The Reference Group shall liaise electronically and/or meet periodically during the evaluation, as necessary.

Logistics /field work

281. The evaluation team will commonly be responsible for their own logistics: office space, administrative and secretarial support, telecommunications, printing of documentation, travel, etc. Suitable office space will be provided for the consultant when working from UNESCO premises. The team will also be responsible for administering and disseminating all methodological tools such as surveys, and logistics related to travel. The ED and CI Sectors, as well as other Programme sectors as appropriate and the relevant field units will provide access to all relevant documentation and contact details of all relevant stakeholders and distribution lists. They will also facilitate access to UNESCO staff from Headquarters, regional and field offices and institutes engaged in project delivery.

Qualifications of the Evaluation Team

282. The recommended composition of the evaluation team includes two to three core members: one team leader and/or one senior evaluator and a junior level evaluator/researcher. Note that alternative team compositions will also be considered.

283. The consultant(s) should collectively possess the following mandatory qualifications and experience:

Team Leader/Senior evaluator

- University degree at Masters level or equivalent in education, social sciences, political sciences, economics, or any related field;
- At least 10 years of working experience acquired at the international level or in an international setting;
- Senior experience of at least 10 years in project and/or programme evaluation;
- Knowledge of and experience in applying qualitative and quantitative data analysis techniques and RBM principles;
- Senior professional experience relevant to the field of Education;
- Professional work experience in developing countries or in a national/regional/global development context

- Understanding and knowledge of the UN mandates and its programming in relation to education in the framework of the Sustainable Development Agenda;
- Excellent analytical and demonstrated excellent drafting skills in English;
- Working knowledge of French;
- No previous involvement in the implementation of the activities under review.

Other team members (junior evaluator/researcher)

- At least 5 years of professional experience in conducting programme and policy evaluations
- An advanced university degree in the social sciences, public policy or related field
- Excellent oral communication and report writing skills in English
- No previous involvement in implementation of activities under review.

Desired Qualifications for all Members:

- At least one senior team member should have professional experience in ICT in Education;
- At least one team member should have knowledge and experience regarding the use of technologies in the context of development;
- At least one team member should have specialist experience in gender and gender-sensitive approaches in evaluation;
- Work experience in the UN or experience with assignments for the UN;
- Knowledge and Understanding of the development needs in ICT in Education.
- Understanding and application of UN mandates in Human Rights and Gender Equality;
- Experience with assignments focusing on multi stakeholder partnerships, and/or capacity building in ICT Education;
- Other UN language skills will be considered an advantage.

284. Preference will be given to evaluation teams that are gender-balanced and of geographically and culturally diverse backgrounds.

285. Verification of these qualifications will be based on the provided curriculum vitae. Moreover, references, web links or electronic copies of the two or three examples of recently completed evaluation reports should be provided together with the technical proposal. Candidates are also encouraged to submit other references such as research papers or articles that demonstrate their familiarity with the subject under review, as well as their analytical and writing skills.

286. The evaluation assignment is estimated to require approximately 75 to 80 professional working days, including two to three visits to UNESCO Headquarters in Paris by the Team Leader and/or the Senior Evaluator and three country visits to be conducted by the Team Leader/Senior Evaluator. It is estimated that each country visit will require three to five working days.

Deliverables and Schedule

287. The timeframe for the evaluation is limited. The evaluation is expected to commence in June 2018 and be concluded by December 2018. The indicative timetable of key activities and deliverables is shown below.

Activity / Deliverable	Indicative Timing
Procurement – Request for Proposals	May 2018
Selection of external evaluation team; contractual arrangements completed	Early June 2018
Evaluation launch – Kick off meeting in Paris	Mid June 2018
Inception report	Early July 2018
Data collection & analysis; field missions	July to mid October 2018
Stakeholder workshop	End October 2018
Draft Evaluation report	Mid November 2018
Final Evaluation report and PPT presentation	Mid December 2018

288. The evaluation will consist of three main deliverables: inception report, draft report and final report.

289. Inception report: The inception report should contain the intervention logic or Theory of Change of the thematic area (based on desk study), an evaluation

plan and a list of reviewed documents. The evaluation plan should describe the evaluation methodology and how the evaluation is to be carried out. It should include, but not necessarily be limited to, the following elements: introduction and relevant background information; purpose of the evaluation; evaluation framework that systemizes the methodology, identifying the issues to be addressed, further elaborated sub-questions, and the performance indicators (variables to be considered), sources of information and method of information collection for each question; work schedule; and draft data collection instruments. It is advisable to use an evaluation matrix that connects questions to data collection methods/sources).

290. Draft evaluation report: The Evaluator(s) will prepare a draft evaluation report that will be circulated among the Evaluation Reference Group for comments.

291. The draft evaluation report should be written in English according to UNESCO IOS's Evaluation Report Guidelines. These guidelines and a detailed final report template will be shared with the evaluators at the beginning of the assignment. The main body of the draft report shall not exceed 30 pages, excluding annexes.

292. The structure of the draft report should include:

- Executive Summary
- Introduction
- Chapter(s) for each key evaluation dimension or question
- Conclusions and Recommendations
- Annexes to include the Terms of Reference, detailed methodology and limitations to the methodology, interview list, data collection instruments, key documents consulted and case study /field visit reports.

293. Final evaluation report: The final evaluation report will follow the aforementioned structure. As part of the UNESCO IOS quality assurance processes, all evaluation reports are subject to review by an external expert to ensure compliance with quality standards. The recommended actions from the quality assurance process will be addressed prior to finalization of the report.

B. Description of UNESCO's work in ICT in Education

Historic background of UNESCO's work in the field of ICT in Education

1. Since 2000, the Organization addressed the use of technologies in activities undertaken by both the Communication and Information Sector and Education Sector[103]. Within UNESCO's Education Sector, programmatic activities in the field of ICT in education, started with the founding of the Category 1 Institute for Information Technologies in Education (IITE) in Moscow in 1997, the first ICT in Education strategy "UNITE" in 2000, and at the UNESCO Bangkok Office in 2002.[104] This work was gradually strengthened at the Headquarters level as from 2006. The first ICT in Education team was created in Bangkok in 2007 under APEID, and the respective programme specialists moved gradually to Headquarters. Based on a significant expansion of project activities, funding sources and team members, at the end of 2014, a specialized Unit for ICT in Education was formally established under the Division for Policies and Lifelong Learning (ED/PLS/ICT).

2. Within UNESCO's Communication and Information Sector programmatic activities started approximately at the same period, and a Section on ICT in Education, Science and Culture under the Division for Knowledge Societies to support universal access to information and knowledge was created in 2010. Activities in the CI Sector in this domain were undertaken in a collaborative manner by a team of programme specialists in ICT in Education, Free and Open Source Software and Disabilities and Technologies. At the core of the CI's work is UNESCO's vision of knowledge societies for sustainable development, which recognizes the impact of ICT on society, culture and the economy as core dimensions of development.

3. Support of the Education Sector to Member States in the field of ICTs aims at facilitating universal access to education, bridging learning divides and strengthening inclusion, supporting teacher development, enhancing the quality and relevance of learning and improving education administration and governance. Moreover, several interventions, among other the Mobile Learning Week, provide an important advocacy mechanism and knowledge-sharing platform to promote ICT in education practices in low-resource primary schools, refugee camps, adult literacy and vocational centers as well as secondary schools in high-income countries and universities.

4. Communication and Information Sector activities aim to support Member States in building inclusive Knowledge Societies by enabling universal access to knowledge. Interventions have included the organization of two Congresses, which have provided a global impetus to the Open Educational Resources (OER) field since 2012, inter-regional ICT in education teacher training activities, including through the ICT Competency Framework for Teachers (since 2008). In addition, the CI Sector activities include interventions focusing on the development of Mobile Application development for Youth, and the use of ICT to support inclusive educational opportunities for persons with disabilities, as well as key initiatives related to Open Access to peer-reviewed Research (OA).Where possible and relevant, an inter-sectoral approach between the ED Sector and the CI Sector is adopted, as well as with other Programme sectors, notably SHS and SC.

5. Given these developments and the fact that ICT in Education does not constitute a homogenous programmatic area a clear delineation of UNESCO's ICT in Education projects and activities cannot be obtained. ICT in Education covers a heterogeneous set of interventions, of very different scale and nature and applied at all levels of operation; ICTs are also often included as just one

[103] UNESCO/IOS Evaluation of the Cross Cutting Theme: Eradication of poverty, especially extreme Poverty, and the Contribution of Information and Communication Technologies to the Development of Education, Science and Culture and the Construction of a Knowledge Society. 2006

[104] With the Asia-Pacific Programme on Education for Innovation and Development (APEID), supporting among other the development of ICT in education policies, a SchoolNet project for 10 ASEAN countries, teacher training on pedagogical use of ICT, ICT in TVET, ICT in Education indicator work and a clearing house function to document and disseminate best practices on the use of ICT in education.

component of a project among others. Even the use of the term "ICT in Education" varies across UNESCO entities. Furthermore, ICT in education has also been mainstreamed horizontally across the Education sector portfolio and across some areas of other Programme sectors. The evaluation therefore required a considerable effort in defining what belongs to UNESCO's work in ICT in Education. The following provides an overview of activities that were clearly identified to belong to ICT in Education. Nonetheless, given the above restrictions, this is not intended to be exhaustive.

ICT in Education in UNESCO's Programme and Budget (37, 38, and 39 C5)

6. The following presents how the area of ICT in Education has evolved between the two quadrennia, 2014-2017 and 2018-2021, in terms of positioning within the UNESCO Medium Term Strategy (Strategic Objectives (SO)) and the Main Lines of Action (MLA) and Expected Results (ER) in the corresponding Programme and Budget Documents.

7. The corresponding reference documents are:

- 34 C/4 Medium Term Strategy 2014-21
- 37 C/5 UNESCO Approved Programme and Budget (2014-15)
- 38 C/5 UNESCO Approved Programme and Budget (2016-17)
- 39 C/5 2018-2021 draft
- 39 C/5 2018-2019 approved

For the Period 2014 – 2017

Major Programme 1: Education

SO 1: Supporting MS to develop education systems to foster high quality and inclusive lifelong learning for all

MLA 1: Supporting Member States to develop education systems to foster high-quality and inclusive lifelong learning for all

ER 7: National capacities strengthened to develop and implement technology policies in education, particularly in teacher training and professional development. (Six Performance Indicators including those of IITE): Main Areas:

(a) Policy dialogue and capacity development
(b) Teacher standards and professional development in ICTs (ICT CFT)
(c) Mobile Learning
(d) OER

ER 2: National capacities strengthened to scale up inclusive and gender-responsive quality literacy programmes (No specific Performance indicators)

(a) Scaling-up effective youth and adult literacy programmes: It will be underpinned with state- of-the-art delivery mechanisms with stronger emphasis on ICTs.

Major Programme V: Communication and Information

SO 9: Promoting freedom of expression, media development, and access to information and knowledge:

MLA 2: Enabling Universal Access and Preservation of Information and Knowledge

ER 4: The Open Solutions for Knowledge Societies programme (open educational resources, open access, free and open source software, open training platform, open data and Open Cloud) and ICT accessibility, including for the disabled, and for all languages, promoted in Member States (4 relevant Performance Indicators 2014-2015; 3 in 2016-2017)

For the Period 2018 to 2021

Major Programme 1: Education

Under Strategic Objective 3: Leading and coordinating the Education 2030 Agenda

MLA 1: Support Member States in the implementation of SDG 4:

ER1: Improved national education policies and plans to advance access to equitable and quality ECCE, primary and secondary education through a system-wide lifelong learning approach (contributing to SDG targets 4.1 and 4.2): (One Performance Indicator: no. 6)

(d) Curriculum innovation and improvement in alignment to the vision of SDG 4 [including] adopting an ICT perspective to national curricula and

related matters:

(f) Developing ICTs in education policies and relevant standards.

ER2: Equitable and responsive TVET systems established to equip youth and adults with relevant skills for employment, decent work, entrepreneurship and lifelong learning (contributing to SDG targets 4.3, 4.4 and 8.6):

(a) ... teacher institutions should be equipped and empowered to use ICTs adequately.

(b) Promoting equity and gender equality ... including through investment in ICTs as innovative means to widen access and participation rates. (No specific Performance Indicators)

ER3: Improved policies and plans and mobilization of global efforts to enhance, scale up, including through ICT, and monitor the acquisition of foundational skills and lifelong learning opportunities for youth and adults (contributing to SDG target 4.6): (One Performance Indicator)

(b) Harnessing ICTs for improving quality and scaling-up adult literacy and education programmes.

ER4: Improved recognition of, and access to equitable and quality assured higher education provision:

(a) Access and lifelong learning pathways to higher education... [including] technical support ... with an emphasis on developing new forms and types of learning opportunities both on-campus and online. (One Performance Indicator)

ER5: National teacher policies developed and/or implemented and teacher-training programmes improved to increase the supply of qualified and motivated teachers:

(b) Support to teacher training institutions. ... [This will include] professional development to integrate ICTs in the entire pedagogical process. Support will be provided to teacher-training institutions in order to be equipped with and empowered to use ICTs adequately, to act as role models in using ICT innovation in education... (One Performance Indicator).

Major Programme V: Communication and Information

SO 9: Promoting freedom of expression, media development, and access to information and knowledge.

MLA 2: Building Knowledge Societies through ICTs by enabling universal access to, and preservation of, information and knowledge

ER 5: Member States have taken measures to promote universal access to information through open and inclusive solutions and innovative use of ICTs for sustainable development

- UNESCO will support the adoption of national and regional policies on Open Educational Resources (OER), ...
- The CI Sector will aim to provide Member States with multilingual, accessible and scalable initiatives in OER, ..., including the development of resources, tools and capacity building for a critical mass of teachers and scientists implemented by national-level institutions.
- Activities will focus on the follow-up to the 2nd World OER Congress 2017, aiming at supporting the mainstreaming of Open Educational Resources (OER) in teaching and learning in a lifelong perspective, in support of SDG 4. Online, open and flexible learning modalities will be harnessed to support the achievement of the SDGs. Furthermore, actions in teacher education for the use of technologies will be further enhanced with a focus on the ICT Competency Framework for Teachers version 3.
- UNESCO's work in Open Access (OA) will continue to leverage on the related Strategy that was adopted by the Member States in 2011. The Organization will continue its work in the areas of advocacy, bridging scientific gaps, capacity building and dissemination of OA tools, processes and contents by building partnerships and facilitating cooperation with all relevant stakeholders. Activities in this area will also contribute to SDG 10, target 2 by empowering and promoting the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.
- UNESCO will support Member States in developing long-term strategies to scale up access to the necessary 21st century technology skills, Free and Open Source Software (FOSS) tools and methodologies. It will

continue harnessing the significant potential of mobile and connected devices in addressing sustainable development issues, including through the YouthMobile Initiative, as well as through supporting Member States in adopting relevant programmes.

List of ICT in Education projects and activities – Period 2014-2017

Major Programme I

N#	Title	Impl. Unit	Region impl.	Summary description	Budget from- to	Gender Marker	Geographical Scope
1758	Strengthening Institutional Capacity in Sector-Wide Planning in the Caribbean	KNG	LAC	Education programme in 2016-2017 will strategically focus in the key priorities such as sector-wide planning, sector reviews, education statistics, disaster risk reduction in education, higher education, ICT policy in education to enhance quality of education in the Caribbean. The preparation of quality of sector plans will also identify linkages with ICTs in Education. Expected Results: strengthened capacity built in preparing policies and best practices promoted. The outputs: training workshops in strategic planning, education statistics and ICT policies, sector reviews and plans completed in 19 countries. Promote the integration of SDG 4 in sector plans in the Caribbean.		Gender-sensitive	Sub-regional: Kingston cluster (134300,00$)
1764	Strengthening Institutional Capacity in Literacy and TVET for Sustainable Development in the Caribbean	KNG	LAC	The education programme in 2016-17 will strategically focus on literacy, teacher policies, ICT in education, TVET and skills, education for sustainable development, climate change and science education. The major focus in enhancing TVET programmes and education for sustainable development and lifelong learning. The expected results: strengthened capacity in literacy and TVET policy design and linking TVET and skills policies with the labour market needs. Major outputs: CONFINTEA VI consultation, third regional conference on TVET organized, TVET best practices promoted, number of TVET policies reviewed, capacity enhanced in climate change education and ESD and promote SDG Goal 4 on education in member states.		Gender-sensitive	Sub-regional: Kingston cluster (102400,00$)
1925	Supporting policy development and implementation to facilitate the effective integration of ICT in education	BGK	ASI	Related to ER7 of 37C/5 and 38C/5, this activity is to support the Member States in developing integrated and holistic ICT in education policies to promote equal learning opportunities through ICT. A common issue with ICT in ED policy is that it focuses too much on infrastructure or supply-driven implementation, rather than careful examination on how to position ICT to maximize its impacts on the overall national education goals. This activity therefore seeks to support government and key stakeholders in developing and implementing ICT in Education policy in an integrated way, with special attention to teacher training and promoting responsible use of ICT.		Gender-sensitive	Regional: ASI (68900,00$)
1933	Capacities of ARA strengthened in the transformation of TVET and Skills Development Policies towards Post-2015 Education Agenda,	BEI	ARA	The TVET workplan will be based on the priority areas in the region: youth employments; teachers and instructors training polices; and the use of ICTs in entrepreneurship education and learning (TVET International, Bonn, November 2014) and the evaluation of UNESCO TVET Strategy (2010-2015), conducted during 2015. The draft TVET Strategy for 2016-2020 and the new structure for UNEVOC Cluster Centres Clusters will be a major part of the workplan, in coordination with TVET Bonn Centre. Coordination with UNESCO Field Offices in the Arab region and the		Gender-transformative	Sub-regional: Beirut cluster (29000,00$) \|\| Regional: ARA (30300,00$)

	Life Long Learning, and Youth Employability			concerned Units at HQ will be arranged at the Sub-Regional level. Moreover, coordination with ABEGS, ALECSO, ILO, and ETF for financial and human mobilisation of joint resources for the plan and activities.			
1935	Supporting teachers' professional competence improvement to enhance quality of education in Beijing cluster	BEJ	ASI	This Activity contributes to ER 4 of 38C/5 and Target 4.c of SDG 4. This Activity aims to contribute to strengthening national capacities to address teacher development needs with the aim to promote inclusive education and serve better the disadvantaged groups. It is expected that the teacher policies better reflect these issues and the teacher training institutions are better equipped to train teachers. The target partners will include teacher training institutions in the Beijing cluster. As key outputs studies on these issues will be produced and related seminars are organized.		Gender-sensitive	National: China (20000,00$) \|\| National: Korea (Democratic People's Republic of) (10000,00$) || National: Mongolia (20000,00$)
1971	Sector-wide policies and plans within 2030 Education Agenda	CAI	ARA	The Cluster countries (Egypt, Sudan and Libya) are facing many challenges to address the 2030 Education Agenda. Egypt is introducing important policy reforms in the education sector. The Sustainable Development Strategy (SDS) Egypt 2030 aims at creating a modern, open, and productive society through high quality and accessible education focusing on technologically capable learners. The GoE efforts are aligned with the international education agenda, namely, SDG 4 "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" and the Education 2030 Framework For Action. Sudan and Libya have their country-specific priorities and objectives to pursue education development sector-wide.		Gender-sensitive	Sub-regional: Cairo cluster (10000,00$) \|\| National: Egypt (48171,00$)
1981	Supporting the Member States in Transforming TVET Systems for decent work and lifelong learning through networking, clearinghouse and capacity development	UNE		The activity supports the implementation of the Medium-Term Strategy of UNESCO-UNEVOC with three support areas, namely (a) Capacity Development for Policy Support, (b) Knowledge mobilization and production, and Knowledge sharing and information. The activities set out in the workplan anticipate the need for raising the quality and scale of the organization's contributions to TVET development in the Member States by supporting capacity development, policy reviews and development, international standard/guide development, knowledge mobilization and management, networking and partnerships. They are intended to follow up key regional discussions and working frameworks developed in the last biennium.		Gender-sensitive	Global (281300,00$)
2013	Teachers training and National and Regional Qualifications Frameworks for Basic Education Teachers in the Ecowas Region and (Dakar)	DAK	AFR	For the past two biennium the UNESCO Dakar in collaboration with Abuja Office fostered the development of effective South-south dialogue and collaboration among ECOWAS countries on the development of common professional norms for Basic Education Teachers. Under current biennium. UNESCO Dakar will pursue the development of National Qualifications Frameworks and collaborate with Abuja office for the adoption the ECOWAS level Qualifications standards for BE Teachers. In addition, UNESCO Dakar will develop capacity building and knowledge sharing activities to support Teaching and Learning and ICT in Education, as part of its Regional		Gender-sensitive	Sub-regional: Dakar Regional Office (131615,00$)

				Coordination Role for SDG 4 in West and Central AFR Region			
2044	TVET and skills development to support equitable and sustainable economic growth	BGK	ASI	The activity will contribute to 38 C/5 ER3 (capacities of Member States strengthened to design and implement policies aiming at transforming TVET) through (1) upstream policy support; (2) collaborative regional research; (3) strengthening of the knowledge base and knowledge management in TVET. The expected results are increased relevance of TVET systems and alignment of learning outcomes in TVET with labour market needs of Member States.		Gender-sensitive	Regional: ASI (310333,00$)
2277	Strengthening higher education in Southern AFR to address challenges of equity, quality, expansion and mobility	HAR	AFR	UNESCO promotes higher education reforms to increase access to higher education, improve the quality of higher education by promoting quality assurance/accreditation of higher education institutions and programmes, and the recognition of academic qualifications among member states, facilitating knowledge development, sharing and learning on issues relating to equity, quality, the diversification of higher education, governance and financing (37/C5). New skills are needed for relevance on the job market with a a vital role for ICT in building up 21st-century skills, broadening access to education and personalizing the learning experience to adapt teaching to the unique needs of each learner.		Gender-sensitive	Sub-regional: Harare Regional Office (52626,00$)
2294	Fostering teachers' capacity for effective learning in a digital age	HAR	AFR	The quality of an education system cannot exceed the quality of its teachers. Successful education reform is therefore mainly about enabling and encouraging teachers to perform optimally in the classroom, making it necessary for teachers to equip themselves to handle the emerging challenges of diversity, first generation learners and multilingual contexts in the classroom, juxtaposed with new curricular demands. The main emphasis of UNESCO's teacher strategy is on supporting teachers for quality learning putting, with particular emphasis on SSA, under a framework for a new initiative on teachers, aimed at accelerating progress towards EFA goals and with a focus on capacity-building of TEIs.		Gender-responsive	Sub-regional: Harare Regional Office (79640,00$)
2301	(ER 7 STG) ICTs in favour of learning in LAC	STG	LAC	Since the beginning of the century, universal access to a quality education as an essential human right has faced a paradigmatic change. The development of ICTs (Information and Communication Technologies) in the last few years is demanding that the educational system updates its practices and contents to match the new information society. First, updating constitutes a teaching challenge. This work plans is oriented to produce information and guidelines in order to contribute with this main challenge.		Gender-sensitive	Regional: LAC (1256481,00$)
2332	Technology in Higher Education	PLS		To assist Member States, particularly developing and low-income countries, in designing and implementing higher education policies and strategies that promote the use of innovative technologies for online and distance learning to enhance equitable access to quality university education and lifelong learning for youth and adults, in line with the recently adopted Education 2030 Incheon Declaration and Framework for Action "Towards inclusive and equitable quality education and lifelong learning for all".		Gender-sensitive	Global (143000,00$)
2339	Guiding ICT in education policies	PLS		This activity is to reinforce UNESCO's global lead role in the area of ICT in education policy through coordinating the global partnership for the		Gender-sensitive	Global (99400,00$)

	towards Education 2030			operationalization of Qingdao Declaration; producing knowledge on ICT-enhanced innovations for education service provision, teaching, and learning; and to strengthen national capacities in developing and implementing ICT in education policies, with a specific focus on country-level pilot programmes on leveraging ICT to achieve Education 2030 related targets.			
2348	ICT innovations for quality teaching and learning	PLS		Under context to harnessing ICT to achieve quality education for all goal, this activity is to develop guidelines on the development and implementation of ICT competency standards and ICT training programmes for teachers (with a reference to UNESCO ICT CFT), to improve the national and institutional capacity, and to generate and share knowledge on fostering the innovative pedagogical use of ICT for quality teaching and learning, specific focus will be given to the potentials of innovative mobile learning.		Gender-sensitive	Global (90000,00$)
2350	Integrating mobile learning into education development strategies	PLS		This activity is to integrate mobile learning into national education development strategies and the general ICT policies for education, to harness potentials of mobile technologies in enhancing inclusive and gender-sensitive literacy education, and to teaching and learning quality.		No contribution	Global (195851,00$)
2353	Harnessing OER and digital content	PLS		This activity is to review the implementation of OER policies and initiatives and inform the development and implementation of national OER policies, and provide support to member state for the development and delivery of digital content in a way that all lifelong learners could have access to relevant learning resources.		Gender-sensitive	Global (69333,00$)
2367	Enhancing teacher professional development to improve the quality of education in South Asia	NDL	ASI	The activity contributes to C/5 ER5, where UNESCO New Delhi will assist the countries in reinforcing teacher's professional development to achieving all of the Education 2030 agenda and to increase quality of teachers, promoting inclusive pedagogy, including multi-grade teaching, multi-language education and gender mainstreaming. Expected Results: 1) National capacities developed to review teacher training and continuous professional development, including increasing ICT competency of teachers and ICT-pedagogy integration. 2) Member States reviewed teacher policies, focusing on the teacher quality and promoting inclusive education, comprising gender issues. Key outputs: reviews; reinforced capacities of teacher education officials.		Gender-responsive	Sub-regional: New Delhi cluster (15000,00$) \|\| National: India (10000,00$) || National: Maldives (5000,00$) \|\| National: Nepal (20000,00$)
2375	Strengthening capacities for harnessing the role of ICTs in education	HAR	AFR	Information and Communication Technologies (ICTs) play an increasingly important role in the way we communicate, learn and live. UNESCO therefore works towards an education system that is conversant with aspects of technology and inclusive of ICTs. UNESCO however takes a holistic and comprehensive approach to promoting ICT in education. Access, inclusion and quality are among the main challenges that can be addressed. In this regard, UNESCO focuses its actions around four key areas: Policy dialogue and capacity development, teacher standards and professional development in ICTs, mobile learning and Open Educational Resources (OER) (37 C/5 Resolutions Draft Document).		Gender-sensitive	Sub-regional: Harare Regional Office (21500,00$)

2391	Developing national capacities to address the challenges of governance, mobility and OER in higher education	BGK	ASI	As UNESCO's regional focal point for higher education in Asia-Pacific, the APEID unit of UNESCO Bangkok will address issues and concerns facing countries in the region, including the needs of least developed countries and small island developing states through north-south, south-south and triangular cooperation. For the next biennium, UNESCO Bangkok plans to carry out activities in the following areas: 1) governance of higher education systems and institutions; 2) internationalization of higher education; and 3) open and distance learning (ODL) and open education resources (OER). Stakeholders will be engaged in priority areas through the development of normative instruments, capacity building programmes, thematic analytical studies, networking and information sharing platforms.		Gender-sensitive	Regional: ASI (150992,00$)
2497	Mobilize partners for influencing policy change in the use of ICTs to promote literacy provision in the Sahel Region	DAK	AFR	Les TIC sont utilisées dans les différents programmes d'alphabétisation comme phase pilote. Il s'agira pour cette activité de mettre en valeurs ces différentes expériences d'une part et d'autres parts de mobiliser les partenaires actifs dans le domaine de l'utilisation des TICs dans les enseignements - apprentissages des programmes d'alphabétisation des jeunes et des adultes dans les pays du Sahel		Gender-sensitive	Sub-regional: Dakar Regional Office (24800,00$)
2584	Supporting teacher professionalization through inclusive and innovative teaching & learning policies and practices	NAI	AFR	Improving the professionalization of teachers is central to quality education. This is the most critical and priority issue for all the Member States in Eastern AFR region. In line with UNESCO Teacher Strategy and in complementarity with existing CapEFA and Chinese Funds-in-Trust projects, this activity will thus address the issue of teachers professionalization by strengthening the capacities of Ministries of Education and Teacher Service Commissions (or related government institutions) to develop/review and implement evidence-based policies, frameworks and guidelines; to provide inclusive pre and in-service training adapted to challenging contexts; and to integrate into policies and monitoring inclusive and innovative teaching and learning practices such as ICT.		Gender-sensitive	Sub-regional: Nairobi Regional Office (142440,00$) || Sub-regional: Nairobi Regional Office
3588	Systematization of Good Practices on the use of ICTs in the classroom.	LIM	LAC	A national specialist on systematization of experiences and processes will define, based on UNESCO's guidelines, the standards for good practices on the use of ICTs in classrooms. Later, he/she will gather in-field information and systematize the results.		Gender-sensitive	National: Peru (31891,00$)
4960	Promoting Quality ECCE in Egypt	CAI	ARA	Following the success of the 1st phase of the project in Egypt, a 2nd phase of the ECCE Project was approved for funding by the (AGFUND). It aims at disseminating innovative teaching methodologies in the pre-school stage developed in Phase I through continued training of pre-school stage practitioners in Egypt and the Arab region, supporting the Technology Unit established in Phase I in order to produce technological teaching aids targeting pre-school children, developing new methodologies for dealing with pre-school children in order to achieve a sustainable and integrated education approach.	2010-2017	Gender-sensitive	National: Egypt (175000,00$)
4965	M-learning for EFA. Partnership	THE		Partner management to support m-learning for EFA.	2011-2015	No contribution	Global (562010,00$)

	management						
5157	UNESCO-KING HAMAD BIN ISA AL-KHALIFA PRIZE FOR THE USE OF ICT IN EDUCATION	PLS		The objectives of the Prize are consonant with UNESCO's goals and policies aimed at enhancing the quality of learning, teaching and overall educational performance through appropriate use of information and communication technologies (ICT). Its purpose is to reward projects and activities of individuals, institutions, other entities or non-governmental organiations for excellent models, best practice and innovative use of ICT in education.	2005-2020	No contribution	Global (1672123,00$)
5160	Rehabilitation of Iraq Higher Education System	BAG	ARA	This project aims at rebuilding higher education system with a special emphasis on capacity building and institutional development, promoting scientific research, reforming curricula while fostering university twining and networking initiatives; improving quality by establishing quality assurance and reinforcing the use of ICT by building the Avicenna Virtual Campus of Iraq. UNESCO's mandate within this project is to support HEIs development and performance, efficiency and relevance through the establishment of quality assurance system and through a substantial partnership with MOHESR to ensure a smooth transition to decentralized governance.	2010-2017	Gender-sensitive	National: Iraq (8531671,00$)
5247	Alphabétisation des jeunes filles et femmes au Sénégal à travers les TICs	DAK	AFR	Le Projet d'Alphabétisation des Jeunes Filles et Femmes au Sénégal (PAJEF) constitue une contribution à l'atteinte des objectifs du Programme Décennal de l'Education et de la Formation du Sénégal (PDEF), à la réalisation des objectifs de l'EPT particulièrement les Objectifs 4 , 3 et 5, ainsi que les objectifs de développement du Millénaire (OMD) surtout ceux relatifs à la pauvreté, à l'autonomisation des femmes, et à la réduction de la mortalité maternelle. Il vise à alphabétiser 40.000 femmes en mettant en focus l'utlisation des TIC dans les enseignements apprentissages.	2011-2015	Gender-responsive	National: Senegal (1000000,00$)
5290	UNLD Fund to Advance Global Literacy	IPS		UNLD fund was established to support efforts to achieve the goals of the UNLD by improving literacy delivery on the ground through the promotion of best practices and effective research based programmes. The five programmes taken up under the Fund are : Effective Practices and Innovation in Literacy Policy and Programs; Mapping, building, and sustaining a native language UNESCO repository of Literacy Open Education Resources for youth and adults; Better Life, Better Future: Report on Girls' and Women's Education; Mobile Phone Literacy; Literacy and Basic Life Skills for Women and Girls in South Sudan	2008-2017	Gender-sensitive	Global (2080134,00$)
5363	Projet d'Appui au Développement des Technologies de l'Information et de la Communication pour la mise en oeuvre de la reforme LMD dans les Institutions	DAK	AFR	Ce projet porte sur la réforme de l'enseignement supérieur dans les pays membres de l'UEMOA. Il a été conçu dans le cadre de (a) la mise en œuvre de la Directive n° 03/2007/CM/UEMOA portant sur la réforme LMD (Licence-Master-Doctorat) adopté en juillet 2007 par le Conseil des Ministres de l'enseignement supérieur de l'UEMOA et (b) de la mise en œuvre du Communiqué final de la conférence mondiale sur l'enseignement supérieur organisée par l'UNESCO en juillet 2009. La mise en œuvre de ce projet s'appuiera sur l'utilisation des technologies de l'information et de la communication (TIC), les réseaux de recherche et d'expertise et les partenariats.	2011-2017	Gender-sensitive	Sub-regional: Economic Community of West African States (ECOWAS) (12706816,00$)

	d'Enseignement Supérieur de l'espace UEMOA (PADTICE UNESCO-UEMOA)						
5364	ASIAN PROGRAMME OF EDUCATIONAL INNOVATIO DEVELOPMENT (CHINA)	BGK	ASI	This is the voluntary contribution from the Chinese National Commission for UNESCO to run APEID activities in particular activities relating to teacher education, higher education and ICT in Education. UNESCO is assisting Chinese National Commission to organize the Wenhui Education Award since 2010. The theme for 2014 is "Innovation in Lifelong Learning: Bridging to the Future".	1984-2019	Gender-sensitive	Regional: ASI (294476,00$)
5694	Strengthening Business Skills for Youth Employment in Myanmar	BGK	ASI	The goal of the Project is to strengthen Myanmar's ability to train work-ready, skilled business graduates, through development of an innovative Centre of Excellence that provides leadership, best practices, applied research, support and training for the focus area of business skills. The Centre of Excellence will demonstrate, develop and share high quality teaching and learning processes leading to improved outcomes for students. The Project, in partnership with the Ministry of Education and PepsiCo, will provide demand-driven training in business skills, information and communications technology (ICT), soft and vocational competencies.	2013-2017	No contribution	National: Myanmar (500000,00$)
5724	Thailand Education Policy Review	PLS		The OECD and UNESCO are conducting an Education Policy Review of Thailand in order to support the government in identifying key policy issues to improve the education system. The Review focuses on 4 policy areas: •Teaching policies •Curricular development •Evaluation and assessment framework •Mobile learning The Review consists of an analysis of the available evidence in these 4 areas and the views of the main stakeholders in education and leads to a set of policy recommendations that will be released jointly by the OECD and UNESCO.	2013-2017	No contribution	National: Thailand (154634,00$)
5734	Supporting Competency-Based Teacher Training Reforms to Facilitate ICT-Pedagogy Integration	BGK	ASI	This project is to support Member States in developing the ICT competencies among teachers that are clearly aligned with their policy vision, goals, and ICT in Education Master Plans. These national standards would guide the development of a comprehensive roadmap that promotes competency-based teacher ICT training programmes where teachers' development is systematically guided, monitored, assessed, and tracked at policy and institutional levels. The project's main components are (1) Development of a competency standards development toolkit; (2) Pilot implementation of the developed tools in three countries; and (3) Knowledge sharing and localization/adaptation of the development process.	2013-2017	No contribution	Regional: ASI (1145608,00$)

5886	Empowerment of Girls and Women through the Use of ICTs in Literacy and Skills Development in Nigeria	ABU	AFR	The project aims to create access for 60,000 girls and women in Rivers State and Federal Capital Territory (FCT) to acquire basic literacy and life skills by supporting them to learn to read, write and life skills. Beneficiaries those who cannot read or write because they did not attend school or dropped out of school so early that they have not acquired the basic literacy skills; girls in semi-urban low-performing Junior Secondary Schools who are at risk of dropping out of school. Delivery will adopt a mix of delivery modes combining traditional face to face contact and distance education through radio and television as well as mobile applications.	2013-2017	Gender-responsive	National: Nigeria (1000000,00$)
6073	Effective Practices and Innovation in Literacy Policy and Programs	BLS		The original project had three components: • An updated and evolving data-base on effective practices and related policies in literacy• Principles and conditions leading to the effectiveness of practices identified;• Good practices adapted and applied in a number of contexts; The first two components were substantially accomplished but the third one was not implemented because the donor decided to redirect the funds to another literacy project in South Sudan		No contribution	Global (264618,00$)
6074	Mapping, building, and sustaining a native language UNESCO repository of Literacy Open Education Resources for youth and adults in six selected LIFE-target countries	BLS		• The original project approved for implementation on November 26, 2012 but suspended on August 5, 2013 intended to establish a user friendly native language UNESCO repository of Open Education Resources for literacy and non-formal education Subsequently, only the School In a box project in Mozambique was approved for implementation and an agreement was signed with IADT, Dublin for implementing this project from April 2013 to April 2014. This project is aimed at enhancing delivery of literacy learning through School in a Box solution and building local capacity to create digital educational resources		No contribution	National: Mozambique (86170,00$)
6075	Better Life, Better Future: Report on Girls' and Women's Education	IPS		The project will produce a global evidence-based advocacy report on girls and women's education aimed at a wide audience (individuals, policy-makers, civil society, international and non-government organisations, academia, and the media). The report aims to focus in particular on adult literacy and secondary education, the two sub-sectors requiring increased attention and identified as key areas for mobilizing partners within UNESCO's Global Partnership for Girls' and Women's Education for Gender Equality.		Gender-responsive	Global (30961,00$)
6076	Mobile Phone Literacy - Empowering Women and Girls. Identification of factors for effectiveness and scaling up good practices	UNP		This project aims to retain and improve the use of literacy skills of neo-literate women and girls through innovative mobile technology-based learning and information programmes. A secondary function of the project is to provide access to information in critical areas of life, such as civic and human rights, health and hygiene (including HIV and AIDS), nutrition, agriculture, or banking.		Gender-sensitive	Global (259955,00$)

6216	Ethiopia	ICB	AFR	Overall goal of the project: To complement government efforts to achieve Education For All goals by improving the capacity of TEIs in Bahir Dar and Hawassa. By strengthening TEIs, pre-service as well as in-service teachers will be better prepared to provide quality education to their students. Additionally, the project aims to improve the institutional capacity of Colleges of Teacher Education (CTEs) to facilitate the productive use of ICT for education. Innovative ICT in education solutions will provide cost-effective support for CPD schemes within TEIs and affiliated institutions such as cluster resource centres.		No contribution	None/Internal institutional benefit
6876	Support to the implementation of the National Education Plan strategies 2011-2020, regarding to basic education public policies.	BRZ	LAC	In order to improve quality of education, the Ministry of Education strives to develop Education policies to transform the school environment, making it more interesting and welcoming. Doing that, the government intends to reduce school dropdown, improve performance, and reduce age lateness by offering extra activities involving sports, culture, pedagogical assistance, environment-, citizenship-, and human rights education, digital inclusion, communication, among other through an intersectoral approach.	2012-2018	Gender-sensitive	National: Brazil (3328642,00$)
6898	AMELIORATION DU SYSTEME DE FORMATION DES ENSEIGNANTS EN REPUBLIQUE DU CONGO (PHASE 2)	BRV	AFR	Le projet permettra de : 1. Réhabilitation de la salle micro-enseignement (pose des grilles de sécurité, peinture, alimentation en électricité) ; 2. Acquisition de certains équipements informatique de la salle multimédia (ordinateurs et imprimante réseau); 3. Formation des enseignants de l'Université Marien Ngouabi sur les Technologies de l'information et de la Communication appliquées à l'Education (TICE) dans le contexte du la réforme Licence master Doctorat (L.M.D); 4. Formation du personnel non enseignant des scolarités de l'Université Marien Ngouabi dans le contexte du la réforme Licence master Doctorat (L.M.D).	2007-2015	No contribution	National: Congo (243629,00$)
6909	Mobile Technologies and Teacher Development	THE		This project leverages inexpensive mobile technology to build the capacity of teachers in four countries: Mexico, Nigeria, Pakistan and Senegal.	2011-2015	Gender-sensitive	Global (361957,00$)
6910	PROJET PILOTE POUR L'AMELORATION DE LA QUALITE DE L'EDUCATION DE BASE	YAO	AFR	Former tous les intervenants de la chaîne de supervision pédagogique des zones d'implantation du Projet aux pratiques pédagogiques modernes impliquant l'intégration pédagogique des TIC. Créer et réaliser des contenus et des logiciels utilisables par les élèves et leurs enseignants dans le contexte de l'opération.	2008-2015	Gender-sensitive	National: Cameroon (168222,00$)
6911	PROJET PILOTE POUR AMÉLIORATION DE LA QUALITÉ DE L'ÉDUCATION DE BASE	YAO	AFR	Former tous les intervenants de la chaîne de supervision pédagogique des zones d'implantation du Projet aux pratiques pédagogiques modernes impliquant l'intégration pédagogique des TIC. Créer et réaliser des contenus et des logiciels utilisables par les élèves et leurs enseignants dans le contexte de l'opération.	2008-2015	No contribution	National: Cameroon (209334,00$)
6912	Evaluating competencies for	BRZ	LAC	This partnership cooperation agreement with Telefonica Foundation aim to assess three projects focused on information and communication	2013-2018	No contribution	National: Brazil (647373,00$)

	the XXI Century in education and social innovation			technologies. There are: Innovative Schools, Connected Rural Schools and Entrepreneurship Development Platform. The former introduces innovative technologies for evaluating its impact over the student's achievement. The second project is implemented in 100 rural schools in seven Brazilian states; it aims to connect distant rural communities using the internet. Finally, the latter project seeks to empower young people in order to generate and implement innovative solutions to their own communities, with the use of technology.			
7042	Evaluation of the JFIT-ICT funded ICT in Education Projects 2006-2013	BGK	ASI	Since 2001, the Gov't of Japan has supported 17 projects for the Promotion of the Effective Use of ICT in Education (JFIT-ICT). Given the significance of the ICT in Education programme in the region and 9 passing years since the last external evaluation, the MEXT of Japan and UNESCO Bangkok agreed to conduct an external evaluation of six JFIT-ICT projects implemented between 2006 and 2013. It is expected that undertaking the evaluation would enable both parties to look into progress made so far and thus identify gaps between what has been done and should be done, eventually helping future decisions on projects to be continued and newly created, and actions needed for improvement.	2014-2015	No contribution	Regional: ASI (15255,00$)
7843	Mobile Literacy for Out-School Children in Thailand	BGK	ASI	This project is to assist 4000 underprivileged children in rural regions of Thailand through a mobile learning programme that can enable learning of literacy content beyond the limitation of the "duration" and "place of study" in community learning centres.	2014-2017	Gender-sensitive	National: Thailand (470000,00$) \|\| Global (30000,00$)
7996	Literacy and Basic Life Skills for Women and Girls in South Sudan	JUB	ARA	This project will address key developmental challenges posed by high illiteracy rates and acute lack of basic life skills by ensuring self-sustainability and economic empowerment of young women and girls; 3 objectives will contribute to the achievement of this goal: i) Increased access of 3,000 female youth to quality literacy, life skills, peace building skills and income-generation opportunities in 6 multi-purpose learning centres; ii) Enhanced capacity of national institutions in planning, management, monitoring and evaluation of quality literacy and life skills programs; iii) Increased national literacy advocacy campaign to promote gender-sensitive, empowering education.		Gender-sensitive	National: South Sudan (Republic of) (1122544,00$)
8911	Building institutional capacity for integrating ICT skills in pre and in service teachers in Angola	YAO	AFR			Gender-sensitive	
8934	Building Institutional Capacity for Integrating ICT Skills in Pre and in Service Teachers	YAO	AFR			Gender-sensitive	

	in Angola						
8966	Congo	ESC		Principal domaine des interventions : • Elaboration et mise en œuvre des programmes de formation continue des enseignants ; • Equipement de quatre salles multimédia de formation de formateurs. . Formation des formateurs des écoles et instituts de formation des enseignants notamment l'ENS et les trois ENI de Brazzaville, Dolisie et Owando . Formation des superviseurs pédagogiques:Inspecteurs et Conseillers pédagogiques dans les trois sites de formation: Brazzaville, Dolisie et Owando . Mise en place de la plateforme en ligne . Élaboration des ressources numériques pédagogiques		Gender-sensitive	None/Internal institutional benefit
8970	Liberia	ESC		Main area of interventions: The project will focus on improving teaching and learning of teacher educators, and upgrading of ICT based teaching and learning facilities for the integration of ICT in teacher training programs in Liberia. Emphasis will be placed on the following broad areas: a) development of ICT course contents; b) conduct of trainings for improving ICT knowledge and skill of teacher educators on their teaching, and c) provision of equipment that will be used to improve teaching and learning through ICT pedagogy for teacher educators, pre-service and In-service teachers.		Gender-sensitive	None/Internal institutional benefit
8971	Enhancing Teacher Education for Bridging the Education Quality Gap in Tanzania - Phase I	ESC		1.2 Main area of interventions: • Capacity development of key teachers' colleges (TCs); • Development of relevant digital teaching/learning materials; • Provision of ICT equipment for selected TCs; • M&E		Gender-sensitive	None/Internal institutional benefit
8972	Uganda	ESC		Main area of interventions: 1. Institutional capacity (infrastructure): Strengthen both pre-service and in-service training of the three Teacher Training Institutions (TTIs) in e-learning capacity by strengthening them with the necessary ICT infrastructure to support blended teacher training across their curriculum; 2. Institutional capacity (human resource): Improve teacher educators' competency in use of ICT as a pedagogical tool for quality teaching and learning of literacy, numeracy and science; 3. Networking and partnerships: Strengthen networking among the TTIs and partnerships with other TTIs to enhance school-based continuous professional development (CPD).		Gender-sensitive	None/Internal institutional benefit
9041	Projet de renforcement des Systèmes d'Information et Cartographie des	KNS	AFR	Le choix pour un SIGE unique, décentralisé et prenant en compte les TIC a été opéré par les autorités du Secteur Educatif. Le Projet comprendra 5 composantes : (1) EMIS, (2) GIS, (3) Renforcement des capacités pour favoriser la production et l'utilisation des données à tous les niveaux, (4) Equipement (des serveurs, des tablettes), (5) Gestion. Les composantes SIGE	2015-2018	Gender-sensitive	National (2089479,00$)

	écoles en RDC - Programme CapEFA			et GIS seront intégrées avec développement web et conception de la base de données.			
9108	Etude sur la question enseignante au Mali	BAM	AFR	This study aims to provide inputs for the preparation of the Sector Plan - Programme Décennal de Développement de l'Education (PRODEC ll) - for 2015-2024 of the Ministry of Education in Mali.	2014-2017	Gender-transformative	National: Mali (50000,00$)
9353	Mobile Learning Week	PLS		Mobile Learning Week is UNESCO's flagship conference about educational technology. Held annually, the event convenes experts from around the world to share how affordable and powerful mobile technology - from basic handsets to the newest tablet computers - can accelerate learning for all, particularly people living in disadvantaged communities. Each year the event has a specific theme to focus discussions. The conference is composed of numerous sub-events, including workshops, a symposium, a high-level policy forum and a research seminar. Holistically the event seeks to advance understandings of how technology can be leveraged by UNESCO Member States and others to improve education.	2015-2020	Gender-sensitive	Global (1030115,00$)
9409	World Conference on ICT and Post-2015 Education	PLS		In order to assist Member States to unleash potentials of ICT in underpinning the achievement of post-2015 education goals, NESCO, with the support from Wei Dong Group of the People's Republic of China, is organizing a World Conference ICT in education on 23-25 May 2015 in China. The Conference will be focused on forward-looking debate between education leaders and ICT leaders. It is envisaged that a Declaration will be released by the end of Conference, and outcomes from the conference will be used to feed into UNESCO's recommendations on leveraging ICT to reshape key aspects of education systems in post-2015 development agenda.	2015-2016	Gender-sensitive	Global (500025,00$)
9470	Empowering Women and Girls through Mobile Technology in Myanmar	BGK	ASI	The project offers the opportunity for communities, schools and girls in very resource poor settings in Myanmar with high concentrations of marginalized girls to leapfrog to a 21st century education. The vision is built on the proposition that enabling schools with Internet access via mobile networks, providing safe and easy-to-use ICT solutions and implementing comprehensive teacher training programs will lead to increased opportunities to improve learning outcomes.	2014-2017	Gender-sensitive	National: Myanmar (1408466,00$)
9700	ICT Transforming Education in AFR	PLS		This 3-year project is developed under the UNESCO-Republic of Korea cooperation framework to support the development of Member States in AFR. The overall goal is to foster human and social development of the target Member States in AFR through the use of ICT-based innovative approaches with a particular focus on mobile learning and ODL to expand access to relevant lifelong learning opportunities and enhance the quality of learning.	2015-2019	Gender-sensitive	Global (6000000,00$)
9712	Malala Fund (ICT): Support to National Capacity Building to Realize Girls' Right to	ISB	ASI	The overall purpose of the project is to support the government's efforts in increasing access and improving the quality of girls' education through capacity building and targeted interventions at both institutional and community level.	2015-2018	Gender-responsive	National: Pakistan (705453,00$)

	Education in Islamabad Capital Territory			Geographically, the project will target the most disenfranchised and hardest to reach areas of Pakistan where girls' access to primary education are most challenged and has high illiteracy rate of adults particularly among women.			
9943	The Workshop on Community Learning Centres and Mobile Learning for Literacy	TEH	ASI	Based on the identified need and priority of the Iranian Government and in response to the request of the Literacy Movement Organization (LMO), UNESCO Tehran Cluster Office organized a three-day workshop facilitated by Mr. Mr Ichiro Miyazawa, the Programme Specialist in Literacy and Lifelong Learning for Asia-Pacific Regional Bureau for Education located at UNESCO Bangkok office, for literacy deputy of provincial MoE offices as well as the representatives from Technical and Vocational Training Organisation. The workshop focused on Community learning Centres (CLC) and Mobile Learning for Literacy. The LMO participants took the knowledge from the workshop as the base for the development of the national literacy strategy on CLC and assessments for mobile literacy learning.		Gender-sensitive	National: Iran (Islamic Republic of)
10302	Support to the organisation of the Task Force meeting and policy dialogue forum and the 2016 Mobile Learning Week	ESC		The Teacher Task Force holds each year its Steering Committee and members meetings, followed by a 2/3-day policy dialogue forum on a key teacher issue. This year's event at Caracas (Venezuela) follows the adoption of the SDG with an Education stand-alone goal and a Target on Teachers as Means of Implementation. Over 300 participants around the world will discuss and agree on how the Task Force will support the implementation of the target at global, regional and country levels, hence the theme of the policy dialogue forum: "Implementing the Teacher Target in Education 2030". They deliberations will lead to recommendations for concrete actions	2015-2017	Gender-responsive	Global (131579,00$)
10340	Countering and Preventing Violent Extremism and Radicalization through Education: A Guide for Teachers	IPS		In the context of its GCED programme, UNESCO is producing a practical reference guide for teachers and educators of upper primary and lower/upper secondary students on why, how and when to address the issue of violent extremism with pupils and students. The text will contain factual information that break the myths and misunderstandings surrounding the issues and promote positive values, such as those at the heart of global citizenship; as well as practical tips and recommendations on how to engage students and learners to start meaningful conversation and debate.		Gender-sensitive	Global (31889,00$)
10355	Improving quality education and healthcare delivery in Volo	ACR	AFR	Goal: Improved quality of life for the people of Volo. Specific Objective: To increase ICT literacy and computer usage among 1500 basic school pupils, teachers and young people in the Volo area three-fold by December 2017. Outputs • Capacity of school pupils and teachers strengthened in basic computer skills; • Capacity of young people built in ICT, internet usage and social media marketing skills; • Young people especially girls and women equipped with knowledge in SRHR. • Capacity of teachers strengthened in basic internet-based sexuality health education modules.		Gender-responsive	National: Ghana (100731,00$)

10357	XPRIZE Project for Promotion of Early Learning through Innovative Technologies in Tanzania	DAR	AFR	The XPRIZE Project main objective is to test open source ICT applications for the learning to read, write and numeracy of out-of-school children in Tanzania. The project overall aim i thus to develop system for addressing the world large number of out of school children numeracy and literacy needs in a cost and time effective manner using technological innovations including ICTs. Five competing technological solutions will be tested in 150 Tanzania communities that are remote and under-privileged reaching around 3,000 children. 50 additional communities will be selected to form the control group. Communities will be selected in 2 Regions; Tanga (6 districts) and Arusha (1 district).	2015-2019	Gender-sensitive	National: United Republic of Tanzania (1939689,00$)
10360	Improving quality education and healthcare delivery in Volo	ACR	AFR	Development Objective: Increased access to education and health services for the people of Volo Area in the North Tongu District. Specific Objective: To increase ICT literacy and computer usage among 500 basic school pupils, teachers and young people in the Volo area three-fold by December 2018. Outputs • Capacity of school pupils and teachers strengthened in basic computer skills; • Capacity of young people built in ICT, internet usage and social media marketing skills; • Young people especially girls and women equipped with knowledge in SRHR. • Capacity of teachers strengthened in basic internet-based sexuality health education modules.		Gender-sensitive	National: Ghana (99972,00$)
10381	Quality Universal Education for Syrian Students and Teachers (QUESST)	BEI	ARA	Within the framework of UNESCO regional education response programme, 'Bridging Learning Gaps for Youth, three offices aim to collectively respond to emerging priorities and scale up successful interventions inside Syria as well as in Iraq, Jordan and Lebanon: (1) Improving the quality of teaching and learning (second chance education) and strengthening capacities for a resilient education system in Syria (capacity development in planning and management); (2) Providing access to higher education and improving its quality in the region and country-level interventions; and (3) Strengthening national capacities for a resilient education system in Jordan: Expansion of the OpenEMIS module.	2015-2018	Gender-responsive	Sub-regional: Beirut cluster (2500000,00$) \|\| National: Jordan (500000,00$) || National: Syrian Arab Republic (2000000,00$)
10492	Leveraging cross-industry technology solutions for literacy	EDU					
10493	Leveraging cross-industry technology solutions for literacy	PLS		UNESCO and PEARSON, on behalf of Project Literacy, a movement to bring the power of words to the world, are committed to cooperate in looking for new ways to reach SDG targets with a particular focus on literacy. This cooperation will look at new opportunities provided by technology in line with the emerging '2030 vision of literacy' presented above	2016-2018	Gender-sensitive	Global (553700,00$)

10505	Best Practices in Mobile Learning	PLS		The overarching objective of the project is to facilitate international knowledge sharing about how to leverage mobile technologies to enhance learning, teachers' capacities, and school management, with a specific focus on promoting (gender) inclusive and equitable quality education and lifelong learning for all.	2016-2021	Gender-sensitive	Global (349999,00$)
10650	Enhance quality education through ICT integration in Education	NAI	AFR	As a follow-up to the International Conference on ICT and Post-2015 Education organized in May 2015 in China and in line with the Qingdao Declaration, the UNESCO Regional Office for Eastern AFR, together with national and regional partners, has identified key areas of focus for 2016/17. Among them: (1) The integration of innovative ICT learning and teaching practices into policies and strategies; (2) The strengthening of national and regional monitoring and evaluation frameworks on ICT in education.		Gender-sensitive	Sub-regional: Nairobi Regional Office (21500,00$)
10934	Strengthening national capacities to develop high quality and inclusive lifelong learning education policies for all in Iran and Turkmenistan	TEH	ASI	This activity is designed in close consultation with Iranian and Turkmen Nat.Com- building on the extensive activities held by Tehran Office in past years and in view of the sustainable development goals as well as the respective indicators. The overall objective of the activity is to strengthen the capacities of the MoE of the I.R of Iran and Turkmenistan, the provincial departments of Education, the Literacy Movement Organization to promote quality education, education data and information, and nationalization of the sustainable development goals particularly for people with special needs and marginalized groups with special focus on women and girls; through advocacy for inclusive education, skills development and application of ICTs in education systems.		Gender-sensitive	Sub-regional: Bangkok cluster (55000,00$) \|\| National: Iran (Islamic Republic of) (35217,00$) || National: Iran (Islamic Republic of) (12800,00$)
10935	Supporting the Implementation of SDG 4 through Literacy, ICT, TVET and Skills Development in I.R. of Iran and Turkmenistan	TEH	ASI	This activity is designed in close consultation with Iranian and Turkmen Nat.Com- building on the extensive activities held by Tehran Office in past years and in view of the sustainable development goals as well as the respective indicators. The overall objective of the activity is to strengthen the capacities of the Ministry of Education of the I.R of Iran, the provincial departments of Education, the Literacy Organization as well as the Technical and Vocational Training Centre to promote quality education, education data and information, entrepreneurship and nationalization of the sustainable development goals particularly for people with special needs and marginalized groups with special focus on women and girls.		Gender-sensitive	National: Iran (Islamic Republic of) (20000,00$) \|\| National: Turkmenistan (5000,00$)
12549	Promoting Information for All Programme (IFAP)	KSD		Building national capacities to use the IFAP National Information Society Policy Template (ER4).		Gender-sensitive	Sub-regional: Southern AFRn Development Community (SADC) (120000,00$) \|\| Sub-regional: East African Community (EAC) (70000,00$) ||

							Global (180000,00$)
12609	Seizing Digital Opportunities in Higher Education: Building staff capacity for ICT-driven innovation in Cambodia and Sri Lanka	BGK	ASI	To advance the goals and targets for Education 2030, capacity building in least developed countries (LDCs) and developing economies in the Asia-Pacific region is crucial. In this project, two flagship universities in Cambodia and Sri Lanka will be engaged in a highly participatory development process to assess staff capacities, engage in professional development, and implement ICT-driven innovations to enhance teaching and learning and support effective institutional governance. Lessons learned from the capacity building project will inform ICT innovations in higher education throughout Asia and the Pacific.	2016-2018	Gender-sensitive	Regional: ASI (500000,00$)
13121	Alphabétisation fonctionnelle numérique et promotion du genre à l'extrême Nord et au Centre du Cameroun	YAO	AFR	Il s'agit de la formation des femmes en alphabétisation fonctionnelle avec un accent sur les TIC pour faciliter leur autonomisation. Il vise également à sensibiliser les communautés pour adopter des pratiques de "tolérance zéro" face aux violences faites aux femmes et aux filles dans les régions. A cette fin, les stations de radio locales fonctionnant dans la localité principale ou celles disponibles à travailler dans les communautés, les leaders communautaires, les réseaux de femmes et garçons, seront utilisées pour une large diffusion des messages dans les langues officielles et locales pour orienter les victimes de viol dans des structures de soutien et d'aide d'urgence.	2016-2017	Gender-sensitive	National: Cameroon (113441,00$)
13274	CapED RDC	KNS	AFR	Depuis 2011, la RDC bénéficie de l'appui du Programme CapEFA pour l'amélioration du pilotage du système éducatif et depuis 2013, est élue au PME. Cependant la production des données et informations continue d'être très coûteux et les produits du SIGE sont très limités. En Juin 2014, la RDC a finalisé sa stratégie sectorielle de l'Education et de la Formation et dans ce sillage, la RDC a bénéficié d'un financement de la Banque Mondiale pour le renforcement du système d'information pour le développement humain. L'UNESCO à travers le Programme CapEFA apporte un appui en vue de l'utilisation des TIC pour l'amélioration de la production et de la dissémination des données du SIGE		Gender-sensitive	National: Congo (Democratic Republic of the) (2638199,00$)
13280	CapED Niger: Programme de Renforcement des Capacités pour une approche intégrée de la formation et du développement professionnel des enseignants au Niger	DAK	AFR	Pour répondre aux défis auxquels est confronté le système éducatif et conformément à la lettre de politique éducative, au plan de développement économique et social, le gouvernement du Niger a initié un Programme Sectoriel de l'Education et de la Formation (PSEF) 2014-2024. L'objectif du 3e financement CapED est d'appuyer le gouvernement du Niger dans la mise en œuvre effective du PSEF, notamment dans le domaine de la qualité des enseignements et des apprentissages selon une approche intégrée de la formation et du développement professionnel des enseignants avec une attention particulière à la gestion, à la dimension genre et à l'enseignement des mathématiques, des sciences et des NTIC.		Gender-responsive	National: Niger (622448,00$)
13372	L'alphabétisation fonctionnelle des femmes commerçantes par	ABJ	AFR			Gender-sensitive	National: Côte d'Ivoire (34050,00$)

	les Technologies de l'Information et de la Communication (TIC)						
13452	Leveraging ICT to Achieve Education 2030	PLS		The project aims to support Member States to integrate ICT as one of the underpinning pillars to achieve the agreed Education 2030 agenda. The specific objective of the project is to inform global debates and national policy makers about the effective strategies to leverage ICT for the provision of equitable quality education and lifelong learning opportunities for all, and documenting and sharing experiences on how ICT can be leveraged to empower teachers, as well as women and girls.	2016-2018	Gender-responsive	Global (1187630,00$)
13529	L'alphabétisation fonctionnelle des femmes commerçantes par les Technologies de l'Information et de la Communication (TIC) 2	ABJ	AFR			Gender-sensitive	National: Côte d'Ivoire
14075	Teachers and Learning for Quality Education in the Agenda 2030 (Spain)	STG	LAC	El presente proyecto busca contribuir con los Estados Miembros de América Latina y el Caribe para avanzar en las metas señaladas en la Agenda E2030, así como "proporcionar una educación inclusiva, equitativa y de calidad en todos los niveles a lo largo de la vida. Aportará de manera decisiva y fundamental a las principales iniciativas regionales lideradas técnicamente por OREALC/UNESCO Santiago, como son el Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación (LLECE) y la Estrategia Regional sobre Docentes en LAC. Contruibuirá a fortalecer capacidades mutuas entre OREALC/UNESCO Santiago y las OTC.	2017-2019	Gender-sensitive	Regional: LAC (385000,00$)
14132	Establishment of Basic Education Equivalency Programme	PNP	ASI	There are numerous young people, especially girls who did not complete basic education, working in vulnerable environment and who are not even eligible for formal vocational training, although basic education from Grade 1 to Grade 9 must be compulsory for everyone over the world. This project will provide the lower-secondary drop-out learners, particularly girls with the opportunity to complete the lower secondary level through the ICT-based basic education equivalency program.		Gender-sensitive	National: Cambodia (16200,00$)
14335	Enhancing quality of teacher education in Uzbekistan through wider use of ICTs	TAS	ASI	This activity anticipates enhancing teacher education curricula in line with the ICT competency requirements for teachers, by building capacities of curricula developers, education content developers, policy makers and teacher educators of the Ministry of Public Education and Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan.		Gender-sensitive	National: Uzbekistan (16800,00$)

14367	CapED - Zambia	HAR	AFR	The CAP ED Zambia will have two pillars: the FIRST, focusing on the development of the National Teachers Standards and Competences and the second, on the IMPROVEMENT OF PEDAGOGY. The first pillar will build on the existing processes in the country towards the National Standards and will learn from other SADC countries practices on Teachers Standards and Competences. The second pillar will build on 1) the examination of pedagogical practices at the district, provincial levels and 2) promotion of good practices as well development of other innovative approaches using culture and science.		Gender-sensitive	National: Zambia (81417,00$)
14409	Enhancing National Capacity to Foster Digital Citizenship Education in Asia Pacific	BGK	ASI	The project aims to expand on the achievements from the previous KFIT-ICT projects, by supporting Member States in making informed policy decisions in fostering digital citizenship, with special emphasis on incorporating them into teacher training and development. The project seeks to: 1)Establish a regional comparative framework to help gather baseline info on children's perception, competency levels, actual use of ICT 2)Build national capacity in developing, implementing, and monitoring competency-based ICT teacher training and development 3)Provide regional platforms for high-level policy dialogues to disseminate project outcomes and to strengthen regional partnerships	2017-2021	Gender-sensitive	Regional: ASI (1500000,00$)
14473	CFIT Phase II Namibia	WIN	AFR	The overall project seeks to address the need for more and better qualified teachers, which is a priority for Namibia as well as for the Southern AFR region. The project approaches this challenge by prioritizing high quality teacher education programmes which are closely aligned with actual classroom practices as well as innovative pedagogy.		Gender-sensitive	National: Namibia (159222,00$)
14474	CFIT Phase II Congo	BRV	AFR	La phase 2 du projet "Renforcement des capacités des Institutions de formation de formateurs et organisation de la formation continue des enseignants du primaire et du secondaire", vise à à renforcer les capacités des établissements de formation des enseignants en vue de l'intégration effective des technologies de l'information et de la communication dans le système de l'enseignement.		Gender-sensitive	National: Congo (158652,00$)
14475	CFIT Phase II RD Congo	KNS	AFR	Le Projet UNESCO-CFIT vise à améliorer la qualité de l'éducation en RDC dans l'optique de la réalisation des ODD. Cet objectif sera réalisé grâce au renforcement des capacités nationales pour la formation continue des enseignants par l'utilisation des TIC.		Gender-sensitive	National: Congo (Democratic Republic of the) (109870,00$)
14476	Strengthening ICT Integration and Use in Teacher Education in Tanzania -CFIT Phase II	DAR	AFR	The 2nd Phase of the CFIT Project in Tanzania aims to strengthen existing pre-service programmes and in-service professional development by using Information and Communication Technologies (ICTs) including Mobile Learning technologies. Specifically the project will support: i) Capacity Development in ICT-supported blended learning modalities. ii) Development of guidelines for effective teaching and learning English and Kiswahili languages using ICTs. iii) Advocating for effective administration and management of ICTs. iv) Development of monitoring and evaluation systems for tutor's utilization of the ICT innovations.		Gender-sensitive	National: United Republic of Tanzania (122546,00$)

14477	CFIT Phase II Uganda	NAI	AFR	Building on the achievements of Phase I, the CFIT Phase II activities in Uganda will strengthen the management and monitoring of ICT in Education policies and capacities to improve teacher training, networks of teacher education/training institutions and partnerships for promoting knowledge creation and sharing.		Gender-sensitive	National: Uganda (128339,00$)
14479	CFIT Phase II Zambia	HAR	AFR	The project aims to establish two ICT in Teacher Education Centres of Excellence (ITECE) by strengthening both pre-service and in-service training capability of two Teacher Education Institutions (TEIs) in the use of ICT for teaching and learning. The centres will be Charles Lwanga College of Education and Technical and Vocational Teachers College (TVTC).It is also expected to improve teacher educators' ICT proficiency by deploying qualified ICT staff or improve qualifications of existing ICT staff. Knowledge creation and delivery of ICT Capacity Building Programmes is the third component of the project while developing networks and partnerships will be the fourth component.		Gender-sensitive	National: Zambia (91037,00$)
14565	Regional Strategy and Planning Toolkit to Shape Up ICT-Supported Lifelong Learning for All	BGK	ASI	This project is to develop 1) Asia Pacific Regional Strategy on ICT for SDG4 and 2) a strategic planning and financing toolkit (i.e. simulated Total Cost of Ownership) to support Member States in developing the costed master plan to unleash the potential of ICT for SDG4-Education 2030. The toolkit will be piloted in Sri Lanka and Solomon Islands who officially requested the technical support from UNESCO in early 2017. The duration of the project is 12 months.	2017-2018	Gender-sensitive	Regional: ASI (70000,00$)
14606	Leveraging ICT to Achieve Education 2030 -Phase II	PLS		The project is the second phase of "Leveraging ICT to Achieve Education 2030", which supports Member States to integrate ICT as one of the underpinning pillars to achieve the agreed Education 2030 agenda. The project aims to follow up on the implementation of the Qingdao Declaration, to inform global debates and national policy makers about the effective strategies to leverage ICT for the provision of equitable quality education and lifelong learning opportunities for all, and to reinforce the inter-sectoral and multi-stakeholder partnerships that were fostered during the first Qingdao Conference.	2017-2018	Gender-sensitive	Global (500025,00$)
14670	Jeune Expert Associé (Dakar - Teaching and Learning)	DAK	AFR	The JPO will work under the overall authority of the Director of the UNESCO Dakar Office and the Chief Education sector and the direct supervision of Mrs Valérie Djioze-Gallet, Education Programme Specialist, Responsible for thematic Cluster on "Teaching and Learning" and Regional coordinator of the Teaching and Learning Educators' Network for Transformation (TALENT). As member of this thematic cluster Team the JPO will support research, knowledge sharing and capacity building activities as well as advocacy and funds mobilization for country support	2017-2019	Gender-sensitive	Sub-regional (235672,00$)
14720	ICT to Facilitate SDG4 in South Asia	BGK	ASI	This project provides technical assistance to four South Asian Member States to build national capacity in developing and implementing relevant policies to integrate ICT in education to facilitate the achievement of the SDG4 targets. it includes three components: 1) development of a comprehensive and costed ICT in Education Master Plan, 2) enhancement of competency standards and corresponding curriculum for teacher training, and 3) facilitation of sub-	2017-2020	Gender-sensitive	Sub-regional: Southern Asia (450000,00$)

				regional knowledge-exchange opportunities.			
14798	580RAF1005.6 - CFIT Phase II Liberia	ABU	AFR	CFIT Phase II will continue to target the 4 teacher training institutions in Phase I to strengthen further the pre- and in-service training programmes. Training workshops and seminars will be held to revise existing ICT modules; deepen the training of teacher educators in ICT pedagogy; and integrate ICTs in teacher education curricula. The MoE will hold national consultations with diverse stakeholders from government, private sector, civil society and universities to develop the ICT in education policy and master plan.		Gender-sensitive	National: Liberia (51000,00$)
14950	Basic Education Equivalency Program (BEEP)	PNP	ASI	ICT-based BEEP will provide an alternative and flexible educational opportunity to out-of-school youth to help them complete lower secondary education. A blended learning model will be used through 10 learning centres to promote learning outcomes. Online curriculums of 9 subjects will be developed, followed by development of visual learning materials and a mobile application.		Gender-sensitive	National: Cambodia (325000,00$)
14958	Development of Online Learning Contents on Community Learning Centres and Lifelong Learning	BGK	ASI	The project aims to strengthen Community Learning Centres (CLCs) in Asia and the Pacific to contribute to achieve SDG 4 through capacity development of key government officials, NGO partners and practitioners with online contents on CLCs and lifelong learning. Two main activities under this project are: (1) to develop the online contents through a comprehensive review of publications published by UNESCO Bangkok under the support of JFIT projects on CLC and Lifelong Learning, and (2) to disseminate the online contents widely to the aforementioned key target populations at regional and global levels.		Gender-sensitive	Regional: ASI (200000,00$)

Major Programme V

N#	Title	Impl Unit	Region impl.	Summary description	Budget from-to	Gender Marker	Geographical Scope	Budget
833	Empowering Youth through mobile app development for Sustainable Development	BEI	ARA	UNESCO is working on a YouthMobile Initiative which will engage young people to develop mobile apps for sustainable development and help youth employment. Through this activity, UNESCO Beirut office will work closely with HQ-KSD to elaborate the part of the initiative dealing with the development of training material including its translation as well as training youth from both Lebanon and Syria on mobile application development.		Gender-responsive	Sub-regional: Beirut cluster (30001,00$)	
860	Developing Open Solutions and the use of ICTs to	DOH	ARA	This activity will build on the rapid development of ICT infrastructures and resources in the GCC region while seeking to develop access to ICTs and Open Solutions in Yemen in		Gender-responsive	Sub-regional: Doha cluster (22000,00$) || National: Yemen	

	strengthen knowledge-based societies and enhance access to information and knowledge in the GCC and Yemen			order to empower communities to use Open Solutions and ICTs for high-impact projects that can benefit to the building of knowledge societies. This activity will focus on developing knowledge through the use of ICTs, especially mobile phones, for youth and promoting Open Solutions to further expand access to knowledge and develop the potential of and access to ICTs for groups such as people with disabilities, youth and women.			(13000,00$)	
867	Enabling Universal Access and Preservation of Information and Knowledge	RAM	ARA	The open solutions of knowledge societies programme (Open Educational Resources, Open Access, Fee and Open Source software, open training platforms, open data, open cloud) and ICT accessibility including disabilities and multilingualism promoted in Member States. Universal access to information enhanced and documentary heritage preserved in all its forms through a strengthened memory of the World Programme, and Member states supported in implementing the WSIS outcomes, including through the information for All Programme (IFAP)		No contribution	Regional (13030,00$)	
1032	Enhancing universal access to information through ICT accessibility	BEI	ARA	This activity will Building capacity towards ICT accessibility especially for persons with disabilities. It will tackle the matter from the decision maker, researcher as well as from the grassroots level with beneficiaries of special needs.		Gender-sensitive	Sub-regional: Beirut cluster (14325,00$)	
1049	Enabling Open Solutions in Central Asia	ATA	ASI	Gender mainstreaming, development and practicing open mobile applications for civil and professional societies of Central Asia		Gender-responsive	Sub-regional: Almaty cluster (26140,00$)	
1062	Applying Open Educational Resources in the Andean Region	QUI	LAC	This activity will contribute to enhance access to knowledge and capacity building in the Andean region. Actions will be taken to assess the implementation of Open Educational Resources (OER) in the Andean region and to foster the application of OER at a public and private level. Andean countries will be advised on OER implementation strategies. The UNESCO Guidelines for OER in Higher Education, the Basic Guide to OER, UNESCO OER platform and the Open Training Platform will be disseminated throughout universities.		Gender-sensitive	Sub-regional: Quito cluster (43500,00$)	
1081	International and national outreach of the Information for All Programme IFAP	UAP		The Information for All Programme (IFAP) was established in 2001 to provide a platform for international policy discussions and guidelines for action in the area of access to information and knowledge. During 2014-2017, IFAP will support Member States to develop, implement and assess national information policies, build their capacity and facilitate their participation in international and regional frameworks (e.g. WSIS processes). Attention will be given to: strengthening the IFAP network particularly the National IFAP Committees and building partnerships with regional and international stakeholders.		Gender-responsive	Global (103866,00$)	

				These actions are expected to enhance IFAP's impact and visibility.				
1467	Empower education system of Egypt to use ICT competency framework and OER based on UNESCO recommendations	CAI	ARA	Activity will link the Open Educational Resources to implement UNESCO ICT CFT in the cluster countries whereby the training material and content for CFT implementation will be sourced through OERs. The toolkit developed by UNESCO CI and Commonwealth of Learning will provide the resources and implementation strategies for the activity. The key outputs will be the contextualized framework, national policy action and the implementation plan. The learning journey of teachers will be mapped on the UNESCO framework through contextualization. Following which policy action plan will be developed and training and certification mechanism will be supported within the Ministry of Education.		Gender-responsive	Sub-regional: Cairo cluster (31712,00$)	
1480	Promoting open access solutions for Knowledge Societies in Central America	SJO	LAC	UNESCO will increase efforts to promote the building of knowledge societies in the Central America. In this biennia, the SJO office will focus on a number of areas including ICTs for people living with disabilities, the Youth Mobile initiative, and the World Atlas. UNESCO will work with a number of stakeholders including Universities, governments and think tanks to assess the needs of the region and possible areas of intervention. Joint action will be key to success.		Gender-responsive	Sub-regional: San José cluster (37177,00$)	
1495	Promoting open solutions and Youth Mobile initiative in Asia	BGK	ASI	Open solutions such as OER, FOSS and the Youth Mobile initiative will be promoted with key partners in the region in cooperation with the Bangkok ICT in Education team as well as the UNESCO Hanoi Office.		Gender-sensitive	Sub-regional: South-Eastern Asia (25000,00$) \|\| Regional (20000,00$)	
1520	Towards Creating conditions for sustainable development and peace through support to universal access and preservation of information, enhanced ICT skills open solutions	JUB	ARA	The ICT sector in South Sudan is still underdeveloped but the value of ICTs is recognized as an important element to facilitate economic growth, sustainable development and wealth creation in South Sudan with a specific focus on women, youth, and rural and other disadvantaged groups. Culture also lies at the heart of sustainable peace and development in South Sudan, in particular because understanding and promoting the country's rich cultural diversity. ICTs will be used in the safeguarding of intangible and tangible cultural heritage in the country by supporting an Open Cultures Resource Centre to establish a digital library on intangible heritage in one of the 10 states of South Sudan.		Gender-sensitive	National: South Sudan (Republic of) (30000,00$)	
1523	Promoting OER, Open Access and supporting the development of digital repository at	LBV	AFR	Following UNESCO advocacy, the Université Omar Bongo of Libreville has adopted Open Access policy and is now underway for the creation of an institutional repository (DINAL) to manage digital resources created by the institution. More than 1500 resources have already been identified for		Gender-sensitive	National: Gabon (33170,00$)	

	HE institutions			digitization. This project will seek to support the university initiative through the acquisition and deployment of open source solutions for the management of the institutional repository. On the other hand, the office will continue the advocacy, towards other HE institutions, for the adoption of OA policy.				
1526	Integrating ICT competency for teachers into teacher training practices	NAI	AFR	ICTs can be used to help meet education-related Sustainable Development Goals and many countries across AFR are pioneering new ways of using ICT for Education. Activities will primarily focus on the reinforcement of teacher capacities to use ICTs in the classroom as teachers are pivotal in influencing the learning process and make an important contribution towards the overall development of societies in a rapidly changing world.		Gender-sensitive	National: Kenya (13000,00$) \|\| National: Seychelles (18000,00$) || National: Eritrea || National: Comoros || National: Djibouti || National: Rwanda || Regional: AFR	
1529	Integrating open solutions and ICT accessibility into national policy frameworks	NAI	AFR	Nearly all governments in East AFR recognize the transformative power of ICT and there has been concerted efforts to reverse negative trends in low adoption of ICT as a tool for development. Mobile phones are one of the most accessible technological devices for information dissemination and interactive communication and the youth of the region will be targeted to develop mobile applications to become not only ICT consumers but producers. Vulnerable groups, such as people living with disabilities will also be targeted by developing favourable ICT policies that recognize the opportunities that ICT offers for people living with disabilities.		Gender-sensitive	National: Kenya (6000,00$) \|\| National: Seychelles (7000,00$) || National: Rwanda (6000,00$) \|\| National: Uganda (6000,00$)	
1541	Capacities of Member States strengthened to integrate open and accessible solutions into national inclusive policy frameworks and programmes, including persons with disabilities and linguistic minorities, in response to the international agenda	KSD		Building on the international normative instruments such as UN Convention on the Rights of Persons with Disabilities and UNESCO's Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace, the activity will contribute to the integration of open and accessible solutions into targeted policy frameworks and programmes of Member States through international multi-stakeholder mechanisms, in order to empower all citizens, including persons with disabilities and linguistic minorities to participate in inclusive knowledge societies.		Gender-sensitive	Global (76613,00$) \|\| Regional: ASI (75000,00$) || Regional: AFR (10000,00$) \|\| Regional: LAC (15000,00$)	
1544	Promoting OER in the Maghreb region and other open solutions for knowledge societies	RAB	ARA	This activity consists in supporting relevant institutions in the Maghreb in formulating policies and actions promoting Universal Access to Information and knowledge using ICTs, mobile devices and Open Solutions with special emphasis on teachers, learners, researchers, information professionals		Gender-responsive	Sub-regional: Maghreb (31520,00$)	

				and/or scientists; including promoting Open Educational Resources (OER), Open Access, Free and Open Source Software (FOSS), Open Training Platform, Open Data, Open Cloud, as well as ICT accessibility including disabilities and multilingualism in the cyberspace.				
1566	Universal access to information and knowledge enhanced through ICTs and Open Solutions, including for persons with disabilities	BEJ	ASI	Contributing to ER 4 Member States have advanced Universal access to information through Open Solutions. Activities will be carried out to support access to quality learning opportunities for persons with disabilities. Continued support will be provided to the China Information Accessibility Forum, also to mark the newly proclaimed International Day for Universal Access to Information on 28 September. Capacity building activities will be organized for teachers and teacher training institutions to integrate ICTs into their professional practices. Technical assistance will be provided to the IFAP focal point in China on Open Access to scientific information.		Gender-sensitive	Sub-regional: Eastern Asia (36367,00$)	
1571	Fostering enabling environment for Open Access in Member States	KSD		UNESCO OA Strategy was approved by the 187th session of the Executive Board and was unanimously adopted by the 36th General Conference for 2012-2019. During the current quadrennium, UNESCO would consolidate basis for the realization of the same strategy and would focus on: (i) Advocacy and provision of upstream policy advice and building partnerships; (ii) Bridging of knowledge divide on Open Access; (iii) Strengthening capacities to adopt OA; and (iii) Serve as a clearing-house and informing the global OA debate.		Gender-transformative	Global (83209,00$)	
1573	Increasing access to and preservation of information and documentary heritage in Cuba and Dominican Republic	HAV	LAC	This Activity will contribute to ER3 and ER5. The main issues to be addressed will be to strengthen institutional and professional capacities for the building and sustainability of knowledge societies and the development of policies that promote open access (OA) and education through the enhancement of ICT capacities and open solutions. It will pay special attention to access and preservation of scientific and public-domain information, as well as documentary heritage, especially audio-visual heritage. A special focus will be made on ICT accessibility, including for the disabled, audio-visual heritage access and preservation and the inclusion of women in the formulation of policies and strategies in order to ensure gender equality.		Gender-sensitive	Sub-regional: Havana cluster (39000,00$)	
1652	Promoting the Development of Mobile Applications for Development by Youth in Nigeria,	ABU	AFR	This project will help to building knowledge societies in Nigeria, Ghana and Cote d'Ivoire by training young people to develop mobile applications and facilitating access to Open Education Resources (OERs)		Gender-responsive	Sub-regional: Abuja Regional Office (78200,00$)	

	Ghana, and Cote d'Ivoire							
1670	Supporting Member States in providing universal access to multilingual information and literate use of information, media and ICTs, including the Internet	UAP		The overall goal of the activity is to strengthen Member States capacities in the development and adoption of inclusive policy frameworks and build their capacities required to support their actions on universal access to, and dissemination of, multilingual information and knowledge using ICTs, within the context of promotion and implementation of the normative instrument, Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace; and national adoption of UNESCO Media and Information Literacy Assessment Framework for the development of action plans.		Gender-sensitive	Global (76005,00$) \|\| Regional: ARA (25000,00$) || Regional: EUR-NA (5000,00$) \|\| Regional: ASI (22012,00$) || Regional: LAC (17000,00$)	
1710	Promoting Open Data, Free and Open Source software policies and tools	KSD		UNESCO aims at promoting the use of Free and Open Source Software (FOSS) and Open Data as practical instrument for development for Member States in various fields. This activity aims at supporting Member States to develop, reuse, and adapt FOSS tools for addressing their needs. More importantly, this activity aims at engaging UNESCO's stakeholders and target groups to acquire and develop competencies and skills for participating in the making of locally relevant open ICT solutions for sustainable development, harnessing the potential of Open Data, which can complement Member States' efforts towards the achievement of the Millennium Development Goals (MDGs).		Gender-sensitive	Global (74292,00$)	
1744	Promoting Open Educational Resources and ICT Access for Youth in Nigeria	ABU	AFR	When openly licensed, the National Open University of Nigeria (NOUN) will have the most and most vast openly licensed educational materials in AFR. However, awareness of OERs is limited in the country but potential for this resource to become a common good is high in such a country with more than 129 universities and thousands of schools. Also, the country is teeming with young people with potential for creativity. UNESCO will provide capacity development for youth to develop mobile applications that have potential to solve problems and create employment.		Gender-sensitive	National (39279,00$)	
1786	Member States capacities for the use of ICT for sustainable, knowledge-based development enhanced through the implementation of the outcomes of the	UAP		The implementation of the World Summit on the Information Society's outcomes contributes directly to the C/5 MP V, MLA2, Expected Result (ER) 6. This activity will support the building of inclusive knowledge societies, by offering ICT capacity-building, knowledge-sharing, networking and partnership building opportunities to governments, as well as civil society, technical community, private sector and UN Organizations. It includes also substantial work on Internet-related issues, along the General Conference guidance		Gender-responsive	Global (161311,00$)	

	World Summit on the Information Society (WSIS) Review and of the Sustainable Development Goal Summit.			provided through its adoption of the CONNECTing the Dots Outcome Document, including its options for UNESCO's future action. UNESCO will seek alignment with the 2030 Sustainable Development Agenda, as spelled out in the SDG-WSIS matrix developed in 2015.				
1809	Promoting Knowledge Societies through Open Solutions and ICT Development in Haiti	POP	LAC	This Activity will contribute to the following C/5 Expected Result: Member States empowered in building inclusive knowledge societies and creating the conditions for sustainable development by promoting universal access and preservation of information, enhanced ICT skills and open solutions. It will also serve as promotion for the Open Solutions for Knowledge Societies programme and ICT accessibility, including for the disabled, and for all languages. A special focus will be made on the inclusion of women in the formulation of policies and strategies in order to ensure gender equality.		Gender-sensitive	National: Haiti (16754,00$)	
2282	YouthMobile - Engaging young people to develop mobile apps for sustainable development	KSD		The UNESCO YouthMobile Initiative aims to directly engage young people, with particular attention to young women, to acquire the high-level skills and confidence to develop, promote, and sell locally relevant mobile apps that solve local issues of sustainable development and provide employment. http://prezi.com/t533hmti3m3i/youthmobile/		Gender-transformative	Global (94910,00$)	
2304	Enhancing the quality of education through Open Educational Resources (OER)	KSD		Open Educational Resources are any type of educational materials in the public domain, or released with an open license allowing free use and distribution. They present Ministries of Education with a strategic opportunity to increase the quality of educational materials and using ICT to increase access to education especially for disadvantaged groups. The aim of the activity is to provide Member States with advice on the development of policy frameworks and online repositories, as well as associated capacity-building for policy-makers, researchers, teachers and learners through dynamic communities of practice.		Gender-sensitive	Global (75295,00$)	
2320	ICT for Quality Teaching and Learning for Inclusive Knowledge Societies	KSD		The use of Information and Communication Technologies (ICT) to support quality teaching and learning at all levels has the potential to transform Knowledge Societies. However, countries worldwide face urgent challenges in harnessing the full potential of ICT for educational delivery due to a myriad of issues such as the rapid development of technologies, teacher competencies and financial investments among others.		Gender-sensitive	Global (120184,00$)	
2365	Support Guatemalan Public Media	GUC	LAC	Public media journalists, future journalists and communicators in general strengthened in technology, digital media and digital		Gender-sensitive	National: Guatemala (13090,00$)	

	System, Journalists and Future Communicators			platforms. For this, the initiative aims to generate new ways of conducting journalism through training with the use of ICT's trainings- - As a communication tool for peace and harmonious coexistence among citizens. - Ethical Journalism as key to peace in Guatemala: The response of journalists.to peace in Guatemala. - Increasing awareness of the safety of journalists and guidance in conflicts, promoting a culture of independence, humanity and solidarity through ethics.				
2410	Harnessing of Open Educational Resources (OER) for the ICT Competency Framework for Teachers (ICT CFT) in the South Cone Region	MTD	LAC	The use of Information and Communication Technologies (ICT) to support quality teaching and learning at all levels has the potential to transform education systems. However, countries worldwide face urgent challenges in harnessing the full potential of ICT for educational delivery due to a myriad of issues such as the rapid development of technologies, teacher competencies and financial investments among others. In this regard, teacher training to support the effective integration of ICT in the classroom, and increased capacity to use open educational resources (OER) to support teaching and learning have proven themselves to be effective strategies.		Gender-sensitive	Sub-regional: Montevideo cluster (55500,00$)	
2472	Enhancing ICT skills and open solutions in Ethiopian education systems through the ICT CFT and "Women in African History: An E-Learning Tool"	ADI	AFR	This activity will focus on the: 1) Uptake of the ICT CFT on a national level in Ethiopia; 2) Introduction of "Women in African History: An E-Learning Tool" into curricula in Ethiopia, with a particular focus on Taytu Betul; 3) Expansion of the content of "Women in African History: An E-Learning Tool," and further translation into African languages; 4) Production of a promotional video of the use of the ICT CFT and "Women in African History: An E-Learning Tool" to raise the visibility of the activity, specifically as it relates to the Gender Equality Action Plan and the Operational Strategy for Priority AFR; 5) Training of relevant field officers on the e-learning tool for further uptake in the regional offices in AFR.		Gender-transformative	National: Ethiopia (20000,00$)	
2513	Enabling environment for barrier free accessibility to information and knowledge platforms and ICTs for	ISB	ASI	Country level initiatives will be launched to promote policies for openness of various sources of education/ information for public with greater emphasis on programs for persons with disabilities to mainstream them in normal life.		No contribution	National: Pakistan (14173,00$)	

	sustainable development of marginalized groups including persons with disabilities							
2598	Empowering Namibian Youth with skills and confidence to develop Mobile Applications for Sustainable Development.	WIN	AFR	This activity has two objectives: 1) to assess the state of the art with and prospects for integrating FOSS and Open Standards in existing national information frameworks and strategies as well as national development programs, and enable UNESCO to identify gaps, needs and potential areas of intervention (e.g. policy resources, capacity building and fostering international cooperation); and 2) in more practical terms, to define and pilot initiatives for providing young women and men with the high level skills and confidence to develop mobile applications for sustainable development, with a view to contribute solving local issues and enhance youth employment opportunities.		Gender-sensitive	National: Namibia (38483,00$)	
2610	Open Solutions perspectives and mobile apps for sustainable development by the youth	PNP	ASI	This activity has two objectives: 1) to assess the state of the art with and prospects for integrating FOSS and Open Standards in existing national information frameworks and strategies as well as national development programs, and enable UNESCO to identify gaps, needs and potential areas of intervention (e.g. policy resources, capacity building and fostering international cooperation); and 2) in more practical terms, to define and pilot initiatives for providing young women and men with the high level skills and confidence to develop mobile applications for sustainable development, with a view to contribute solving local issues and enhance youth employment opportunities.		Gender-sensitive	National: Cambodia (21160,00$)	
2611	Support a National Policy to introduce ICT accessibility policies for Persons with Disabilities in Iran	TEH	ASI	The major objective of the event is to promote the basic rights and needs of Persons with Disabilities and to encourage all stakeholders to take concrete measures for their empowerment through the effective application of ICTs in increasing their access to education, public information, social services, and job opportunities.		Gender-sensitive	Sub-regional: Tehran cluster (24000,00$)	
2635	Creating an open portal license for secondary schools in Ivory Coast	ABJ	AFR	UNESCO will support the development of an Open Licensed Portal for distance learning education material.		Gender-sensitive	National: Côte d'Ivoire (6187,00$)	
2665	Open Solutions perspectives in Afghanistan and mobile apps for sustainable	KAB	ASI	Activity objectives: 1) to assess the state of the art with and prospects for integrating FOSS and Open Standards in existing national information frameworks and strategies as well as national development programs, and enable UNESCO to identify gaps, needs and potential areas of intervention (e.g.		Gender-sensitive	National: Afghanistan (36367,00$)	

	development by the youth			policy resources, capacity building and fostering international cooperation); and 2) in more practical terms, to define and pilot initiatives for providing young women and men with the high level skills and confidence to develop mobile applications for sustainable development, with a view to contribute solving local issues and enhance youth employment opportunities.				
2673	Soutien à l'accès aux connaissances et aux savoirs pour construire une société d'information en RD Congo	KNS	AFR	le projet vise la construction des capacités pour l'édification des sociétés des savoirs en RD Congo. Il cible pour ce faire les enseignants et les journalistes en priorité ainsi que d'autres parties, entre autres les institutions parlementaires, la société civile et les autorités locales. Après la mise en place d'un cadre directeur sur l'accès universel à l'information par l'usage des tics et des solutions libres, le projet assurera la formation des bénéficiaires ciblés lors des ateliers et séminaires qui seront organisés d'abord à Kinshasa, puis dans 4 autres provinces à l'horizon 2017		Gender-sensitive	National: Congo (Democratic Republic of the) (29732,00$)	
2823	Creating an open portal license for colleges and universities in Iraq	BAG	ARA	UNESCO will support the development of an Open Licensed Portal for distance learning education material.		Gender-sensitive	National: Iraq (14890,00$)	
2837	Open Solutions perspectives and mobile apps for sustainable development	DHA	ASI	This activity has two objectives: 1) to assess the state of the art with and prospects for integrating FOSS and Open Standards in existing national information frameworks and strategies as well as national development programs, and enable UNESCO to identify gaps, needs and potential areas of intervention (e.g. policy resources, capacity building and fostering international cooperation); and 2) in more practical terms, to define and pilot initiatives for providing young women and men with the high level skills and confidence to develop mobile applications for sustainable development, with a view to contribute solving local issues and enhance youth employment opportunities.		Gender-sensitive	National: Bangladesh (29944,00$)	
3568	Promote the impact of ICTs for teacher-training initiatives as well as cultural dialogue, among member states	NYO	EUR-NA	Promote the impact of ICTs for teacher-training initiatives as well as cultural dialogue, among member states		Gender-sensitive	Global (14900,00$)	
3569	The National ICT Centre of Libya	KSD		The purpose of activities under this project will be to redesign the project to refocus activities on the development of capacities in support of the establishment of a National ICT Centre in Libya and to cover other costs relating to the coordination of the project, until the new orientation of the project has been agreed by the Parties through a further	2013-2016	Gender-sensitive	National: Libya (148595,00$)	

				amendment to the Agreement.				
3592	Promoting openness, inclusive ICTs, and ICT-enabled access to information and knowledge	NDL	ASI	This activity will consist of various sub-activities oriented towards the promotion of open solutions and access, the development and use of inclusive ICTs, and ICT-enabled access to information and knowledge. Sub-activities will include: (a) Promotion of open educational resources, and open access to information and scientific / technical / scholarly knowledge; (b) The development and use of inclusive ICTs that target disadvantaged groups, particularly persons with disabilities; (c) The promotion of digital libraries / archives, and initiatives to build the capacity of librarians / information science professionals to create and manage digital libraries; and (d) The promotion of UNESCO's YouthMobile initiative.		Gender-sensitive	Sub-regional: New Delhi cluster (45000,00$)	
3670	The Role of the Islamic World in Science, Technology, and Innovation: An E-learning Tool	KSD		This activity is proposed in the framework of Phase II of the General and Regional Histories Collection which involves the transformation of the volumes of The Different Aspects of Islamic Culture into pedagogical tools, as well as UNESCO's actions to promote universal access to knowledge and information through the use of ICTs in Education. The proposed project seeks to empower youth through access to information and knowledge and contribute to an accurate understanding of the contribution of Islamic Culture to developments in the field of science, technology, and innovation in ISESCO Member States and the Muslim diaspora.	2013-2015	Gender-sensitive	Global (100000,00$)	
3871	Uptake of Open Educational Resources for Learning and Teaching	KSD		Specific Objectives: To partner with leading fore-runner European educational institutions and OER initiatives to: 1. Provide guidance to enhance the development and implementation of national OER strategies through increased international cooperation 2. Support implementation of the UNESCO ICT Competency Framework for Teachers (ICT CFT) by harnessing OER.	2014-2017	Gender-sensitive	Global (275861,00$)	
4954	THE UNESCO/EMIR JABER AL-AHMAD AL-JABER AL-SABAH PRIZE TO PROMOTE QUALITY EDUCATION FOR PERSONS WITH INTELLECTUAL DISABILITIES	KSD		Established in 2002, the UNESCO/Emir Jaber al-Ahmed al-Jaber al-Sabah Prize aims at rewarding outstanding activities of individuals, groups, organisations or centres that promote inclusive quality education for persons with intellectual disabilities. The Prize is awarded every two years. The 2013 edition will be awarded early 2014, and the 2015 edition will take place in 2015.	2009-2016	Gender-sensitive	Global (590776,00$)	

5126	Youth, Employment and Migration: A One-Stop Shop for Youth Employment	SJO	LAC	This Programme has facilitated access to decent employment by improving the employability and entrepreneurialism of young people between the ages of 15 and 24, especially those from rural areas, women, migrants and those in a vulnerable situation. The program has developed a complementary synergy between education and employment to help students that were out of school to return.	2009-2014	Gender-sensitive	National: Costa Rica (750070,00$)	
5130	The Role of Women in African History - an E-learning Tool	KSD			2011-2014	No contribution	Regional: AFR (100000,00$)	
5425	Development of an Interactive Knowledge Map entitled 'Global Open Access Portal (GOAP)'	KSD		The portal shall be made available in French, and additional communication materials will also be prepared to share the results of the information gathered in a consolidated manner. The UNESCO Policy Guidelines for the Development and Promotion of Open Access developed in the last biennium shall be printed and distributed, also online through the portal. Activities based on evaluation of the GOAP shall be carried out. A policy generator tool will be developed and embedded in GOAP	2010-2016	No contribution	Global (121132,00$)	
5506	National capacity building on Media and Information Literacy	KSD		The activity will contribute to building on open, pluralistic, democratic and inclusive knowledge societies based on UNESCO work in the area of Media and Information Literacy. Using UNESCO frameworks and available tools, the national capacities to integrate the MIL will be increased in order to cultivate MIL competencies of key target groups such as educators and teachers. The activity includes two aspects: adaptation of the MIL curriculum and development of assessment tools for the measurement of the competencies among educators and teachers.	2012-2015	Gender-sensitive	Regional: AFR (90000,00$) || Regional: ASI || Regional: LAC	
5560	Libyan Higher Education ICT Project (Pilot Phase)	CAI	ARA		2012-2014	No contribution	National: Libya (5747092,00$)	
5639	Towards inclusive Knowledge Societies: Enhancing the inclusiveness and value of the UNESCO hosted 2013 World Summit on the Information Society (WSIS+10) Review Event	KSD		These Funds in Trust are earmarked for UNESCO's WSIS+10 Event and its follow-up	2012-2015	No contribution	Global (194301,00$)	
5660	Paris OER Declaration Follow	KSD		UNESCO proposes, with all relevant stakeholders, to design and implement a series of global activities based on all the 10-	2013-2017	Gender-sensitive	Global (400000,00$)	

	up: Support for Advocacy, Policy and the ICT CFT			points of the Declaration. In particular, UNESCO will hold advocacy and capacity building events and provide technical assistance to support the development of draft national and institutional policy recommendations based on the Paris OER Declaration, and identify national institutions to introduce the ICT CFT as a model for teacher training with a view to harnessing OER as a vehicle for deeper learning.				
5695	Phase II, The Role of Women in African History: an E-Learning Tool	KSD			2012-2014	No contribution	Regional: AFR (70000,00$)	
5713	Preparation, organisation and follow-up to the WSIS + 10 Review	KSD		This contribution supports UNESCO's contribution to the WSIS+10 Review process, by co-financing the first UNESCO hosted WSIS+10 event and supporting also the follow-up and UNESCO's contribution to the Overall WSIS Review process. The implementation of the World Summit on the Information Society's outcomes contributes directly to the C/5 Expected Result n°138: ER 4.	2013-2016	Gender-responsive	Global (54528,00$)	
5769	IFAP Contribution to the Development of Media and Information Literacy Indicators	KSD		The activity will contribute to the implementation of IFAP strategy and contribute to the implementation of the priority - MIL. It is expected that at the end of the activity, the Member States will have assessment tools ready for the assessment of the MIL among educators and teachers which provides Member States with evidence-based data required for the policy formulation, curriculum and teacher programmes revisions and other MIL related work.	2013-2015	Gender-sensitive	Global (12000,00$) \|\| Regional: LAC (10000,00$)	
5800	Empowering youth in the post conflict situation of Mali for reconciliation, peace and development through an increased access to, and use of, new information and communication technologies (ICT)	KSD		The project aims at enabling marginalized young people from Mali, to have access to, and knowledge of using ICT, to actively engage with their counterparts in a collaborative quest for consolidating tolerance and peace, respect for each other, as well as for promoting intercultural dialogue through setting-up of specific information schemes for young people's intercultural and interethnic interaction.	2013-2015	Gender-sensitive	National: Mali (135600,00$)	
5835	Implementation of the Information for All Programme Report 2008 - 2013	KSD		At its 21st session the IFAP Bureau approved the publication of a brochure to showcase the activities carried out in the 2008-2013 period under the IFAP Strategic Plan. The brochure is also expected to support the sharing of best practices and highlight the visibility of the programme.	2013-2015	Gender-sensitive	Global (28600,00$)	
5842	Civic Education for citizen participation in the development	MAP	AFR	The activity is intended to empower citizens to participate in the decision making process and development process through civic education in CMCs	2012-2016	Gender-sensitive	National: Mozambique (23000,00$)	

	agenda and decision making through CMCs							
6343	Paris OER Declaration Follow up: ICT CFT implementation harnessing OER	KSD		Supporting the contextualization of the ICT CFT harnessing OER in Kenya, Indonesia and Oman.		Gender-sensitive	Global (141591,00$)	
6344	Paris OER Declaration Follow up: Support for OER Advocacy	KSD		The Advocacy Component seeks to significantly increase awareness of Open Educational Resources (OERs) among key education stakeholders in Oman, Bahrain, Kenya, and Indonesia.		Gender-sensitive	Global (106178,00$)	
6345	Paris OER Declaration Follow up: Support for Policy	EDU		The project is to assist a selected number of member states to develop national policies for OER.		Gender-sensitive	Global (106188,00$)	
6626	Support to respond to requests for UNESCO's OER and ICT CFT framework for teachers and higher education faculty in the region(6 countries)	CAI	ARA	With reference to ODG Memo DIR/ODG/13/Memo.06 dated 05 February 2013 and memos from the DDG and the Director of the UNESCO Cairo office, this project, which is funded by the reprogramming of surplus ICDL funds, is aimed at supporting the request of regional governments to deploy Open Educational Resources and UNESCO ICT Competency Framework for Teachers in six Arab countries. A regional initiative for Open-Textbooks will also launched through this project. The total budget amount is US$ 200,000.	2014-2018	Gender-sensitive	Regional (200000,00$)	
6627	Open Solutions and Innovations for Education, Science and People with disabilities in the Six Arab Countries (replacing Arab Digital Courseware Library)	CAI	ARA	With reference to ODG Memo DIR/ODG/13/Memo.06 dated 05 February 2013 and further memos from DDG on 5 July, 2014 and 1 August,, 2014, this project funded by the reprogramming of surplus ICDL funds is aimed at promoting open solutions and innovations in the ARA. The project will consist of 4 sets of activities related to Open Solutions: Promoting Open Access to Scientific Information and Research, Free and Open Source software, Open solutions for people with physical disabilities and Youth mobile activities. The project will have four components (Policy formulation, capacity building and knowledge sharing).The total budget (amended) amount is US$ 150,000.	2014-2018	Gender-sensitive	Regional (150000,00$)	
6867	Free Education	BRZ	LAC	The Free Education Project consists in the development of an interactive platform to provide capacity building, enhancement and the insertion of young people in the workplace through technological solutions that enable the creation of educational itineraries adaptable to the user's profile, as well as free	2012-2018	Gender-sensitive	National: Brazil (3456326,00$)	

				learning using mutual collaboration mechanisms. The Project aims to implemented an educational platform for youth and ensure they have the necessary skills to match them with job opportunities in the industry sector aiming to reduce unemployment rates among youth and promote training and lifelong skills.				
7874	Regional Centre of Studies for the Development of the Information Society	KSD		The Centre supports Latin America and Portuguese-speaking African countries with studies on the progress and impact of building inclusive knowledge societies through information and communication. The Centre focuses on capacity building activities enabling policy-makers to analyse survey statistics and monitor the impact of ICT policies on the development of information and knowledge societies and promote awareness on the issue. It also works as Clearing house and to develop sectorial ICT survey methodologies and patterns of data collection for the production of ICT indicators in a number of fields, including cultural and audio-visual industries and the understanding of the ethical dimensions of Internet use and its social implications.		Gender-sensitive	Sub-regional: Portuguese speaking Countries Community (CPLP)	
7926	Regional Centre for Information and Communication Technologies (RCICT)	KSD		Mission: Enhance applied research and education and training in the fields of Information and Communication Technology in collaboration with governments, the private sector, UNESCO, as well as with other research, education and training institutions within or outside Bahrain, with the objective of making a contribution towards building a solid base of knowledge for meeting some of the technological challenges that Bahrain and the rest of the Arab countries face today and tomorrow.		Gender-sensitive	Sub-regional: ARA of the Gulf	
7931	International Centre for the Registration of Serial Publications (ISSN)	KSD		The ISSN International Centre was established in Paris as a result of an agreement between UNESCO and the Government of the French Republic (ref. document SC-76/WS/4, Paris, January 1976) with the aim of introducing and operating an automated system for the registration of serials, covering the full range of recorded knowledge known as the International Serials Data System (ISDS).		No contribution	Global	
7941	Regional Centre for Library Information Systems and Current Research Information Systems	KSD		Formerly the Institute of Information Science, the Centre will coordinate the development and application of standards for computer support to meet the requirements of the shared bibliographic system for National Libraries of the countries participating in COBISS.Net. The Centre will specifically work towards complementing UNESCO's activities in the following areas: Access to information and knowledge;		Gender-sensitive	Sub-regional: Eastern Europe Countries || Sub-regional: Caucasus Countries || Sub-regional	

				Cultural diversity and identity, linguistic diversity and local content and Ethical dimensions of the Information Society. For this purpose, the Centre will facilitate the development of libraries and information systems for the free flow of ideas, and to maintain, increase and spread knowledge in line with the Information for All Programme (IFAP).				
8645	Support to the Rights and Entitlements of Persons with Disabilities (UNPRPD Project)	BEJ	ASI	This project is funded by the UN Partnership to promote the Rights of Persons with Disabilities Multi-Donor Trust Fund (UNPRPD MDTF) to provide support to the rights and entitlements of persons with disabilities (PWDs) in China. Implemented by ILO, UNDP, UNESCO, and UNICEF under the aegis of the UN Country Team in China, this project aims to support the Chinese Government's efforts to reduce barriers to the implementation of policies related to persons with disabilities, as well as to foster an enabling and more inclusive environment for the full implementation of the CPRD.	2014-2017	Gender-responsive	National: China (105966,00$)	
9262	Paris OER Declaration Follow up II: Support for Policy and the ICT CFT	KSD		This project will inform national and institutional policy makers about the underpinning factors of successful OER initiatives, and to facilitate a critical mass of countries to mainstreamed OER into their teacher training systems and national policy.	2014-2018	Gender-sensitive	Global (601695,00$)	
9329	Rwanda: Inclusive Economic Transformation	NAI	AFR	In Rwanda the Information and Communication Technology (ICT) sector is singled out as a priority and can dramatically change society. ICT can contribute towards creating employment and generating incomes, including disadvantaged communities, notably among women, youth, and persons with disabilities. Within the framework of the Rwanda Joint Flagship on Youth and Women Employment, UNESCO will support formal training institutions to provide digital educational materials for young people living with disabilities.	2014-2018	Gender-sensitive	National: Rwanda (59200,00$)	
9330	Uganda UNPRPD: Promoting the rights of persons with disabilities	NAI	AFR	The project will focus on policy interventions by ensuring that the policy environment in Uganda becomes more conducive for the use of Inclusive Education and Access to Information. This will mainly be achieved through setting up a national Policy Board and Management Committee, the creation and adoption of a necessary policy for the use of Assistive Technology to ensure Inclusive Education and Access to Information for persons with visual and hearing impairments in Uganda. In addition, procurement and production guidelines will be created.	2014-2017	Gender-sensitive	National: Uganda (130540,00$)	
9616	Creation of an Open Digital Library on Traditional Games	BEJ	ASI	This pilot project aims to innovatively use ICTs to preserve and openly disseminate traditional games, in order to safeguard such knowledge as living heritage, narrow the	2015-2016	Gender-sensitive	Regional (201140,00$)	

	Innovative use of ICTs to Safeguard and Promote Indigenous and Local Knowledge for Learning, Development, and the Rapprochement of Cultures			digital divide and promote the rapprochement of cultures. Main project interventions include creating an Online Digital Library on Traditional Games from targeted areas, developing a methodology and guidelines for participatory identifying, collecting, sourcing, inventorying, and characterizing traditional games through ICTs and other media.				
9669	Follow up to the Paris OER Declaration II : ICT CFT Harnessing OER	KSD		ICT CFT Teacher Training Harnessing OER: To mainstream OER teachers must be sensitized first hand to its usefulness. In this regard, UNESCO through work on the ICT Competency Framework for Teachers (ICT CFT) have successfully worked on harnessing OER for the development of teacher training.		Gender-sensitive	Global (241743,00$)	
9671	Paris OER Declaration Follow up II: Policy	KSD		Policy: To convince and facilitate policy makers to develop and implement national OER policies, the project will seek to exercise a three-pronged intervention: To illuminating global models on how OER -from user generated learning objects to the massive open textbooks -can be leveraged across education sector to accelerate high quality education for all in different contexts,		Gender-sensitive	Global (255487,00$)	
10094	Training and updating of the IFAP National Information Society Policy Template and the development of an on-line policy case-study library	UAP		Updating of the publication "National Information Society Policy: A Template" produced by the UNESCO's intergovernmental Information for All Programme (IFAP); its conversion into digital platform for knowledge-sharing to host tools, demos, policy resources, case studies, life discussions and online trainings to support Member States in the development, review and implementation of their national Knowledge Society policy frameworks and strategies; and the development of a research and policy community around this platform. This activity will be conducted in partnership with the United Nations University (UNU) with the framework of the Memorandum of Understanding concluded UNU and UNESCO.			Global (30000,00$)	
10095	Support to capacity building in information literacy through the development of e-infrastructure for online and distance learning in Grenada	UAP				No contribution		

10313	Promote the impact of ICTs for Teacher-Training /Development	NYO	EUR-NA	Support and enable UNESCO's involvement in the UN General Assembly Review Process of the WSIS+10, ensuring UNESCO's leading role in the WSIS vis-a-vis Member States and WSIS stakeholders, alongside ITU and UCTAD, through the organisation of promotional and advocacy activities, plus commissioning material and studies to reinforce UNESCO's position.		Gender-sensitive	Global (9998,00$)	
10393	Fostering enabling environment for Open Access to Scientific Research in Libya	KSD		The overarching aim of this project is to initiate actions toward establishing a successful national Open Access policy in Libya and in its higher education institutions through the collaborative efforts of the Government of Libya and UNESCO. The project will create necessary conditions to create a policy framework and national system that will ensure that all publicly funded research in Libya becomes freely and openly available and that Libyan academia are not left behind in the global OA movement. The proposed strategy will also formulate a framework to monitor progress and establish benchmarks.	2016-2019	Gender-sensitive	National: Libya (838635,00$)	
10486	Open Educational Resources (OER) for Libya	KSD		Through the implementation of this project, UNESCO will ensure that OERs becomes a long term solution in Libyan universities through awareness raising, capacity building, and the development of a Libyan Community of Practice of Higher Education Teaching Personnel focusing on the use of OER for higher education in Libya.	2016-2019	Gender-sensitive	National: Libya (1119222,00$)	
10506	Establishing Global Centre for Excellence for the Empowerment of Persons with Disabilities through ICTs in Kuwait	KSD		The project aims to establish a fully operational Global Centre for Excellence in The State of Kuwait, as a category 2 centre under UNESCO's auspices, taking advance of technological and scientific progress, particularly inclusive, accessible and affordable ICTs and ATs, in order to empower persons with disabilities to access information and knowledge on equal basis by building institutional capacities, strengthening strategic partnerships and knowledge sharing at global and, in particular in the MENA region.		Gender-sensitive	Global (706578,00$)	
10784	Promoting the open solutions for knowledge societies and enhancing ICT accessibilities for the disabilities in the three countries of ARA (Egypt, Sudan and Libya)	CAI	ARA	The activity aimed at promoting open solutions and innovations in the ARA. The project will consist of four sets of activities related to Open Solutions: Promoting Open Access to Scientific Information and Research, Free and Open Source software, Open solutions for people with physical disabilities and YouthMobile activities.		Gender-sensitive	Sub-regional: Cairo cluster (32500,00$)	
10798	Alphabétisation technologique : Mise	YAO	AFR	The increasing global move toward knowledge societies, wherein knowledge is the primary production resource rather		Gender-sensitive	Sub-regional: Yaoundé Regional	

	en place du référentiel de compétences TIC/enseignants dans des écoles de communication en zone CEEAC			than capital and labour, has placed increasing emphasis on the need to ensure that individuals are educated and become skilled participants in society and the economy. Information and communication technology (ICT) is regarded as an essential means to support the achievement of genuine knowledge societies, often compelling education systems worldwide to adopt strategies to encourage its integration into education systems.			Office (50036,00$)	
10807	Enabling universal access to information in the Caribbean countries through the effective use of ICTs for development including Open Solutions	KNG	LAC	This activity aims at strengthening capacities in the Caribbean countries for taking concrete measures on Universal Access to Information and knowledge using ICTs, mobile devices and Open Solutions with special emphasis on youth. It will comprise collaborative actions for effectively harnessing ICT in teachers' professional practice.		Gender-sensitive	Sub-regional: Kingston cluster (27500,00$)	
10808	Enhancing capacities for the use of ICT for a sustainable, knowledge based development through the implementation of the Information for All Programme (IFAP) priorities in the Caribbean.	KNG	LAC	This activity will facilitate that the Caribbean countries integrate quality UNESCO policy development resources / activities (declarations, guidelines, studies, capacity-building initiatives) in the IFAP priority areas into their national information policies. It will comprise collaborative actions for effectively implementing evidence based assessment strategies and actions related to Info-Ethics and Media and Information Literacy.		Gender-sensitive	Sub-regional: Kingston cluster (20000,00$)	
10819	Enhancing sustainable development with open mobile solutions	JAK	ASI	The UNESCO YouthMobile Initiative aims to directly empower young people to acquire the technical skills and entrepreneurial confidence to develop smart mobile apps for sustainable development		No contribution	Sub-regional: Jakarta cluster (52737,00$)	
10825	Enhancing ICT skills and open solutions	ABJ	AFR	l'objectif est de renforcer les capacités des journalistes et des jeunes en matière d'utilisation des nouvelles technologies de l'information et de promouvoir la création d'application pour les jeunes		Gender-sensitive	National (20000,00$)	
10826	Enhancing ICT skills and open solutions	ACR	AFR	The project will help in building knowledge societies and further enhance ICT training for the young people and physically challenged people. Training in mobile applications and access to Open Education Resources (OER's) will be implemented.		Gender-transformative	National: Ghana (31793,00$)	
10828	Enhancing ICT skills and open solutions	DAK	AFR	Promoting the YouthMobile and ICT Initiatives in West AFR - The UNESCO YouthMobile Initiative aims to directly engage young people, with particular attention to young women, to acquire the high-level skills and confidence to develop,		Gender-transformative	Global (46000,00$)	

				promote, and sell locally relevant mobile apps that solve local issues of sustainable development and provide employment.				
10829	Enhancing ICT skills and open solutions through community radio schools	STG	LAC	UNESCO Santiago will implement a Community Radio Schools programme in Chile, to build and strengthen capacities on the use of ICTs, the creation of community media using open source software, and on the development of media content. This project will enhance the access, social know-how and diversity in local community media in Chile, and will contribute to raise awareness on the importance of plurality in the media.		Gender-sensitive	National: Chile (20000,00$)	
10840	Enhancing ICT skills and open solutions	HAR	AFR	Multidisciplinary response to an emerging global issue, and is being conceived as part of international efforts to strengthen the positive role of young women and men building lasting peace and intercultural dialogue. Building on the good practices developed by UNESCO throughout the years, high importance will be placed on the collaboration with civil society and youth organisations that share UNESCO's vision and commitment to promoting the empowerment of young women and men, and that are engaged in sustained and effective cooperation with the Organization.		Gender-sensitive	Sub-regional: Southern African Development Community (SADC) (42000,00$)	
12630	Establishing Global Centre for Excellence for the Empowerment of Persons with Disabilities through ICTs in the State of Kuwait	KSD		The project will strengthen the capacity of Member States in delivering inclusive ICTs for persons with disabilities to access information and knowledge by building institutional capacity at global level. The project consists of three broad areas: a) establishing a Centre of Excellence, b) building institutional capacities; c) partnerships and strengthening the international knowledge base and creating favourable environment. The key deliverable of the project is a fully functioning Global Centre for Excellence, as a category 2 Centre of UNESCO, providing services and support to persons with disabilities promoting international cooperation. (38 C/Resolution 58).	2017-2019	Gender-sensitive	Global (321898,00$) \|\| Regional: ARA (385915,00$)	
13963	Girls and Women Empowerment through ICT in Ghana	KSD		The initiative, modelled on the broader UNESCO/IFAP programme encapsulates the aspirations of Ghana's ICT plan for young girls. Under the working title, FemlTI which means Females in Tech Initiative. FemlTI is a project to train young girls to code to empower them facilitate technology creation to generate opportunities for Societal Transformation and Poverty Alleviation. The project will offer these young girls the opportunity to be trained by knowledgeable women known as Tech-Aides.	09/2016-2018	Gender-sensitive	National: Ghana (21808,00$)	
13985	Reaching Libyan children and youth through community-oriented and open	KSD		Recognizing an essential positive role that youth must play in the social and political transformations still underway in Libya, this project proposal will leverage open-licensed ICT and community media to support youth interest and capacities to		Gender-sensitive	National: Libya (1009600,00$)	

	educational media			ensure that their voices and values can be constructively engaged. An OER-based approach to UNESCO's community-oriented media development model - through radio, television and online - can offer positive benefits by supporting wide public access to educational information and non-formal education services and enhance the potential of young people to engage in democratic citizenship, economic and social reintegration and peacebuilding.				
14214	2nd World OER Congress 2017	KSD		The 2nd World OER Congress will be convened by UNESCO and the Government of Slovenia. It will provide a timely opportunity to engage the global OER movement to support Sustainable Development Goal 4 (SDG-4) to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". The objective of the 2nd World OER Congress will be to examine progress on implementing the Paris OER Declaration 2012 and share strategies between stakeholders, regions and institutions on mainstreaming OER into global education systems in support of SDG 4.		Gender-sensitive	Global (400000,00$)	
14299	2nd World OER Congress 2017	KSD		The 2nd World OER Congress will be convened by UNESCO and the Government of Slovenia. It will provide a timely opportunity to engage the global OER movement to support Sustainable Development Goal 4 (SDG-4) to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". The objective of the 2nd World OER Congress will be to examine progress on implementing the Paris OER Declaration 2012	2017-2017	Gender-sensitive	Global (500000,00$)	
14799	Follow up to the Ljubljana OER Action Plan 2017	KSD		Toward the realization of inclusive Knowledge Societies, this project aims to support: - Teacher training for ICT in Education harnessing OER - Inclusive OER - capacity building, advocacy and policy support to mainstream OER accessible particularly to those with disabilities. - Policy development - through the development of indicators and support for national policy for OER. These activities will collectively support UNESCO's long-term vision to implement the objectives of the Ljubljana OER Action Plan 2017 adopted at the 2nd World OER Congress (18 to 20 September 2017, Ljubljana, Slovenia).		Gender-sensitive	Global (600000,00$)	

C.List of Stakeholders Consulted

UNESCO Headquarters

1. **BANERJEE Indrajit** (Mr.), Director, Knowledge Societies Division, CI
2. **CHAKCHOUK Moez** (Mr.), Assistant Director-General, CI
3. **CHAKROUN Borhene** (Mr.), Chief of Section, Youth, Literacy and Skills Development Section, ED
4. **COUPEZ Anne** (Ms.), Programme Coordinator, Executive Office, ED
5. **DU SOUICH, Othilie** (Ms.), Strategic Planning Officer, Results-Based Management, BSP
6. **DU TOIT Jaco** (Mr.), Programme Specialist, Section for Universal Access and Preservation, CI
7. **EDEM ADUBRA (**Mr.) Chief of Section, Teacher Development, ED
8. **GIANNINI Stefania** (Ms.), Assistant Director-General, ED
   HIRONAKA Joe (Mr.), Programme Specialist, ICT in Education, Science and Culture, CI
9. **MCOMISH Elspeth** (Ms.), Programme Specialist, Gender Equality Division
10. **MIAO Fengchun** (Mr.), Chief, Unit for ICT in Education, ED
11. **MINEO Salvatore** (Mr.) Programme Specialist, Section for Mobilizing Government Partner Resources, BSP
12. **OSTTVEIT Svein** (Mr.), Director, Executive Office, ED
13. **RADOYKOV Boyan** (Mr.), Chief of Section, Section for Universal Access and Preservation, CI
14. **SASS Justine** (Ms), Chief of Section, Section of Education for Inclusion and Gender Equality, ED
15. **STORTI Davide** (Mr.), Programme Specialist, ICT in Education, Science and Culture, CI
16. **VAROGLU Zeynep** (Ms.), Programme Specialist, Section for ICT in Education, Science and Culture, CI
17. **WACHHOLZ Cedric** (Mr.), Chief, Executive Office, CI
18. **YONGYEON, Won** (Mr.), Programme Specialist, ICT in Education Unit, ED
19. **YOUNG Lindsay** (Ms.), Associate Project Officer, ICT in Education Unit, ED

IITE Moscow

20. **AL AWAR Mansoor** (Dr.), Chair, IITE Governing Board
21. **AMELINA Natalia** (Ms.), Chief of Unit, Unit of Teacher Professional Development and Networking
22. **DUGGAN Steven** (Mr.), Microsoft Global Strategy Management, Member, IITE Governing Board
23. **KNYAZEVA Svetlana** (Ms.), Chief of Unit, Unit of Digital Pedagogy and Learning Materials
24. **YEPOYAN Tigran** (Mr.), Chief of Unit, Unit of ICT in Health Education
25. **ZHAN Tao** (Dr.), Director

Bangkok Regional Office

26. **ADEEL Hassan** (Mr.) ICT Support.
27. **AOYAGI Shigeru** (Mr.), Director
28. **DANG Toan Son** (Mr.) Project Assistant, ICT/EISD
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41. **ATCHOARENA, David** (Mr.), Director, UNESCO Institute for Lifelong Learning
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44. **DESMURGER, Marion** (Ms.), Senior Programme Assistant, CI, UNESCO Doha Office, Qatar
45. **KADRI Santosh** (Mr.), Programme Specialist, ED, UNESCO Phnom Penh Office, Cambodia
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47. **MWAURA Gideon.** (Mr.), Programme Assistant, CI, UNESCO Regional Office for Eastern Africa, Nairobi, Kenya
48. **NAMAZOV Bakhtiyor** (Mr), Programme Officer, ED, UNESCO Tashkent Office, Uzbekistan
49. **SEO Seonghee** (Mr.), ED, UNESCO Phnom Penh Office, Cambodia
50. **YOKOZEKI Yumiko** (Ms.), Director, UNESCO IICBA, Ethiopia

UNESCO National Commissions

51. **AIGOI Rosie** (Ms.), Secretary-General, Uganda National Commission for UNESCO, Uganda
52. **MUTESA Albert** (Mr.), Secretary-General, Rwanda National Commission for UNESCO, Rwanda

Others

53. **AGYEMANG-GYAMFI Nelly** (Ms.), Senior Access-Manager, Moringa School, Kenya
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69. **KASINATHAN Gurumurthy (**Mr.), Founder and Director, IT for Change, India
70. **KIRYUSHINA Elena** (Ms.), Regional Youth and Communication Officer, UNAIDS, Moscow.
71. **KHOLINA Veronica** (Ms.), Dean of Geography Department, RUDN.
72. **KUZMIN Evgeny** (Mr.), Vice-Chair, Bureau of the Intergovernmental Council, UNESCO IFAP Programme
73. **MIKHALEV Maksim** (Dr.), International Relationship Manager, ABBYY.
74. **MIREMBE Lukiya** (Ms.), Shimoni Core Primary Teacher College, Uganda
75. **MOORE Andrew** (Mr.), Project Manager in Education Technology, Neil Butcher Associates, South Africa
76. **MOSSISSEY Jerome** (Mr.), CEO, Global eSchools and Communities Initiative (GESCI), Kenya
77. **NDAWULA Stephen** (Dr.), Director at Open, Distance and e-Learning (ODeL), Kyambogo University, Uganda
78. **NDUWINGOMA Mathias** (Mr.), Computer Science Department, University of Rwanda
79. **NJUE Mercy** (Ms.), Founder and Data strategist, BotLab, Kenya
80. **NIYIZAMWIYITIRA Christine** (Ms.), Head of Department, Rwanda Board of Education, Rwanda
81. **NYAGA Samuel** (Dr.), Senior Assistant Director, E-Learning, Kenya Institute of Curriculum Development, Kenya
82. **OKINDA Robert** (Mr.), Head of Education Technology Section, Kenya Technical Teachers College, Kenya
83. **OKOED Martin (**Mr.), Tutor, National Teacher College, Uganda
84. **OKUDA Atsuko** (Ms.), Chief of ICT and Development Section, UN Economic & Social Commission Asia-Pacific.
85. **OPERIN Kirin** (Mr.), Head, ITU Office for former USSR Region
86. **PHURBA Phuba (Mr.),** Planning Officer, Ministry of Education, Bhutan.
87. **SANGRA Albert** (Dr.), Professor and Researcher, Director for the UNESCO Chair in Education and Technology for Social Change, Open

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88. **SERGEEVA Ekaterina** (Ms.), Creative Producer, OK.RU social media
89. **SRINUTAPONG Supoet** (Mr.), Public Sector Program Lead, Microsoft, Thailand.
90. **SUWATTAMATHUM Piwyawan** (Ms.), Microsoft Thailand
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95. **WAGIOKO Maina,** (Dr.), Vice-Principal, Professional Development Centre, Aga Khan Academy, Kenya
96. **WAMBUA Joseph** (Mr.), Chief, Curriculum Development Officer – e-Learning, Kenya Institute of Curriculum Development
97. **ZHILAVSKAYA Irina** (Ms.), Head of UNESCO Chair of Information Literacy and Media Education of Citizens, Moscow Pedagogical State University

D. List of Key Documentation Consulted

Footnotes to the text of this report contain an additional set of documentation consulted.

- Analytical Programme Implementation report (APIR) 204 EX/4 Part I
- Asia Pacific Regional Strategy for Using ICT to Facilitate the Achievement of SDG4 (2017)
- Building Inclusive Knowledge Societies - A review of UNESCO's action in implementing the WSIS outcomes (2014)
- Evaluation of the Cross Cutting Themes: Eradication of poverty, especially extreme Poverty, and the Contribution of Information and Communication Technologies to the Development of Education, Science and Culture and the Construction of a Knowledge Society (2006)
- Evaluation of the William and Flora Hewlett Foundation's Investment in International Policy Advocacy for Open Educational Resources (2015)
- Incheon Declaration and Framework of Action (2015)
- Leveraging Information and Communication Technologies to Achieve the Post-2015 Education Goal (2015)
- Ljubljana OER Action Plan 2017 (2nd World Open Educational Resources (OER) Congress 2018)
- Model Policy for Inclusive ICTs in Education for Persons with Disabilities (2014)
- Paris OER Declaration (1st World Open Education Resources (OER) Congress,2012)
- Qingdao declaration (2015 International Conference on ICT and Post-2015 Education)
- Review of the UNESCO Institute for Information Technologies in Education (2013)
- Study on International Collaboration on Open Educational Resources (OER) (2016)
- The UNESCO Constitution
- UNEG Code of Conduct for Evaluation in the UN system
- UNEG Ethical Guidelines for Evaluation
- UNEG Handbook: Integrating Human Rights and Gender Equality in Evaluations
- UNESCO Office for Eastern Africa: ICT in Education
- UNESCO Open Access Policy
- UNESCO Priority Gender Equality Action Plan (2014-2021)
- UNESCO's Medium-Term Strategy for 2014-2021 (document 37 C/4)
- UNESCO's Programme and Budget 37C/5, 38C/5 and 39 C/5
- UNESCO's Strategy on Priority Africa (2014-2021)
- Website in Open solutions
- Website of ICT in Education and related websites in CI and ED sectors

Note: The Review of ICT in Education Landscape has a separate bibliography:

E. Evaluation Methodology

Approach and Methods

1. The evaluation was conducted in the period September 2018 to February 2019 by a team of two External Consultants, Seán Ó Siochrú and Graham Attwell from NEXUS Research Cooperative, Ireland. The evaluation was commissioned and managed by the UNESCO IOS Evaluation Office as a corporate evaluation, in line with the UNESCO Evaluation Policy and the IOS biannual evaluation plan 2017/18. The IOS Evaluation Office was responsible for the management and coordination of the evaluation and provided quality assurance of the evaluation process and the deliverables.

2. An Evaluation Reference Group (ERG) was established to accompany the evaluation process and to provide feedback on and validate the deliverables i.e. the Inception Report, methodology and draft report and final evaluation reports. The ERG comprised representatives from: the IOS Evaluation Office, the ED and CI Sectors' Executive Offices, the ED Division for Policies and Lifelong Learning Systems, the Gender Equality Division, the CI Knowledge Societies Division, the Bureau for Strategic Planning (BSP), the UNESCO Category 1 Centre IITE, the Asia and Pacific Regional Bureau for Education in Bangkok, and the Multi-Sectoral Regional Office for Eastern Africa in Nairobi.

Analytical framework

3. Several features were central to the approach of this evaluation.

Theory of Change

4. A Theory of Change (ToC) approach underpins this evaluation. Given the complex nature of the subject matter and the multiple and diverse strands of work, a ToC approach helps to take stock of and interrelate the different levels of interventions.

5. UNESCO has not so far elaborated a Theory of Change for its portfolio of work in ICT in Education that could guide the design and implementation of its interventions. The Evaluation team will therefore, in a couple of steps, develop and present an initial draft of such a Theory of Change.

6. A first step examined the existing documentation, specifically UNESCO C/5 programmes, and the implicit causal linkages contained there. This was presented at the first Reference Group meeting.

7. A more elaborate and tailored Theory of Change was at the final Reference Group meeting in January 2019. It adopted a future-oriented perspective, and can be used to develop a common understanding in UNESCO regarding ICT in Education, and to position UNESCO's in the field, to internal and external observers, its strengths and opportunities.

Case Studies

8. A key challenge for this evaluation was to develop a clear rationale for delineating UNESCO's interventions in the ICT in Education field. The Case Study approach was seen as an appropriate methodological tool to explore these interventions in some depth. The three Case Studies (two conducted by the Team Leader and one by the Lead Consultant) were intended not as a representative sample, but to enable deeper analysis, understanding and learning and to illustrate selected key issues and arguments on the basis of a specific thematic area within a specific context.

9. The goals of Case Studies are summarised as follows (as refined by the Reference Group), and these provide the basis for the selection of the case study themes:

- To examine cases of what works well for achieving outcomes, and why;
- To examine causal linkages and chains, from different interventions by UNESCO and others;
- To explore specific outcomes, and on particular target groups;
- To examine aspects of gender equality and inclusion of disadvantaged groups;
- To consider the specific value of collaboration and partnerships.

10. They were selected through a *purposive sampling* process, incorporating a limited set of projects. The initial criteria (also discussed by the Reference

Group) for their selection are that themes should:

- be significant, in terms of investment and major learning potential;
- cover different regions with at least one with a focus in Africa;
- cover more than one type of intervention;
- include both Regular Programme (RP) and extrabudgetary (XB) funded activities;
- involve sectoral and intersectoral activities.

11. The approach to Case Studies gained general approval of the Reference Group at the Inception meeting. Additional specific considerations were discussed including the following:

- Cases of good practice are of particular interest from the point of view of learning, including of intersectoral cooperation;
- Larger Projects (such as Korean Funds in Trust and Chinese Funders in Trust) could be included, noting if recommendations of previous evaluations have been implemented;
- Emergency work with refugees in relation to teacher training using ICTs is unique to UNESCO and might be of interest; as also might the EQUALS Skills Coalition project;
- Two emerging fields of interest are: 1) e-assessment; and 2) Monitoring of ICTs in education with UNESCO Institute for Lifelong Learning (UIS) in the context of the MDGs;
- Other Sectors, besides ED and CI, support some Projects that might be worth considering.

Three Case Studies are undertaken.

Case Study 1: The use of ICT for teacher development, with a focus on UNESCO's global priority Africa (Annex J);

Case Study 2: Policy Support for ICT in Education; (Annex K);

Case Study 3: Coordination, Cooperation & Collaboration in ICT in Education (Annex L).

Review of ICT in Education Landscape

12. The exploration of the wider landscape of key institutional actors in ICT in Education globally (See Annex M) comprises another key feature of the methodology. This study aimed at a broader consideration of UNESCO's current role and comparative strengths within a currently crowded thematic area; and at providing indications where the Organization should reposition itself in the future.

13. It was compiled from an extensive array of relevant publications, including academic and 'grey' literature, and from selected interviews relevant to the positioning and activities of UNESCO. Individual sections will, as appropriate, contain comparative analysis between UNESCO and other institutions.

Other Features

14. A detailed Evaluation Matrix (Annex F) specifies the evaluation questions and sub-questions and indicates the sources of information to be used for each question.

15. Aspects of Gender Equality were examined in some depth, in relation to ICT in Education project design, monitoring, and reporting; and in terms of compliance with the UNESCO Priority Gender Equality Action Plan.

16. The evaluation adopted a participatory approach, involving a variety of relevant stakeholders in a range of modalities in the design and consultation of the evaluation and providing multiple opportunities for consultations and exchange with key stakeholders. The ERG brought together key UNESCO stakeholders and was consulted at critical stages as outlined above. National Commissions for UNESCO, that include national Ministries and other stakeholders, were consulted by means of a Survey. Interviewees were circulated in advance with the relevant interview Protocol. Draft Case Studies were circulated back to key interviewees and stakeholders for validation, and other interviewees were often re-contacted for verification of specific issues.

17. The evaluation also pursued a human rights, gender equality and culturally–sensitive approach in eliciting and analysing evidence. Although the external evaluation team itself was not gender balanced, it demonstrated

relevant competences in applying a gender equality lens in the methodologies and data gathering instruments. Their longstanding experience and extensive fieldwork covering various geographic and cultural contexts ensured culturally sensitive consideration of the evaluation subject.

18. Data gathering relied on a mix of tools and sources. In depth documentary analysis included consulting a range of strategic, research, academic and project documentation (a detailed list of documents consulted is available in Annex D supplemented in footnotes and references). One-to-one and two person interviews were completed with 100 people, 88 in person and the rest remotely (Annex C), covering a wide spectrum of stakeholders including UNESCO staff in Headquarters, three Category 1 Institutions, eight Field Offices, other UN agencies, key donors and implementing partners, national and international experts in the field, as well as representatives from national authorities and the private sector,

19. These were based on Interview Protocols presented in the Inception Report for different types of stakeholders, and were conducted in a semi-structured manner. A deep qualitative appreciation emerged from these, from a range of sometimes contrasting perspectives, of the characteristics, significance and achievements of the ICT in Education activities in UNESCO, of the obstacles they faced, and the wider environments. Interviews with non-UNESCO stakeholders yield wider views on UNESCO and on other actors and processes.

20. An initial list of entities for interview was drawn up based on suggestions from the ERG and supplemented by the Evaluation Team. Specific individuals were selected usually in communication with the appropriate officer in these entities (within UNESCO, usually the Director). Interviews and other communications yielded many additional names and organisations, and these were added to the list as deemed appropriate by the Evaluation Team to ensure representation from all major stakeholder groups.

21. The final list of those interviewed grew to exactly 100, 48 of whom were working as UNESCO staff or secondees; and 52 of whom were external (including UNESCO National Commission Members and two Board Members of a UNESCO Institute with positions in external bodies.) The breakdown between UNESCO and non UNESCO was as follows:

- •UNESCO HQ 20%; Bangkok Regional Office 12%; Other UNESCO Field Offices 12%; UNESCO Category 1 Institute IITE 4%;
- •Academics and Teacher Training Colleges 18%; Private Sector 13%; UN and international bodies 9%; Ministries 8%; Others 4%.

22. The four main UNESCO entities involved in ICT in Education, accounting for the great majority of expenditure in this field, were analysed using extensive and detailed documentary analysis, a large number of the interviews (including Field Visits) with UNESCO staff and other stakeholders, and data from UNESCO's SISTER system. Other activities relating to ICT in Education, beyond these four entities, were explored through the SISTER system, and interviews and enquiries to other relevant UNESCO entities.

23. The evaluation team visited UNESCO Headquarters three times for discussions with the Reference group and for in-depth consultations with key stakeholders. A Workshop was held with the reference group aimed at presenting findings and preliminary conclusions and recommendations, as well as presenting the results of the Theory of Change analysis. Validation Meetings were also held with senior UNESCO management.

24. Three Field Visits were completed between October and November. A visit to the IITE in Moscow offered insights into the recent major developments in this Category 1 institute with a core mandate in ICT in Education; the visit to the UNESCO Regional Bureau for Education in Bangkok explored the ICT in ED activities of the Office which supports a major region-wide programme in ICT in Education; and the visit to the Multi-sectoral Regional Office in Nairobi provided further insights into many ICT in Education projects in East Africa in which the Office played a key role.

25. An online survey was administered to the 199 National Commissions for UNESCO across the world, in order to gain a wider perspective across UNESCO Member States views and perspectives at national level on issues related to ICT in Education and UNESCO's work in this field. The survey was launched via the UNESCO Sector for Priority Africa and External Relations

(PAX) and was available online for a period of 5 weeks. Participation in the survey was further solicited through a reminder. A total of 53 respondents from 44 countries replied to the survey. In other words, approximately 22% of UNESCO Member responded to the survey. A detailed survey analysis is attached in Annex I.

Strengths

26. The evaluation is based on a combination of methodologies applied to gather a wide range of information and data from different sources, and data collection and analysis are thus designed along multiple lines of inquiry. Especially, the large number and variety of stakeholders consulted including UNESCO staff and management, as well as representatives from Member States national authorities, civil society, UNESCO National Commissions relevant UN and other intergovernmental and regional organisations, as well as from the private sector generates comprehensive evidence to duly justify the findings and conclusions of this report.

27. Furthermore, the evaluation used a case study approach to gather in-depth understanding of the working mechanism and results in specific areas covered by the case studies. In addition, the evaluation considered the findings of a number of previous UNESCO evaluations relevant to the topic, as well as external studies, literature and latest research in the field of ICT in Education.

Methodological Limitations

28. The evaluation also faced a number of methodological challenges:

29. There is no clear delineation UNESCO's ICT in Education projects and activities, since the theme does not constitute a distinct and formal programme per se. The area covers a heterogeneous set of interventions, or very different scale and nature and applied at all levels; and ICT are also often included as just one component of a project among others. Even the use of the term "ICT in Education" can vary across UNESCO entities. While core ICT in Education actors in UNESCO could be readily identified, it was more difficult in the case of those involved only occasionally or peripherally. These were considered on a case by case basis, and the advice of the responsible UNESCO staff was sought. Furthermore, ICT in education has also been mainstreamed horizontally across the Education sector portfolio and across some areas of other Programme sectors. The evaluation therefore required a considerable effort in defining what belongs to UNESCO's work in ICT in Education.

30. The time and resources available did not permit an in-depth evaluation of a representative sample of individual project results, or the gathering of primary data across the ICT in Education portfolio. Thus existing independent evaluations were examined, alongside project reporting documentation and supported by the very large number of interviews. The number of independent evaluations of ICT in Education projects is relatively small, and the UNESCO progress and results monitoring system sometimes offers limited qualitative insights. This means that the learning that can be extracted remains at the overall thematic level, with limited application to individual project level.

31. The fieldwork conducted in the framework of the evaluation was limited and therefore focused on the collection of data that contributed to the elaboration of the specific case studies, but cannot be representative for the full variety of ICT in Education activities implemented in the different UNESCO regions.

32. The lack of consistent collection of baseline and monitoring data and assessment of progress towards outcomes limits the about to measure the effectiveness of UNESCO's ICT in Education activities

33. The survey administered to the National Commissions of UNESCO provides limited representativeness as answers were received by only 22% of Member States. Furthermore, selection bias of respondents may be assumed due to the different levels of knowledge and involvement of National Commissions in UNESCO's ICT on Education work, as well as by the above-mentioned absence of a clearly delineated portfolio of ICT in Education. However, this was carefully taken into account during the analysis. The survey data also provided qualitative information as supportive evidence for evaluation findings.

F. Evaluation Matrix

Top-level evaluation questions correspond to the five Key Dimensions under which the findings are presented. The Matrix includes sub-questioned and Sources

Evaluation Questions	Sub questions and elaborations	Sources of information	Eva
1. **UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education:**			
1.1. Is UNESCO, as compared to other organisations such as Commonwealth of Learning, OECD and European Union, best placed in terms of contributing to the 2030 Agenda through ICT in education?	1.1.1 In which areas within the field of ICT in education does UNESCO have particular strengths? What are these strengths? 1.1.2 What are the strengths and scope of other main actors in the areas in which UNESCO is active, and how do they compare? 1.1.3 Do these compete with or collaborate with UNESCO (or both) and in which specific areas?	- Review of ICT in Ed (to be completed by Consultants) - Mgt. and staff in ED, CI, BSP, field offices, IITE; - External experts; - MS & non-MS donors/partners/ networks. - Case Studies - Survey	
1.2. Is ICT in Education appropriately prioritised by UNESCO in terms of its contribution to the Agenda 2030?	1.2.1 In what ways is ICTs in Education included explicitly and implicitly referenced in Agenda 2030? 1.2.2 Is this appropriately reflected in the current C/5, and specifically the manner in which ICTs in Education has been mainstreamed in terms of Expected Results? 1.2.3 If a higher priority is justified, how would this be expressed in practice? For instance through higher visibility within the C/5, additional resources, or enhanced coordination?	- Mgt., staff in ED, CI, BSP, field offices, IITE; - UNESCO Strategic and planning documents; - Case Studies	

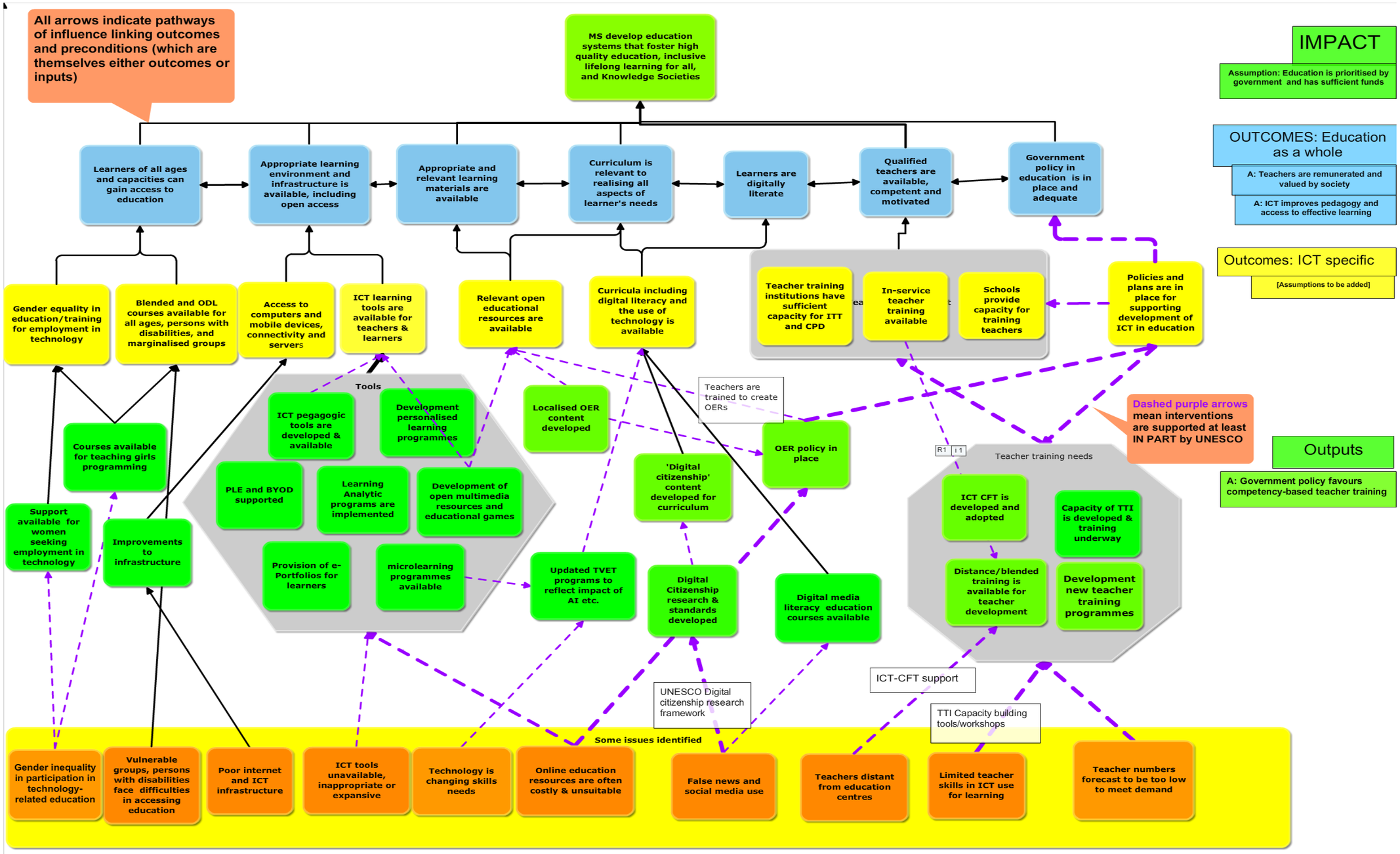
1.3. How can UNESCO strategically position itself within the UN family and towards external stakeholders, in particular the private sector considering the evolving expectations and new opportunities to expand the scope and quality of the work in ICT in Education?	1.3.1 Are there additional areas in which UNESCO has the potential to develop a specific strength, based on its mandate, positioning and resources? 1.3.2 What courses of action could UNESCO take to position itself strategically in relation to its actual and potential strengths? 1.3.3 Which UNESCO tools are useful and have advantages for use in ICT in ED initiatives? 1.3.4 Does UNESCO have a clear and coherent position regarding its engagement in partnerships with the private sector, in relation specifically to their respective mandates to pursue the public interest and to maximise shareholder return? 1.3.5 What are UNESCO key development partners, including the UN family; what are their respective strengths; and how are they positioned in relation to each other?	- Review of ICT in Ed; - Experts including private sector assoc.; - Mgt. and staff in ED, CI, BSP, field offices, IITE; - MS and non-MS Donors/Partners - Survey
1.4. Are the two Global priorities Gender Equality and Africa effectively mainstreamed in the implementation of ICT in Education initiatives, and in particular are UNESCO interventions targeting the most vulnerable or disadvantaged groups?	1.4.1 To what extent are the *Priority Gender Equality Action Plan*, and *Priority African Strategy*, and their Indicators, reflected in planning and in implementing ICT in Education interventions? In what ways? 1.4.2 Are vulnerable groups, including persons with learning challenges including disabilities, and crisis-affected populations that can benefit from ICT in education, targeted by ICT in Education interventions? Which ones? Should they have a higher strategic priority in view of the 2030 Agenda 'No one left behind'?	- UNESCO Strategic and planning Docs; Programme work plans/Project documents. - ED, CI, GED, Field Office Staff; - Case Studies - Survey
2. **Internal Coordination and Coherence throughout the Organization:**		
2.1. Have UNESCO's organizational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way?	2.1.1 In what ways, and with whom, do different entities/units currently communicate, coordinate and collaborate with others entities in UNESCO? 2.1.2 Would there be benefits to better/more communication, coordination, inter-sectoral cooperation and communication between ED, CI, IITE etc.? What benefits could be envisaged in the different areas of work? 2.1.3 How could these be put into in practice? e.g. more inter-sectoral projects? A dedicated coordination function? Staff secondments? Other? 2.1.4 What have been the bottlenecks/obstacles for in the past, and what works well?	- Mgt., staff in ED, CI, BSP, field offices, IITE; - UNESCO Strategy docs; Progress reports, relevant evaluations - MS & non-MS donors/Partners/ networks - Case Studies

2.2. Are resources adequately allocated/shared/ distributed, given the comparative strengths of different sectors/units and the potential of intersectoral cooperation?	2.2.1 Are financial resources considered adequate to meet the work programme in the different areas of work, by those planning and implementing them? Do the funds actually allocated and mobilised approximate those considered to be required, and, if not, what are the consequences? 2.2.2Are there areas of overlap or duplication, or any gaps in the allocation of resources? Would a different distribution of financial/human resources have a greater impact overall? How? 2.2.3Is the expertise, professional development and support for staff working on ICT in education adequate to achieve the set goals? 2.2.4. What is the balance between RP allocation and XB resources? Do these resources complement each other?	- Mgt, staff in ED, CI, BSP, field offices, IITE; - UNESCO Strategy docs; Programme and budget documents, Progress reports; - Case Studies.
2.3. What criteria/mechanisms could support priority setting by Member States and resource allocation for inter-sectoral collaboration?	2.3.1How could inter-sectoral collaboration in this area gain a higher priority among Member States, especially in view of UNESCO's comparative strengths in responding to challenges by contributing to the Agenda 2030 in a holistic and universal manner? 2.3.2What mechanisms would translate this into more resource allocation?	- Mgt. in ED, CI, BSP, field offices ; - Member States; - UNESCO Strategic and Planning docs;
2.4. How can the Organization best manage the work in this area in the future, in a coherent and coordinated manner, in particular regarding the respective role and capacity of the ED and CI sectors, and by best utilising the potential of IITE and other relevant Category I Institutes?	2.4.1In what ways could a *common vision and objectives* across UNESCO for ICT in education in practice be devised and agreed? 2.4.2Is there potential for developing a common *Theory of Change* for ICT in Education in UNESCO? Would it be useful, and in what ways? 2.4.3What other means could be deployed to improve the coherence and coordination of the different bodies? 2.4.4. What have been/are the advantages of each entity working in the field of ICT in Education and what have been/are the current obstacles/bottlenecks for coherence and coordination, and what has worked well?	- Mgt. in ED, CI, BSP, field offices , IITE - ADGs ED and CI; Mgt and staff sectors and IITE - Case Studies
2.5. What is the optimal role distribution among the different UNESCO entities?	2.5.1What are the core roles of the different unit/division/Sector in this area? How are they differentiated from others, and is there overlap? 2.5.2What, if any, less important roles do entities have that could be consolidated elsewhere in UNESCO? What new roles could the respective entities take on?	- Mgt. in ED, CI, BSP, field offices ; - ADGs ED and CI; - Strategic Docs. Case Studies

3. **Partnerships, cooperation and fundraising:**		
3.1. Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources, in particular with a view to UNESCO's critical financial situation in recent years?	3.1.1 Which donors and stakeholders do respective Unit/Divisions interact and collaborate with? About what? Do different entities work with the same partners? 3.1.2 Are there examples of effective advocacy, and others in which advocacy is more effective? What are they? 3.1.3 How many partnership and what volume of resources were mobilised through advocacy during the period covered by the evaluation?	- MS & non-MS donors/partners/ networks; - Mgt. in ED, CI, BSP, field offices, IITE; - UNESCO Strategy docs; Progress reports - Case Studies - Survey
3.2. What future opportunities are emerging and how can UNESCO best capitalize on these?	3.2.1 Which areas of ICT in Education are gaining prominence internationally? 3.2.2 Which is UNESCO positioned well to increase its presence in?	- Review of ICT in Ed; - MS & non-MS donors/partners/ networks; - Mgt. in ED, CI, BSP, field offices, IITE; - Case Studies and Other experts;
3.3. How can UNESCO further capitalize on its outreach entities and networks?	3.3.1 With respect to: Category 2 Centres (INRULED and ICHEI in China, affiliated to ED; and Centres in Bahrain and Brazil, affiliated to CI), UNESCO Chairs, UNEVOC Centres and ASPnet schools?	- Category 2 Centres - Mgt., staff in ED, CI; - Case Studies
4. **Results and Sustainability:**		
4.1. What progress has been made in achieving the respective objectives in the field of ICT in Education, and what have been the key achievements in the different dimensions?	4.1.1 With reference to the ERs and PIs, and other relevant parameters set by the various unit/Divisions and entities. 4.1.2 What evidence is available to document these results, for instance from evaluations etc.	- Project/Programme Docs, evaluations etc.; - Management Docs; - Mgt.and staff in ED, CI, Field offices , IITE; - Case Studies and Survey
4.2. What are main challenges and enabling factors that have been and are being encountered in achieving results?	4.2.1 What factors have been influencing the achievement or non-achievement of objectives, both internal in relation to implementation, and externally relating to context? 4.2.2 What evidence is available for these, and to document learning gained?	- Mgt.and staff in ED, CI, field offices , IITE; - Project/Programme Docs, evaluations etc.; - Case Studies, SISTER reports
4.3. Have UNESCO's interventions reached the intended target groups, especially those most in need, in the field of ICT and Education?	4.3.1 Which groups have been affected by UNESCO's interventions, and how do these compare with the planned target groups? Is information gathered that enables the monitoring of this?	- Mgt., staff in ED, CI, ROB, RON, IITE; - Project/Programme Docs, evaluations etc.; - Case Studies, SISTER Reports

4.4. Have UNESCO's interventions in ICTs in Education reached those vulnerable groups, including girls and women?	4.4.1 Are intervention outcomes for gender equality and vulnerable groups assessed following appropriate and available methodologies (for instance from the Gender Focal Point?) 4.4.2 Has remedial action been taken where issues are identified? Are there examples?	- Mgt., staff in ED, CI, GED, ROB, RON, IITE; - Project/Programme Docs, evaluations etc.; - Case Studies
4.5. What provisions have been made to ensure sustainability of results?	4.5.1 What conditions have been put in place during the time-period covered by the evaluation, and could be put in place in future, to enhance the potential for financial, institutional and political sustainability?	- Mgt., staff in ED, CI, field offices, IITE; - Project/Programme Docs, evaluations etc.; Case Studies.
5. **Visibility and Communication:**		
5.1. To what extent have UNESCO's achievements in the area of ICT in education been visible internally and to external stakeholders?	5.1.1 What examples are there of where UNESCO's success is acknowledged, including the difference UNESCO's contributions have made?	- MS & non-MS donors/partners/ networks; - External experts; - Mgt. in ED, CI, field offices, IITE; DG speeches
5.2. Are the current planning, programming, monitoring and reporting systems and tools adequate to provide the required visibility and recognition of UNESCO's work in this field?	5.2.1 What examples are there of actions that have been most effective, and least effective, in generating visibility and recognition? Why have these worked or not? 5.2.2 Do current monitoring and reporting systems generate the data required for achieving visibility and recognition? Are appropriate indicators used? 5.2.3 During and after implementation, is achieving visibility and recognition given sufficient priority and resources by the units/division or entities responsible?	- Mgt. in ED, CI, BSP, ROB, RON, IITE; Strategic and programming documents, Progress reports. Case Studies
5.3. How does the way in which this line of work is reflected in the C/ 5 Programme and Budget impact on its visibility, communication and possibly, funding and longer-term impact?	5.3.1 ICT in education no longer has a specific Expected Result associated with it in the 39/C5 for Education. To what extent does this affect visibility, the potential for coordination, and the ability to assess impact or to attract donor funding? Are there other effects? 5.3.2 Is this form of mainstreaming most appropriate at this stage of the development of the field of ICT in Education? Why? Why not?	- Mgt. in ED, CI, BSP, field offices , IITE;
5.4. To what extent have other UNESCO networks and partners been involved in contributing to the communication?	5.4.1 Are there examples where such wider communication has been effective, and what the results have been? Why did they happen?	- Mgt. in ED, CI, BSP, field offices , IITE; - MS & non-MS donors/partners/networks - Survey

G. Theory of Change



Theory of Change of the field of ICT in Education

A Theory of Change approach played a significant part in this evaluation. It informed the evaluation questions and was deployed as a tool to facilitate the process of developing a common understanding of ICT in Education among UNESCO entities.

A first step was to draw a Theory of Change Map that would illustrate the implicit logic within the existing C/5, drawing also on the current set of interventions implemented by different UNESCO entities. This was presented to the Reference Group at its first meeting and is contained in an Annex to the Inception Report.

The ToC Map presented here differs from the previous one in three key respects.

First, although the overall top level objective of the two maps is similar, the raw material to build this map came not from existing UNESCO projects and actions, but from the overall research and especially from the interviews with stakeholders inside and outside UNESCO, which enabled the research team to discern emerging 'pathways of change'.

Second, this map does not focus narrowly on how ICTs influence this final objective. It takes a broader perspective, and explores the key *general* preconditions to the main objective, and to which ICT in education can contribute. Thus the top layer or preconditions (coloured in blue) comprises general preconditions to high quality education systems and lifelong learning for all.

Third, this attempts to map ICT in Education not just from the perspective of UNESCO and the areas is which it is active, but from the perspective of all stakeholders in ICT in Education. The goal is to generate *comparative* insights into areas in which UNESCO is strong, and where it is less active.

The map was presented and discussed at the second Reference Group meeting in January 2019. However, the research team was careful not to make extravagant claims for it. It is intended only to be illustrative of an approach and to begin a debate, and its specific content is no more than a first approximation.

In fact, although some refinements were added after the meeting, several Reference Group comments would merit more fundamental amendments to this map. The research team considers that further elaboration should await a more comprehensive Theory of Change development process for ICT in Education, proposed among the recommendations here. A Theory of Change exercise, including workshops and extensive discussion, and supported in this case by BSP (who have offered to do so), must be a fully participative process and can only succeed with active inputs from key stakeholders. Several purposes can be served through a Theory of Change process, if it is appropriately integrated wider the RBM process. It can:

- lead to a convergence of understanding on the potential contribution of ICTs in Education to the various outcomes sought
- clarify the logic of diverse interventions and their inter-relationship, and hence contribute to strategy development for the field as a whole
- support a gap analysis, to indicate where UNESCO potentially should be more active; and also assist in prioritisation though the identification of bottlenecks
- help position UNESCO in relation to others actors in ICT in Education, particularly if the specific areas of influence of other actors are also mapped on
- support a strategic review process, through revisiting the Theory of Change and assessing the how what worked well and did not, and why.

Additional relevant comments from the Reference Group Workshop included the following:

- The implicit scope of ICT is too narrowly defined by the map, confined by traditional approaches to and definitions of education.
- The transformative potential of ICT in Education for teaching and learning are such that the immediate impact on the education sector and the longer term implications must be distinguished, moving from ICT as an input into education towards ICT-focused learning
- It does not reflect UNESCO's current organization-wide interest in AI and frontier technologies
- It does not explicitly reference the potential to contribute to Agenda 2030 Goals, not just SDG4 but also others, and indeed the EFA objectives
- The assumptions built into the Theory of Change model, and the relevant evidence base, will be critical to understanding the dynamics – including the basic assumption as to the circumstances in which ICT in Education can improve the quality of and access to education

- Further developed, such a Theory of Change could be utilised as a tool to map areas of work of all UN agencies, and to help coordinate the different agencies.

Reading the Theory of Change Map.

A theory of change map is normally read from the top down, beginning with the ultimate objective or impact sought and working through layers of preconditions to achieving it.

A first layer of seven preconditions, in blue, begins to trace the logic back from this ultimate goal. As noted above, these pertain to education in general and not specifically to ICTs. They comprise many of the factors or circumstances that underpin a quality system of education and lifelong learning for all, and without which it cannot exist. The horizontal arrows connecting these boxes indicate their mutual interdependence, in the general sense that they are preconditions of each other.

It is only in the layer beneath that ICTs begin to appear. These yellow boxes represent ICT-related preconditions to the more general ones above; or the specific preconditions that would enable the potential of ICT in Education to be realised in the general education environment.

Thus preconditions to "appropriate learning environment and infrastructure is available", in terms of ICT in education, are: "Access to computers, mobile devises, connectivity and servers" and that "ICT learning tools are available for teachers and learners". Many other preconditions must be place to ensure an appropriate learning environment, but these are key ones that relate to ICT in Education.

Similarly, the precondition that the "curriculum is relevant to realising all aspects of learner's needs" (the central blue box) has in turn the preconditions, relevant to ICT in Education, that "curricula, including digital literacy and use of technology, are available" and that "relevant OER are available".

The above two levels comprise the *outcomes* that are sought, in terms of education in general (blue boxes) and in terms of what is needed in the field of ICT in education (yellow boxes) to contribute to these.

The green boxes refer to a more specific level of outputs that, in general, can be achieved directly in the field of ICT in education. Although not precisely, these are more likely to be the product of specific projects and actions. They represent an array of outputs that result from a wide range of actions, and are often preconditions to other outputs. Similar types, for instance ICT learning tools and teacher training needs, are grouped together (in larger grey boxes), for convenience.

Along the bottom are as set of issues, conceived of as problematic preconditions that ultimately motivate actions by stakeholders. Some relate to education in general, and others to the preconditions for effective deployment of ICT in Education.

Theory of Change takes its name from being a representation of how change happens, a theory of the specific set of dynamics that can lead to achieving a long-term goal, and an understanding of the logical pathways towards achieving the outputs and outcomes along the way. The arrows indicate steps in the logical sequence. However, at the same time, they therefore also represents *points at which stakeholders can take action to move the logic forward,* by contributing to the achievement of an output or outcome. Thus *projects and interventions* are represented by arrows, and in the map attached a few transparent boxes overlaid on the arrows represent, for illustrative purposes, UNESCO projects.

UNESCO's specific actions are traced in purple-dashed arrows, the thicker the line the greater the focus of UNESCO on that area. Again, these are only illustrative and approximate. Other stakeholders are also contributing to these areas, and also contributing to areas in which UNESCO is not active and, in principle, the interventions of other main actors could also be traced on this map.

Another important component of a Theory of Change are the assumptions that incorporated into it. A couple of these are indicated on the right hand column of boxes, under the areas of Impact, Outcomes and Outputs. In a full Theory of

Change, numerous assumptions would be spelled out and the evidence for them included.

A Theory of Change Map is a graphic representation that summarises a comprehensive Theory of Change narrative. Such a narrative, not only describes all the key pathways of change, their logic and assumptions, but also goes in depth into how an organisation seeks to influence them. Thus for UNESCO the narrative would describe the key actions and objectives sought by its interventions (mainly projects), along with their budgets; the relationships between them; and indicators by which success can be monitored. In short, the Theory of Change is not only compatible with UNESCO programme management systems, it could essentially comprise a thematic areas within the C/5, fleshed out with a wider RBM approach, in so far as it related to ICT in Education.

H.Data collection instruments

The following contains an indicative set of interviews protocols, following by the outline contents of each of the three Case Studies

Interview protocols

Specific, tailored Interview protocols were developed from the Evaluation Matrix, selecting the questions and sub-question of most relevance to different informants, and refining them to the circumstances and to the specific methodological component in point (such as a Case Study).

Where requested, a tailored interview protocol was sent to informants in advance.

The following are indicative examples adapted to the type and level of stakeholder interviewed.

Indicative Interview Protocol: Member State delegations /government representatives

Comparative Strengths and Priorities

- What is the current state of ICT in Education in your country, what are the key trends and needs at this point, and what are future priorities?
- What are the specific strengths and contributions that UNESCO /UNESCO networks currently offer nationally, regionally, globally in relation to ICT in Education that sets it apart from other organisations?
- Does UNESCO give sufficient priority to ICT in Education? Should it be doing more/engage differently?
- Which areas are rising in importance, regionally, globally, that UNESCO could and should become more involved in?

Coordination and Cooperation across UNESCO

- To what extent and in what major ways do UNESCO entities (HQ, Field Offices, and Institutes) cooperate and collaborate?
- Do current structures and working methods maximise the potential of this cooperation?
- What are your suggestions to improve these, to enhance synergies, efficiencies, through management structures or practical mechanisms?
- Are financial and human resources adequate to meet expectations?

Partnerships and fundraising

- From a Member State perspective, do you consider UNESCO's approach to strategic partnerships and mobilising resources in ICT in Education as adequate? Is it clear and consistent? Is it effective? If so, in what ways? How could it be improved?
- As appropriate (donor / recipient country) : What value does your country attach to its support and partnership with UNESCO in the field of ICT in ED? How does it view the long-term benefits?
- Who are strategic key partners (apart from UNESCO entities)? Has UNESCO succeeded to establish effective relationships?
- In future partnerships, and areas of growth, what are the key opportunities for UNESCO?

Results and Sustainability

- What have been the most important results and key achievements of UNESCO, in line with its objectives, since 2014? How can these be sustained in the future?
- In what ways have these impacted on more vulnerable and marginalised targets groups, including women and disadvantaged groups? What is the potential impact on gender equality?
- What are the biggest challenges UNESCO is facing for expanding this area of intervention and achieving enhanced results in the future?

Visibility and Communications

- Do you think that UNESCO's achievements in the field of ICT in Education are visible and well communicated?
- Does UNESCO's work have appropriate visibility and recognition within UNESCO's planning, programming, budget and reporting systems? What could be improved, and how?

Indicative Interview Protocol: UNESCO Staff

Comparative Strengths and Priorities

- What are the specific strengths and contributions that UNESCO /UNESCO networks currently offer in ICT in Education that sets it apart from other organisations?
- Are there additional areas in which UNESCO has the potential to develop a specific strength, based on its mandate, positioning and resources? If so, how should they go about it?
- Does UNESCO complete or collaborate – or what combination – with other international actors?
- Which areas are rising in importance, regionally, globally, that UNESCO could and should become more involved in?
- Is the contribution that ICT in Education can potentially make to Agenda 2030 adequately reflected in the current C/5, including in the way it has been mainstreamed in the ERs?
- If a higher priority is justified, how could this be expressed in practice? For instance through higher visibility within the C/5, additional resources, or enhanced coordination?
- Does UNESCO have a clear and coherent position regarding its engagement in partnerships with the private sector, in relation specifically to their respective mandates to pursue the public interest and to maximise shareholder return?
- What are UNESCO key development partners, including the UN family; what are their respective strengths; and how are they positioned in relation to each other?
- To what extent are the Priority Gender Equality Action Plan, and Priority African Strategy, and their Indicators, reflected in planning and in implementing ICT in Education interventions? In what ways?
- Are vulnerable groups, including persons with learning challenges including disabilities, and crisis-affected populations that can benefit from ICT in education targeted by ICT in Education interventions? Which ones? Should they have a higher strategic priority in view of the 2030 Agenda 'No one left behind'?

Coordination and Cooperation across UNESCO

- To what extent and in what major ways do UNESCO entities (HQ, Field Offices, and Institutes) cooperate and collaborate?
- Would there be benefits to better/more communication, coordination, inter-sectoral cooperation and communication between ED, CI, IITE etc.? What are their respective core roles and strengths?
- Do current structures and working methods maximise the potential of this cooperation?
- What are your suggestions to improve these, to enhance synergies, efficiencies, through management structures or practical mechanisms?
- Are financial and human resources adequate to meet expectations?
- Has your entity provided financial support for inter-sectoral cooperation? If so how and when?
- In what ways could a common vision and objectives across UNESCO for ICT in education in practice be devised and agreed?
- Is there potential for developing a common Theory of Change for ICT in Education in UNESCO? Would it be useful, and in what ways?

Partnerships and fundraising

- Do you consider UNESCO's approach to strategic partnerships and mobilising resources in ICT in Education as adequate? Is it clear and consistent? Is it effective? If so, in what ways? How could it be improved?
- Which donors and stakeholders do respective Unit/Divisions interact and collaborate with? About what? Do different entities work with the same partners?
- Who are strategic key partners (apart from UNESCO entities)? Has UNESCO succeeded in establishing effective relationships?
- In future partnerships, and areas of growth, what are the key opportunities for UNESCO?
- How can UNESCO further capitalize on its outreach entities and networks including e.g. Category 2 Centres, UNESCO Chairs, UNEVOC Centres and ASPnet Schools?

Results and Sustainability

- What progress has been made in achieving the objectives in the field of ICT in Education, and what have been the key achievements in the different dimensions?
- What factors have influences success and failure in the different areas?
- In what ways have these impacted on more vulnerable and marginalised targets groups, including women and disadvantaged groups? What is the potential impact on gender equality?
- What are the biggest challenges UNESCO is facing for expanding this area of intervention and achieving enhanced results in the future?

Visibility and Communications

- Do you think that UNESCO's achievements in the field of ICT in Education are visible and well communicated?
- Does UNESCO's work have appropriate visibility and recognition within UNESCO's planning, programming, budget and reporting systems? What could be improved, and how?
- To what extent have other UNESCO networks and partners been involved in contributing to the communication?

Indicative Interview Protocol: External Partners (non-governmental and private sector)

Comparative Strengths and Priorities

- What are the relative strengths and scope of your organisation's involvement in ICT in Education?
- In the areas of ICT in Education in which your organisation is involved, what are the key trends and needs at this point, and what are future priorities?
- What are the specific strengths and contributions that UNESCO /UNESCO networks currently offer nationally, regionally, globally in relation to ICT in Education that sets it apart from others?
- Which areas are rising in importance, regionally, globally, that UNESCO could and should become more involved in?

Coordination and Cooperation across UNESCO

Partnerships and fundraising

- From your organisation's perspective do you consider UNESCO's approach to strategic partnerships and mobilising resources in ICT in Education as adequate? Is it clear and consistent? Is it effective? If so, in what ways? How could it be improved?
- What value does your organisation attach to attach to its support and partnership with UNESCO in the field of ICT in ED? How does it view the long-term benefits?
- In your organisation's interactions with various UNESCO bodies, how effective is cooperation and coordination between the different parts of UNESCO?
- Who are your other strategic key partners in this field (apart from UNESCO entities)?
- In future partnerships, and areas of growth, what are the key opportunities for UNESCO?

Results and Sustainability

- What have been the most important results and key achievements of your own organisation in the field of ICT in Education, since 2014?
- What have been those of UNESCO?
- In what ways have the latter impacted on more vulnerable and marginalised targets groups, including women and disadvantaged groups? What is the potential impact on gender equality?
- What are the biggest challenges your organisations faces for expanding this area of intervention and achieving enhanced results in the future?

Visibility and Communications

- Do you think that UNESCO's achievements in the field of ICT in Education are visible and well communicated?
- Does UNESCO's work have appropriate visibility and recognition within UNESCO's planning, programming, budget and reporting systems? What could be improved, and how?

Case Study Outlines:

Case study 1: The use of ICT for teacher development.

Focus of case study

34. Teacher development is a central area of UNESCO work in ICT in education. This includes:

- The use of ICT and ODL for the training and professional development of teachers
- Training teachers in the pedagogic implementation of ICTs in education
- The development of new curricula, OERs and digital resources

35. The case study will focus on the use of ICT and ODL for the training and professional development of teachers, in how UNESCO projects are supporting the use of technology for teacher development. It will examine the use of the ICT Competency Framework for Teachers, and the development and implementation of open distance and flexible learning and OER for teacher development.

Background

36. Agenda 2030 explicitly seeks to substantially increase the supply of well-qualified teachers (SDG 4 (c)), drawing on international forms of development and co-operation where necessary, and creates a target for teachers through the commitment to "substantially increase the supply of qualified teachers, including through international co-operation for teacher training in developing countries, especially the least developed countries and small island developing countries" by 2030.

37. Under the current UNESCO C/5 2018-2019, MP1 Education, the Education Sector's MLA 1 (Support Member States in the implementation of SDG4) ER5 specifies: "National teacher policies developed and /or implemented and teacher training programmes improved to increase the supply of qualified and motivated teachers (contributing to SDG targets 4.c, 4.1 and 4.2).

38. Referring to ICTs and OERs, MP2 states: "Flexible and accessible learning opportunities through ICTs and OERs have great potential to contribute to meeting the SDGs and education for all."

39. It also says: "Close cooperation will be sought with the Communication and Information Sector on the work regarding the Information and Communication Technologies-Competency Framework for Teachers (ICT CFT), OERs and the Broadband Commission."

40. MP5, Communication and Information, include MLA 2: "Building knowledge societies through ICTs by enabling universal access to, and preservation of, information and knowledge."

41. It states: "Innovation in ICTs for learning and equal participation in societal development, will be essential for the achievement of SDGs 4 and 11, which call for equitable and inclusive access to quality education for lifelong learning, including the most marginalized social groups." Actions include "Fostering quality education and lifelong learning (SDG 4), including through ICT Competency Framework for Teachers, open distance and flexible learning, Open Educational Resources (OER) and Media and Information Literacy (MIL) initiatives."

Objectives and Contribution to Evaluation Questions

42. The overall objectives of Case Study 1 are to describe the range of UNESCO activities in the use of ICT for teacher development; to review the outcomes; to consider the nature and quality of cooperation and collaboration both with external partners and internally between UNESCO entities; to examine the extent and ways in which gender equality and vulnerable groups are included; and to review future plans and trajectories.

43. This Case Study, contributes to a number of the Evaluation Questions. Specifically, these include the following (see Annex 3 for details):

1. UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education: Sub-questions 1.1., 1.2 and 1.4. A particular focus will be on sub-question 1.4: Are Global priorities Gender Equality and Africa effectively mainstreamed in the implementation of ICT in Education initiatives.
2. Internal coordination /coherence throughout the Organization: Sub-

questions 2.1, 2.2, 2.4, 2.5
3. Partnerships, cooperation and fundraising: All Sub-questions
4. Results and Sustainability: All Sub-questions
5. Visibility and Communication: Sub-question 5.1

Breadth of study

44. The case study will examine the context for development. It will provide an overview of origins and growth of UNESCO work in this area, across different entities and regions. It will focus more closely on the work in recent years including in Ethiopia, Uzbekistan and Cambodia, taking in initial teacher training and continuing professional development. It will then consider projects and developments in sub Saharan Africa including through the CFIT and KFIT programmes.

45. As an example, particular attention will be paid to work in Rwanda. The case study will include policy and implementation, the capacity development in teacher training institutions, curriculum planning and development, Open and Distance Learning and Mobile Learning and e-assessment. It will examine the use of the UNESCO Competency Framework for Teachers and the development and use of Open Educational Resources for teacher development. It will examine national ownership of projects and the mainstreaming and sustainability of project initiatives

Methods

46. The methodology will include:

- A detailed examination of documentation and literature
- Face-to-face interviews in UNESCO HQ (including some already completed)
- In Moscow with the IITE (completed)
- The UNESCO Regional Office for Eastern Africa in Nairobi and with other stakeholders there (scheduled for mid-November)
- In a possible side visit, to be confirmed to Rwanda or another country, during the above visit
- Virtual interviews with a range of relevance stakeholders including UNESCO partners
- Questions included in the online Survey Questionnaire to UNESCO National Commissions
- A Theory of Change approach will be applied to examine the causal pathways leading to outcomes in enhanced education, and an Outcomes Framework produced.

Case Study 2 Outline: Policy Support for ICTs in Education

Case Study Focus

47. A key strength of UNESCO is its relationship to governments and national institutions as a legitimate and technically competent partner in education policy development and implementation, from facilitating the convening of stakeholders internationally, to supporting agreement on norms and standards, to providing technical expertise in deployment. This case study will focus on different levels on UNESCO participation, globally, regionally and nationally, in policy support related to ICTs in Education in the period since 2014 across different geographical regions.

Background

48. Under the current UNESCO 39 C/5 2018-2019, several ERs under the Education Sector's MLA 1 (Support Member States in the implementation of SDG4) refer specifically to supporting improved policies and plans that address: "access to equitable and quality ECCE, primary and secondary education" (ER 1); "global efforts to enhance, scale up, including through ICTs, and monitor the acquisitional skills and lifelong learning opportunities…" (ER 3); "equitable, affordable and quality assured higher education…" (ER 4); and "expand inclusion in education for vulnerable populations, with particular attention to persons with learning challenges, including disabilities, and to crisis-effected populations" (ER 8).

49. In terms of the focus for actions this is expressed as follows:

> "Developing ICTs in education policies and relevant standards: Based on the Qingdao Declaration on leveraging ICTs to achieve Education 2030, UNESCO, with its category 1 **Institute for Information Technologies in Education** (IITE), will reinforce its engagement in support of the formulation and implementation of ICTs in national education plans, policies and standards." (p.55)

50. The **CI Sector's** MLA 2 (Building knowledge societies…) includes ER 2

"Members states have taken measures to promote universal access to information through open and inclusive solutions and innovative use of ICTs for sustainable development", and PI 1 comprises: "Number of Members States which have formulated policy frameworks… , including to mainstream Open Solutions through OER, OA and ICT's for Education.

51. Thus the mandate to support policy development, including through the use of ICTs, in the context of SDG 4 marks this out as a central UNESCO activity.

Objectives and Evaluation Questions Addressed

52. The overall objectives of Case Study 2 are to describe the range of UNESCO activities in this area; to review the outcomes; to consider UNESCO's position in the global landscape of ICT in Education, the nature and quality of cooperation and collaboration both with external partners and internal coherence and cooperation between UNESCO entities; to examine the extent and ways in which gender equality and vulnerable groups are included; and to review future plans and trajectories.

53. This Case Study, given the breadth of its scope and the number of stakeholders involved, contributes to the majority of the Evaluation Questions, including the following (see Annex 3 for details):

1. UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education: Sub-questions 1.1., 1.2 and 1.4.
2. Internal coordination /coherence throughout the Organization: Sub-questions 2.1, 2.2, 2.4, 2.5
3. Partnerships, cooperation and fundraising: All Sub-questions
4. Results and Sustainability: All Sub-questions
5. Visibility and Communication: Sub-question 5.1

Breadth of the Study

54. The Case Study will cover both RP-funded and XB-funded activities implemented individually and in collaborations, by relevant UNESCO Sectors and Division in HQ, mainly CI and ED; the Field Offices; and Category 1 Institutes including especially the IITE.

55. Types of policy related interventions will include the following:

- Regional processes and events that bring together governmental and institutional actors, a goal of which, in relation to ICT in Education, is enhancing international dialogue and exchanges, developing agreed normative statements or standards, and encouraging active cooperation at policy level and in policy-related activity such as research;
- Supporting the development or updating of national Master Plans for ICT in Education, including through Workshops, research, and expert advice and support;
- Supporting the development of specific policy areas of relevance to ICT in Education, including policies for OER, for Teacher Training, and for reaching vulnerable populations.
- Research and publications published and supported of direct relevance to policy in the area.

Methods

56. The research methods will include:

- Detailed examination of documentation and literature;
- Face-to-face interviews
  - in UNESCO HQ (including some already completed)
  - in Moscow with the IITE (completed)
  - in Bangkok Regional Office and with relevant stakeholders in the Thai policy context as well as other cluster countries in the region (scheduled October 19th - 25th)
  - in a possible additional visit or through remote assessment to be confirmed, in Cambodia, Bhutan, Philippines, or elsewhere, to take place during the above visit, or in mid-November
- Virtual interviews with a range of relevance stakeholders and UNESCO partners including national level stakeholders, private sectors and UN agencies, in the respective countries, Questions included in the online Survey Questionnaire to UNESCO National Commissions

- A Theory of Change approach will be applied to examine the causal pathways leading to outcomes in enhanced education, and an Outcomes Framework produced.

57. A detailed list of stakeholders consulted will be provided in the case study report.

Case Study 3: Coordination, Cooperation and Collaboration in ICT in Education, within and outside UNESCO

Case Study Focus

58. The focus is on the nature, quality and extent of coordination, cooperation and collaboration in the field of ICT in Education, within UNESCO and as it reaches out to partners and other stakeholders; the benefits and shortcomings of recent developments and the current situation; and what opportunities might arise to bring about an improvement in outcomes for UNESCO's action in the field.

Background

59. ICT in Education emerged in UNESCO from several directions, reflecting the rise of interest in this area globally in recent decades as a means to improve the quality of education and the reach of education actions. Among UNESCO entities active from about 2000 onwards was the IITE, the Regional Office in Bangkok, the Education Sector and the Communication & Information Sector. As actions were developed, cooperation and collaboration grew organically between these. But these are not pulled together in the form of a single coherent UNESCO strategy or framework for ICT in Education. Yet the field continues to grow globally, driven not just by commercial interests but also by real educational needs and opportunities. The mainstreaming of ICT in Education has major potential, and a long way to go. The voice of UNESCO, putting education and knowledge at the centre of the debate, and with a global reach to Governments, is needed in this debate and the question is how to optimise the actions of the various UNESCO entities.

Objectives and Evaluation Questions Addressed

60. This Case Study will explore the existing expertise and knowledge in the various entities of UNESCO, in the global context, and the implications of the absence of such a clear mandate and strategy in this area. It will explore practical instances of where cooperation and collaboration within UNESCO can enhance results, the challenges that exist in relation to this, and potential examples of solutions.

61. The outputs will be:

1. A review of the current activities, expertise and strengths of various UNESCO entities in the field of ICT in Education, in the wider global context;
2. An examination of examples of effective cooperation and collaboration, both internally between UNESCO entities and with external partners, including the reasons for this and the conditions that make it effective;
3. A consideration of the wider picture of intersectoral, external partnerships arrangements and for UNESCO, the background and current processes of strategic transformation;
4. Insights into the desirability or otherwise of the development of a coherent framework for ICTs in Education;
5. A consideration of challenges , including management structures and mechanisms, that might hinder better cooperation;
6. An exploration of mechanisms that might enhance the cooperation and coordination between UNESCO entities in this field in including information and knowledge exchange.

62. This addresses several key evaluation sub-questions (under evaluation questions 2 and 3):

2.1 Have UNESCO's organizational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way? (All sub-questions)

2.2 Are resources adequately allocated/shared/ distributed, given the comparative strengths of different sectors/units and the potential of intersectoral cooperation? (Sub-questions 2.2.3)

2.4 How can the Organization best manage the work in this area in the future, in a coherent and coordinated manner, in particular regarding the respective role and capacity of the ED and CI sectors, and by best utilising the potential of IITE and other relevant Category I Institutes? (All sub-questions.)
2.5 What is the optimal role distribution among the different UNESCO entities? (All sub-questions.)

3.1 Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources, in particular with a view to UNESCO's critical financial situation in recent years? (Sub-questions 3.1.1, 3.1.2)
3.3 How can UNESCO further capitalize on its outreach entities and networks? (Sub-question)

5.2 Are the current planning, programming, monitoring and reporting systems and tools adequate to provide the required visibility and recognition of UNESCO's work in this field? (Sub-question 5.2.1)
5.4 To what extent have other UNESCO networks and partners been involved in contributing to the communication?

Breadth of the Study

63. It will interpret the field of ICT in Education in UNESCO broadly, considering a wide range of actions that can be classified under the heading. Projects, actions and partnership will be examined from the perspective of cooperation and collaboration, and questions relating to gender equality will be a particular focus.

Methods

64. This Case Study will draw horizontally across all data gathering activities, since it covers the full range of UNESCO actions and its relationships with partners and stakeholders, but with a specific focus on the core issues here.

The ICT in Education Landscape Review will be especially relevant in terms of partnerships.
It will be (or has been) specifically addressed during:

- Field Studies in IITE, Bangkok and Nairobi
- Interviews in Headquarters
- Remote interviews with partners

65. Already during the Inception Interviews, the question of the level and nature of communication and cooperation between was put to all Informants.

I. RESULTS FROM THE SURVEY TO NATIONAL COMMISSIONS

The following graphs provide an overview of the detailed results of the survey in an aggregated manner. The survey consisting of 23 questions was submitted via the Survey Monkey online tool to 199 National Commissions for UNESCO in Member States and Associated Members. The survey was launched via the UNESCO Sector for Priority Africa and External Relations (PAX) and was available online for a period of 5 weeks. Participation in the survey was further solicited through a reminder. A total of 52 respondents from 44 countries replied to the survey. In other words, approximately 22% of UNESCO Member and Associated Member States responded to the survey. To ensure confidentiality, answers to questions that required qualitative replies and additional comments are not presented in this overview.

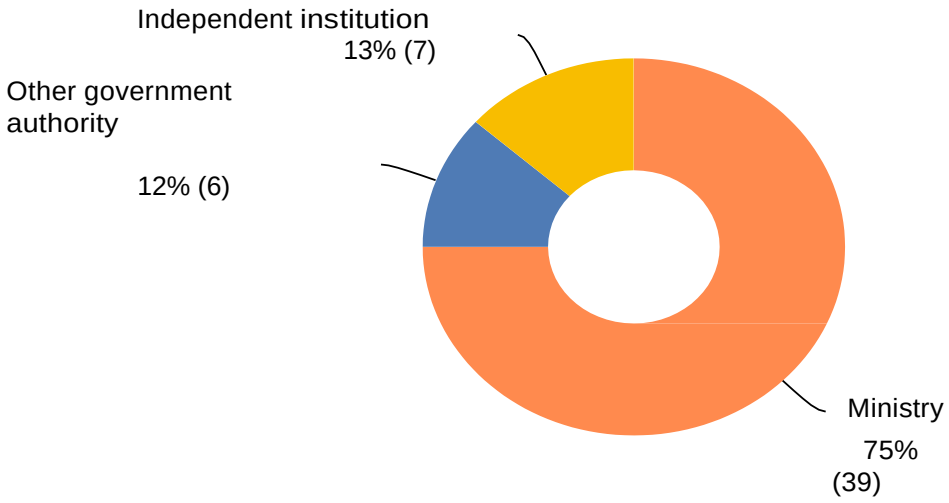
Q1 UNESCO Member State.

Answered: 52 Skipped: 0

Number of countries who answered the survey: 44

Q2 Location of the National Commission.

Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES	
Ministry	75%	39
Other government authority	12%	6
Independent institution	13%	7
TOTAL		52

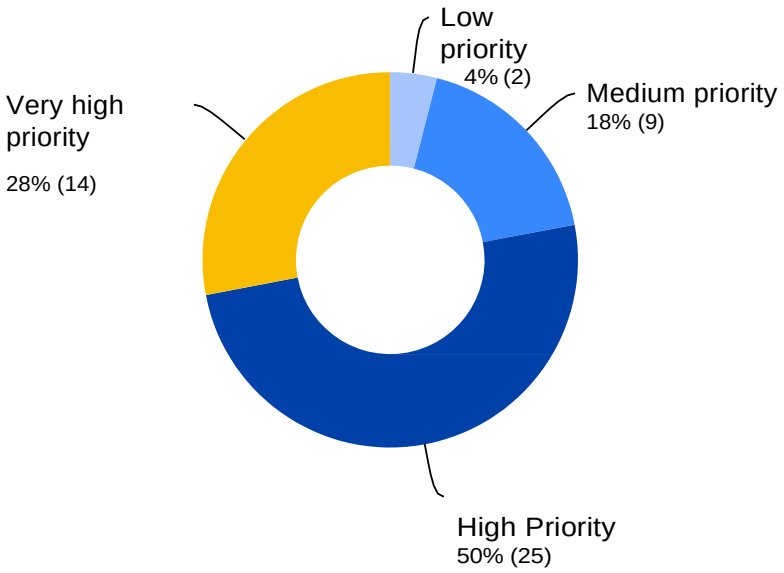
Q3 Your role in the UNESCO National Commission.

Answered: 52 Skipped: 0

Qualitative reply. Responses not presented.

Q4 What degree of priority does the government give to ICT in Education, as a means to enhance the education system towards the Sustainable Development Goal 4 (SDG4)?

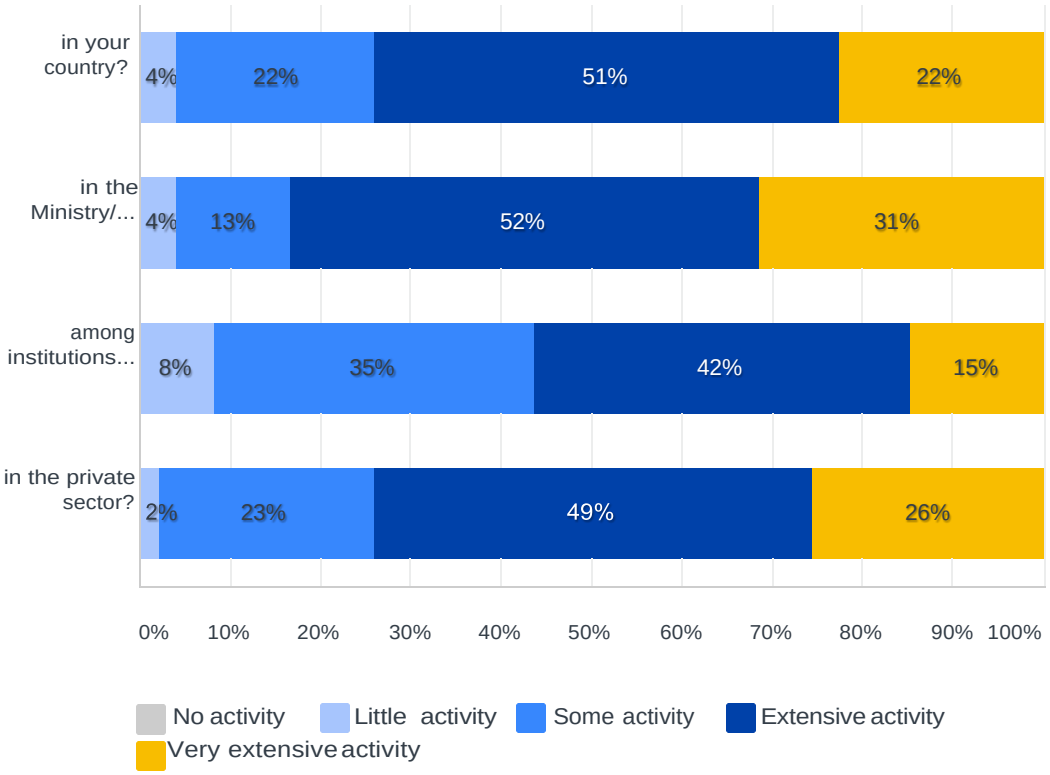
Answered: 50 Skipped: 2



	VERY LOW PRIORITY	LOW PRIORITY	MEDIUM PRIORITY	HIGH PRIORITY	VERY HIGH PRIORITY	TOTAL
	0%	4%	18%	50%	28%	
	0	2	9	25	14	50

Q5 How would you rate the extent of activity in the area of ICT in Education?

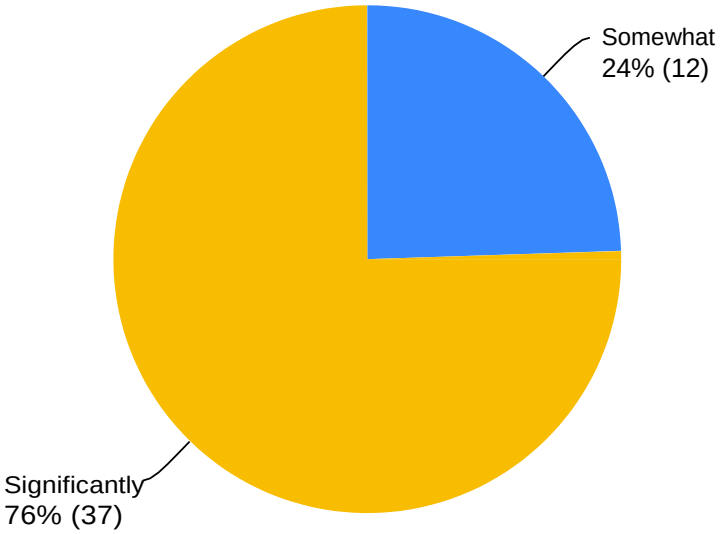
Answered: 49 Skipped: 3



	NO ACTIVITY	LITTLE ACTIVITY	SOME ACTIVITY	EXTENSIVE ACTIVITY	VERY EXTENSIVE ACTIVITY	TOTAL	WEIGHTED AVERAGE
in your country?	0% 0	4% 2	22% 11	51% 25	22% 11	49	3.92
in the Ministry/ Department of Education?	0% 0	4% 2	13% 6	52% 25	31% 15	48	4.10
among institutions such as teacher training colleges?	0% 0	8% 4	35% 17	42% 20	15% 7	48	3.63
in the private sector?	0% 0	2% 1	23% 11	49% 23	26% 12	47	3.98

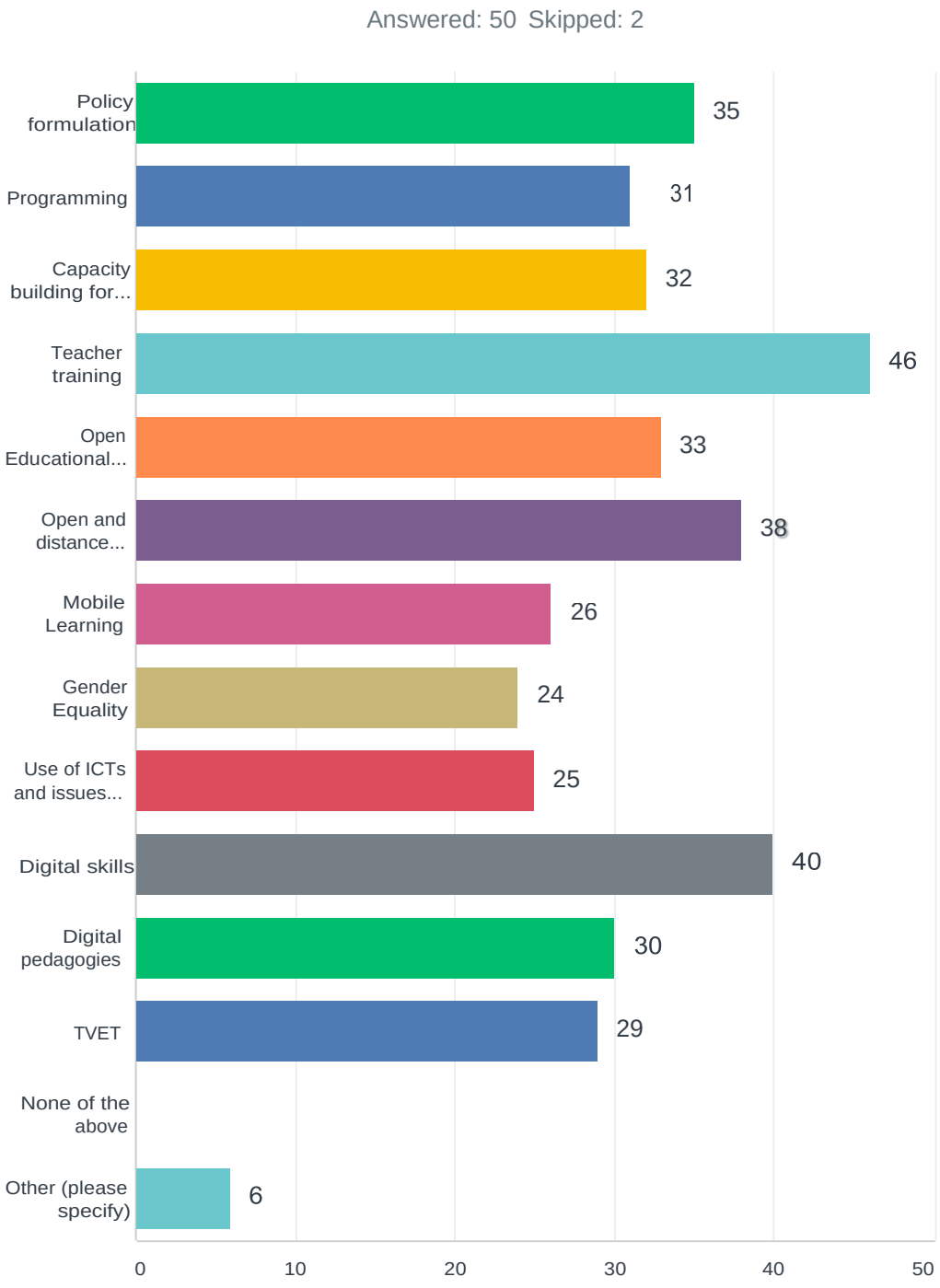
Q6 Has the topic of ICT in Education increasingly become of priority for the government in the last 4-6 years?

Answered: 49 Skipped: 3



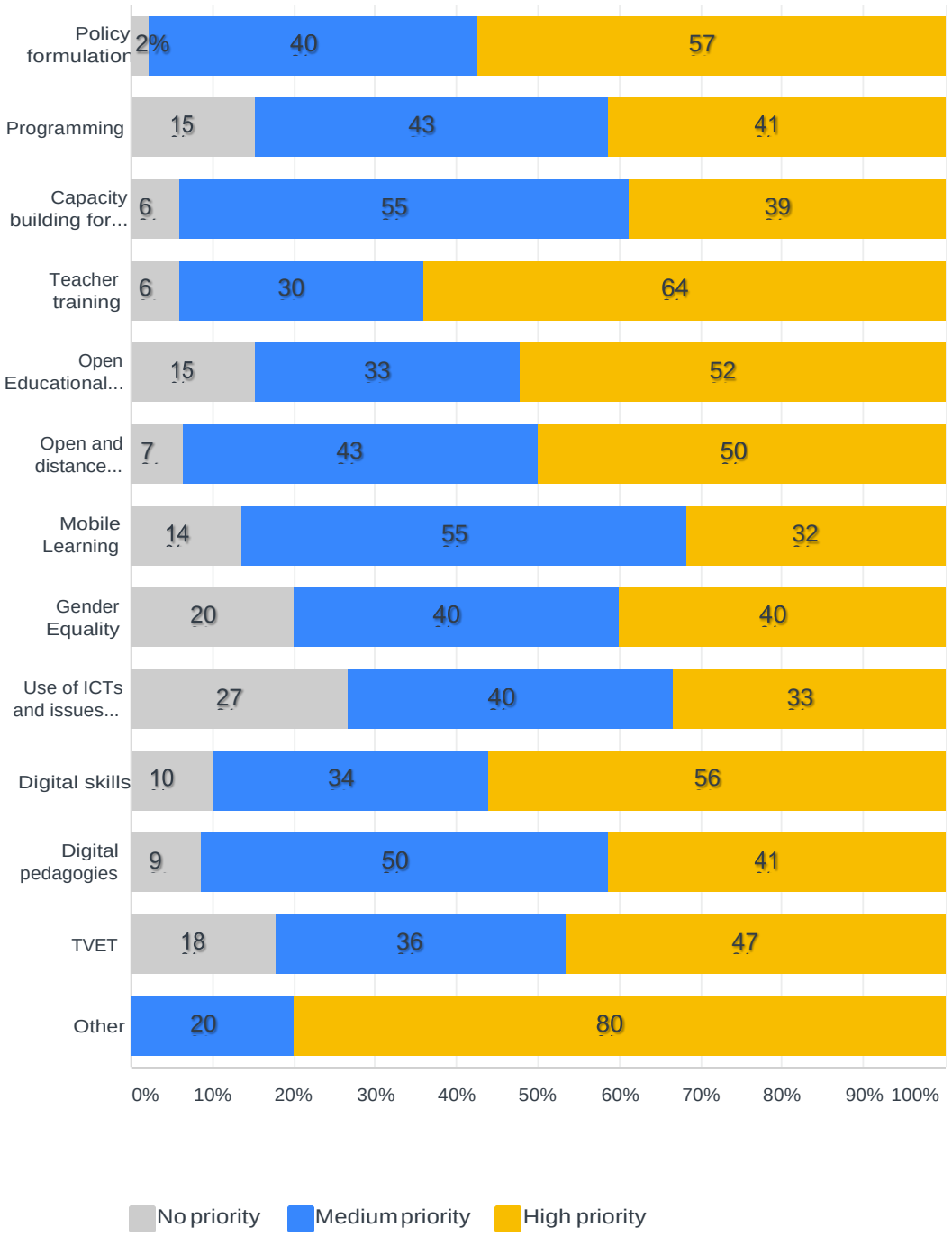
ANSWER CHOICES	RESPONSES	
Not at all	0%	0
Somewhat	24%	12
Significantly	76%	37
TOTAL		49

Q7 Please indicate the areas related to ICT in Education, in which the government/relevant ministry has been active since 2014. Tick all that apply.



Q8 What level of priority has been given by the government/relevant ministry since 2014 to the following areas?

Answered: 50 Skipped: 2



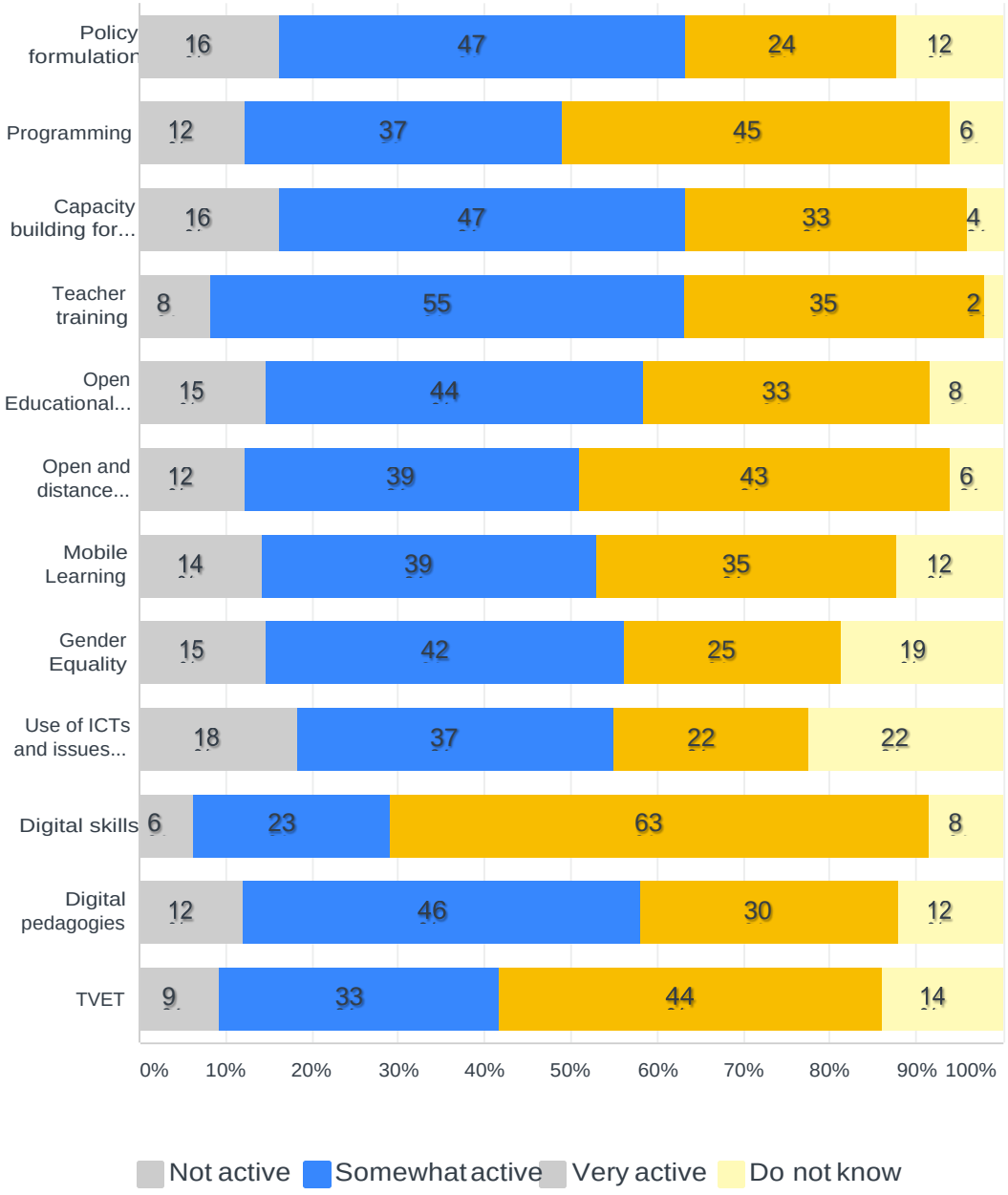
Q9 Please describe briefly the reason(s) why the above indicated areas are of priority in your country.

Answered: 41 Skipped: 11

Qualitative reply. Responses not presented.

Q10 Is the private sector active in the following areas of ICT in Education?

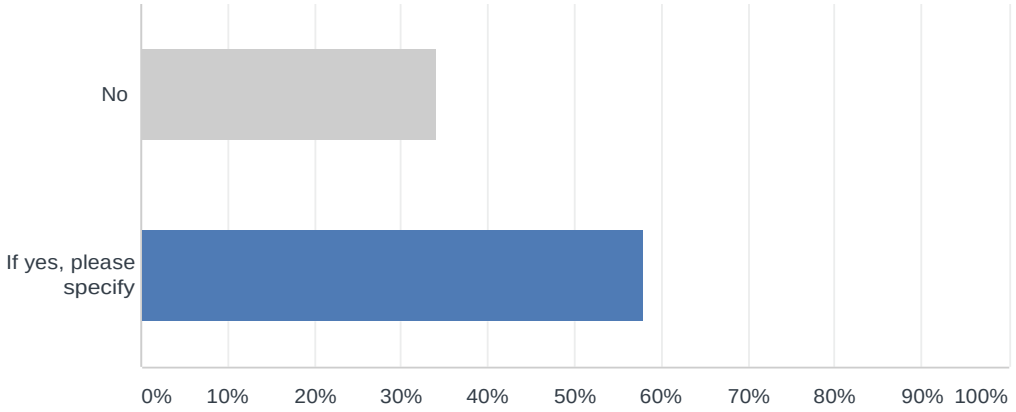
Answered: 50 Skipped: 2



1

Q11 Are you aware of other United Nations agencies, regional organizations or international NGOs who are active in ICT in Education in your country? If yes, please indicate examples of relevant organizations and the nature of their activities:

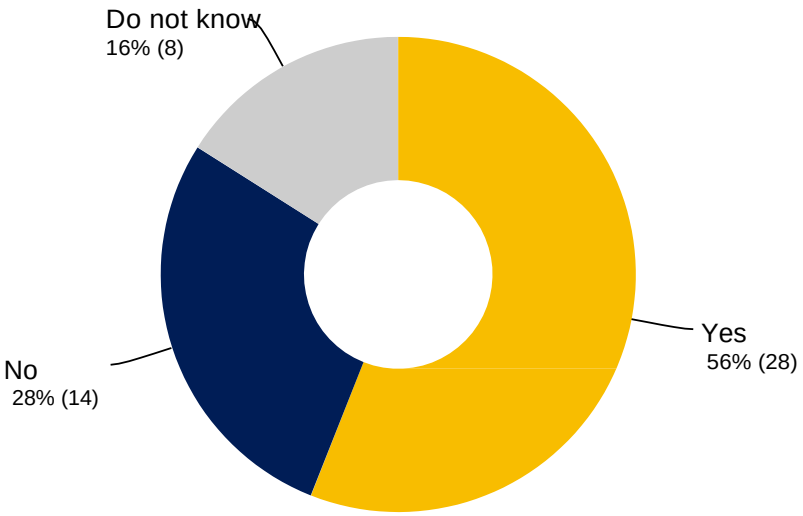
Answered: 50 Skipped: 2



ANSWER CHOICES	RESPONSES	
No	34%	17
Yes	58%	29
Total Respondents: 50		

Q12 Did UNESCO provide support for planning, and/or implementing activities related to ICT in Education in your country during the last 4 years?

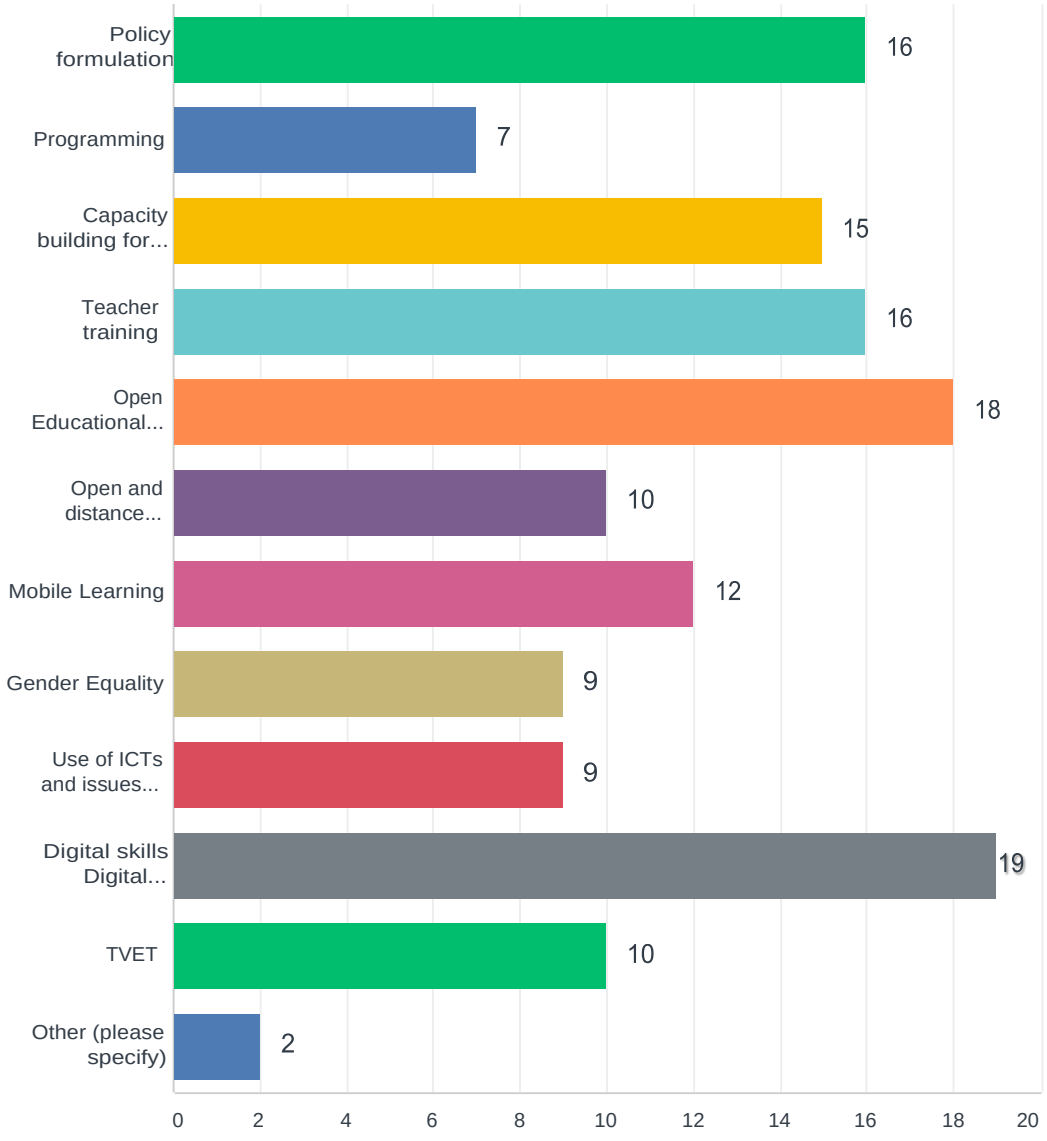
Answered: 50 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	56%	28
No	28%	14
Do not know	16%	8
TOTAL		50

Q13 If yes, please indicate the specific area(s) in which UNESCO has provided support. Tick all that apply.

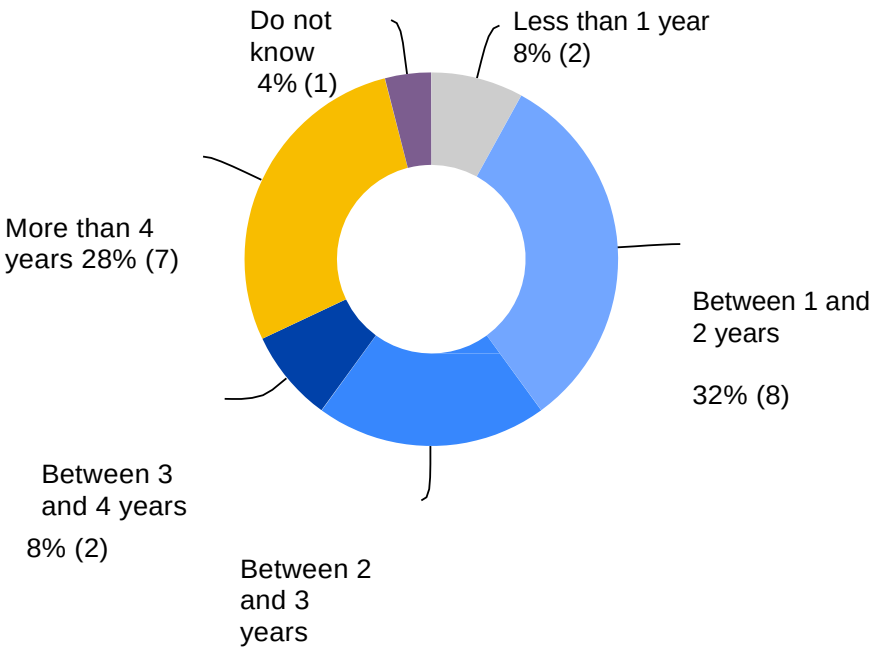
Answered: 27 Skipped: 25



ANSWER CHOICES	RESPONSES	
Policy formulation	59.26%	16
Programming	25.93%	7
Capacity building for policy-makers and institutions	55.56%	15
Teacher training	59.26%	16
Open Educational Resources (OER)	66.67%	18
Open and distance Learning	37.04%	10
Mobile Learning	44.44%	12
Gender Equality	33.33%	9
Use of ICTs and issues related to Persons with Disabilities	33.33%	9
Digital skills Digital pedagogies	70.37%	19
TVET	37.04%	10
Other (please specify)	7.41%	2
Total Respondents: 27		

Q14 Please indicate the length of the support provided by UNESCO.

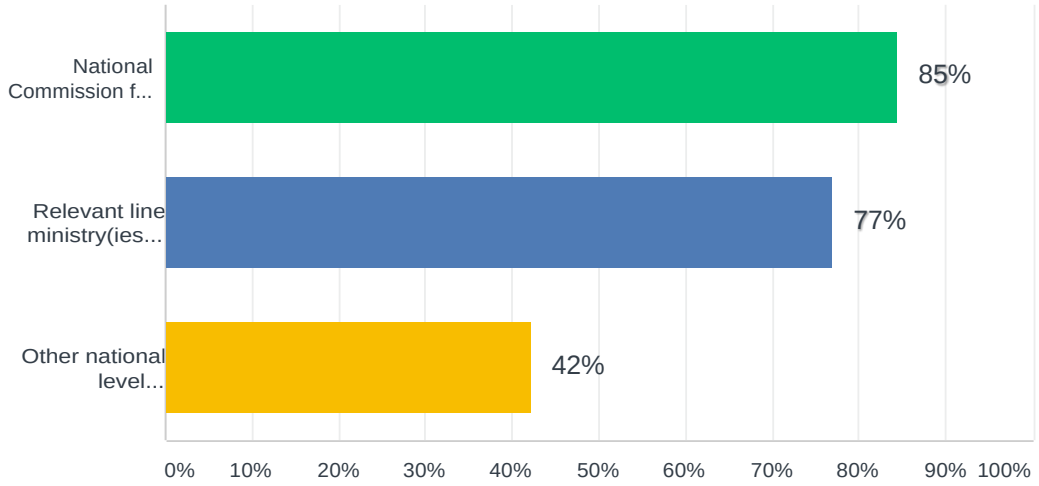
Answered: 25 Skipped: 27



ANSWER CHOICES	RESPONSES	
Less than 1 year	8%	2
Between 1 and 2 years	32%	8
Between 2 and 3 years	20%	5
Between 3 and 4 years	8%	2
More than 4 years	28%	7
Do not know	4%	1
TOTAL		25

Q15 Please indicate which governmental institutions were involved at the national level.

Answered: 26 Skipped: 26



ANSWER CHOICES	RESPONSES	
National Commission for UNESCO	85%	22
Relevant line ministry(ies) (please specify)	77%	20
Other national level institutions (please specify)	42%	11
Total Respondents: 26		

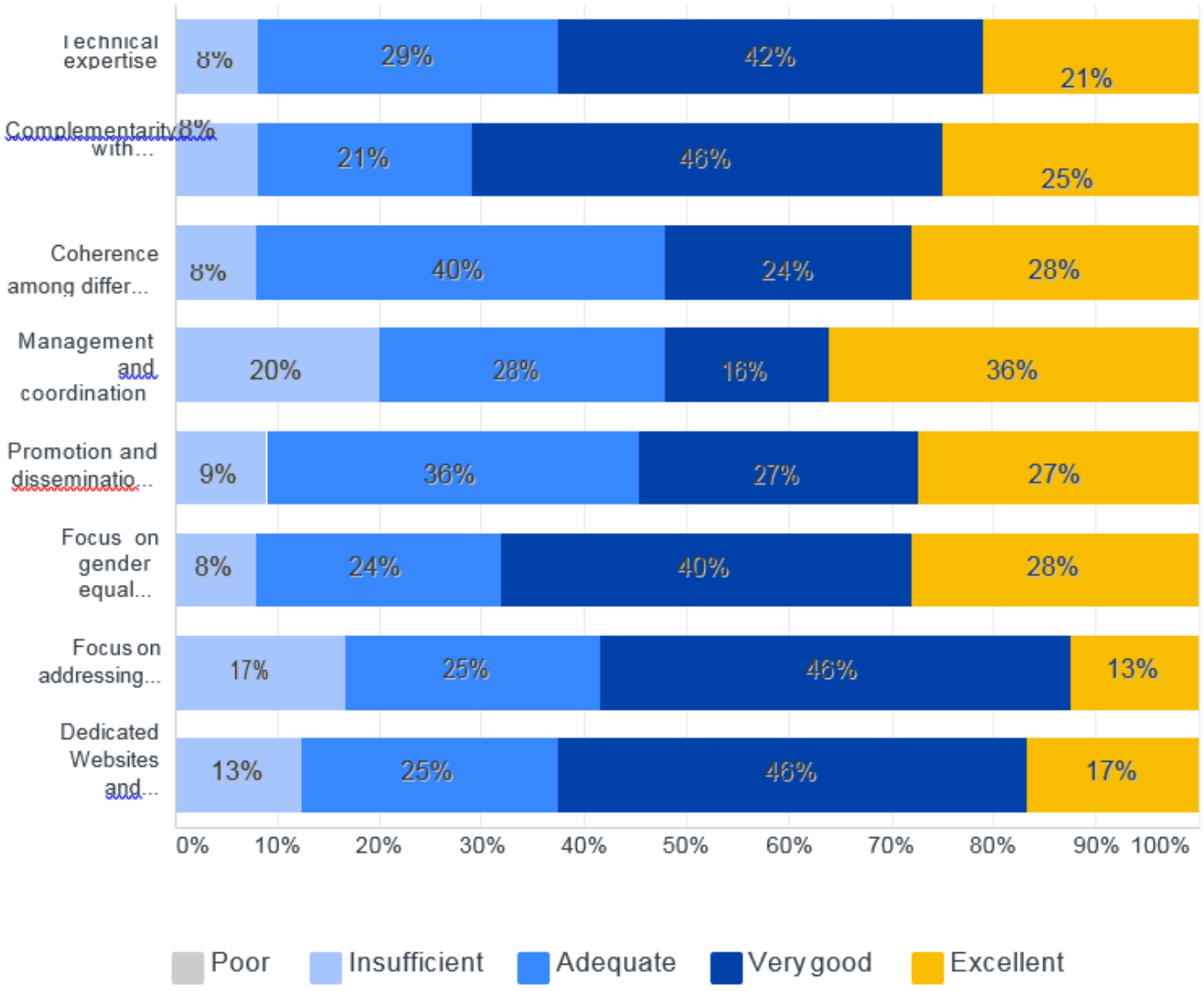
Q16 Please describe briefly UNESCO’s work and the National Commission's involvement, if any, in it.

Answered: 20 Skipped: 32

Qualitative reply. Responses not presented.

Q17 Please rate the quality of the following aspects of UNESCO's work.

Answered: 25 Skipped: 27



	POOR	INSUFFICIENT	ADEQUATE	VERY GOOD	EXCELLENT	TOTAL
Technical expertise	0%	8%	29%	42%	21%	
	0	2	7	10	5	24
Complementarity with implementation	0%	8%	21%	46%	25%	
partners	0	2	5	11	6	24
Coherence among different UNESCO	0%	8%	40%	24%	28%	
entities involved	0	2	10	6	7	25
Management and coordination	0%	20%	28%	16%	36%	
	0	5	7	4	9	25
Promotion and dissemination of	0%	9%	36%	27%	27%	
interventions	0	2	8	6	6	22
Focus on gender equality aspects	0%	8%	24%	40%	28%	
	0	2	6	10	7	25
Focus on addressing issues of	0%	17%	25%	46%	13%	
disadvantaged and/or marginalised groups	0	4	6	11	3	24
Dedicated Websites and ICT tools	0%	13%	25%	46%	17%	
including social media to promote and disseminate its work	0	3	6	11	4	24

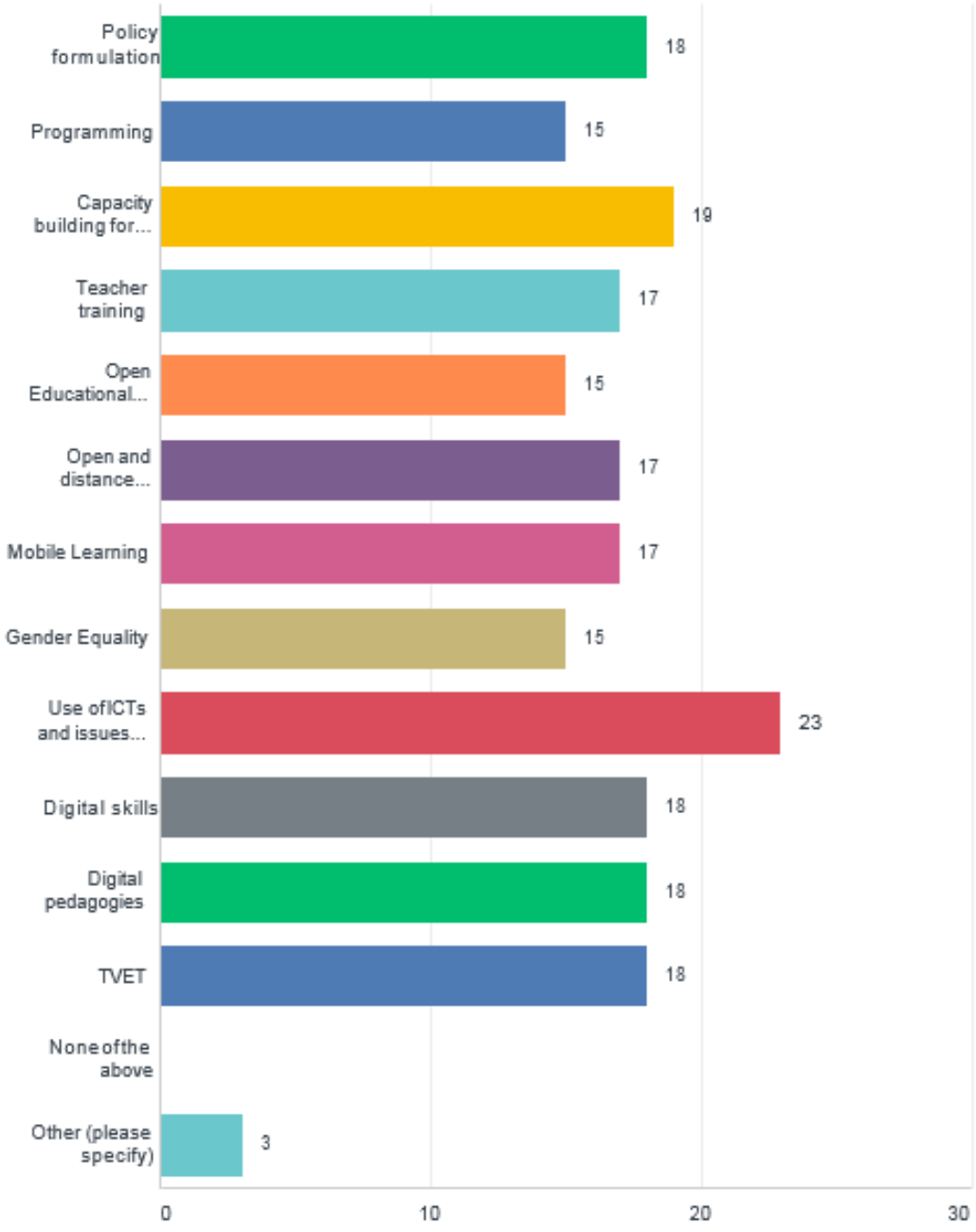
Q18 Please describe positive outcomes to which UNESCO's work in ICTs in Education, jointly with its partners, has contributed.

Answered: 18 Skipped: 34

Qualitative reply. Responses not presented.

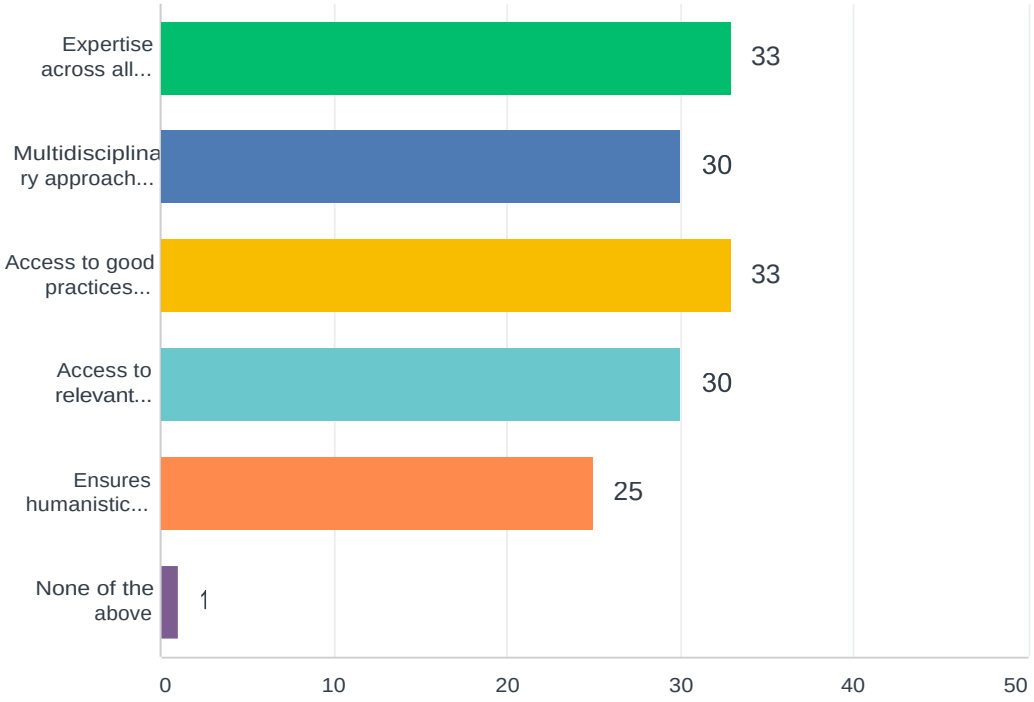
Q19 Given UNESCO's mandate and expertise, in which areas of ICT in Education UNESCO should be involved in the future. Tick all that apply.

Answered: 25 Skipped: 27



Q20 What would you consider as UNESCO’s specific strengths compared to other actors in the field of ICT in Education?

Answered: 41 Skipped: 11



ANSWER CHOICES	RESPONSES	
Expertise across all levels of Education	80%	33
Multidisciplinary approach across UNESCO Programme sectors	73%	30
Access to good practices around the globe	80%	33
Access to relevant networks and partners	73%	30
Ensures humanistic values are preserved in the collaboration with the private sector	61%	25
None of the above	2%	1
Total Respondents: 41		

Q21 What would you consider as particular challenges for UNESCO’s work in ICT in Education, if any?

Answered: 30 Skipped: 22

Qualitative reply. Responses not presented.

Q22 Please provide additional comments about UNESCO' s work on ICT in Education that are not covered in the above questions.

Answered: 17 Skipped: 35

Qualitative reply. Responses not presented.

Q23 Would you be available to further discuss your views with the evaluation team? If yes, please provide an email address or telephone number where you can be contacted.

Answered: 33 Skipped: 19

Responses not presented.

J. Case study 1: The use of ICT for teacher development

Contents

1. Focus, breadth and objectives of the case study

1. Teacher development is a central area of UNESCO work in ICT in education. It includes:

- Using ICT and ODL for training and professional development of teachers
- Training teachers in the pedagogic implementation of ICTs in education
- The development of new curricula, OERs and digital resources

2. This case study focuses on the use of ICT and ODL for the training and professional development of teachers and how UNESCO projects are supporting the use of technology for teacher development. It examines the use of the ICT Competency Framework for Teachers (CFT), and the development and implementation of open distance and flexible learning and OER for teacher development.

3. It examines the context for development and provides an overview of origins and growth of UNESCO work in this area, across different entities and regions, focusing more closely on the work in continuing professional development in sub Saharan Africa including through the CFIT and KFIT programmes. As an example, particular attention is paid to work in East Africa.

4. The overall objectives of the case study are to describe the range of UNESCO activities in the use of ICT for teacher development; to review the outcomes; to consider the nature and quality of cooperation and collaboration both with external partners and internally between UNESCO entities; to examine the extent and ways in which gender equality and vulnerable groups are included; and to review future plans and trajectories. This case study contributes to a number of the Evaluation Questions specified in the Inception report of the UNESCO ICT in Education evaluation[105].

2. Background

5. Agenda 2030 explicitly seeks to substantially increase the supply of well-qualified teachers (SDG 4 (c)), drawing on international forms of development and co-operation where necessary. It indicates a target for teachers through the commitment to “substantially increase the supply of qualified teachers, including through international co-operation for teacher training in developing countries, especially the least developed countries and small island developing countries” by 2030.

6. Under the current UNESCO C/5 2018-2019, MP1 Education, the Education Sector’s MLA 1 (Support Member States in the implementation of SDG4) ER5 specifies: “National teacher policies developed and /or implemented and teacher training programmes improved to increase the supply of qualified and motivated teachers (contributing to SDG targets 4.c, 4.1 and

[105] These include:
1. UNESCO’s comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education
2. Internal coordination /coherence throughout the Organization
3. Partnerships, cooperation and fundraising
4. Results and Sustainability
5. Visibility and Communication

4.2).

Referring to ICTs and OERs within the areas of inter-sectoral work MP1 states: “Flexible and accessible learning opportunities through ICTs and OERs have great potential to contribute to meeting the SDGs and education for all.”

7. It also explicitly refers to:

“Close cooperation will be sought with the Communication and Information Sector on the work regarding the Information and Communication Technologies-Competency Framework for Teachers (ICT CFT), OERs and the Broadband Commission.”

8. MP5, Communication and Information, includes MLA 2: “Building knowledge societies through ICTs by enabling universal access to, and preservation of, information and knowledge.” It states:

“Innovation in ICTs for learning and equal participation in societal development, will be essential for the achievement of SDGs 4 and 11, which call for equitable and inclusive access to quality education for lifelong learning, including the most marginalized social groups.” Actions include “Fostering quality education and lifelong learning (SDG 4), including through ICT Competency Framework for Teachers, open distance and flexible learning, Open Educational Resources (OER) and Media and Information Literacy (MIL) initiatives.”

9. ICT is viewed as having three main roles in relation to SDG 4:

1 As a competency: ICT is considered a competency, when it is viewed in terms of technology-related skills. For instance, Target 4.4 has an indicative strategy to include ICT skills in TVET curricula and training programmes. Similarly, Target 4.c highlights the need to develop teachers’ ICT competencies and media literacy.

2 As a delivery mechanism: ICT is viewed as a mechanism to provide and enhance learning opportunities such as distance learning and mobile learning, as highlighted in targets 4.5 and 4.6. Under Target 4.6 mobile technology is cited as a means of delivering literacy and numeracy programmes, given the high penetration of mobile devices in under-resourced areas.

3 As a resource: ICT is viewed as a resource when it is seen, as under Target 4.a, as a means to support flexible environments for lifelong learning.

10. On the quality of teaching and teaching practices, Member States are aiming to develop competency standards for teachers towards ICT-integrated transformative pedagogies, and establish learning spaces and communities of practices to support teachers and share innovations.

11. The Global Education Monitoring Report (2016)[106] underlines three main imperatives for achieving SDG 4. Firstly, it points to the urgency for new approaches, recalling that on current trends only 70% of children in low income countries will complete primary school in 2030, a goal that should have been achieved in 2015. It recalls that this requires strong political will, policies, innovation and the resources to back this trend by Member States.

12. Secondly, it flags the need for a heightened urgency for action with long-term commitment. Failure to do so will not only adversely affect education but will hamper progress towards all development goals.

13. Lastly, it reminds us that the way we think about education and its role in human well- being and global development needs to change as, more than ever, education has a responsibility to foster the type of skills, attitudes and behaviour that will lead to sustainable and inclusive growth. This means

[106] https://www.globalpartnership.org/blog/2016-global-education-monitoring-report-education-essential-all-sdgs

reaching out beyond traditional boundaries and creating effective partnerships.

14. The context for UNESCO's policy and work on the use of ICT for teacher development lies in its broad approach to both teacher development and ICT in education. It is also a key element in its actions related to building inclusive Knowledge Societies, which underscore that innovation in ICTs for learning and equal participation in societal development, will be essential for the achievement of SDGs 4 and 11 and underscores the importance of ensuring creativity and innovation through an "Open Solutions approach to empower and promote the social and economic inclusion of all (SDG 10, target 2).

15. UNESCO believes ICT can lead to improved student learning and better quality of teaching methods. Therefore, it seeks to increase students' exposure to educational ICT through curriculum and create positive impact on student achievement and skill improvement among teachers in terms of access to education, knowledge comprehension and practical skills. The quality of education is seen as to a great extent dependent on well-prepared, qualified and motivated teachers. To enhance the teaching profession, UNESCO's strategy addresses teacher's professional development, their status and working conditions, and school leadership.

16. In line with its priority areas, UNESCO works to:

- Build international consensus and provide policy recommendations to leverage ICT for achieving Education 2030 through convening international debates and globally significant documents such as the 2015 Qingdao Declaration and the 2017 Qingdao Statement and the Paris OER Declaration, and Ljubljana OER Action Plan and Ministerial Statement
- Ensure an 'Open Solutions' approach to empower and promote the social and economic inclusion of all
- Support the development of national ICT in education policies and master plans to help governments and other stakeholders leverage ICT effectively throughout education systems to achieve SDG 4 for Education 2030. Project examples include Leveraging ICT for Achieving Education 2030 and ICT Transforming Education in Africa
- Ensure that teachers have the necessary skills and competencies to support learning and improve students' learning outcomes and digital skills development through the use of ICT. This work is supported by the UNESCO ICT Competency Framework for Teachers (ICT CFT)
- Support the use of emerging technologies and digital innovations in education by producing forward-looking reports, promoting best practices in mobile learning and organizing international conferences including the Mobile Learning Week
- Support the development and use of open educational resources (OERs), and the development of an international normative instrument in the area of ICT in Education. Specific work includes developing indicators to monitor and evaluate the use and impact and OER and facilitating the creation of national OER policies, the development of teacher training materials based on OER, and an online international OER repository for the training of teachers on ICT in Education (integration of Teacher Training and OER activities)
- Recognise and reward innovation in the area of ICT in education, most notably through the UNESCO King Hamad Bin Isa Al-Khalifa ICT in Education Prize

17. Activities in teacher development with support of ICT in education include

- Convening government and different organisations to address the challenge of teacher development and developing partnerships
- Working with governments and national education authorities to develop master plans and policies for teacher development
- Developing, supporting and implementing projects for capacity building for educational institutions including teacher training institutions
- Developing and utilising the ICT Competency Framework and national, regional and institutional level
- Supporting the development of OERs to support the ICT CFT

- Developing and implementing curricula and providing initial and continuing professional development for teachers
- Monitoring and evaluating progress towards the goals of SDG4 in the area of teacher development

18. At UNESCO Headquarters both the ED Sector (ED/PLS/ICT) and the CI Sector (CI/KSD/ICT), work on ICT in Teacher Development. In addition, activities in this area are led and implemented by the UNESCO Institute for Information Technologies in Education (IITE), a unit within the UNESCO Bangkok Office (BGK/EISD/ICT), the UNESCO International Institute for Capacity Building in Africa (IICBA), the East Africa Regional Office, and other regional and national offices of UNESCO.

19. Within this case study, the focus is on the ICT CFT and the ICT CFT Harnessing OER Project, and on activities for ICT and teacher development under the CFIT and KFIT funded programmes in Sub Saharan Africa.[107]

3. The Use of ICT for Teacher Development in Sub-Saharan Africa

20. The UNESCO Global Education Monitoring Report (2016) 'Education for people and planet: creating sustainable futures for all' provides extensive details of the problems faced by education systems across the developing world, particularly in Sub-Saharan Africa. Central to the analysis is the persistently poor achievement of learners. In essence the core problem is that success in getting children into school (the 'out of school' children have been cut by half since 2000) has not been matched by even modest levels of learning success.

21. In a series of reports, researchers from the UK Open University (Moon and Villet, 2016[108], 2017[109]; Bateman, Lane and Moon, 2012[110]) suggest that the quantity of qualified teachers and the quality of teaching are key issues in seeking to improve the achievements of the growing number of children in the school systems.

22. Many countries, they say, cannot find sufficient teachers for expanding school systems and equally, many countries have too few teacher training places even if the recruits could be found. This is compounded by a large proportion of those completing teacher-training programmes choosing not to enter teaching. The consequence is the contracting of large numbers of unqualified adults to take on the teacher role. These teachers receive limited, if any, professional support. In addition, there are few opportunities for continuing professional development for qualified teachers in schools who also need support and development, especially in rural communities.

23. UNESCO's Institute of Statistics (UIS) has estimated that, globally, 25.8 million extra teachers will need to be recruited by 2030 to meet Education for All targets (UNESCO, 2015)[111]. Of these, 3.2 million would be filling new posts and 22.6 million would be replacing teachers retiring or leaving the profession. There were 59 million children out of school in 2015. For them all to be in school would require the recruitment of 2.7 million teachers if pupil-teacher ratios are not to exceed 40:1.

24. Moon and Villet (2016) say that according to the UIS's forecasts, without such recruitment, 33 countries will not have enough teachers to achieve

[107] Both CFIT and KFIT adopted the implementation of the ICT CFT Harnessing OER project and contributed and or used the ICT CFT Harnessing OER Hub, ie. for: Togo, Rwanda, Uganda, Zimbabwe, Mozambique, and Tanzania. The ICT CFT Harnessing OER Project started before both CFIT and KFIT projects, and built on and further developed the ICT CFT Harnessing OER Project work. *www.oercommons.org/hubs/unesco).*

[108] Professor Bob Moon and Charmaine Villett (2016) Digital Learning: Reforming Teacher Education to Promote Access, Equity and Quality in Sub-Saharan Africa, Commonwealth of Learning

[109] Professor Bob Moon and Charmaine Villet (2017) Can New Modes of Digital Learning Help Resolve the Teacher Crisis in Sub-Saharan Africa?, In Journal of Learning for Development - JL4D 1(4)

[110] Professor Bob Moon and Charmaine Villet (2017) Can New Modes of Digital Learning Help Resolve the Teacher Crisis in Sub-Saharan Africa?, In Journal of Learning for Development - JL4D 1(4)

[111] UNESCO. (2015). Sustainable Development Goal for Education cannot advance without more teachers (UIS Fact Sheet No. 33).

universal primary education by 2030. Sub-Saharan Africa faces the biggest challenge of any major world region in this respect. Based on the Institute of Statistics figures, for every 100 children beginning school in 2015, there will be 142 in 2030. And the figure is projected to continue growing at this rate through the middle years of the century. Of the 3.2 million posts to be filled worldwide, Sub-Saharan Africa will need 2.2 million to deal with this growth and, at a conservative estimate, 3.9 million teachers will be required to replace those leaving the profession.

25. At present, Moon and Villet say:

> "It is clear that the traditional structures for training teachers cannot keep pace with such expansion. In a third of countries, fewer than 75 per cent of teachers hold the national standard qualification to become a teacher. In a majority of countries, the percentage of unqualified or underqualified teachers is growing. Furthermore, the UNESCO Institute report (UNESCO, 2015b) lists 32 countries globally where fewer than 75 per cent of teachers have appropriate qualifications. Of these countries, 19 are in Sub-Saharan Africa. And of the 18 countries with pupil-teacher ratios exceeding 40:1, all but one are in the same region."

26. Obviously, this situation presents an enormous challenge for teacher policy and practice. It is extremely doubtful that present teacher training infrastructures are able to produce sufficient capacity to produce the volume and quality of education and training to meet this demand, an issue compounded by the economies and geographies of many of the countries in Sub Saharan Africa. Furthermore, many of the present aid projects working in this area, whilst producing exemplary results, will probably not scale to the extent required for the training and professional development of so many teachers.

27. This background explains the general approach adopted by UNESCO to develop partnerships and work with national governments to develop the capacity at policy and institutional levels for teacher development and to adopt ICTs to extend that capacity. The use of ICT in education is a fast growing and changing area. One priority will be the use of distance and blended learning for teacher development.

28. The adoption and growth of ICT for education in Africa is not a new development. As early as 2007, a publication by the World Bank: 'Survey of ICT and Education in Africa: A Summary Report, Based on 53 Country Surveys'[112] said the process of adoption and diffusion of ICT in education in Africa is in transition.

> "There appears to be the beginnings of a marked shift from a decade of experimentation in the form of donor-supported, NGO-led, small-scale, pilot projects towards a new phase of systemic integration informed by national government policies and multi-stakeholder-led implementation processes.
>
> One of the primary features of this new phase is the priority that governments are giving to policy development. All but a handful of countries surveyed already have a national ICT policy in place or under development. While some of these national policies define goals and implementation strategies for ICT in the education sector, nearly half the countries have chosen to develop an ICT policy that is specific to the education sector. Thus, the new phase of ICT for education in Africa is occurring within national, and emerging regional, policy frameworks that are providing the basis for partnerships and donor participation."

29. Within such an approach, programmes and projects need to reflect the context of each country. Such context will include the priorities and policies of different countries for teacher development and the current skills and competences of teachers and teacher trainers and the present capacities of teacher training institutions and facilities. It also needs to account for the ICT infrastructures of those countries, especially in rural and more isolated regions and communities.

[112] http://www.infodev.org/articles/survey-ict-and-education-africa-volume-i

30. Given that UNESCO is not an aid agency per se and that funding is limited, partnerships will be critical, particularly in ensuring the sustainability of interventions and scalability which is a serious concern if future capacity is to be rapidly increased.

31. Also, consideration needs to be given to the development of a transversal and strategic approach across different sectors in education including activities around:

- Pre-service education
- In service education
- Updating the curriculum for teacher training
- The pedagogic use of technology in the classroom
- Digital and media literacy
- Developing and sharing (digital) artefacts and resources

32. This requires engagement and participation from primary education, secondary education, teacher training institutions, TVET and universities.

33. Finally, it requires a focus on developing the ownership of policies and practices at a government, institutional and community level.

34. In the following sections we provide a short overview of the main UNESCO projects focusing on the development of teachers in Sub Saharan Africa:

- the UNESCO ICT Competency Framework for Teachers,
- Open Educational Resources (OER) for the ICT Competency Framework for Teachers
- ICT Transforming Education in Africa: Korean Funds-in-Trust
- Improving the quality of teacher education in Sub Saharan Africa: Chinese Funds-in-Trust

35. This is intended to provide a background for the analysis and discussion of issues in the section which follows.

4. The UNESCO ICT Competency Framework for Teachers

36. UNESCO, in partnership with industry leaders and global subject experts, has created an international Framework that sets out the competencies required to teach effectively with ICT: the UNESCO ICT Competency Framework for Teachers (ICT CFT).

37. UNESCO locates the ICT CFT in the 2030 Agenda for Sustainable Development, with the attainment of the social and economic goals recognised as a key focus of education systems worldwide. Teachers need to be equipped to guide the next generation to embrace and be able to achieve these goals. Technology is seen as having a significant role to play in the achievement of the SDGs.

38. There have been three ICT CFT versions, in 2008, 2011 and 2018. Each has reflected the prevailing thinking on the relationship between technology and education, with suggestions on how to achieve competencies using popular technologies of the time. From the outset, it was envisaged that the ICT CFT would be dynamic and revisited regularly to ensure relevance.

39. The ICT CFT Version 3 considers the Agenda 2030 for Sustainable Development, and is designed to preserve those competencies that remain relevant and to frame them within the current advances in technologies and the changing demands of life and work. The ICT CFT Version 3 is intended to inform teacher-training policies and programmes that strengthen the use of ICT in Education. Its target audience is teacher-training personnel, educational experts, policy-makers, teacher support personnel and other professional development providers. The ICT CFT assumes a working knowledge of the benefits of ICT in Education, and encourages contextualization and adaptation of teacher professional development as relevant.

40. The new version of the ICT CFT emphasizes that teachers, in addition to having ICT competencies and the ability to develop these in their students, must be able to use ICT to help students become collaborative, problem-solving, creative learners and innovative and engaged members of society.

41. For this purpose, teachers' professional development should be understood as a lifelong learning process, rather than a one-off event. It is

advised that the ICT CFT be integrated into the three phases of teacher professional development:

- pre-service
- in-service
- On-going formal and informal pedagogical and technical support

42. The ICT CFT consists of 18 competencies organized according to the six aspects of teachers' professional practice, over three levels of teachers' pedagogical use of ICT. The underlying idea is that teachers who have competencies to use ICT in their professional practice will deliver quality education and ultimately be able to effectively guide the development of students' ICT competencies.

43. The ICT CFT has been widely adopted in Sub Saharan Africa, including by governments and often with the support of projects and aid agencies external to UNESCO.

44. The director of another UN agency working with the government in Kenya on teacher training said: "I have a high regard for the ICT CFT – it has stood the test of time. It is superb – I have not seen anything to compare with it – it is a seminal piece of work."

45. A team of leading consultants explained how the ICT CFT can be used in practice. "The ICT CFT is accepted because it comes from a global brand. It is very comprehensive ad cuts through rivalry. It meets the Global objectives plus people can pick and choose from it. It includes both Professional Development and the policy environment. It can be used for many different things – policy development, diagnostics, curriculum development, standards plus developing courses and units. In the last year we have seen a community of practice developing around the ICT CFT."

5. Open Educational Resources (OER) for the ICT Competency Framework for Teachers

46. The ICT Competency Framework for Teachers (ICT CFT) Harnessing Open Educational Resources project (9669) was launched in 2013 by the CI Sector. It is financed by the Hewlett Foundation with a total of $3.2 million over the years 2015-2018.

47. Its objective is to support ICT in Education Teacher training, through the contextualization of the ICT CFT, the development of OER-based teacher training materials, and the implementation of teacher training exercises with these materials. In the framework of this project, Ministries of Education and/or Teacher Training Institutions and/or Higher Education institutions from over 10 UNESCO Member States have developed training courses that have been consolidated on the ISKME ICT CFT harnessing OER Hub[113].

48. The ICT CFT Harnessing OER development forms part of the wider work of UNESCO in championing the development of OERs at a global level, in partnership with the Commonwealth of Learning and with the support of the Hewlett Foundation. OERs are seen as enabling countries, institutions and teachers to share quality education material widely at no cost. They challenge teachers to incorporate digital technology into their courses and programmes and enable students to access quality content in an autonomous manner. They are also an incentive for teachers, students and institutions to work together in producing original material in a collaborative manner. This work culminated in the Ministerial Statement of the 2nd World OER Congress and adoption of the Ljubljana OER Action Plan in 2017.

49. This project aims to support the contextualization of the ICT CFT by:

- Linking the ICT CFT components to national ICT in Education objectives;
- Developing OER-based teacher training materials to reach these objectives;
- Implementing pilot training workshops utilising the OER – based teacher training materials with Teacher Training Institutions;

[113] https://www.oercommons.org/hubs/UNESCO

- International Coordination: sharing of resources and knowledge amongst the Member States through the project portal and sharing of experiences and best practices through a WhatsApp social media application developed by project participants with the support of UNESCO.

50. Project activities support capacity building for Ministries of Education, Teacher Training Institutions and teachers in the effective use of ICT by teachers in their professional practice, and the development and use of OER for education.

51. A presentation by consultant Neil Butcher (2017)[114] provides a timeline for ICT CFT Harnessing OER development. Since 2011, the pool of openly licensed resources linked to each of the ICT CFT competencies has grown. OER were developed as each new country either adapted existing OER or developed additional new materials. The open licence on these resources permitted 'repurposing' or adaptation, and encouraged new developers to fashion courseware that responded to local needs. The customisation of existing OER, rather than developing (and in many instances duplicating) materials meant that the development phase was shortened. Also, as OER are free this meant that production costs too were substantially reduced.

52. 2017 saw the creation of the UNESCO ICT CFT Hub on OER Commons by ISKME. This repository indexes existing openly licensed units of study linked to specific UNESCO ICT CFT competencies and objectives. It is designed to collect known OER linked to the ICT CFT Framework in one place.

53. The ICT CFT Harnessing OER Project has built upon and been implemented through the framework of the CFIT and KFIT projects (see below), led by CI in the UNESCO Regional Office for East Africa.

54. 6. ICT Transforming Education in Africa: Korean Funds-in-Trust

55. The Korean Funds in Trust ICT Transforming Education in Africa project started in 2015 and runs until June 2019. Funded by the Korean Government with 6 million US Dollars it is coordinated by the UNESCO Division for Policies and Lifelong Learning Systems (ED/PLS/ICT), Education Sector, in cooperation with UNESCO Offices in Maputo, Nairobi (and Kigali Antenna) and Harare.

56. The project is articulated around three major components, namely:

1. Expanding access to and enhance the quality of basic education through blended solution of ICT;
2. Strengthening higher education systems through the use of ODL;
3. Facilitating policy development and knowledge sharing including supporting the Information for All Programme (IFAP).

57. At the end of the project's three-year period, it is expected that the capacity of teaching, planning and managing staff of target ministries and institutions will be significantly improved at central and decentralized levels and the education plans and policies reviewed.

58. The aim is to support the integration of ICT-based innovative approaches for education in three countries in Africa: Mozambique, Rwanda and Zimbabwe. Its overall purpose is to foster human and social development of the target countries through the use of ICT-based innovative approaches to post-2015 education with a particular focus on mobile learning and ODL (Open and Distance Learning) to expand access to relevant lifelong learning opportunities and enhance the quality of learning.

59. The project strategic building blocks include (a) individual capacities including enhancement of the capacity of teachers, policy-makers, and school managers; (b) institutional capacities with specific focuses on local key universities, teacher training institutions and schools, etc.; (c) technological capacities of the education sector in leveraging emerging technologies and media to transform the provision and management of education for all; and (d) administrative capacities of national agencies in owning the project and coordinating multi-stakeholder participation. In response to the diversity of local education contexts and the outcomes from need assessments, country-level priorities and project activities are different in each country, although in line with the overall purpose of the project.

60. The primary and direct beneficiaries of the project are primary and

[114] https://www.oercommons.org/hubs/unesco

secondary public schools, literacy and non-formal education departments/directorates, higher education institutions, policy makers, educational administrators and leaders in the target Member States. The ultimate beneficiaries are teachers and students in the target countries.

61. The coordination mechanism included the establishment of country project teams composed of a focal point at the respective Ministry of Education and team members from Ministry directorates or main implementing institutions in the countries.

7. Improving the quality of teacher education in Sub Saharan Africa: Chinese Funds-in-Trust

62. The first phase of UNESCO-China Funds-in-Trust (CFIT) project was launched in 2012 with the support of the Chinese government who donated a budget of $8 million for a duration of 4 years. It is managed by ED/PLS/ICT in conjunction with the Multi-Sectoral Regional Office for Eastern Africa in Nairobi, national Field Offices and IICBA.

63. The 8 project countries were Côte d'Ivoire, Ethiopia, Namibia (2012 – 2015), Congo, DR Congo, Liberia, Tanzania, and Uganda (2013 –2016). The CFIT project is one of the initiatives of UNESCO to accelerate progress towards the attainment of Education for all goals, (in particular Goal 6 aiming at improving the quality of education) and the education-related Millennium Development Goals (MDGs) (in particular Goal 2 to achieve universal primary education).

64. The "flagship project" was launched in recognition that teachers are the most critical factor in the quality of education and student learning outcomes. It was recognised that in many countries in sub-Saharan Africa where teacher shortages are prevalent, TTIs do not have the capacity to produce sufficient numbers of qualified teachers. Therefore, achieving the project aims required a focus on developing the capacity of these TTIs. To support these countries in their own efforts to improve the situation, UNESCO engaged in the CFIT project to support the development of institutional capacity in a limited number of TTIs.

65. Phase II of CFIT project is being carried out from 2017 to 2018 with a budget of US$4 million. In this phase, two more countries, Togo and Zambia, have joined the project. The aim of the project is to enhance the capacity of the target teacher training institutions in selected African countries to provide quality teacher education and training in order to contribute to Sustainable Development Goals (SDG), particularly Goal 4 on inclusive and equitable quality education (Target 4c on increasing the supply of qualified teachers through international cooperation for teacher training in developing countries), and Goal 9 on innovation.

66. The CFIT project was aligned with countries' national priorities in order to maximize its impact. Recognizing that teachers are the most important element in enhancing education quality, the project enables participating countries to scale up their plans for improving teacher training. ICT can also reach teachers in rural areas while providing a more flexible channel.

67. An extensive evaluation was carried out of the first phase of the CFIT project[115]. The results are summarised below and are thought important in that they may also apply to other projects for teacher development which lack such an in depth evaluation.

68. The evaluation concludes that the UNESCO-CFIT project is relevant given the pre-2015 and post-2015 global educational goals and the UNESCO priorities. This concerns especially the focus on increasing the supply of qualified teachers in Sub-Saharan Africa. The project was also well aligned with national priorities; and builds on engagement of national stakeholders.

69. Despite implementation challenges, the CFIT project was found generally to be implemented in line with the envisaged plan and contributes to the global project objectives stated in the project proposal:

[115] *Evaluation of UNESCO CFIT Project: Quality Teachers for EFA: Enhancing Teacher Education for Bridging the Education Quality Gap in Africa.* UNESCO Reference: ED/LTR/TLC/CFIT/580RAF1001.2.3

1. CFIT improved the capacity of key TTIs in terms of equipment, learning materials and competences in using ICT contributing to quality improvement of teacher education at institutional level;
2. CFIT contributed to improve quality of pre-service teacher programmes in targeting TTIs but has only limitedly contributed to increasing the supply of qualified teachers through distance learning;
3. CFIT strengthened the capacity of key TTIs in supporting in-service teachers continuing professional development by means of ICT;
4. CFIT increased knowledge sharing among policymakers, institutional leaders and other stakeholders in the countries.

70. The evaluation found the building of engagement of national stakeholders is better achieved in countries where UNESCO has a permanent presence in the form of a Field Office. The more hierarchical and distant project coordination through a local NPO managed by a faraway Regional Office seems to lack authority, lacks effective communication and complicates administrative procedures. The evaluation showed that as a result, national stakeholders may assign lower priority to project implementation.

71. In the project implementation, knowledge sharing between CFIT countries and capitalization of existing expertise in UNESCO remained limited. Although UNESCO HQ had been involved in the preparation and procedural and administrative aspects of project implementation, it contributed little of its education expertise to the implementation. The evaluation found that there is no mechanism in place by which the quality of deliverables can be critically assessed. Such a mechanism could also support the learning potential in the project (through for instance peer learning between countries; expert opinion from UNESCO HQ, other institutes and the Donor).

72. Despite this, The CFIT project was recognised as good practice in South-South cooperation and could serve as an inspiration for other projects and model for future South-South cooperation.

73. A further recommendation was to better involve IICBA, UNESCO HQ expertise, ASPnet schools and UNESCO Chairs in the CFIT project implementation and clarify the role of different UNESCO entities (HQ, Regional Office, IICBA) in technically supporting the project implementation. This requires more focus from UNESCO HQ on providing / mobilizing expert advice, instead of focusing on administrative and monitoring support. It could also reconsider the role of IICBA in doing this.

74. The evaluation report recommended further stimulating knowledge sharing between countries and between UNESCO / donor related entities and stakeholders during project implementation, more specifically during the course of Phase 2. UNESCO HQ should function more as a knowledge broker to bring different stakeholders together on specific challenges in the CFIT project implementation.

75. Finally, it was recommended that UNESCO establish a mechanism by which lessons learned, expertise, deliverables from the countries can be mainstreamed more broadly during project implementation and after concluding the project. This can be by means of for instance presentations at conferences, bilateral exchange; and matching CFIT countries to non-CFIT countries. UNESCO HQ, Regional Offices and/or IICBA could play an important role in this.

8. Analysis and discussion

UNESCOs strengths and weaknesses in the use of ICT for teacher development

76. UNESCO's main strength in the use of ICT for teacher development lies in the respect for the Organization's values and vision. In a period marked by neo-liberal policies, a growing role of the private sector in education and by attempts to 'disrupt' education through the introduction of technology, UNESCO has remained steadfast in seeing the quantity and quality of teachers as key to the future of education.

77. A further strength is its direct access to national policy makers in education and thus its ability not just to run pilot projects and programmes but potentially to assist in reforming and extending teacher development at national and regional levels as well as through institutions. UNESCO is seen as a 'neutral' player and has considerable convening power, recognised as such not just by

governments but by other organisations, some of which have much greater resources.

78. UNESCO, as considered by interviewees “has a good name” and the involvement of UNESCO in projects and programmes “can open doors.”

79. One prominent consultant from South Africa told us:

> “UNESCOs strengths are related to its mandate from the Member States – this makes UNESCO powerful. Governments look to UNESCO for technical support and policy in a host of issues in ICT and education. UNESCO support makes policies stronger in countries. The standing with governments is high. UNESCO provides robust technical supports in the public arena – it has not sold out. It maintains its mission and purpose. The Rethinking Education paper is an exemplary example of that standing. They are not buying in to the neoliberal agenda which is diffuse in ICT and education. They are very good at navigating the neoliberal dominance. UNESCO are arguing for public education against the privatization onslaught. They have a global image in the true sense of education. It genuinely represents 192 counties. That is why my choice is always to work for UNESCO over other organisations because of what it stands for. It has a convening capability unlike people like the commercial ‘Online Educa’. The world needs a powerful strong UNESCO particularly in the increasingly changing ICT in education space.”

80. UNESCO’s major weakness is its lack of resources, both in terms of finance and the number of expert staff is can deploy, relative to the goals for teacher development. This affects both the scale of projects and interventions and potentially sustainability.

81. There are a large number of organisations implementing projects in the field of ICT for teacher development. Initial research undertaken in establishing the KFIT project in Rwanda, identified the following public and private sector organisations as working in the country in this area:

- The UK Department for International Development– Innovation for Education Projects (Pilot Projects)
- MKFC: Swedish Popular Adult Education
- AEGIS Trust (in collaboration with the University of Southern California Shosh Foundation – The Institute for Visual History and Education
- Plan International Rwanda
- The Mediae Company
- Korea International Cooperation Agency (KOICA)
- Global e-Schools and Communities Initiative (GESCI)
- Africa Smart Investments – Distribution (ASID)
- United Nations Children’s Fund
- VVOB (Flemish Association for Development Cooperation and Technical Assistance)
- United States Agency for International Development (USAID)
- FHI 360
- Education Development Centre (EDC)
- INTEL
- House of Technology**.**
- IDEMBE Ltd

82. Probably the features that distinguish UNESCO’s work from that of many of these organisations is the commitment to collaboration with governments and national and regional stakeholders and the central focus on the ICT CFT behind many of the development projects. Furthermore, UNESCO always starts from and maintains an educational perspective, rather than a more techno-centric approach based on provision of ICT devices and infrastructure.

83. Research undertaken in the inception phase of the KFIT project in Rwanda examined interventions by other (non UNESCO) agencies and organisations in teacher development in the country. It concluded that most projects and ICT teacher training programmes were short term and ad hoc projects or workshops. The ICT training programmes that were conducted so far do not indicate a way forward in terms of follow-up, scale-up or sustainability and monitoring and evaluation. In terms of the harmonisation of ICT teacher training competencies and standard certification, the focus of the content of current ICT teacher training varied from one programme to another. The research found

that there is no consolidated programme for all teachers in Rwanda and it would be inappropriate to consider all current trainings as ICT teacher training programmes though they include ICT skills as a component. This provided a rationale for the development of the ICT Essentials CFT programme in Rwanda.

The positioning of UNESCO relative to other organisations

84. Agencies such as the World Bank, the Aga Khan Foundations, USAID or UNICEF, which are rapidly entering or expanding in the field of ICT for teacher development, have greater resources than UNESCO.

85. This background points to the need for UNESCO to develop partnerships with other funding agencies and with the private sector. UNESCO's 'good name' and reputation is an asset in this respect. There are examples of where such partnerships have been established for instance with Hewlett Packard and with the Commonwealth of Learning around OER, and in a new partnership is East Africa with UNICEF on the use of ICT for education for people with disabilities. Here, UNICEF appear to have recognised UNESCO's expertise and knowledge in the field of teacher development.

86. Despite this, other interviewees felt that UNESCO were not doing all they could to develop and nurture such partnerships.

87. One issue in the positioning of UNESCO in this field is the extent to which it sees itself as an intergovernmental organisation researching and supporting policy and normative development, and the extent to which it supports implementation on the ground. Of course, the two are not mutually exclusive and indeed can be seen as complementary. In interviews with both those associated with UNESCO activities and with members of other organisations the evaluation gathered different viewpoints as to where UNESCO should be positioned on such a continuum.

88. Many of those interviewed felt UNESCO places too little emphasis on ICT in education and on the use of ICT for teacher development. However, that may reflect the interests of those interviewed.

The Visibility of UNESCO

89. Despite praise for the ICT CFT and the ICT CFT Harnessing OER work and the general work and positioning of UNESCO in the use of ICT for teacher development, many of those interviewed felt that UNESCO was failing in the visibility of its work. This was not only a hindrance to knowledge sharing and dissemination, but was seriously detrimental to securing donor funding and partners in a crowded and competitive market. This issue was also raised by members of the National Commissions.

90. UNESCO staff in the field were aware of the issue, but had limited time and competence for instance to develop a communication /publication strategy or for presentations at conferences and exhibitions. In general, there does not appear to be a dedicated strategy for dissemination or sufficient allocation of resources for this.

Theory of Change

91. ICT for teacher development is a fast-growing field. It is also a dynamic area as technologies and infrastructures quickly evolve. One feature of UNESCO's work is that interventions need to be tailored to the context of the country, including existing forms and organisation of teacher development, the present level of knowledge and competence of teachers, the capacity of teacher training institutions, the civil society and civil society partners involved and the technical infrastructure. Within single large scale multi country projects such as CFIT or KFIT there is a wide range of different activities undertaken.

92. Although some projects such as CFIT have a stated and explicit Theory of Change, others do not. More importantly it is hard to identify a Theory of Change model which brings together the different UNESCO interventions in teacher development. This has a number of consequences. There is a lack of a common organisational vision and identification of UNESCO's contribution and comparative strength in this field. Secondly there is the lack of a common base line for planning future work, nor a basis for longer term programme evaluation. Furthermore, the absence such a high level Theory of Change renders UNESCO's work in this area less transparent to potential donors.

Monitoring and Evaluation

93. It may be assumed that there is an implicit or at least an emergent Theory of Change underpinning UNESCO work in ICT and teacher development as summarised in the evaluation of the first phase of the CFIT project, namely:

> "CFIT aims to improve the quality of teacher educators, teachers and the quality of education, by (1) developing the capacity of TTIs and teachers to use ICT and modern pedagogy in education, (2) by using ICT to reach out to pre-service and in-service teachers and (3) by improving the (ICT) infrastructure to better facilitate TTIs and its teacher educators. All this in close collaboration and engagement with national stakeholders. This approach should help improve the capacity of TTIs to reduce the shortage of qualified teachers in the countries."

94. It is still difficult to identify the relationship between ICT and general policy regarding teachers: is UNESCO recommending the adoption of ICTs as a general strategy for teacher development or is this a strategy for countries with an acute shortage of qualified teachers? A similar question applies to the ICT CFT: is UNESCO recommending a competency based approach to teacher development in general?

95. These questions have implications for monitoring and evaluation.

96. At present monitoring and evaluation is being undertaken predominantly at a project level. What is lacking is higher level evaluation examining the assumptions behind programme objectives, design and developing. For this to happen a longer-term approach is required looking at impact and change a number of years after programme implementation. This is impeded by the present allocation of resources, often tied to the period of donor funding. It is noted that this evaluation is intended as a step towards such a longer term and deeper level perspective.

97. This is particularly important given that UNESCO's overall work in the use of ICT is a radical change from traditional models of teacher development, based on face-to-face courses provided predominantly by universities and teacher training institutions and that ICT based provision by developments such as MOOCs are still very new.

98. Evaluation needs both a qualitative and a quantitative approach to adequately assess the quality of teaching and learning. It may also be worth considering how ICT can be used within such evaluations in terms of what has been described as "Next Generation Evaluation"[116]. Next Generation Evaluation includes a focus on whole systems, shorter evaluation cycles, more real time feedback using alternative formats, and the use of digital media for both data collection and for data visualisation and infographics.

Extra Budgetary Funding

99. Obviously, given the constraints on core UNESCO funding, extra budgetary sources are of key importance in implementing large scale projects for teacher development, particularly in Sub Saharan Africa. But there are concerns that the very size and importance of these projects are moving UNESCO away from its core mission. Furthermore, donors are mainly concerned with visible outcomes that can be quantified. The pressure to achieve targeted outcomes within limited project time and with difficult problems, for instance infrastructure, risks reducing the quality of teacher development and of failing to build robust programmes which could be extended in the future. Quick results may be required regardless of other considerations.

100. There were also concerns expressed by those interviewed that UNESCO field staff are spending most of their time on project management and administration, which was not felt to be their original role or that which made best use of their expertise.

[116] *Next Generation Evaluation*, focuses on new approaches to evaluation including Developmental Evaluation, Shared Measurement, and Big Data. https://www.fsg.org/publications/next-generation-evaluation

Expertise and Knowledge Management

101. Many of those interviewed praised the expertise and knowledge of UNESCO staff. At the same time, they asked for additional assistance in terms of knowledge sharing and support. It may be that the present fragmentation of responsibilities for projects in ICT for teacher development is hindering the development and provision of specialist knowledge, in subjects as diverse as infrastructure, procurement, educational technology, licensing, distance education, blended learning, MOOCs and pedagogic approaches to teaching and learning with ICT as well as specialist knowledge of the contexts in different countries. It is hard to discern a knowledge management strategy from UNESCO with regard to this.

102. This also impacts on succession planning, given the centrality of UNESCO staff to the planning and implementation of projects. This is an important issue given that many of the key UNESCO Staff are not on permanent contracts and many are tied to contracts from particular projects. There exists a grave danger that the knowledge and expertise they have gained will be lost for UNESCO, although this expertise will be of benefit to other agencies and organisations working in the field of teacher development if they move to such organisations in their subsequent employment.

103. Furthermore, there was a wish especially from Ministry staff and teacher trainers engaged in UNESCO projects for greater contact and sharing of knowledge between projects and countries. Whilst UNESCO publications and conferences were appreciated, they were not judged to be sufficiently fulfilling this need.

104. In particular it was felt difficult to find information in the plethora of different UNESCO central, field office and project web sites providing information on teacher development. UNESCO staff pointed to the complicated system for web management and according time delays in updating information.

105. Some of those interviewed felt that the very technologies being advocated for teacher development could be utilised for knowledge sharing about developments in ICT for teacher development, for instance through the use of social networking technologies or the provision of webinars.

106. In this respect the ICT CFT Harnessing OER Champions WhatsApp group launched in the framework of the ICT CFT Harnessing OER Project launched at the Hammamet meeting in July 2018 is particularly interesting. It is being used by some 40 members to exchange information and knowledge around development in the project. It has also spawned a number of other WhatsApp groups at a national level in Africa. Although not open source, WhatsApp is free and messages are encrypted. It requires only minimal management and facilitation.

107. Others also drew attention to the potential and importance of more South-South knowledge sharing and exchange.

The UNESCO ICT Competency Framework for Teacher

108. The ICT CFT, now in its third version, is central to UNESCO's work on ICT for teacher development. It is widely praised by ICT and education experts in the field for both its comprehensiveness and its flexibility for adaptation to needs and contexts in different countries and regions. The UNESCO ICT CFT has been widely adopted in Sub Saharan Africa, including without UNESCO funding in South Africa. It is particularly important in developing the capacity of countries and institutions to use ICT for teacher development. Much of this has been undertaken through the ICT CFT Harnessing OER Project and related network of institutions and practitioners linked through the OER Hub and WhatsApp Tool.

109. It is, of course, not the only Framework for ICT and teacher development. The European Joint Research Centre (JRC) in Seville has also developed a competence framework, DigCompEdu, designed to support teacher development in ICT for education in Europe. There are many similarities between the frameworks. The major difference is that the ICT CFT includes a basic level of competency – Technology Literacy. JRC includes this level as part of its more general DigComp framework specifically for citizens, and so is not included in the DigCompEdu framework for teachers. The JRC was consulted during the development of ICT CFT Version 3.

110. The European Framework also lacks the tools and OERs which have been

developed around the ICT CFT, largely due to lack of funding and resources, and it is designed as a simpler tool than the ICT CFT Version 2. Indeed, the main criticism encountered of the ICT CFT is the complexity of the framework. This has to be seen as a trade-off between the comprehensive nature of the framework and its flexibility which allows for adaption to meet different needs. Despite this the ICT CFT descriptors were felt to need further development, although this was in relation to version two.

111. Although the ICT CFT lends itself to different modes of implementation and the wide variation in activities in different countries around the ICT CFT, there appears to be a general pattern emerging, at least in Sub Saharan Africa, although not all activities will take place in every country. This includes:

- Needs analysis at national level
- Contextualisation, also taking into account the present level of ICT knowledge and the infrastructures, both institutional and technological
- The mapping of the ICT CFT to existing curricula and qualifications
- The adoption or development of OERs to support teacher development through the ICT CFT
- The implementation of the ICT CFT within existing programmes of teacher development
- The training of a group of core teacher trainers, either existing teacher trainers or teachers with advanced ICT skills
- Evaluating and assessing the skills and competences of teachers
- The provision of blended learning programmes combining online and distance education with face to face provision
- In school training or support for teachers following the programme

112. However, the adoption and amendment of the ICT CFT for use in different contexts is not simple. One Director of a Development Agency explained: "We work with the ICT CFT Framework. It is a theoretical document and we worked at customising it with the ministry in Kenya. What should we put emphasis on? We already have technical literacy. How long would it take teachers to do a module -it may scale but how long would it take to deliver it? How can it be scaled? In Phase 1 we looked at the indicators – were they appropriate. The language contains many nuances. This was an intensive round table experience. Then we tried it out in ten schools and amended it again."

113. Although the ICT CFT is developed for use in both pre-school training and for Continuing Professional Development (CPD), at least in Sub Saharan Africa, most of the implementation focus has been in CPD for primary education. One interviewee said the reason for focusing on CPD, rather than initial teacher training, is because of the desire to show impact over a short time period. A greater focus on initial training might pay larger dividends in terms of change in the long term, but this cannot be demonstrated within most project lifetimes.

114. While initially, projects were open to teachers at all levels of ICT competence, there appears to be greater selectivity emerging and a requirement for some basic competence before starting the UNESCO ICT CFT training. Once more this probably is based on the need to demonstrate outcomes in a limited time period. There also appears to be a tendency towards adopting more advanced level modules and courses within the Framework. This may be due to teachers wishing to progress from more basic training, or once more a realization that advanced competences are needed at least by those responsible for training and supporting other teachers.

115. A further issue concerns the effectiveness of the cascade model of training. Cascade models have been criticized for leaking knowledge and competence the further the chain leads.

116. In general UNESCO is promoting the use of Moodle to support online and distance learning. Moodle is the leading Open Source Learning Management System (LMS) which a large user base worldwide. However, there is some criticism of LMS systems in northern countries, particularly related to the pedagogic implications of their use.

UNESCO ICT CFT Harnessing OER Project

117. UNESCO has long played a leading role in the development of policy and

capacity building on OERs at a global level[117]. This culminated in the organisation of the 2nd World OER Congress resulting in the Ljubljana OER Action Plan and Ministerial Statement that "identifies concrete actions to mainstream OER to achieve SDG 4 on Quality Education" adopted by consensus; and a Ministerial Statement, signed by 20 Ministers and representatives, calling on all stakeholders to implement the Action Plan. It was organised by UNESCO and the Government of Slovenia and supported by the Hewlett Foundation.

118. The ICT CFT Harnessing OER project aims to operationalize this policy in practice for development of OERs to support the ICT CFT for teacher development.

119. It can be seen as successful in generating OERs in a growing number of countries and languages. An international community of practice around these OERs is emerging. There remain a number of issues, not specific to the ICT CFT Harnessing OER development but generally with OER development and use.

- One is the issue of discoverability. UNESCO has established a Hub in partnership with Creative Commons which should help overcome this issue.
- Another relates to designing, developing and implementing processes for quality assurance and improvement of OERs produced for the ICT CFT.
- While there is impressive evidence of the reuse of ICT CFT Harnessing OERs, there is a question as to when reedited and repurposed OERs become stale and need rejuvenation.
- It was claimed in an interview that the ICT CFT OERs have saved a very considerable amount of money. Yet it is hard to gather evidence for and to quantify such a claim. If true this would be an important argument in support of OER development, though it may be difficult to design a methodology for such research, in particular due to the lack of a tangible counterfactual.

120. It should be noted that access to training and infrastructure for developing and sharing OERs may not be sufficient on its own. The Director of one agency interviewed said "One big problem is the isolationism of teachers. The idea of peer to peer learning and sharing resources has never taken traction culturally. We are trying to develop clusters and online discussions through smartphones, to persuade teachers to be participators not receivers and to share lesson plans. But it is hard to change the culture."

Infrastructure

121. Inadequate infrastructure was cited by almost all those interviewed in Sub Saharan Africa as the major barrier to using ICT for teacher development. Although the infrastructure varies between different countries, in many rural areas schools lack electricity, and internet connectivity is also poor. Even the use of mobile phones may be constrained by high broadband costs.

122. It is understood that UNESCO is not a funding agency for infrastructure, although some limited provision has been made through both the KFIT and CFIT projects (although even here there remains a major issue of sustainability as these infrastructures are not a one-off investment). This points to the importance of partnerships with both the national stakeholders, other development agencies, NGOs and partners agencies but also with the private sector, for instance telecoms providers, for the provision of solar power for schools, for computers, laptops and mobile phones and for internet and bandwidth provision. UNESCO may have a role to play in the provision of technical advice. For example, an interviewee from a non-UNESCO funded project recounted a story of a deal with a private company for computer provision which had turned out to be inadequate and had to be terminated. As well as technical advice, guidance in procurement could be important.

[117] See Case Study 2.

Administration

123. The present procedures and processes for administration of projects was felt by some of those interviewed to be both administratively demanding and burdensome. One UNESCO National commission member believes that UNESCO HQ was overly "micro managing" projects and that more responsibility should be devolved.

124. A particular concern was the approval of payments for travel for project participants taking part in training and project events in the framework of CFIT and KFIT projects. The failure to approve travel payments prior to events taking place was seen as severely detrimental to the reputation of UNESCO by participants and national representatives as well as providing much pressure on UNESCO staff on the ground.

Sustainability

125. The sustainability of projects in using ICT for teacher development is a major issue. Ideally, governments and institutions will take over the funding of development at the end of a period of extra budgetary project funding. But in the present financial climate in many countries this may not prove feasible. The main strategy is often to look for another organisation or agency to take over the funding. In some cases, this is happening: for instance, in Rwanda the Korean government has agreed to fund another phase of development and scaling up of work initiated under the KFIT project. But in other cases, the future of the work is uncertain after the end of the project.

126. The need to attract further donors can also influence the decision to completing the evaluation within the project lifetime and can contribute to pressures to show outcomes in quantitative terms, or at a too early stage when the qualitative outcomes have not yet materialised. Often projects on the scale of those run by UNESCO in ICT for teacher development need a longer time period both to achieve impact and to achieve the degree of change required for sustainability through embedding in national and institutional practices.

127. Overall, this is another argument for why UNESCO should deepen partnerships with other agencies with a view to securing more long term, holistic and sustainable impact and change, realistically embedded in the national overall development context

Consulting with and involving all relevant stakeholders, including Teachers and school managers

128. To gain acceptance and ownership, it is important that teachers and school leaders are consulted with and integrated into projects around teacher development. Phase 2 of CFIT established regular meetings of school leaders and this seems to have, or is perceived to have, been an important step in project implementation. This aspect could be expanded in relation to other national stakeholders – in addition to Ministries of Education, other ministries and civil society stakeholders, teacher associations etc. could be integrated.

Priority Gender Equality

129. There are a number of significant projects around gender equality and ICT in education in Africa, particularly in supporting young women into technical occupations and in programming for women. But it is difficult to see any such equivalent activity in ICT and teacher development, although staff involved in ICT and teacher development project development confirm that they raise gender issues as a matter of routine, and remind their partners of the need to address gender equality. But it is notable that the 56 page report: "Improving the quality of teacher education in sub-Saharan Africa. Lessons learned from a UNESCO-China Funds-in-Trust project", fails to mention gender equality once.[118]

130. One issue may be that it is difficult to find female teachers with the required level of technical expertise to become involved in the initial stages of the

[118] http://unesdoc.unesco.org/images/0026/002606/260604e.pdf

projects. A member of the UNESCO staff said: “We try to develop gender mainstreaming though the KFIT and CFIT projects. We are encouraging them to recruit 50 per cent of female participants. This is a challenge – many times the women do not have the necessary basic IT competences. Our workplan does not provide basic IT training – should we change that?”

131. Yet this could be seen as exactly why the UNESCO initiatives should be focusing on involving female teacher and help making sure their competences are at the required levels.

132. Another possible reason for the lack of gender equality in involvement in teacher development in Sub Saharan Africa may be that projects are tending to target more experienced teachers. These are predominantly male, with a tendency towards unqualified teachers being female. If this is true, and it would require further research to verify such a hypothesis, then teacher development programmes around the use of ICT may be exacerbating inequality.

Priority Africa

133. It is difficult to evaluate the success or otherwise of the priority Africa initiative, given that our research on teacher development was focused on Africa. What can be said is that in the area of teacher development UNESCO has succeeded in building a cluster of projects in Africa, and leveraging substantial extra budgetary funding. Furthermore, there is the emergence of Communities of Practice in Africa and of South-South knowledge sharing.

9. Summary of issues

134. The main evaluation report contains a series of recommendations, most of which are relevant to UNESCO’s work on the use of ICT for teacher development. The following summary is of issues specific to work in this area and is intended as assistance to UNESCO staff working in the field of teacher development.

1. Projects targeting teacher development using ICT in Africa appear to have developed and adapted an emergent model and approach using blended learning, school based learning and OER. There has also been considerable variation in the technologies used, including mobile, mainly based on different levels of infrastructure and the cost of access to bandwidth.

   A comparison of these approaches would be valuable for countries seeking to adopt the Framework in the future. It is noted that one of the criticisms of projects seeking to implement the ICT CFT is the lack of knowledge being passed down from one country to another.
2. Most of the projects in teacher development using ICT, at least in sub Saharan Africa, have focused on continuing professional development. This probably reflects the desire to show relatively quick results, especially by donors. Yet it may be that measures to change the curriculum and delivery of Initial Teacher Training will have greater impact in the long term. A critical examination of this assumption could be valuable.
3. UNESCO has pioneered the development and adoption of OER at a global level. One of the assumptions justifying OERs is that they save money and promote knowledge sharing. Yet, focused research or evaluations of UNESCO’s OER activities would be needed to confirm the validity of this hypothesis. Undoubtedly, UNESCO is well placed to undertake work around this issue, possibly in conjunction with the EU JRC.
4. The ICT CFT Harnessing OER Hub platform provides access to OERs developed by UNESCO projects on the use of ICT for teacher development. Consideration could be given to opening access to the platform to other projects working in teacher development.
5. It remains difficult to find sources of comprehensive information on UNESCO work in ICT and teacher development, despite the publication of project bulletins through the CFIT and lease extent KFIT projects. Targeted publications in this area, be they paper based, online or ideally both, would facilitate knowledge sharing and exchange.
6. Some of the UNESCO projects in the use of ICT for teacher development have an explicit logic model or Theory of Change. In others it is implicit.

The development of a more elaborated model spanning the different projects would allow a greater understanding of where particular projects and interventions fit in such an approach. This would also help clarify and communicate UNESCO's comparative strengths and (expected/intended) results in this area and put UNESCO's contribution in the overall context of teacher development

7. Due to funding restraints, where comprehensive evaluation is carried out it is usually at individual project level and within the timespan of the projects. Yet the logic of the work in ICT and teacher development implies that much of the change desired will happen over a longer period than the lifespan of most projects. This is especially so, given one of the main objectives is to achieve sustainability and to scale up teacher development activities. The achievement, or otherwise of such ambitious aims can only be measured by a longer-term approach to evaluation, possibly covering multiple projects or UNESCO's entire portfolio of (ICT- supported) teacher development initiatives.

K.Case Study 2: Policy Support for ICTs in Education

Contents

1. Introduction

1. This Case Study describes the range of policy supports that UNESCO provides in ICT in Education; reviews the activities and outputs based on available documentation and interviews; and considers the nature and quality of cooperation and collaboration both with external partners and internally between UNESCO entities. It also examines the extent to which gender equality and the inclusion of vulnerable groups are considered.

2. Given the breadth of its scope and the number of stakeholders involved, this Case Study seeks to contribute to the majority of the Evaluation Questions.

2. UNESCO's mandate for policy support for ICT in Education

3. UNESCO's mandate in supporting Member States to develop and implement policy was clearly stated in UNESCO's 37 C/5 2014 – 2017 in relation to specific Education Sector activities. Under MLA1 (Supporting Member States to develop education systems to foster high quality and inclusive lifelong learning for all), ER7 comprised: "National capacities strengthened to develop and implement technology policies in education, particularly in teacher training and professional development."

4. With a greater emphasis on SDG4 in the current UNESCO 39 C/5 2018-2019, ICT in Education policy remains under a revised MLA 1 (Support Member States in the implementation of SDG4). The strongest specific mandate is in ER 1 which refers to supporting "improved national education policies and to advance access to equitable and quality ECCE, primary and secondary education…": PI 6 comprises: "Number of countries where sector-wide policies and master plan, or national ICT in education programmes have been developed to leverage ICTs to achieve SDG4." Other ERs also have policy related PIs, including ER 2 on TVET systems, ER3 on foundational skills and lifelong learning and ER4 on higher education. PI 1 of ER3 includes the only specific reference:

> "Number of countries and higher education and programmes that widen access to equitable, gender-responsive and quality assures higher education provision including through online/ICT delivery models and teacher training."

5. In terms of the focus for actions this is expressed as follows:

> "Developing ICTs in education policies and relevant standards: Based on the Qingdao Declaration on leveraging ICTs to achieve Education 2030, UNESCO, with its category 1 Institute for Information Technologies in Education (IITE), will reinforce its engagement in support of the formulation and implementation of ICTs in national education plans, policies and standards." (p.55)

6. Thus ICTs in Education policy has been mainstreamed across MLA1, and subsumed under different ERs.

7. For the **CI Sector**, the refocusing of supporting policy aspect of ICTs in Education between 37 C/5 and 39 C/5 has been less marked, and the emphasis has remained on universal and open access to information. Its MLA 2 (Building knowledge societies…) includes ER 2: "Member states have taken measures to promote universal access to information through open and inclusive solutions and innovative use of ICTs for sustainable development", and PI 1 comprises: "Number of Member States which have formulated policy frameworks… ,

including to mainstream Open Solutions through OER, OA and ICTs for Education."

3. Policy Support Actors and Activities

8. A number of different UNESCO entities are involved in ICT in education, four of which are central to the policy support:

- Unit for ICT in Education, Division for Policies and Lifelong Learning, Education Sector, in UNESCO Headquarters (ED/PLS/ICT)
- Section for ICT in Education, Science and Culture Knowledge Societies Division, Communication and Information Sector, in UNESCO Headquarters (CI/KSD/ICT),
- ICT in Education Team, Section for Education, Innovation and Skills Development, Asia Pacific Regional Bureau for Education, in UNESCO Bangkok Office (BGK/EISD, ICT)
- Category 1 UNESCO Institute, the Institute for Information Technologies in Education in Moscow (IITE)

9. Other UNESCO entities are involved in policy design, support and implementation. For instance, the UNESCO Cluster Offices in Jamaica and Doha both support Master Plan development; and/or UNESCO National Commissions can play a major role in supporting Master Plans and in organising events; the BGK/EISD/ICT unit works closely with the policy and planning unit in ED/IQE also in Bangkok; and the UNESCO Office in Nairobi has been particularly active in supporting projects led by the ED/PLS/ICT.

10. However, with a few exceptions most of the UNESCO policy provide support or implement projects that are led by one of the above four entitles.

11. Broadly, interventions can be categorised into a number of types:

- **Global, Regional and sub-regional Policy Platforms**, for information exchange and/or dialogue on policy development and implementation, involving governments and other key stakeholders;
- **Master Plan Development for ICT in Education,** at national level and linked to wider education policy;
- **Targeted Policy Support** at national level, specifically policy associated with OER;[119]
- **Development and dissemination of policy resources**: Websites, publications etc.

12. Each is briefly described with regard to their activities from 2014 to 2018.

Global and Regional Policy Forums

13. A number of features are characteristic of these events: UNESCO supports a forum to bring together a core of Government Ministers, senior policy actors, experts and/or other key stakeholders, to share information in areas relevant to policy and in various ways to build momentum towards policy development. The specific themes, outputs, and the eventual outcomes, vary.

14. Several global level activities are relevant.

15. 2nd World OER Congress. The 2nd World Congress[120] resulted in the Ljubljana OER Action Plan and Ministerial Statement that "identifies concrete actions to mainstream OER to achieve SDG 4 on Quality Education" adopted by consensus; and a Ministerial Statement, signed by 20 Ministers and representatives calling on all stakeholders to implement the Action Plan. It was organised by UNESCO (CI/KSD/ICT) and the Government of Slovenia and supported by the Hewlett Foundation. Six regional consultation sessions during

[119] Developing competency-based ICT training for teachers, a major area of activity for UNESCO in ICT in Education, is linked to policy in that it aims to align such training with policy, but is not itself an area of policy. It is not considered in this case study but is the major focus of Case Study 1.

[120] The first produced the 2012 Paris OER Declaration, at which the term OER was coined, and it is considered to be a founding document for an international strategy for OER, in which UNESCO is the leading actor.

2016 and 2017 preceded it.[121] Developing supportive policy environments is one of the five recommended areas for action by signatories. About 500 people participated in the Congress, including Ministers of Education and Higher Education, senior policy makers, experts, researchers and other stakeholders, from over 100 UNESCO Member States.

16. A further long-term outcome is the acceptance of a UNESCO Recommendation on OER. The 39th UNESCO General Conference in Paris 2017 (CI Commission) which adopted a Resolution on the "desirability of a standard-setting instruments on international collaboration in OER",[122] authorising the Secretariat to develop a draft UNESCO Normative Instrument (Recommendation) on OER to be considered at the 40th Session of the UNESCO General Conference in 2019. An open consultation process was completed in June 2018, and drafting is underway. While such Recommendations are not binding on Member States, they can add impetus and facilitate individual and shared government actions in the areas it covers. A UNESCO Recommendation on OER would mean that all UNESCO Member States would engage in policy discussions on OER at a national level on a regular basis in order to provide inputs to reporting requirements for UNESCO Recommendations (likely to be every two to four years). This would in effect result in the issue of OER being integral to ICT in Education policy discourse in all UNESCO regions, and raise the level of policy discussions considerably

17. Qingdao Declaration. In May 2015 an event were held in Qingdao, China on ICT in Education. The International Conference on ICT and Post-2015 Education produced the Qingdao Declaration on "Leveraging ICTs for Achieving Education in 2030"[123], comprising a set of policy relevant recommendations. It was attended by over 500 participants from about 90 countries, including 29 government ministers, ten UN Agency representatives and many private sector and NGO actors. Jointly organised by UNESCO, China's Ministry of Education of the Chinese UNESCO National Commission, the Statement's focus on SDGs was timely given its publication so close to that of the SDGs themselves and of the Incheon Declaration at the World Education Forum.[124] This was followed in 2017 by the International Forum on ICT in Education 2030, which produced the Qingdao Statement largely reaffirming the earlier document.[125] (ED/PLS/ICT)

18. Global Dialogue on ICT and Education Innovation: Towards SDG 4.[126] This Inter-Ministerial forum was organised by the UNESCO Category I IITE in Moscow in April 2018, with the Russian Federation Ministry of Education and Science. It brought together 16 Ministers and Ministry representatives 30, academics, practitioners, private sector and NGOs, mainly from CIS countries and others from Europe, Africa and Asia, to discuss policy developments and innovation across the ICT in Education Field. It is not clear yet as to whether the event will be repeated. (IITE)

19. At regional level, UNESCO also organises many platforms and events in ICT in Education.

20. Asia Pacific Ministerial Forum on ICT in Education (AMFIE).[127] The first was launched in 2010 as interest in ICT in Education rose among Member States in the Asia Pacific region, as a forum to share knowledge and generate dialogue at Ministerial, senior official and expert level. It quickly became an annual event with growing participation. With the launch of the globally-focused Qingdao Declaration in 2015, the organisers in consultation with Member States decided to focus the 2017 event on producing a strategy that would emphasise the specific features of the Asia Pacific Region. A survey of priorities was carried out, and the strategy launched, comprising four priority areas and

[121] These were held in: Kuala Lumpur, Malaysia (Asia); Valletta, Malta (Europe); Doha, Qatar (Arab States); Port Louis, Mauritius (Africa), Sao Paulo, Brazil (Americas); and Auckland, New Zealand (Pacific).
[122] Resolution 44. 39 C/47 18th August 2017.
[123] http://unesdoc.unesco.org/images/0023/002333/233352m.pdf
[124] See: http://unesdoc.unesco.org/images/0023/002338/233813m.pdf
[125] See http://unesdoc.unesco.org/images/0025/002530/253061m.pdf
[126] See: https://iite.unesco.org/news/ministerial-forum-global-dialogue-on-ict-and-education-innovation-towards-sdg-4/
[127] See https://bangkok.unesco.org/content/asia-pacific-ministerial-forum-ict-education-2017

six action points.[128] A total of 29 countries in the region were represented, including 22 Ministers, Deputy Ministers and Director General. It has now been decided to run the event biennially. (BGK/EISD/ICT)

21. Central Asia Symposium on ICT in Education (CASIE). CASIE was launched by UNESCO in 2011 to provide a platform in Central Asia to share experience on generate dialogue about ICT in education. The event was repeated in 2013 and annually until 2016, and most recently in Dushanbe Tajikistan in October 2018[129]. It is aimed at senior policy makers (director level) and experts. (BGK/EISD/ICT)

22. South Asia Regional Symposium in ICT in Education (SARSIE).[130] SARSIE is a recent sub-regional addition to these knowledge sharing platforms, first run in February 2018 in Colombo Sri Lanka. It attracted over 100 participants from six South Asian countries and others in the region, from government, practitioners, private sector and development partners. (BGK/EISD/ICT)

23. AMFIE, CASIE and SARSIE are now planned as complementary events, with AMFIE biennially from 2017 and both CASIE and SARSIE in the interim years. AMFIE is Asia-Pacific wide, attracting developed as well as less developed countries and enabling broad regional sharing and policy dialogue. However, the two sub-regional events, SARSIE for South Asia, and CASIE for Central Asia, bring together countries with more in common, especially poorer ones, and thus can enable a deeper level of exchange and sharing of experience.

24. The African Ministerial Forum on ICT Integration in Education and Training: UNESCO is one of many co-organisers of this regional forum for policy dialogue.[131] Following its first meeting in Tunis under the Ministry of Education in December 2013, a second forum was organised in June 2016 in Abidjan and hosted by the Ministry of National Education Cote d'Ivoire. (ED/PLS/ICT)

25. UNESCO is also a prominent partner in other events. An example is the annual Global Symposium on ICT Use in Education (GSIE), first originated by UNESCO in 2007 and now led by World Bank and the Korean Ministry of Education and the Korea Research and Information Service (KERIS).[132] The theme changes each year and typically about 60 to 80 policymakers from 25 to 35 countries globally participate; in October 2017 the theme was Digital Citizenship in the 4th Industrial Revolution.

26. Though it is their main focus, the above events do not restrict themselves to policy aspects of ICT in Education. They often feature workshops, sub-themes and sessions focusing for instance in ICTs that support TVET or non-formal education; or different modes of distance education and MOOCs. The above are the only major policy-specific events held on a regular basis in ICT in Education policy, pointing to UNESCO as the major player in the area of international networking and policy dialogue. UNESCO entities also run other events covering aspects of ICT in education. For instance the Transforming Education Conference for Humanity (TECH) event in November 2018[133] organised by the UNESCO Category 1 Institute MGIEP. This is the second of five such annual events planned, and focuses mainly on digital pedagogies and the learning environment. Non-UNESCO events on education more generally, or on ICT in education at the implementation level, do host sessions on policy related issues, to which UNESCO is usually invited. BETT Asia for instance is an event organised by ADB and private sector partners but focuses primarily on technologies relevant to the future of education.[134]

[128] See https://bangkok.unesco.org/sites/default/files/assets/article/ICT%20in%20Education/files/amfie-2017asia-pacific-regional-strategy.pdf
[129] See https://bangkok.unesco.org/content/central-asia-symposium-ict-education-2018
[130] See: https://teams.unesco.org/ORG/fu/bangkok/public_events/Shared%20Documents/EISD/2018/Feb-SARSIE/Knowledge%20Brochure%20Series%20-%20Issue%206_SARSIE_Oct19.pdf
[131] For 2016 event see: http://www.africaictedu.org/
[132] See: http://www.worldbank.org/en/topic/edutech/brief/global-symposium-on-ict-use-in-education
[133] See: http://mgiep.unesco.org/tech2018
[134] See https://asia.bettshow.com/

Master Plan Development for ICT in Education

27. UNESCO is extensively involved in supporting the development of Master Plans for ICT in Education at national level. These are almost always conceived as a component of a wider Education Policy, covering a range of ICT in Education components and generally involving several government ministries over a period of time.

28. Master Plan Support in Asia Pacific: In Asia Pacific the development and review of Master Plans in ICT in Education is being supported since 2017 in Bhutan, Bangladesh, Maldives, Nepal, Sri Lanka and Solomon Islands. (BGK/EISD/ICT)

29. ICT in Education Policy Workshops: These were organised for ten Eastern and Central European Countries, Bahrain, Cambodia, Mozambique and Uzbekistan (ED/PLS/ICT). The UNESCO Cluster Office in Jamaica also organised, with some support from ED/PLS/ICT, Policy Workshops in Jamaica, Bermuda, Antigua & Barbuda; and Trinidad & Tobago.

30. National plans for ICT in Education (usually termed Master Plans) are designed as an integral component of wider education policy review, sometimes linking into other policies such as ICT infrastructure. The emphasis is on using ICTs to remove barriers to education and to enhance the quality of education. Existing policies may be reviewed, including against relevant practice in other countries, and then supported for further development. The support methods include Workshops, ongoing advice and support, and in-country expert reviews, including contracting national and international experts as needed. Guidelines and published resources are available.

31. High-income in the region have designed and implemented Master Plans or similar some time ago, and those of Singapore and South Korea are often used as models. Lower income countries might also have developed components of a plan, for instance an infrastructure element within the ICT policy, but only a few have developed full policies without UNESCO support.

32. Targeted National Policy Support: OER

33. Support also targets specific areas of policy associated with ICT in Education, specifically in developing a policy for OER. There are numerous examples of national and regional workshops and seminars since 2014.

34. Workshops on National Policies for OER: These were organised for Bahrain, Indonesia, Kenya, and Oman in 2014; Philippines, Qatar, and Saudi Arabia in 2015; Madagascar, Djibouti in 2016; and Ghana in 2017. (ED/PLS/ICT)

35. Central Asian Sub-Regional Workshop for OER Policy: This covered participation from Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan and was organised in December 2017. (ED/PLS/ICT)

36. Regional Seminar on OER Policies for Gulf States and Yemen: This was organised in March 2015, to reinforce the capacities to develop OER policies and strategies of 30 policy makers from Abu Dhabi of UAE, Bahrain, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Tunisia, and Yemen. (ED/PLS/ICT and the Doha UNESCO Office)

37. Regional Seminar on OER Policies for Eastern African countries: The five participating countries comprised Djibouti, Ethiopia, Ghana, Kenya, and Madagascar, and it was organised in cooperation with Nairobi Office in November, 2015. At the event, Kenya presented its new OER policy and the other four developed a framework for national OER policies. (ED/PLS/ICT and the Nairobi UNESCO Office).

Development and Dissemination of Policy Resources

38. The policy platforms and other events result in a significant number of publications relating to policy, often incorporating research outputs. UNESCO also produces further policy-related publications in ICT in Education, and supports a couple of online platforms to disseminate resources.

39. ICT in Education Policy Platform: The Web-based platform[135] "offers countries a shared space dedicated to transforming education through

[135] https://ictedupolicy.org/

innovative education policy." It is aimed at ministry officials, academics, practitioners and others active in the field. It brings together into a searchable platform a diversity of resources relating to policy and implementation of ICTs in Education, from UNESCO and other sources. Part of the idea is to support an International Network of ICT in Education (INIE) though the volume of postings and interactions on its Discussion Groups is very low.[136] (ED/PLS/ICT in partnership with Weidong Cloud Education Group).

40. The Platform also links to a UNESCO ICT-in-Education Toolkit[137] that contains six 'toolboxes' with a total of 19 tools for policy makers, planners and practitioners to support the development of a national Master Plan for ICT in Education. Originally developed by the Bangkok ICT in education team it is now with the ICT in Education Unit in HQ and though it has not been updated since 2009 it is currently under revision.

41. A separate Asia Pacific ICT in Education Policy Planning Guide was completed in June 2018, and is currently in use by the countries in Asia Pacific supported by UNESCO Bangkok Office as an online resource,[138] though not yet publicly available. It contains 21 tools and resources each separately downloadable. (BGK/EISD/ICT)

42. Examples of others publications and resources, some extending into themes not covered in the policy support actions, include the following:

- Managing tomorrow's digital skills: what conclusions can we draw from international comparative indicators? UNESCO (2018)[139]
- A Policy Review: Building Digital Citizenship in Asia-Pacific through Safe, Effective and Responsible Use of ICTs. UNESCO (2016)[140]
- Open Education Resource: Policy, Costs and Transformation. UNESCO and Commonwealth of Learning (2016)[141]
- 2nd World OER Congress and Satellite Events 2017: a range of policy and practice videos available from the Congress.[142]
- Beyond Access: ICT-Enhanced Innovative Pedagogy in TVET in the Asia-Pacific. UNESCO Bangkok Office (2017).[143]
- OER in Non-English Speaking Countries[144] a series of publications, each with policy perspectives, from IITE beginning in 2011 (in chronological order) covering OER in Lithuania, Brazil, China, Kenya, Poland, Russia, France and, in 2017, Germany.
- Towards Gender Equality in Education Policies and ICTs: An Action Brief and Toolbox.[145] a collaboration between Intel, UNESCO and Girl Rising (2016)
- Model Policy - ICT in Education for Persons with Disabilities[146] a collaboration between, UNESCO, European Agency for Special Needs and Inclusive Education and G3ACT (2014)
- Guidelines on the Inclusion of Learners with Disabilities in Open and Distance Learning[147] UNESCO (2016)

4. Analysis of Policy activities

UNESCO's Strengths and Weaknesses.

43. The global and regional policy fora outlined above play strongly to one of UNESCO's major strengths i.e. its international convening power up to Ministerial level, including high level experts and other stakeholders. Other international organisations, such as the World Bank, OECD and CoL, can

[136] The last featured discussion was initiated in 2017 and received one response; the one prior to that was in 2015 and elicited seven responses.
[137] http://www.ictinedtoolkit.org/usere/login.php
[138] See: http://dev.ictcomp.guide/
[139] https://unesdoc.unesco.org/ark:/48223/pf0000261853
[140] https://bangkok.unesco.org/content/safe-effective-and-responsible-use-ict
[141] http://unesdoc.unesco.org/images/0024/002443/244365e.pdf
[142] http://videolectures.net/OpenEducation/
[143] https://bangkok.unesco.org/sites/default/files/assets/article/ICT%20in%20Education/TVET/TVET%20pub.PDF
[144] For some, see: https://iite.unesco.org/publications/
[145] https://www.ictedupolicy.org/resource-library/content/towards-gender-equality-education-policies-and-icts-action-brief-and
[146] https://www.ictedupolicy.org/resource-library/content/model-policy-ict-education-persons-disabilities
[147] https://unesdoc.unesco.org/ark:/48223/pf0000244355

convene regional or even global level events on the theme. However, UNESCO's experience in the sphere of education and its acceptance as a legitimate and neutral partner enables it to secure the participation of a wide range of high-level stakeholders, and to create platforms for a deeper level of dialogue that can secure, with appropriate preparation, a high level of agreement. The Qingdao Declaration, the Asia Pacific Regional Strategy, and the 1st and 2nd Congresses are testimony to this. There was near unanimous agreement among informants for this evaluation that such convening power is a key UNESCO strength in which it has few if any peers across the area of education as whole. It draws on a number of UNESCO's strengths in the policy domain:

- Its ready access to high-level political and ministerial actors;
- Wide acknowledgement of its role as an impartial and neutral actor in education;
- Its global scope;
- A core commitment to inclusiveness and quality of education;
- A high level of expertise in specific areas of ICT in Education policy.

44. These also feed into the national level policy support. UNESCO brings its sustained focus on enhancing the inclusiveness and quality of education based on humanistic principles and values, and its experience and expertise internationally of using ICTs. Perhaps UNESCO's key strength at this level is its direct access to national policy makers in education, flowing from its status as a UN organization and its Member State-driven mandate.

45. Private sector partners, in organising or funding fora, in policy and in programme support, acknowledge that their own expertise and innovation lies more in the technology than its application in the sphere of education, and look to UNESCO to supply the latter. Furthermore they recognise that UNESCO can also deliver access to policy level, through both the above fora and policy and programme support.

46. Ministry officials, private sector and other stakeholders interviewed also acknowledge the high quality and relevance of the support provided by UNESCO, either directly or with others, including relevant publications.

47. No significant weaknesses emerged from interviews concerning UNESCO's existing policy work in ICT in Education. A general comment was heard a few times: i.e. that UNESCO lacks the resources to follow-through on some areas of policy that would enable a deeper level of implementation and ensure final outcomes are achieved, an issue referred to elsewhere in this case study.

Positioning of UNESCO in ICT in Education Policy Fora

48. It is clear from documentation associated with the fora that UNESCO now presents SDG 4 as the key reference point for all its work in this sphere. This is its primary 'anchor' to position it internationally, which follows from its formal role as the lead agency and coordinator of SDG4.

49. Within that overall framework, the fora fall into two types: those covering a broad range of policy and implementation in ICT in Education at global and regional level, that attract the participation of Ministerial and high level policy and institutional actors; and those supporting general national-level policy planning and OER, that tend to target senior and middle level officials and practitioners.

50. With the former, UNESCO (as outlined above) is seen as the major player in Asia Pacific through its regional and sub-regional events. Globally through the Qingdao process and the Policy Forum during the Mobile Learning Week, UNESCO is also recognised as a leader at supporting policy dialogue and exchange. It has a significant presence in Africa, but Africa in general has many more players in the field of ICT in Education, including those seeking to influence policy. This was confirmed in interviews with corporate actors (including private education entities), donors, ITU officials, international NGOs as well as with UNESCO staff.

51. However, many informants believe that, while supporting these key events, UNESCO is in general poor at enhancing its visibility and at disseminating evidence of good practice.

52. There are also signs that other entities are reinforcing their commitment to the field generally. World Bank, for instance, has recently recruited two ICT in

Education (or Ed Tech) specialists, and ADB and UNICEF are also recruiting experts. These are indicative of the growth in mainstreaming of ICT in education, and of these organisations' commitment to the sphere – each with vastly more resources than UNESCO. As they expand their interest and reach, they are likely to move more to the policy domain.

53. Thus UNESCO may soon find that these other actors are becoming increasingly active at the policy dialogue level, and will need to more clearly confirm its position and comparative strengths.

Distinct functions of international and national policy support

54. While UNESCO supports policy development at both international and at national levels, the goals and outputs generated by each are distinct.

55. International events aim to raise understanding of the potential for ICT in education and how ICT should (and should not) be deployed through policy, and in that way to create an environment, from Ministerial level down, that might be conducive to designing and implementing appropriate policies. Raising understanding of ICTs in education is not an end in itself for these fora, but is rather a means to help reach SDG 4 targets; and UNESCO must sometimes counter a technology-driven approach that can be pursued by industry and others. A review of the structure and presentations of these events suggests that UNESCO pursues this approach systematically, though it is impossible to assess what level of influence this has in the policy arenas.

56. Global and major regional level events are not usually followed up by UNESCO with direct national-level policy support. However, sub-regional events such as CASIE or SARSIE, because of the much smaller number of countries participating, are partly designed as a first step in a process for the UNESCO Bangkok ICT in Education team. Based on discussions with senior policy makers at these events, the team has followed up with national scoping missions, which can in turn lead to direct support activities such as a Master Plan. The Doha Regional Consultation in March 2015, which with just nine countries was more sub-regional in size, served a similar function and the UNESCO Doha office ran national consultation events later in both Qatar and Saudi Arabia with a view to building further policy support for OER, as did some the other Regional Consultations in preparation for the Ljubljana Congress. The five regional seminar on OER Policies for Eastern African countries in 2015 – in Djibouti, Ethiopia, Ghana, Kenya, and Madagascar – was part of a similar process, organised by ED/PLS/ICT with follow-though from the Nairobi office.

57. The choice of countries in which to support policy and Master Plan development may thus be influenced by these events. But it will also be based on direct government requests to the UNESCO office, and by donors' international strategic priorities. Donors may for instance have other, related, activities in a given country with which they may seek synergies. The role of the national UNESCO Office or of the UNESCO National Commissions can be vital in assessing the local circumstances (and also in the development and follow-through of the plan itself). The timing of support is also critical in the selection process. For instance, whether a review of wider education policy or of an existing ICT in education Master Plan is underway or imminent can be a key deciding factor - it was noted already that integration within wider education policy is seen by UNESCO as central to the success and sustainability of ICT in Education policy.

58. Thus these sub-regional events, if systematically followed up, can have a direct link to national policy-level support.

Partners and Resources

59. In general UNESCO seeks partnerships to organise these fora and events with a view to securing additional resources, deepening commitment, and extending their reach and/or scope. The Table below gives an indication of the range of partners, also indicating the lead entity within UNESCO.

Table 9: Features of UNESCO Led Events & Platforms 2014 – 2018

Event/Platform	Lead UNESCO	Main Partners and Donors
2nd World OER Congress (2017)	CI/KSD/ICT	Government of Slovenian, Hewlett Foundation

Qingdao Declaration	ED/PLS/ICT	Education Ministry of China, Chinese UNESCO National Commission; Qingdao Municipality
Qingdao Statement	ED/PLS/ICT	Education Ministry China, Chinese National Commission for UNESCO, Shandong Provincial Education Committee, Qingdao Municipality
AMFIE	BGK/EISD/ICT	Host country government (2017: Korean Ministry of Education); KERIS; Intel (until 2013)
CASIE (2018)	BGK/EISD/ICT, Almaty Cluster Office	Host country government (2018: Education Ministry Tajikistan); KERIS
SARSIE (2018)	BGK/EISD/ICT	Host country government (2018: Education Ministry Sri Lanka); ADB
Global Dialogue: Towards SDG4	IITE	Ministry of Education and Science of the Russian Federation
African Ministerial Forum (2016)	ED/PLS/ICT	Ministry of Education of Côte d'Ivoire, ADEA, GeSCI, AfDB, INTEL, UNESCO, OIF, Microsoft.
ICT in Ed Policy Platform	ED/PLS/ICT	Weidong Group

60. Partners may include the national government (usually Ministry of Education), local city administrations, relevant national and regional institutions, development partners, international foundations and private sector actors.

61. The overall amount and source of funding and resources for these events, and specifically the UNESCO investment, is difficult to determine precisely. UNESCO's financial contribution can be embedded within a wider programme budget: for instance recent AMFIE and CASIE events are covered as a small part of successive KFIT-funded projects (5734, 14409) of the Bangkok UNESCO Office, with a total budget of over US$1.4 million between 2014 and 2018; and SARSIE is covered under a JFIT-funded project (14720), which also supports Master Plan development in Bangladesh, Bhutan, Maldives and Nepal and had a total budget of US$170,000 in 2018.

Funding Modality Strategic Constraints

62. While policy support for ICT in Education is overwhelmingly funded from extrabudgetary sources, some UNESCO RP support is also available for focused activities. For instance a Master Plan scoping mission was undertaken by the Bangkok UNESCO ICT in Education Team to Papua New Guinea (though the Ministry did not subsequently follow through with a formal request for support). Similarly, led by the Doha CI Specialist the Doha UNESCO Office undertook, following the 2015 Regional Consultation, three follow-up technical meetings in Qatar and a Consultation Workshop in Saudi Arabia.

63. Several UNESCO stakeholders have indicated that extrabudgetary funding is relatively easily accessed for ICT in Education as a whole; and indeed that more would be possible to raise in the appropriate circumstances. However, one added that some major donors believe that policy-oriented actions offer them less visibility on the ground in terms of impact with target groups as compared to projects that focus on implementation and ground-level interventions. As discussed further on, it is often difficult to determine the extent to which policy interventions such as fora for policy dialogue and exchange of experience contribute to specific policy change; and (especially given the absence of a Theory of Change) it can be difficult to trace the linkages between policy change and eventual long-term outcomes. This acts as a disincentive for donors under pressure to report tangible outcomes to their respective governments and to the public. In some donor-supported projects, policy actions are therefore relatively small, and embedded within wider programmes that include policy implementation with more discernible results.

64. A further feature of extrabudgetary funding is the difficulty of fitting together projects funded from different donors, each with its own priorities in terms of theme and geographic focus, into a wider strategic pattern of investment for UNESCO. Individual project can be fully compliant with C/5 ERs while still not combining optimally in terms of outcomes. For instance, the development of ICT in Education Master Plans would ideally be followed through with for instance ICT CFT and OER support, and then with further downstream policy implementation. UNESCO is involved in all of these areas though most heavily in policy and institutional development–unavoidably given its resource

limitations and specific strengths–and seldom if ever can it follow-through on the successive steps to achieve and measure an impact.

65. Although other factors also intervene, including the long-term time scale implied, the heavy reliance on extrabudgetary funding can, despite the best efforts of UNESCO entities, constrain the geographic and thematic focus of projects and hence cross-project integration and strategic coherence.[148]

Communication, Cooperation and Cooperation between UNESCO Entities

66. Support for the development of policy in ICT in Education is, as noted above, undertaken primarily by four main UNESCO entities; two in Paris Headquarters, the Bangkok Office, and the IITE in Moscow.[149]

67. With regard to communicating around policy-related events and fora, there is ongoing though non-systematic interaction between the four. A notable individual example of cooperation was around the 2nd World OER Congress in 2017: CI/KSD/ICT led the organisation of this event and ensured, in an effective manner, the involvement of ED in its organisation and that of the related six Regional Preparatory consultations.

68. Most interaction is relatively informal, depending on personal relationships, occasional visits to each other's offices, and attendance at the same events. Invitations are sometimes issued to each other to participate in policy-related activities. All are invited to engage with the Mobile Learning Week, though this is of limited policy-support relevance. However, problems also arise: several entities reported that another had organised events within their geographic and/or thematic space without them being informed in advance, making it impossible in some cases to follow up a last-minute invitation.

69. Concept notes and publications are sometimes circulated for mutual comment and feedback. IITE is currently undertaking a multi-country survey of OER with funds shared from IED/PLS/ICT. But, overall, project-level collaboration in policy support activities is rare between any of the four.

70. While it cannot be assumed that collaboration in policy-level projects will always yield better results, there does appear to be complementary expertise in different entities, and more project-level collaboration would be actively welcomed by the entities involved. It would also lead to more organisational coherence towards the external partners and stakeholders.

71. The predominance of extra-budgetary funding was suggested as a contributory factor to the absence of such actively-sought collaboration. Interactions with specific donors tend to be undertaken by the individual entities, and projects are designed based on the resources available within each. A case was reported of a portion of a Funds-in-Trust project being allocated to another entity at the donor's suggestion– but even this in practice led not to closer collaboration but to a division of the project into two areas.

72. Evidence of a lack of coordination and communication can also be observed in the largely uncoordinated and partly unconnected online dissemination activities of the different entities, covering all areas, not just policy-support. Although there are some links across them, all four key units involved in ICT in education maintain separate Web presences. They are organised differently and it is not possible to search thematically across all three. There is also a degree of duplication between the ICT in Education Toolkit[150], and the ICT in Education Planning Guide[151], the former residing with Headquarters but not yet updated; and the latter recently produced by the Bangkok Office.

73. External observers, including UN, private sector and NGO partners, and others, observe with regret the absence of a single portal or access point, and

[148] See Executive Board Decision: 202 EX/Decisions 5.IIIE regarding improved XB funds management.
[149] Support for the development of policy in ICT in Education has also been provided by other field offices, such as UNESCO Office in Nairobi.

[150] http://www.ictinedtoolkit.org/usere/login.php
[151] http://dev.ictcomp.guide/

a general lack of coherence of wider dissemination activities.

Monitoring and Evaluating outputs and outcomes

74. Immediate participant feedback is usually sought at individual events, and analysed in combination with additional event information for project reporting. Insights obtained from these can be important, especially for improving the planning of subsequent event. Participants can also offer their impressions of the potential extent to which the event may impact on education policy development and on policy implementation within their respective countries. For instance, the feedback survey of participants of the regional AMFIE event in May 2017 gave a 4.29 out of 5 rating for how extensively the event would be expected to impact on policy development within their countries.

75. Yet, while useful, such metrics offer little insight into actual outcomes, and no additional follow-up is foreseen at a later stage, after project completion. Overall, few independent evaluations of UNESCO's policy level interventions at global, regional or national levels have been undertaken[152], apart from the self-evaluation required in final narrative reports submitted to donors.[153]

76. A challenge for evaluations is that policy level activities often yield concrete outcomes for target groups only over a long period of time, usually long after project completion. During that time many factors independent of the original interventions can have a bearing on outcomes. Several UNESCO staff interviewed pointed to this problem.

77. Nevertheless it is notable that UNESCO entities encountered during this evaluation have given little or no consideration to the overall chain of logic that might ensue from their interventions, and how, combined with other factors and assumptions, these might contribute to the ultimate outcomes sought. While most events would have a rationale (or concept note) outlining the context and what it is attempting to achieve, these tend to be limited to a context statement and outputs for participants. There is no explicit overall Theory of Change evident for the policy level work, with any of the key actors.

78. The Qingdao Declaration, the Ljubljana OER Action Plan and Ministerial Statement and the Declaration or Asia-Pacific Regional Strategy may be regarded as achievements in themselves; and as outputs with the potential for concrete outcomes. They represent commitments from Ministries and others stakeholders (albeit optional and lacking enforceability) to adopt a certain approach to ICT in Education, based around SDG priorities. That approach has been strongly influenced by UNESCO and its focus on equitable and quality education and open knowledge sharing. Reasonable assumptions can be drawn from (proxy) indicators, for instance that the documents are referenced by officials and other stakeholders when considering or designing related policy issues. Similarly, international experience encountered at these events, it can be assumed, will resonate when similar activities are being planned nationally and perhaps further efforts will be made to explore the relevance of the experience. Ongoing networking may also be underway between event participants leading to fruitful interactions and outcomes. Additional affirmative studies of these areas could underpin the development of a Theory of Change.

79. The Ljubljana OER Action Plan and Ministerial Statement has a likely further outcome: the proposed UNESCO Recommendation on OER. This in turn would be expected to have concrete implications in the future in terms of reinforcing the implementation of OER policy in many Member States.

80. Virtually all Master Plans in Asia Pacific have been endorsed, or are expected to be. The operational logic for the UNESCO Bangkok office is that Master Plan endorsement may be followed through with an ICT CFT support project, assuming funds are available (and notwithstanding the constraints of extrabudgetary funding outlined above), the Ministry is keen to proceed, and the circumstances are right. This has occurred or is underway in Bhutan, Sri

[152] All extrabudgetary projects exceeding US$1.5 million must undertake an external evaluation (recommended at 3% of the budget), though there is no requirement that the policy component of a project, often with a modest budget and difficult to evaluate, will be specifically included in the evaluation. See Evaluation Policy: https://unesdoc.unesco.org/ark:/48223/pf0000253907

[153] Hewlett Foundation funded an independent evaluation in 2015 of UNESCO's support for national OER Policies in Indonesia, Kenya and Oman, just before the period covered by this evaluation. ORS Impact (2015) *Evaluation of the William and Flora Hewlett Foundation's Investment in International Policy Advocacy for Open Educational Resources.* June

Lanka and Nepal. In Jamaica, the Master Plan developed by the UNESCO Cluster Office there has been followed by an ICT CFT project, both funded by RP. Other than this the government may itself also proceed with other aspects, sometimes with donor support from other sources.

81. These cases of follow-on interventions should in principle offer an opportunity to evaluate not just the role of policy support in enabling the development of ICT CSTs (ICT Competency Standards for Teachers), but also–through the evaluation of the ICT CST projects – the downstream impact of implementing competency standards themselves. Thus the link between policy support, policy implementation and eventual outcomes could be analysed. However, there are limitations here too. The existing evaluations of ICT CST projects[154] were completed before the end of the projects themselves, and hence long before final outcomes for the education processes could be considered. They necessarily stop short at intermediate outcomes, for instance for teacher training institutions. One evaluation recommends the following:

> "The evaluation concludes that while there are indications of impact of the CFIT project measuring impact immediately after implementation remains difficult. It is recommended that funding is made available to study the impact in all countries after 3-5 years of implementation." (Institute of Policy Support 2016. P. 9)

82. The Bangkok ICT in Education Team would strongly welcome such longer term evaluations. However, they point out that it is not possible with project based extrabudgetary funding since all activities cease on closure of the project; and no other source of funding is immediately available.

83. Some OER policy support has resulted in identifying, building, localising and disseminating OER content; and in many cases this process is supported by UNESCO with training. A 2015 evaluation of UNESCO OER policy-level engagement in Indonesia, Kenya and Oman concluded that:[155]

> "…awareness within the Ministries of Education has been enhanced and local champions have emerged. National Policy is either in place or under development in all three countries. Implementation has lagged behind, but the project was successful at reaching the pilot stage, with teacher training among a small cohort either completed (Indonesia), in progress (Kenya), or nearly ready for implementation (Oman)." ORS Impact 2015 p5

84. The work on the ICT CFT Harnessing OER Project in Africa has also in some cases resulted in teacher training standards being translated into pragmatic training tools, programmes and implemented to train teachers.

85. The next stage of outcomes i.e. beyond implementing policy components and the availability of OER content, is, however more difficult to assess. For instance, no studies have been undertaken by UNESCO to assess whether the adoption of competency standards for teachers in ICTs has resulted in improved quality of secondary or primary education or more effective deployment of ICTs in the education process. Similarly, whether the use of OER in actual education of teachers, or in formal or non-formal education at different levels, has improved access to and quality of education, or affected costs, has not been evaluated.

86. The development and dissemination of resources, including printed publications and online toolkits and resources, is also an area of activities in which outcome evaluation is limited. Although the number of hard copies distributed and soft copies downloaded is usually known, the level of use of policy-related publications and resources, the purpose to which publications are applied, and the results achieved are also generally not systematically monitored by UNESCO. An exception might be where such resources are

[154] Institute of Policy Support. (2016) *Evaluation of UNESCO -China Funds-in-Trust Project: Quality Teachers for EFA – Enhancing Teacher Education for Bridging the Education Quality Gap in Africa*. Draft Final Evaluation, December; (Author unknown) (Lim, Cher Ping (2017) *Summative Evaluation Report: Korean Funds-in-Trust (II). Project on Supporting Competency-Based Teacher training Reforms to Facilitate ICT-Pedagogy Integration.*

[155] ORS Impact (2015) *Evaluation of the William and Flora Hewlett Foundation's Investment in International Policy Advocacy for Open Educational Resources.*

deployed as part of larger UNESCO support activities in a Member State. In this case, direct observation and interaction can provide feedback on the value and utility of the resource.

Outcomes against Expected Results and Performance Indicators

87. Under Major Programme I, 37/C/5 covering the period 2014 to 2017, ER7 comprises the key relevant result sought.[156] The information below is reproduced from the Analytical Programme Implementation Report: (January 2014 – December 2017).[157] It includes results from both ED Sector and IITE.

MPI ER 7: National capacities strengthened to develop and implement technology policies in education, esp. in teacher training and professional development (2014 – 2017)

PI: Number of countries supported by UNESCO which have scaled up their ICT in education policies or programmes: **Target:** 2014-2017: 25 Member States **Target CAP 2016-2017:** ICT in Ed. Policy web portal	• 29 countries were supported to review and develop ICT in education policies: Albania, Austria, Bahrain, Bhutan, Bulgaria, Cambodia, Chile, Estonia, Georgia, Hungary, Jamaica, Kenya, Kyrgyzstan, Lithuania, Mauritius, Mozambique, Papua New Guinea, Romania, Rwanda, Seychelles, Slovenia, Solomon Islands, Sri Lanka, Thailand, Uganda, Ukraine, United Republic of Tanzania, Uzbekistan, Zimbabwe • A global ICT in Education Policy Platform was established
PI: Number of countries supported by UNESCO in developing and adopting open educational resources (OER) **Target:** 2014-2017: 20 Member States	• 19 countries received support to establish national OER policies or framework programmes: Antigua and Barbuda, Bahrain, Djibouti, Ghana, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Madagascar, Oman, Philippines, Qatar, Saudi Arabia, Slovenia, Sudan, Tajikistan, Togo and Uzbekistan • An OER indicator on policy-making, monitoring and evaluating OER polices has been devised

88. The report notes that the ER has been fully achieved (p.23). The narrative discussion is as follows:

ICTs in Education

89. 64. The new ICT in Education Policy Guidelines and an ICT in Education Policy Platform were launched during the quadriennium to assist education policy makers and planners respond to the emergence of new technology developments and the needs of the education system. UNESCO supported 61 Member States in developing and implementing ICT in education policies and programmes, standard-based programmes for teachers and open educational resources (OER). The UNESCO Institute for Information Technologies in Education (IITE) has been working with the UNESCO Associated Schools Network (ASPnet) and UNESCO Chairs on the ICT CFT, which is being revised, as well as OERs. Mobile Learning Week has become UNESCO's flagship ICT in education event. (p.15)

90. The research here indicates that not all the countries listed above actually completed and endorsed ICT in Education policies (Master Plans) or OER policies. The wording on the ERs and in reporting on achievements is slightly ambiguous in this regard: "countries were supported to review and develop ICT in education policies"; and "countries received support to establish national OER policies or framework programmes". Thus the targets focus solely on the number of countries supported, and not on the numbers completing these policies and their endorsement by governments; still less on the quality of these policies or their implementation.

91. The following presents the relevant PI under Major Programme V i.e. ER4.

[156] The ICT CFT policy work is omitted here as it is covered in Case Study 1.

[157] *Executive Programme adopted by the General Conference: Part I.* 204 EX/4 Paris 9 March 2018. P.23

MPV ER4: Member States have advanced universal access to information through Open Solutions

PI: Number of Member States formulating Policy Frameworks and taking concrete measures on Universal Access to Information and knowledge using ICTs, mobile devices and Open Solutions with special emphasis on teachers, learners, researchers, information professionals and/or scientists **Target** 2014-2017: • At least 70 Member States, including 35 in 2016-2017, adopt national or regional policies, including through the enhanced capacities of national institutions, as well as global fora in the areas of Open Educational Resources (OER), Open Access to scientific information (OA), Open Data and Information Accessibility	Member States adopted or took measures to adopt national or regional policies: 22 on Open Access, 25 on OER, 2 on information accessibility

92. Since the PI does not differentiate between the numbers of Member States adopting OER policies as distinct from those taking measures in that direction, it is not possible to determine the breakdown of the two categories. However, this was the largest of the three policy areas in terms of Member State outcomes. The report concludes that the Target was partially reached.

93. Whether there is duplication between the above result and those reported MPI: ER7 PI (Table 2) relating to OER policy support is not clear, though CI and ED do collaborate in this area. In Table 2 the total number of Member States that "adopted or took measures to adopt OER policies" is 25; while in Table 1 the number of Member States that "received support to establish national OER policies or framework programmes" is 19.

94. The narrative report of MPV states:

> 186. Fifteen years after the term "Open Educational Resources" (OER) was coined at UNESCO and five years after the first OER Congress, the 2nd World OER Congress brought together some 500 participants from over 100 Member States. Organized with and supported by the Government of Slovenia, the Congress produced the "Ljubljana OER Action Plan" and a Ministerial Statement. At UNESCO's 39th General Conference, Member States called for the development of a Recommendation on OER to be presented at its 40th session. (p87)

95. While these are certainly achievements, reporting so far remains in terms of outputs.

5. Priority Gender Equality

96. Although the UNESCO Priority Gender Equality Action Plan 2014-2021 contains a number of ERs, PIs and benchmarks relating to ICTs and education, none specifically refers to the policy level.

97. SISTER contains an entry for each project recording whether it is gender-neutral, gender-sensitive, gender-responsive or gender-transformative. Some projects have multiple components not all of which are policy related, and it is therefore not always possible to differentiate entry refers to policy interventions.

98. Interviews did reveal some insights.

99. First, projects in ICT in education that specifically address gender equality tend to be closer to implementation level. For instance, several school-based ICT in Education projects explicitly prioritise gender equality and girls' and women's empowerment. Most UNESCO entities also celebrate Girls in ICTs day. On the other hand, none of the policy-focused projects have the promotion of gender equality as an explicit goal in project documentation.

100. Second, gender equality often does not feature in performance indicators for policy-related projects, and even during implementation the sole reference can be to gender disaggregation of survey and/or event participation. For instance the Bangkok's ICT in Education Team project ICT to Facilitate SDG4 in South Asia (14720) Project Document includes the following under the Gender Equality heading:

> "Gender-disaggregated data will be gathered through the situational analysis to determine how policies, competency standards, and curriculum can address gender-related concerns."

101. Projects can also go further, as for instance in this project document: *Regional* Strategy *and Planning Toolkit to Shape Up ICT-Supported Lifelong Learning for All* (14565) from the same unit:

> "The Regional Study and Regional Strategy will consider and analyse

gender-disaggregated data where it is obtainable and report the findings. Gender issues will be raised at capacity building workshops and as part of Master Plan development in the pilot countries, in particular, ensuring inclusive access to ICT to avoid digital divides between genders as well as any other vulnerable populations with special needs."

102. Neither of the above projects includes a reference to gender equality among performance indicators, which tend to be limited to quantitative aspects of policy development, approval and implementation. The final Project Progress Report of the Supporting Competency-Based Teacher Training Reforms to Facilitate ICT-Pedagogy Integration Project (14409), covering a four year period to October 2017 makes no reference to gender equality. The Master Plan Workshop Assessment reports (produced based on a survey immediately after the event) and those of the successive CASIE, SARSIE and AMFIE do not include a gender breakdown.

103. However, staff involved in Master Plan development confirm that they raise gender issues as a matter of routine, and remind their government partners, often frequently, of the need to address gender equality. But it is largely informal, and in a policy-support setting they often feel they are not in a position to make significant demands. One commented that most teachers were women anyway.

104. Similarly neither of the two Hewlett Foundation funded projects (2015-2017 and 2017-2020) to support OER policy include specific reference to gender equality, apart from a general commitment to recognising UNESCO global priority to gender equality and the specific commitment:

> "All activities, outputs and results will be designed to ensure equal participation of women and men and milestone reports will highlight how the Project has contributed to the enhancement of the role of women in the development, use, and sharing of OERs." (p.5: 2015-2017)

105. Neither the April to December 2016 nor the January to July 2018 Interim Reports contains a reference to the role of women or to gender equality. The independent evaluation of the predecessor project also makes no reference to gender equality.[158]

106. At the levels of outputs, at least in terms of inter-ministerial agreements, the issue is visible.

107. The *Ljubljana OER Action Plan 2017* and Ministerial Statement contains several references to developing a gender-sensitive policies and the need for a framework that ensures gender equality. Similarly, the *Qingdao Declaration* refers to a commitment to "gender equality and women's empowerment in sustainable development". And *the Asia-Pacific Regional Strategy on Using ICT to Facilitate the Achievement of Education 2030* calls for "gender-responsive policies to address gender disparity in ICT-supported learning".

6. Summary and Conclusions

Evaluation Questions addressed

108. This Case Study contributes to all five top-level Evaluation Questions, but only in so far as they relate to support for policy development.

109. Under Question Theme 1: UNESCO's comparative strengths in ICT in contributing to the 2030 Agenda through ICT in Education, particularly relevant are questions: 1.1 "Is UNESCO, as compared to other organisations, best placed in terms of contributing to the 2030 Agenda through ICT in education?"; 1.2 "How can UNESCO strategically position itself within the UN family and towards external stakeholders…?" and, partially, 1.4 "Are the two Global priorities Gender Equality and Africa effectively mainstreamed..."

110. Under Question Theme 2: Internal Coordination and Coherence throughout the Organization the following questions are addressed: 2.1 "Have UNESCO's organizational structure, working methods, managerial support, role distribution and coordination mechanisms adequately assisted in the delivery of its initiatives in ICT in Education in an efficient and effective way?"

[158] ORS Impact (2015) *Evaluation of the William and Flora Hewlett Foundation's Investment in International Policy Advocacy for Open Educational Resources.* June.

and partially: 2.2 “Are resources adequately allocated/shared/ distributed?”; and 2.4 “How can the Organization best manage the work in this area in the future, in a coherent and coordinated manner.”

111. The question addressed under Theme 3: Partnerships, cooperation and fundraising is 3.1 “Was advocacy for ICT in Education strategically and effectively pursued with donors and relevant stakeholders to mobilize partnerships and additional resources…”

112. Under Question Theme 4: Results and Sustainability, questions 4.2 “What are the key achievements and challenges and, what factors have been influencing these…” and 4.5 “What provisions have made to ensure sustainability of results?” are addressed; and question 4.3 “Have UNESCO’s interventions reached the intended target groups…” is addressed to the extent possible.

113. With regard to Question Theme 5: Visibility and Communication questions, question 5.1 “To what extent have UNESCO’s achievements in the area of ICT in education been visible internally and to external stakeholders?” is addressed; and question 5.3 “How does the way in which this line of work is reflected in the C/ 5 … impact on its visibility, communication and possibly, funding and longer-term impact?” is partially addressed.

Main Actors and their Interactions

114. UNESCO supports a range of policy-related activities in ICT in Education. Four key UNESCO entities are responsible for almost all of it, three under the Education Sector and one in the CI Sector. Since ICT in Education is not a distinct UNESCO programme per se, none of these formally has a lead role, and their policy support activities tend to be planned, managed and implemented relatively autonomously from each other. Communication and cooperation between them is for the most part reactive rather than proactive, and bilateral, with a couple of exceptions such as the consultation on Version 3 of the ICT CFT Handbook in which all participated. Collaboration at project level is rare, but there are some instances mostly between the two entities located in Paris, and once the collaboration is initiated, the results are recognised as mutually beneficial.

115. There are also cases of miscommunication in areas where their work overlaps geographically and thematically; and the two entities outside of Paris in particular feel they are not fully informed of developments and activities and sometimes not invited to participate in relevant actions. The single event in which they all participate is the Mobile Learning Week, though the opportunity this offers for more intensive interaction and cooperation is not maximised.

Despite a genuine interest and willingness of individual entities within UNESCO to exchange and cooperate, the current institutional configuration in terms of programming, monitoring and reporting responsibilities, and the visibility and communication achieved by each individual entity, are not facilitating an organization-wide approach. This is not least also due to the absence of a common organizational vision for UNESCO’s role in ICT in Education.

116. In terms of their Web presence, the fragmentation of the presentation of their policy work and resources, and some duplication, is evident to most stakeholders inside and outside of UNESCO. Many external partners believe that the visibility of the field is not as high as the quality and scale of the work would merit, and that opportunities for fruitful partnerships may be lost (though they are referring to UNESCO’s ICT in Education activities more widely and not just those in the policy domain).

The existing fragmented Web presence of UNESCO’s ICT in Education activities is likely to have negative consequences for visibility and credibility, and may limit fundraising and partnership potential.

Levels of Policy Support and links to Implementation

117. At global and regional levels (particularly Asia-Pacific and to a lesser extent Africa), UNESCO leverages its key strengths to convene high-level platforms for dialogue, exchange or experience and broad policy consensus development. In addition to exchange of experience several of these have led to Inter-Ministerial endorsement of policy statements and plans in ICT in

Education that embody a strong UNESCO imprint in their focus on inclusive and quality education. One, the Ljubljana OER Action Plan and Ministerial Statement, is likely to result in a UNESCO Recommendation. These documents have become reference points for policy development among Member States.

118. Sub-regional policy-related events are characterised by a smaller number of participating countries that have more in common with each other. These are usually designed with a view not just to knowledge exchange, but as opportunities for UNESCO to explore with Member States the possibility of further support interventions in ICT and Education, for instance Master Plan development or OER policy. Several factors determine whether a follow-up scoping mission may ensue; and whether that in turn might lead onto a policy support project. These include the level of interest and support expressed by the Member State, the assessed readiness to achieve results, and, where RP funds are unavailable (which is in most cases), on XB donors' priorities.

UNESCO successfully leverages its expertise and convening power to organise high-level global, regional and sub-regional meetings, and UNESCO is recognised and valued as a leader in policy-related forums. Outputs achieved are positive, though outcomes are difficult to assess, and the selection of countries does not always fully reflect the strategic choice of UNESCO in terms of need.

119. At national level most of UNESCO policy support in ICT in Education is directed towards ICT in Education Master Plan development and OER policies. Many such policies have been adopted in both areas by Member States, but it is not possible to determine precisely how many since the relevant C/5 PIs do not require reporting on this.

120. It is also unclear how many of these have proceeded more deeply towards implementation by for instance developing an ICT CFT framework and supporting its implementation, or systematically developing, localising and enabling the use of OER content. In general the resources available for UNESCO to support policy implementation, even at the institutional capacity building level, is limited compared to the number of countries in which policy support has been provided and in relation to the volume of resources required for implementing the various component of policy.

121. Where ICT CFT projects have been (or are being) supported (in most cases following the adoption of a Master Plan) in Member States in Asia Pacific, Africa, and in the Caribbean (Jamaica), UNESCO support usually extends somewhat beyond adopting the Framework towards curriculum development, capacity building of teacher training institutions, training of teacher trainers, or accreditation systems. Similarly, OER policies are followed up in many cases by some further development and dissemination of content.

122. Many UNESCO, NGO and private sector stakeholders interviewed have affirmed that UNESCO's work is effective at supporting policy development. But several have also noted that UNESCO then sometimes withdraws, leaving something of a vacuum for the next steps.

123. Several factors might explain this, the principal one being a lack of sufficient resources at the disposal of UNESCO. The investment needed to support the implementation of policy is many multiples of that needed to support its development; and a range of additional skills are also needed. When embarking on a policy support project a key factor in the first place is the level of commitment evident from the Member State to the policy area, and hence the likelihood that it will provide sustained support.

124. However, in countries where the willingness is present but the resources are lacking, UNESCO does not appear to engage systematically with other potential development partners that might pick up the process of policy implementation at this stage, and come forward with the resources needed.

125. It is also worth noting that many UNESCO entities, including but well beyond the four key ones, are involved in ICT in Education at the level of implementation, and at the level of the classroom or informal education. However, these are seldom related directly, or even indirectly, to the policy support activities, either being geographically elsewhere or far too downstream to experience an impact within an appreciable time period.

UNESCO's expertise in supporting national level policy is recognised and in demand, though the outputs and outcomes are not clearly captured in the C/5. UNESCO is sometimes perceived as giving insufficient consideration to the

challenges facing and investment needed to sustain downstream implementation of policies. There may be potential for building strategic links by reaching out with Member States to other major development partners, from an early stage, with a view to securing investment in implementation over the medium to long term. There may also be some scope for linking UNESCO's policy work of the four key entities more closely with classroom level work in other entities of UNESCO.

Sources of Funding and Strategic Implications

126. The vast bulk of funding for UNESCO's policy-related ICT in Education activities comes from extrabudgetary sources, though the precise proportion from each source cannot be determined. Two key entities believe that although more funding for ICT in Education as a whole could be forthcoming from donors, a policy focus is seldom the donors' highest priority since it is difficult to discern concrete impacts. Thus one implication of the predominance of XB funding is that it may lead to a tendency away from investing in policy support.

127. There are also others.

- The strategic focus of the donors may in effect lead to a preference to include certain Member States in projects and not others; and limited RP funding undermines its effectiveness as a mechanism to direct support towards those excluded. (This is less likely to apply to global level work.)
- Donor priorities can limit the extent to which different projects can develop synergies, and the scope for strategic planning among senior management.
- XB funded projects face an additional barrier to project-level collaboration and cooperation between different units, even within a given sector or division, due to an understandable tendency for managers to ensure that project proposals will enable the continuation of a unit's existing temporary staff and possible expansion.
- The temporary nature of these contracts affects professional development prospects and a commitment to the wider strategic goals of UNESCO, as distinct from those of the project, and in the long-term may lead to a failure to build up institutional expertise and memory and potentially affect UNESCO's credibility.

Successfully securing significant XB funding enables UNESCO to undertake an impressive volume of work in ICT in Education. However, there are potentially negative implications that merit examination across the field, with a view to exploring measures to address them. For instance the possible bias against policy work might be addressed through tracking and documenting the outcomes in a systematic manner, and also by developing a Theory of Change to illustrate clearly the links between these events, policy change, and education improvement. Closer cooperation between entities in relation to strategically designing projects might also help to build greater synergies, and to develop wider staff career options within UNESCO.

Partnerships and Visibility

128. Partnerships are deployed to good effect in some areas of policy support. Long-term partnerships between UNESCO and Hewlett Foundation and CoL have enabled a sustained strategic approach to OER, and yielded results. UNESCO has deployed its strengths to leverage strong Member State host-partner support for most of its global and regional policy events; and international NGOs, UN agencies and private sector actors have been successfully attracted for both funding and to broaden stakeholder participation. Such high-profile events are relatively attractive for most organisations, and while they also have the benefit (as some would see it) of avoiding a long-term commitment, partners often continue to support successive events.

129. The fragmentation of UNESCO's web presence in ICT in Education and its visibility may influence the extent to which it can attract partnerships especially in activities that lack the profile of high-level regional events. Specifically, several interviewees from Member States, UNESCO staff and others point to a major gap in UNESCO's partnerships (referenced above): i.e. UNESCO provides policy support and sometimes takes a step or two towards

implementation, for instance through institutional capacity building, but then withdraws, leaving a gap in relation to sustaining and deepening the work underway.

Sustainable strategic approaches in partnerships for policy work can offer a guarantee of continuity and are more likely to yield longer term results. They also provide an opportunity to demonstrate UNESCO's strengths and attract additional resources. However, UNESCO does not optimise its visibility in the field and this, combined with other factors, this is likely to be limiting its capacity to attract and sustain the attention of potential partners.

Assessing and Evaluating Outcomes

130. The policy-related interventions in the period 2014 to 2017 have reached most of the relevant ER PI targets in MP1 and MPV. However, these go little beyond enumeration of the Member States to which support in policy development has been provided. It is not possible to draw any conclusions as to whether policy is endorsed, implemented or effective.

131. It is reasonable to assume that high-level fora and their outputs do have an influence on policy, through capacity building, filtering down and knowledge exchange, but the extent and nature of outcomes are difficult to evaluate. Among Ministries of Education staff, UNESCO National Offices and international experts interviewed, there is agreement that UNESCO's expertise in policy development is high, that the policy support is very relevant and appropriate to country needs, and that the quality of policies produced is high. Many examples were cited of the successful implementation of at least the first steps of policy. This aligns with the small number of evaluations that have been undertaken of UNESCO's policy support in this field.

In the absence of a clear Theory of Change in the policy work in ICT in Education, UNESCO is unable to measure and communicate in particular its longer term results, and to link the problem addressed to the outcomes sought via these interventions. Although they are quite resource intensive, methodologies do exist to address the challenges of policy intervention evaluation, but UNESCO does not deploy them. Such evaluations, currently entirely lacking, would give a clearer picture of the level and nature of success that UNESCO is achieving, and enable it to use that knowledge to leverage more resources and partnership.

Gender equality

132. Although gender equality issues do appear in outputs of inter-ministerial meetings they are generally absent from project Performance Indicators, are rare in reporting, and are not evaluated. Nor is gender equality addressed in any meaningful way at the project design stage.

An opportunity is currently being missed to develop a thematic focus on gender equality issues, and address it in an important field with increasing relevance within Agenda 2030 i.e. ICT's contribution to inclusion in education.

L. Case Study 3: Communication, Coordination and Collaboration in ICT in Education

Contents

1. Overview of the object of evaluation

1. ICT in Education emerged in UNESCO from several directions, reflecting the global rise of interest in recent decades in this field as a means to improve access to and the quality of education and learning. Among UNESCO entities active from about the year 2000 onwards was the IITE, the Regional Office in Bangkok, the Education Sector and the Communication & Information Sector. As actions were developed, cooperation grew between these, not in the context of a coherent UNESCO framework for ICT in Education, but organically as the need arose.

2. The field continues to grow globally, driven by commercial interests but also by educational needs, the knowledge society and emerging opportunities. The mainstreaming of ICT in Education has major potential, but has a long way to go. The vast majority of informants interviewed agree that the voice of UNESCO, by keeping equitable and quality education at the centre of the debate and with its global reach and the respect of Governments, is critical to this debate.

3. For UNESCO a key question is whether current practices and mechanisms for communication, cooperation and collaboration are optimising the resources and activities of the various UNESCO entities involved in ICT in education, and helping UNESCO to position itself externally to contribute to and influence the wider global environment in ICT in Education.

2. Current State of Communication, Cooperation, Collaboration

4. Like any large organisation, UNESCO faces a constant challenge in balancing vertical and horizontal management processes and dynamics; between the institutional focus and coherence provided by centrally driven policies, and the innovation, motivation and relevance that comes from decentralised action. Overlaid on and complicating this are factors stemming from the growth trajectory of UNESCO's activity in ICT in Education, and from the nature of ICTs themselves in terms of their ubiquitous potential deployment across all aspects of education and knowledge societies.

Productive cooperation within UNESCO

5. The evaluation found several examples of productive cooperation and collaboration, resulting in beneficial outcomes, among them the following.

- The mainstreaming of OER in Member States is likely to receive a boost from the work of an Expert Group established and led by Section on ICT in Education, Science and Culture (CI/KSD/ICT), that includes the Unit for ICT in Education (ED/PLS/ICT) and IITE, to coordinate the process of developing the Recommendation on OER for UNESCO Member States.
- The UNESCO ICT CFT Version 3 will support Member States to build national institutions and capacities. The process of fully updating and expanding this benefited significantly from the work of a Reference Group, initiated at Director level between CI and ED, that was led by CI/KSD/ICT and established cooperative links with ED/PLS/ICT, IITE and others from

2016 to 2018. An Expert Group emerged from this, which engaged a consultant to assist in producing the new version. The Draft was circulated widely by CI/KSD/ICT, the unit responsible, to all relevant entities and significant feedback was received from units in ED, BKG/EISD/ICT in Bangkok and elsewhere.

- ED/PLS/ICT initiated, planned and secured funds for three gender related Projects and decentralised them for implementation, while providing backstopping. These were: Defining, measuring and promoting gender transformative skills for women and girls in the digital age (14970), implemented by UNESCO's Gender Equality Division (under the Cabinet) with the Education Sector (ED/IPS/IGE); Empowering Women and Girls in Mobile Technologies in Myanmar (9470) implemented by UNESCO's Myanmar Office; and Mobile Literacy for Out of School children in Thailand (7843) implemented by UNESCO Bangkok (BGK/EISD/NFE)
- Many interviewees pointed to the Mobile Learning Week, run annually in March, as the most important opportunity for UNESCO to present itself as a forum for information exchange and networking with the wider global environment, while also showcasing much of UNESCO's work in core parts of the field of ICT in Education. It is valued as an opportunity to meet other actors in the field, including private sector, UN agencies and NGOs, with the potential for exchange, and developing relationships and future partnerships with others in, or interested in the field,
- At the same time, Mobile Learning Week offers the best opportunity for exchanges between UNESCO entities involved in ICT in Education. It was valued by UNESCO staff in ICT in Education not just for the scheduled activities (presentations, side events, exhibition, strategy labs and the Policy Forum), but for enabling informal meetings and exchanges.
- Communication among those in the ICT CFT Harnessing OER project (6343) led by CI/KSD/ICT, totalling nearly 30 participants across 15 countries mainly in Africa and Arab States, has been greatly enhanced through the medium of a WhatsApp group, "UNESCO ICT CFT Champions", launched in July 2018 in the framework of the programme.
- In terms of inter-entity collaboration IITE is currently undertaking a regional survey of OER covering six countries with funding through ED/PLS/ICT, which also acts as a pilot for the survey instrument.
- The implementation of the Transforming ICT in Africa (9700) project in East Africa was cited several times as an example of an effective and sensible project-level collaboration. What was unusual was that the funds came through the ED Sector in HQ, but the CI Advisor was leading the implementation in Nairobi. [159]

6. Interviews also revealed many examples of day-to-day cooperation and provision of expertise between UNESCO units e.g. between the BGK/EISD/ICT and the National Offices in countries in which the ICT CFT was implemented, and in supporting Master Plan design; between ED/PLS/ICT, CI/KSD/ICT and the Jamaica Office in supporting the Master Plan and ICT CFT there; within the ED Sector between ED/PLS/ICT and the Section of Teacher Development (ED/ESC/TED); and between ED/PLS/ICT and CI/KSD/ICT in the preparation and implementation of the OER Ljubljana event.

7. Ongoing project-level collaboration should be, and to a large extent is, the norm between UNESCO entities in all fields, and is anticipated in project planning and documentation.

Opportunities for improvements internally

8. However, many interviewees drew attention to areas of concern, and most

[159] This also contributed to the ICT CFT Harnessing OER Project components that were integrated into project activities of the CFIT and KFIT projects.

believe there is scope for improvement in terms of better communication,[160] and closer engagement in planning and in implementation; and in communicating and exchanging externally.

9. Regarding communication, some entities involved in ICT in Education, especially those outside of Paris, feel 'outside of the loop' as one expressed it. One or more units have noted the following:

- There are no channels for ongoing interaction on developments in other UNESCO units relevant to their sphere, including project activities, and expertise and resources that might be available there;
- Actions are initiated from HQ in a region without UNESCO units in that region being informed;
- Entities are not always informed about, or invited to, opportunities to interact with potential donors;
- Planned publications are not always fully circulated for contributions, or the draft for comments.
- There are limited opportunities for exchange of knowledge between projects working in the same thematic area.

10. Some UNESCO units working in similar thematic areas engage in only occasional and task-specific interaction. For instance, apart from consultations concerning the review of UNESCO ICT CFT Version 3, ongoing communication between the entities is infrequent and unsystematic, despite working on similar interventions. Similarly, many units across UNESCO are involved in the deployment of ICTs in teaching and learning environments, but contact between them tends to be occasional and informal.

Opportunities for improving internal and external networking

11. Many informants point to areas in which they would welcome more cooperation, and deeper collaboration.

12. Although there is wide agreement on the value of Mobile Learning Week, many believe it could do more and some would welcome wider collaboration in planning and implementing the event. It is regarded as an opportunity to develop, and give greater visibility to, a diversified but coherent UNESCO presence in ICT in Education, including highlighting the value of UNESCO's multi-disciplinary approach and its integration of ICT within its wider humanistic approach to education and SDG 4.

- It also offers an opportunity for deeper and sustained interaction between the various UNESCO entities involved, further exploring that multi-disciplinary potential. Mobile Learning Week could be designed more systematically as a UNESCO-wide window to the outside world, as well as a central meeting place for all those involved in ICT in Education and related activities.
- None of the various Websites associated with ICT in Education[161] offers a coherent and comprehensive overall picture of UNESCO's work in the field, the levels and types of interventions, and the specialities and strengths of various units. A review of them as part of this evaluation confirms that although there are linkages between various Websites and topics, there is no overall thematic coherence; documents and resources pertaining to a specific theme can be distributed across several sites; and it is not clear which sites are current and which are no longer used. A degree of duplication is also evident.

[160] The 2017 HRM Global Staff Survey found that UNESCO needs to enhance its external and internal communication. https://en.unesco.org/sites/default/files/global_staff_survey_2018-overall-summary-report_en.pdf

[161] These include but are not limited to: ICT in Education (https://en.unesco.org/themes/ict-education); ICT in Education Policy Platform (https://www.ictedupolicy.org/) ICT in Education UNESCO Bangkok (https://bangkok.unesco.org/theme/ict-education); UNESCO ICT Competency Framework for Teachers (http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/unesco-ict-competency-framework-for-teachers/); OER Commons Hub (https://www.oercommons.org/hubs/UNESCO) and IITE (https://iite.unesco.org/)

13. More generally, most informants across ICT in Education would welcome more cooperation with other UNESCO entities engaging in activities related to their own, beyond information and knowledge sharing, and believe it would be mutually beneficial. Areas suggested for cooperation included defining key developments and trends in the field, building a clear and comprehensive picture of all UNESCO's strengths and interventions in the area, and presenting a common message to Member States, the rest of UNESCO and external stakeholders that focuses on UNESCO's key features such as inter-disciplinarity.

14. In terms of more concrete collaboration, many informants strongly welcome the idea of joint projects and actions, inter-sectoral, multidisciplinary and across different entities, and with other units in the same entity. Included in these were also joint evaluations, events and research actions.

15. But they also refer to significant obstacles to achieving this. Informants recognise that an investment must be made for more communication, cooperation and collaboration, in terms of time, funding, and/or management and structural disruption. While pointing to benefits, the mechanisms to achieve it and the associated costs are less clearly discerned.

16. Nevertheless most informants believe that new opportunities to collaborate in ICT in Education are, in the right circumstances, possible and have the potential to generate significant benefits.

3. External Partnerships

17. For UNESCO entities, external partnerships can be based on various levels and modalities of cooperation, that might include for instance simply receiving funding (donors); collaboration on project design and implementation each deploying their own resources; and contracting organisations to implement UNESCO-led interventions.

18. The focus here is on partnerships that involve a relatively high degree of collaboration in design and implementation of interventions, beyond receiving donor funding and wider than contracting an entity for implementation.

Nature and Extent of Partnerships

19. All four ICT in Education entities engage in external partnerships with private corporations, other UN organisations, and NGOs. They are based on mutual advantage and are diverse in nature and are too numerous to present in detail, but the following examples indicate their diversity.

- ITU is an obvious partner given its UN mandate in ICTs. Collaboration is at several levels and with different ITU entities. For instance, Mobile Learning Week 2018 was organised as a partnership between ITU and ED/PLS/ICT (with financial support from many others), part of a wider collaboration between ITU and UNESCO on the Broadband Commission for Sustainable Development; IITE is a partner with the ITU Regional Office in Moscow on a project to develop ICT Centres for people with disabilities in third level institutes in marginalised parts of several countries in the region; and the BGK/IESD/ICT collaborates with the ITU Regional Office in Bangkok to organise the annual *Girls in ICT* in Thailand and also operationally in a number of countries; and with ITU (and also UNICEF) in their work on Digital Citizenship.
- UNICEF is in partnership with the UNESCO Regional Office in East Africa in a new project in Rwanda providing access to e-book readers for people with disabilities.
- IITE is in partnership with ABBYY, a global leader in OCR, on a *Future Schools Project* in three CIS Countries and three African Countries. It also works in close partnership with UNAIDS regional and country offices and local partners in CIS (or EECA) counties to develop and promote ICT-based solutions (Internet and social media platforms, mobile applications, edutainment videos, documentaries) to educate young people on HIV prevention, health and wellbeing issues; supports massive online distant learning courses for educators and service providers on health education, violence prevention and other issues, as well as cooperates with the leading regional social media network OK.RU and local online media

channels to raise public awareness on HIV and other related topics.

- CI/KSD/ICT has had a long and fruitful partnership with Commonwealth of Learning (COL) in promoting OER at policy and institutional levels, including the 2nd World OER Congress which was organised by UNESCO and the Government of Slovenia in cooperation with COL and with support from the William and Flora Hewlett Foundation
- BGK/EISD/ICT works closely with SEAMEO-INNOTECH on various projects and actions;
- All four key entities partner with public bodies, the private sector and NGOs in co-organising their international and national policy dialogues and platforms.

20. Other UNESCO entities active in ICT in Education also have partnerships in place. To give just a few examples:

- Microsoft globally is coming to the end of a three year Project in partnership with the UNESCO Institute for Lifelong Learning (UIL)[162] to promote literacy skills using ICTs in Bangladesh, Egypt, Ethiopia and Mexico working closely with UNESCO offices in each country. This follows a previous five-year collaboration with ED/PLS, and a further three-year collaboration is being planned. Both the Category 1 Institute MGIEP in Delhi and the Bangkok UNESCO Office also partner with Microsoft in several countries in Asia.
- Projects in Sub Saharan Africa have worked in partnership with telecoms companies to extend and improve access to the internet in different countries.

Incentives for Partnerships

21. The incentives to engage in such partnerships differ between partner types.

22. For some UN agencies such as ITU, incentives include gaining access to education sector expertise and UNESCO networks, and achieving a greater impact through combining resources. For agencies more directly involved in education such as UNICEF, UNESCO has core expertise in the initial and continuing training of teachers.

23. UNESCO had comparable expectations from the partnerships: mutual: specialist expertise, and access to government ministries active in their respective domains and to wider networks.

24. NGOs and Foundations: The core attraction for NGOs and Foundations, such as the Hewlett Foundation, with an education remit is the global focus and vast experience of UNESCO and the inclusive and humanitarian approach to education as well as the specific areas of expertise such as OER.

25. Partnerships with UN agencies, NGOs and most Foundations are based ultimately on an overlapping or common interest, for instance in enhancing quality of education, in deploying ICTs to better effect in education in developing countries, or in ensuring that innovation in education focuses on specific groups such as poorer children.

26. By contrast, partnership with the private sector organisations is based not on shared objectives but on identifying areas of complementarity where collaboration can assist each to achieve their respective goals. For private corporations, partnering with UNESCO the incentive is a combination of the following:

- Access to UNESCO's expertise in education and sharing their own, especially for private sector hardware and software companies who readily admit that they are not experts in the area and that their products require adaptation and refinement.
- Access to policy makers, such as high visibility presentations at jointly-organised inter-ministerial conferences; and formal and informal opportunities to meet Ministers and senior policy staff.

[162] See: https://uil.unesco.org/literacy/mobile-technologies/advancing-mobile-literacy-learning

- Verified research results, particularly if an independent UNESCO evaluation can demonstrate educational benefits (including cost/benefit analysis) arising from a joint project using their products (software, hardware or systems); this is valuable both as a test-bed and affirmation of their products and in the credibility it offers to future promotion with policy makers and users.
- Building lasting linkages at national level: for instance one partnership national Microsoft offices and UNESCO offices working together with a view to developing a lasting relationship.
- General public relations benefits and image enhancements from being associated with a project of a UN organisation, aiming at the public interest. Private sector managers appointed to oversee the partnerships are also often themselves strongly committed to achieving positive social outcomes.

27. For its part, UNESCO is aware that the private sector is, and will remain, at the forefront of technologies that can potentially influence the education sector. A key incentive in many private sector partnership projects implemented at the level of the learning environment is an opportunity to critically explore and research the potential of these within the context of their wider approach to education.

28. Private sector partnerships can also be critical in providing infrastructure support, both in hardware and in connectivity.

29. Access to additional finance is further motivation for UNESCO to partner with the Private Sector. Many partnership agreements come in the form of relatively modest financial support for international events, and incentives include the prospect of attracting senior private sector figures who can raise the profile of the event.

Issues with Partnerships

30. UN agencies interviewed reported no significant problems, but it is likely that partnerships are facilitated by the fact that such entities fall under a common UN umbrella, and have similar general structures and modus operandi.

31. However, a number of NGOs expressed the view that that UNESCO should develop more partnerships on the ground at an intervention level.

32. Private sector organisations also raised some issues. Several responses note an absence of a set of principles or guidelines from the start of the relationship that would outline the parameters and conditions of the partnership from UNESCO's perspective. Several said they learned as they went along, and there were some disappointments. Issues that were clarified only as the project proceeded included:

- The prominence and placing of a partner's logo and of their role on documentary outputs (one complained that their logo was to be three pages into the published report, though they had paid the full cost of the project);
- The manner and extent to which the partner themselves could publicise the project;
- The extent and nature of access that would be facilitated by UNESCO to policy makers;
- The open availability and publication of research results overseen by UNESCO.

33. At the same time these issues raise significant reputational risks for UNESCO in terms of being too closely associated with the interests of private corporations, and hence must be addressed with care.

34. A couple of major corporations felt that at the start they were being regarded "as an open cheque book" rather than as an integral partner in the project; yet they understood the financial pressure on UNESCO, and subsequent discussions clarified what each partner would bring. A degree of frustration was expressed concerning the amount of time, following formal agreement, it took to begin project activities, though as one observed: "this was a public body and things move at a different pace, but we got there".

35. Several would like the scope of partnership interventions to go beyond policy and institution-strengthening towards implementation and

mainstreaming. The motivation was that this would bring the partnership closer to the level at which they identify commercial benefit.

36. Two UNESCO entities reported that the rules governing their relationship with Headquarters could constrain external cooperation. For instance, to sign an MoU with an external body requires approval from HQ, which could take some time and might then be refused. The choice was to assess whether there were grounds that would enable pressing ahead on an informal basis, or to risk a delay and possible constraints on the partnership.

Are partnerships succeeding?

37. UNESCO has no general criteria to facilitate an assessment as to whether partnerships secure the benefits sought be each partner through the partnership. The small number of specific partnership agreements reviewed also do not contain indicators – beyond the externally-directed goals of the partnership itself – by which to judge whether each partner has gained what it had sought. Project evaluations, where they exist, also do not specifically address the issue.

38. UN partners interviewed, including two ITU Regional Offices and UNICEF, believe that their respective partnerships are worthwhile and intend to continue. They found UNESCO entities to be effective and the relationship fruitful. UNESCO, too, values these partnerships and is constantly exploring new possibilities.

39. The long-term collaboration with COL and Hewlett Foundation has helped to propel UNESCO to a leadership position in OER.

40. For private sector organisations potential benefits are usually more uncertain and contingent on factors beyond the control of the partnership itself. The medium and long-term outcomes sought from project outputs may diverge, to an extent, from those of UNESCO. The immediate outputs of the partnership, in the form for instance of a pilot implementation and research results, refinements to products, enhanced visibility and credibility, or access to policy makers, are often only the first step in a process that, depending on further follow-up, will ultimately yield a commercial benefit. Thus it is no surprise that several private partners, with reference to ongoing or recently completed projects, expressed uncertainty regarding the ultimate benefits.

41. Nevertheless, general satisfaction was expressed and several of the private sector partners had already committed to more than one successive partnership indicating at least a minimum level of satisfaction with the outcomes.

42. Benefits have also accrued for UNESCO in these. Some long-term collaborations have enabled UNESCO to gain expertise in front-edge technologies and to better understand their implications especially in the learning environment and for specific marginalised groups, as well as benefit from improved access to infrastructure.

External Communication and Visibility

43. A factor that can significantly influence the decision of an external body, particularly private sector but also NGOs and UN agencies, is the image that UNESCO presents outwards to the world in terms of comparative advantage and results achieved. Already noted is that UNESCO's expertise in, and holistic approach to, education, its inter-disciplinary approach, and its legitimacy and links to government ministries are widely acknowledged and valued by most if not all external observers.

44. One large private sector corporation felt that as a partner, the UNESCO Category 1 Institutes offer a better 'fit' with private sector interests; they tend to be closer to implementation while also opening doors to the policy level, and they can act more nimbly.

45. However, when asked about how UNESCO presents its approach to and expertise in ICT in Education to the outside world through Websites, events and other forms of dissemination, most external informants and partners believe that it both lacks focus and coherence and fails to do justice to the level of experience and expertise that exists on the ground. When asked if this affected their decision to collaborate with UNESCO, several said it did, but their reservations were outweighed by potential advantages. It is would be difficult to assess whether some potential partners have been discouraged from

partnering altogether.

4. Optimal positioning of ICT in Education across UNESCO

46. Key features of ICTs is that they are a means to an end; and that they can be, and increasingly are, deployed horizontally and vertically across virtually every aspect of the education process.

47. On the one hand, such distributed deployment to achieve many diverse goals suggests that for UNESCO a highly centralised approach is not necessarily optimal, and that different entities and sub-fields are best placed to identify their own specific needs in ICTs. Thus the distribution of ICT in Education activities across so many areas should not, in itself, be viewed as indicative of fragmentation and its associated disadvantages, but rather of the necessary deployment of ICTs across all areas as it becomes mainstreamed.

48. On the other hand, ICT in Education is a dynamic field and is by no means fully integrated across the education sector even in wealthier countries. Successful design and implementation still demand significant innovation and experimentation; the specialised skills needed, especially in middle and low income countries and in relation to benefiting marginalised groups, are still relatively rare; and the full implications of mainstreaming – both potentially positive and negative– will still need to be explored over time.

49. Thus the choice for UNESCO is not between a highly centralised approach to ICT in Education, and a fully decentralised and mainstreamed one. It is to identify the optimal level and forms of communication, cooperation and collaboration across UNESCO, taking into consideration the current dynamic of innovation and mainstreaming of ICT in Education, the mandate of UNESCO, and the strengths and capacities of the different UNESCO units currently involved.

50. The four most relevant UNESCO entities in ICT in Education are aware of the absence of an overall common framework in ICT in Education. Though there is no unanimity on all aspects of what it might involve, at a minimum a common framework would clearly state the objectives that UNESCO seeks through its involvement in ICT in Education; define the scope of UNESCO activities in the theme, differentiating between distinct sub-themes; and indicate the strengths, mandates and responsibilities of each of the main participating entities. The integration of these into the C/5 and strategic planning documents, and the positioning of the field there, would, in turn, influence how these entities deploy and interact in relation to the field.

51. The absence of a clear definition, a clear allocation of responsibilities, clear collaboration modalities, and explicit commitment within senior UNESCO management, can hinder the development of clear and consistent protocols and avenues for communication, and gradually erode trust. It can inhibit cooperation and the exploration of opportunities for deeper collaboration. It might also discourage other UNESCO entities from engaging with the key four that identify themselves as active in the field. In this framework it is important to note that multi-disciplinary cooperation across different parts of the Organization is vital due to the overall mainstreamed role of ICT in UNESCO areas of work. For instance the Category 1 Institute MGIEP pursues significant innovation in what might be reasonably included under the field of ICT in Education, but – possibly in the light of no clear definition and means to engage – prefers to use other terminology and does not engage with the concept or, except to a limited extent, with the key actors.

52. More broadly, IITE and BGK/IESD/ICT each is actively seeking to develop in specific directions within UNESCO's mandate, to stay focused and enhance their role and capacities both internally within UNESCO and externally. They seek direction, support and cooperation from UNESCO senior management that would enable them to subscribe to a common vision; and are at times constrained in securing donor funding. Furthermore, formal access to complementary expertise that might be available within UNESCO, given diverging aspirations of other key units involved, is vital for them to conceive of or design collaborative projects and actions.

53. In that sense, the absence of a common Organization-wide framework can lead to a degree of internal competitiveness, mistrust and paralysis, and present obstacles to innovation and building capacities and, ultimately, to building up UNESCO's position, profile and capabilities as an Organization in the field.

54. Modalities for deepening cooperation do exist. An example is the joint

development of a Resource Mobilisation Strategy for ICT in Education to address what might be viewed as a funding gap in the theme. Furthermore, the possibility is there, though seldom exercised, for several entities across Sectors to contribute to the same ER in the C/5 and SISTER, thus building an integral link to results sought in shared areas of interest. However, these options presuppose a level of trust and cooperation that is not fully present at this time.

5. Current challenges for communication, cooperation and collaboration

55. The research reveals a number of challenges facing efforts to optimise communication, cooperation and collaboration, reflected by the views of a range of stakeholders.

56. The term 'silo' is often used to refer to the tendency of each UNESCO Sector, and sometimes other entities, to develop priorities, management structures and a culture that are overly inward looking and self-contained, focusing on building and maintaining its own resources and achieving its narrowly defined goals; rather than viewing itself as one component within an integral whole that cooperates and collaborates to achieve the overall institutional goals of UNESCO. This challenge is a tendency of all large organisations, and many strategies are deployed to counter it. Several representatives of senior management interviewed recognise that this remains an issue in UNESCO, in terms of discouraging communication and taking the initiative in interacting and cooperating across structure boundaries. The argument continues that this tendency is rendered more problematic by the fact that ICT in Education activities are by nature multidisciplinary and dispersed across different UNESCO Sectors and entities.

57. As the 'front line' between the dynamics of centralised direction and decentralised implementation, this tension is unlikely to disappear. A few pointed to solutions sought for other horizontal or cross and intra-sectorial themes. This suggests that, though it may be a contributory factor, the tendency towards silos is not in itself a major barrier to communication and may be overcome with specific measures. Nevertheless, there remains a need to continually support and enable multi-disciplinary cooperation across different parts of the Organization, in particular to facilitate the optimal use and harnessing of the comparative strengths of each entity.

58. Other factors are highly pertinent to a discussion of challenges to enhanced communication and cooperation. The rise in extrabudgetary funds and an associated reduction in RP funds[163], a major feature in ICT in Education, has a number of consequences.

- It means that unit leaders tend to design their respective projects such that they can retain or expand their own staff, almost all of whom are on non-permanent contracts. Collaborating with other units tends to be a secondary consideration, although the demands of implementation and the need for specific, including local, expertise still leads to a degree of collaboration.
- The predominance of contract staff, and the attendant absence of a clear career path in UNESCO leading to ongoing professional development, means that such staff associate strongly with their own units, have little incentive to look and cooperate beyond it, and a major incentive to continue to secure funding for their positions;
- One Division leader described how his autonomy to plan strategically and deploy the various units he led was limited by modest discretionary funding; the modality was almost exclusively Funds-in-Trust already earmarked for activities within individual units.

59. Discussions with informants about the prospects of enhancing collaboration were sometimes linked to a perceived need for greater flexibility around the distribution of extrabudgetary funds, as an enabling factor. In particular, a high concentration of extrabudgetary funds in any one entity can

[163] There is no necessary link between a rise in XB funding and a fall in the amount of RP funds allocated to a given unit. However, a couple of informants indicated that Directors responsible for allocating RP may, for understandable reasons, favour those that find it more difficult to attract XB funding in order to enable them to pursue their mandate.

be a concern for others and perceived as less than optimal in terms of the use of these resources. New or different modalities could enhance possibilities for a more strategic use of XB overall, including sharing and reciprocation for collaborative purposes. A representative of a major Member State donor seconded to UNESCO indicated that they would like to see better synergy between their two large Funds-in-Trust projects. This is likely to benefit the projects themselves and would ideally be instigated by UNESCO.

60. The belief that a common framework for ICT in Education would facilitate the development of clear strategies in their respective entities was expressed many times. Yet in the absence of strong direction from senior Management and a common vision, it is difficult for any single entity involved in ICT in Education to take the lead in developing such a framework and to draw the entities together around a common vision and set of objectives.

6. Opportunities for organizational change

Possible mechanisms for improving communication

61. There is virtual unanimity among those interviewed that external communication of UNESCO's activities in ICT in Education can be improved, in terms both of the focus and description of these activities and in the means and tools deployed. Most relevant UNESCO entities also believe they would benefit from greater knowledge and information concerning their respective activities. It would enable them to learn from each other's experience and knowledge, and offer opportunities for higher forms of cooperation.

62. A number of suggestions emerged during the research to improve the quality of interactions and communications.

- A single **consolidated Website**, enabling the reorganisation, amalgamation and presentation of all key UNESCO entities' activities and resources according to a coherent structure and set of themes, would be valuable not just for those involved but equally for external entities. It could include various discussion groups and other interactive tools.
  This is not a simple task, however, and involves management and logistical challenges. More fundamentally, it would require agreement on clear central messages to be delivered by UNESCO in ICT in Education, and on its objectives, strengths, resources and areas of work. All partners running this website jointly and equally would maximise its potential.
- **Social media** have overtaken Web-based discussion groups for many communication tasks, using Telegram or WhatsApp groups and other apps. They have an obvious role to play in enabling interaction between the actors and stakeholders in different strands of ICT in Education. A central point could be included in the Website to enrol on these. The UNESCO ICT CFT Champions WhatsApp group points the way here.
- Convening the key entities, and others choosing to participate, in a **Retreat**, **Knowledge Sharing** or **Visioning** exercise, annually or biannually could support not just information sharing but also an exploration of future trends, and options for potential collaboration and new avenues of working together. It was suggested that this could be organised around Mobile Learning Week.
- A single **Communication Strategy** for external entities could be envisaged, which would embrace all the channels and means of communication at UNESCO's disposal.[164] However, even more than a consolidated Website, this would presuppose a strong commitment across the UNESCO entities and mechanisms to develop a common vision, a high level of consensus and coordination of activities, and to communicate

[164] A recent UNESCO Document described UNESCO communication functions as follows: "In practice, UNESCO's communication relies on a diversity of tools and channels (websites, press, social media, printed material, meetings, conferences and events), networks and partners (National Commissions for UNESCO, Goodwill Ambassadors, category 2 centres, UNESCO Chairs, Associated Schools and Clubs, NGOs, academia, private sector, etc.) and operates in the overall framework of the United Nations system and international organisations involved in peace and development initiatives." *UNESCO's Strategic Transformation: Information Update at 31st August 2018.* UNESCO Paris. Sept. 14. Document 205 EX/5.111.D.INF.2 para. 22

UNESCO's comparative strengths and achievements at organizational level.

63. In terms of coordination and cooperation, examples cited earlier include Working Groups and Reference Groups convened to address a single time-bound goal such as the UNESCO ICT CFT Version 3 development and the review and the development of the 2nd World OER congress, and the Draft OER Recommendation process. Such task-oriented groups are established based on imminent need and have been effective in achieving their goals. Such mechanisms could be relevant for the implementation of multidisciplinary strands of UNESCO's work in the field of ICT in Education. .

64. UNESCO offers other formats to facilitate cooperation that can have more open-ended remits and can, if required, be more enduring.

65. A number of interviewees cited an effective multi-disciplinary collaboration in supporting youth and employment in Mediterranean countries called NET-MED Youth.[165] This initiative received significant funding from the outset from the European Union, and the multi-disciplinary approach facilitated the building of collaboration around concrete interventions.

66. On a more ambitious scale, and possibly worthy of consideration regarding repositioning internationally in the long-term, the International Task Force on Teachers for Education (TTF)[166] was referenced several times as a means to convene numerous stakeholders globally in a particular field extending well beyond UNESCO. The Secretariat is supported by UNESCO (in ED/ESC/TED) and was launched with high level backing: it was endorsed by the OSLO Education for All (EFA) High Level Group meeting in 2008 that convened UN agencies and government ministers to address an impending shortage of teachers globally. TTF was created the following year. Its membership numbers 131, includes governments, UN agencies, INGOs and NGOs, development agencies; and private sector organisations and foundations. It also recently established a sub-group in Distance Education which is chaired by the IITE.

67. Its four strands of activities are: i) advocacy on teachers; ii) policy dialogue and knowledge sharing including an annual Policy Dialogue Forum; iii) country supports, and iv) research and studies.

68. Thus, as a model it mobilises a range of actors in a variety of actions, on a common theme, and it has achieved some success.[167]

Synergies with UNESCO's Strategic Transformation Process

69. Opportunities for evolution in the ICT in Education programme should be viewed in the context of the wider process of UNESCO's strategic transformation.[168] A number of elements are potentially relevant here.

70. Among its objectives is reinforcing UNESCO as a 'Laboratory of Ideas' (Objective 2), and opening up UNESCO to ensure that its voice is heard globally and to facilitate new partnerships (Objective 3). Actions proposed[169] include enhancing international influence through better communication and a more focused image (Stage 1); and a review aiming to improve identification of relevant areas in which UNESCO has added value, a process that will be carried out by each UNESCO Sector but will also be applied to crosscutting functions (Stage 3). The deadline to complete the core processes is December 2019.

71. The ICT in Education programme could potentially be viewed as engaging in its own strategic reorientation, as a microcosm of the UNESCO's strategy and potentially benefiting from the impetus it has generated.

72. The goal of expanding international influence through better

[165] https://www.netmedyouth.org/
[166] http://www.teachersforefa.unesco.org/
[167] Townsend, Tony (2012) *Evaluation of the International Task Force on 'Teachers for Education for All'*. http://www.teachersforefa.unesco.org/v2/phocadownload/evaluation%20report%20april%202012.pdf
188

[168] *UNESCO's Strategic Transformation: Information Update as at 31st August 2018.* UNESCO Paris. September 14. Document 205 EX/5.111.D.INF.2. See: https://en.unesco.org/about-us/strategictransformation
[169] *The Stages of UNESCO's Strategic Transformation.* UNESCO Paris. March 26. Document 204 EX/31

communication and a more focused image is directly relevant and applicable to ICT in Education.

73. ICT in Education can potentially be included in the third stage review of areas in which UNESCO has added value, and could contribute to the objective of strengthening UNESCO's role as a laboratory of ideas. While this case study considers only communication and cooperation aspects, there is no doubt that improvements in these are essential preconditions to a further move towards taking up a position of intellectual leadership in this field.

7. Conclusions

74. This Case Study explores the question of whether and to what extent current practices and mechanisms for communication, cooperation and collaboration, internally and externally, are optimising the resources and activities of the various UNESCO entities involved in ICT in education.

75. While there are examples of good communication, cooperation and collaboration, the evidence of interviews and elsewhere strongly suggests that there is considerable room for improvement in communicating and scope for further cooperation and collaboration between the various key UNESCO entities involved in ICT in Education.

76. Given that many work in similar or directly adjacent sub-themes, with potential for synergies and beneficial knowledge exchange, regular and routine interaction is very limited between these key entities, and miscommunication is sometimes a source of frustration. With some exceptions, interactions between these and other UNESCO entities and networks that may have a lesser but nevertheless active role in ICT in Education are also limited.

77. Similarly, opportunities to cooperate and collaborate are seldom actively sought. Efforts are sometimes frustrated by the absence of even an informal shared sense of objectives in the field and of clear roles of the various entities, and by the dominance of Funds-in-Trust modality for funding.

78. Virtually all those interviewed inside and outside of UNESCO agree that the external presentation and communication of ICT in Education expertise and interventions fail to do justice to the range and quality of UNESCO work. This can lead to reputational risks that affect the perception of external actors and, amongst other matters, their willingness to engage in partnership.

79. UNESCO would need to actively strategically position itself towards external stakeholders, clarifying its role, its comparative advantage and contribution to SDG 4 through ICT in Education

80. Current partnerships with other UN bodies, foundations and NGOs function relatively well, building on their overlapping interests, and are contributing to the goals of each and achieving results. With the private sector, identifying areas of complementarity between diverse objectives and differences in management culture demand additional effort. The absence of a set of explicit partnership principles is noted by some partners as a source of tension during project implementation.

81. There is a desire and willingness among the UNESCO entities in ICT in Education to develop a clearer, shared understanding of the field, and to improve communication internally between them and externally in terms of strengths and resources of each entity. They welcome further cooperation and collaboration within the context of clarity of roles and responsibilities, and senior UNESCO management commitment to achieve the potential of ICT in Education and SDG 4. Various mechanisms exist for enhancing communication and cooperation, and such efforts would clearly be in line with the current UNESCO process of strategic transformation.

M. Review of ICT in Education Landscape Study

Contents

1. Introduction

1. A key aim for the evaluation of UNESCO's work in ICT in education is to explore the current positioning of UNESCO relative to those of other international actors, in terms of its strengths, mandate and scope of activity. This is critical to understanding the current contribution of UNESCO's work and its potential future positioning in this field in relation to the mandate and actions of other players, and to suggesting orientations for the future. But this in turn requires an overview of the wider landscape of ICTs in Education globally, the main actors and especially the current and future trends.

2. This report has been compiled from an extensive array of relevant publications, including academic and 'grey' literature and from selected interviews relevant to the positioning and activities of UNESCO (see Appendix 1).

3. It should be noted that the use of ICTs in education is a dynamic and fast developing field. Indeed, even the terminology is contested with such terms as Technology Enhanced Learning, eLearning and digital pedagogies probably more popular than 'ICT in education'.

4. It is not only the terminology and labels that are contested. While there is acceptance of the use of ICT for educational management there remains controversy over the effectiveness of using ICT for learning. As Michael Trucano from the World Bank put it: "What do we know about what works, and what doesn't (and how? and why?) when planning for and implementing such projects, what the related costs and benefits might be, and where might we look as we try to find answers to such questions?"[170]

The global market for ICT in education

5. The market for e-learning technologies has continued to grow. The size of the eLearning market was estimated to be over US$ 165 Billion in 2015 and is likely to grow by 5% between 2016 and 2023, exceeding US$ 240 Billion[171], including sales to schools, colleges and industry. According to a market study released by Technavio (2018)[172], the size of the global corporate eLearning market alone is predicted to reach an approximate amount of US$ 31 billion in revenue by the end of 2020. Technavio's analysts say changing business needs and technology improvements have encouraged the adoption of eLearning solutions at the expense of traditional teaching methods.

6. In 2018, investment dollars in educational technology companies in the USA alone totalled US$ 4.46 billion. There were 187 investments with an average investment size of US $26 million and a median investment size of US$ 5.2 million. The number of acquisitions totalled 109[173]. Stock market listed

[170] http://blogs.worldbank.org/edutech/big-educational-laptop-and-tablet-projects-ten-countries

[171] Docebo (2015) eLearning market Trends and Forecast, 2017-2021, https://www.docebo.com/resource/elearning-market-trends-and-forecast-2017-2021/

[172] https://blog.technavio.com/blog/top-trends-corporate-e-learning

[173] Audrey Watters, The Business of Ed Tech Trends, http://hackeducation.com/2018/12/31/top-ed-tech-trends-money

educational technology provider, Blackboard, had a market capitalisation of US$ 1.3 billion.

7. In 2016, global investments in Chinese ed-tech companies rose to US$ 1.2 billion, according to Goldman Sachs and the educational technology industry in China is expected to grow 20 percent annually[174]. A joint report released by Google and KPMG estimates that India's online education market will rise more than six times to $1.96 billion over the next four years. The entire Asia-Pacific region is projected to represent 54 percent of the global edtech market by 2020.

8. According to IMARC Group's latest report entitled, "Africa E-Learning Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024"[175], the African e-learning market reached a value of more than US $792 Million in 2018, exhibiting an annual growth of around 14% during 2011-2018 and is further expected to reach a value of more than US$ 1,813 Million by 2024.

9. There may be some differences in market segmentation in different global regions. In Africa packaged content mobile learning holds the majority of the market share.

10. In the richer economies, Audrey Watters (2018) says many of these companies are based on tutoring utilising Artificial Intelligence (AI) or adaptive teaching. "Many are also taking advantage of the "gig economy," using low-wage freelance workers (many of whom are teachers working a second job) as tutors. It's "flexible, interactive, and fun", sponsored content on Edsurge wants its readers to know." The Financial Times reports that More than 70% of secondary school-aged kids in Taiwan, Hong Kong, and South Korea use private tutors.[176]

11. The market continues to evolve in the move towards digitalisation in education. In 2015, LinkedIn announced the USD 1.5 billion acquisition of online education company Lynda.com.[177] Lynda.com provides video courses to paying subscribers hoping to learn online, with tutorials on a wide range of business subjects from Web design to 3-D animation. Other e-learning companies such as Coursera and Code Academy have attracted substantial investment. British education company Pearson announced in February 2019 it had agreed to sell its U.S. K12 courseware business to Nexus Capital Management LP for US$ 250 million as it shifts its focus from textbooks to digital[178].

Disrupting education

12. It is not only the effectiveness of ICT in learning which is contentious. There has been a major drive from many of the technology companies to disrupt education. The traditional schooling system is seen as an industrial relic. Some go as far as to call for teachers to be replaced by computers. Much of the motivation for 'disruption' may be the desire to open up education from the public sector to the market.

13. Educational technology journalist and speaker, Audrey Watters, has tracked these developments in her blog 'Hack Education Weekly News'.[179]

14. "In 2017 Edsurge informed its readers that "MissionU Says It Can Replace Traditional College with a One-Year Program." In 2012, Wired Magazine proclaimed that Udacity "could change higher learning forever." Techcrunch asserted that Udacity would "end college as we know it." Udacity's founder Sebastian Thrun predicted that "in 50 years, there will be only 10 institutions in the world delivering higher education and Udacity has a shot at being one of

[174] https://techcrunch.com/2018/01/19/education-technology-is-a-global-opportunity/
[175] https://www.marketresearch.com/IMARC-v3797/Africa-Learning-Trends-Share-Size-11646708/
[176] https://www.ft.com/content/c8b20790-940d-11e5-b190-291e94b77c8f
[177] Recode (2015) Three Reasons LinkedIn Broke the Bank for Lynda.com, https://www.recode.net/2015/4/9/11561324/three-reasons-linkedin-broke-the-bank-for-lynda-com
[178] https://www.reuters.com/article/pearson-disposal-k12-idUSL5N20D10N
[179] https://hackeducation.com/2017/03/24/hack-education-weekly-news

them." It is notable that none of these developments have come to pass

15. Gurumurthy Kasinathan, a founding member and executive director of IT for Change, says that the basic problem in this view is that is confuses 'education' with information processing and the consumption of content. Education has a larger aim to build an aware and responsible citizen. Delivering content in more efficient ways is not a replacement.[180]

16. In 2016, Meeri N. Kim, who works as a science writer and contributes regularly to the Washington Post reported how ex-Google executive Max Ventilla had launched AltSchool, an education technology start-up based in the San Francisco Bay Area[181]. "Entrepreneurs out of Silicon Valley have harnessed the power of technology and data to disrupt industries ranging from public transportation and communication, to space travel and television. Is education next?" She explained how ALT School would use its proprietary software developing individual student profiles "to do away with cookie cutter education."

17. It is interesting to note, however, that many of these private sector 'disruptions' have failed to deliver on what investors saw as their promise. Some have simply withdrawn from the education space, others, such as Udacity, have pivoted to adopt more traditional paid for training models.

18. Selwyn and Casteneda (2018), writing about the digitalisation of higher education, say: "the market-led nature of higher education technology has connotations that reach well beyond from the simple provision of resources to university consumers. For example, much of the organisation and administration of universities is now shaped by commercially-provided systems based around models developed for business and industry. The rise of 'content management systems', 'workload management systems', performance metrics and analytics could be seen to be key elements in the steady corporatization of higher education – i.e. the restructuring and reorganisation of universities to function and behave as if they were corporations."

19. They are also critical of the "the (hyper) individualisation of digital education" based on the implicit framing of individual students taking responsibility for decision-making with regards to their education, as well as dealing with the consequences of these decisions." In this sense, they say, "technology-based learning is increasingly positioned as an implicitly self-centred endeavour."

20. Gurumurthy has questioned why ICT in education should be seen as a market good, arguing that if school education is a public good then ICT in school education should also be a public good. Looking at ICT as a market good contradicts the basic requirement of transformative education as a source of social justice and equity. He points to non-market (public and free) models of ICT in education for example the Indian state of Kerala has pioneered a model of ICT in education which is based on public investment in free and open technologies and teacher development and cites Vygotsky as seeing education as a process of social construction[182].

21. It is not just private sector corporations that have a techno centric approach to education. The One Laptop Per Child (OLPC) project[183], emerging from MIT's Media Lab, has been heavily criticised despite (or because of) the aim of providing cheap laptop computers to individual children in developing countries and of lacking a basic understanding of the aims and processes of education.

22. Mark Warschauer in an article entitled How Not to Run a Laptop Program[184] says:

23. "Computers are to be provided to children, not schools, and in massive large deployments carried out as quickly as possible. Whether schools have

[180] See **Po**licy brief – ICTs in education. Outsourced versus Integrated Approach, https://itforchange.net/policy-brief-%E2%80%93-icts-education-outsourced-versus-integrated-approach.
[181] https://bold.expert/silicon-valleys-attempt-to-disrupt-education/

[182] See **Po**licy brief – ICTs in education. Outsourced versus Integrated Approach, https://itforchange.net/policy-brief-%E2%80%93-icts-education-outsourced-versus-integrated-approach.
[183] Http://one.laptop.org
[184] http://edutechdebate.org/one-laptop-per-child-impact/olpc-how-not-to-run-a-laptop-program/

funding for curricular or professional development, technical infrastructure, peripherals, support, or maintenance is disregarded in the rush to get computers into children's hands immediately. Planning, pilot programs, evaluation, and staged implementation are eschewed."

24. Leye is also concerned at "the pervasiveness of the discourse on 'ICT for development' (ICT4D): the idea that ICT per se will lead to development is omnipresent and, as such, it is simply unnecessary to produce data to substantiate this view. The bigger part of this information society discourse enunciates a techno deterministic, utopian promise of social, economic and political benefits in a radically different societal context."

25. The results are entirely predictable, and have started to surface, says Warschauer: "A handful of inspiring examples, based on terrific efforts by a few innovative teachers or students and backed by armies of volunteers, are touted. But, when examining the broader implementation, we learn that without professional development or curriculum development, and with little of the infrastructure that makes computer use in schools effective, teachers for the most part ignore the computers, which thus go largely unused in schools."

26. In contrast programmes such as that developed in Kerala have integrated ICT in teacher education and school education. The programme is seen as successful in reversing a decline in enrolment in public schools and has been adopted in the states of Karnataka and Telangana in India.

The role and positioning of UNESCO in ICT in Education

27. UNESCO has a humanistic vision of education and of the role of ICT in education linked to its mission of providing inclusive and quality education that is transforming lives and at the heart of UNESCO's mission to build peace, eradicate poverty and drive sustainable development.

28. UNESCO believes that education is a human right for all throughout life and that access must be matched by quality. It has a mandate to cover all aspects and all levels of education and to lead and contribute to the Global Education 2030 Agenda through Sustainable Development Goal 4. UNESCO believes information and communication technology (ICT) can complement, enrich and transform education for the better. As the lead United Nations Organization for education, UNESCO shares knowledge about the many ways technology can facilitate universal access to education, bridge learning divides, support the development of teachers, enhance the quality and relevance of learning, strengthen inclusion, and improve education administration and governance.

29. These principles frame UNESCO's general approach to the use of technology for teaching and learning and to the contents of this review of ICT in the education landscape. This is based on a people centred approach fostering the development of smart learning ecosystems where technologies are supportive of the human wellbeing and help learning places in recovering the central role in the education of future citizens, in the design and achievement of social innovation and territorial development (SLERD, 2019)[185].

30. Many of those interviewed for this report saw UNESCOs approach to ICT in education as both unique and highly valuable.

31. As one interviewee from a UNESCO National Commission put it: "UNESCO's contribution is unique. There are other partners but UNESCO is unique in way programme is designed – e.g. building capacity, involvement of users – others provide equipment."

32. Furthermore, interviews echoed that UNESCO's interventions are deeply rooted in a researched need. For example when designing teacher training programmes, such as preparing curricula, managing work and forming networks with other teachers, UNESCO closely consider how teacher training best enhances and integrates their work

33. Furthermore, several stakeholders underlined that UNESCO has a key role to play, especially in Open Education including Open Educational Resources and Open Source Software, and also in the integration of ICTs in traditional methodologies for teaching. Many consider UNESCO as a leader in

[185] http://slerd2019.uniroma2.it/call-for-papers/

ICT in education and in ensuring policies are in place and teachers are trained.

34. A further explanation for the importance of UNESCO in ICT in education relates to UNESCO's comparative strengths that are recognised by stakeholders, such as those related to its mandate from the Member States which makes UNESCO a powerful player. Governments look to UNESCO for technical support and policy in a host of issues related to ICT and education. UNESCO support is seen to make national policies stronger in countries. The Organization's reputation as a broker with governments is high. Furthermore, UNESCO provides robust technical support in the public arena while maintaining its mission and purpose. The Rethinking Education paper[186] is an exemplary demonstration that UNESCO is withstanding the neoliberal agenda which is diffuse in ICT and education. UNESCO works in support of public education against the trends of increasing privatization. National-level stakeholders also demonstrate a preference for working with UNESCO above other stakeholders, as UNESCO genuinely represents 195 counties, and holds a strong convening capability unlike the private sector providers. Stakeholders see a need for strong UNESCO, particularly in the increasingly changing ICT in education space.

35. However, UNESCO is only one of the many UN organisations, governmental organisations and Educational Foundations and Charities working in the field of education and development. Many of these, such as UNICEF, are reportedly increasingly focusing on the role of technology in education and some have a considerably larger budgets than UNESCO. One distinction, apart from UNESCO's convening capability, may be that UNESCO staff have multidisciplinary in-house expertise related to education, whilst other organisations may be more reliant on contractors to carry out interventions. Other interventions, such as the One Laptop per Child project, are focused on the provision of technologies, which is not seen as part of UNESCO's work in this area.

36. Having said this, there is a clear issue with lack of infrastructure and technology provision in many of the countries where UNESCO is working, pointing to the need for partnerships with other organisations, including the private sector. It is important to note that despite the emergence of start-up initiatives aiming to disrupt education, many of what could now be called 'traditional' or 'mature' technology companies have a perspective of working within education, be it in the provision of hardware and software or infrastructure. This may include in partnership with aid organisations. There are different motivations for such partnerships. These include access to research and development knowledge and outcomes in ICT and learning or a commitment to corporate social responsibility. The UNESCO Mobile Learning week, amongst other initiatives, has been successful in developing such partnerships, particularly with organisations that appreciate UNESCOs expertise in pedagogy and in teacher development as well as its presence on the ground and contacts to governmental organisations.

37. In looking at the landscape to ICT in education, two further and related tensions are apparent. One is that in a fast developing area there is a need to follow and experiment with emerging technologies, for example Artificial Technology and the use of big data in education. But working with young people requires robust and proven approaches to avoid damage and the piloting of emerging and future technologies needs to be balanced against the shorter and medium term needs of education in many countries. Therefore, rather than examining the latest technology trends in education, this paper focuses on socio-technical / techno pedagogical developments that may impact on UNESCO's work on ICT in education in the short to medium term. Framing what is and is not possible includes also an awareness of the tension between the aspiration to use technology to provide access to education in poorer countries and the weaknesses of infrastructures – including electricity and connectivity – in many countries.

38. One further tension is the obvious desire of governments to improve education by offering opportunities to the greatest possible numbers, which is supported by many donors who are also concerned at the visible impact of projects and programmes in ICT in education. This has resulted in a major focus on scalability, while neglecting a more mindful piloting and critical evaluation of the promising use of ICT in education. The scaling up of worthwhile projects

[186] http://unesdoc.unesco.org/images/0023/002325/232555e.pdf

risks sucking in scarce resources and energies.

39. It is worth returning here to the issue of terminology. The term 'Technology Enhanced Learning' acknowledges that the use of technology has led to a proliferation of learning opportunities outside the formal education sector, for instance through Khan Academy, Code Academy, Wikipedia, Stack Overflow, Microsoft Virtual Academy or even YouTube. The term ICT in education used by UNESCO delineates a focus on the use of technology for learning within the formal and informal education sector. This accurately describes the majority of UNESCO's work in this area.

40. The following sections review emerging (and in some cases more mature) developments across the broad field of ICT in education, intended as a resource for reflection for the future work of UNESCO. In view of UNESCO's particular focus of work in Africa and developing countries, this study attempted where possible to reference projects and literature originating from or focusing on those countries.

2. Accessing Education for all

41. For UNESCO a key use of ICT is to open access to quality education for all. ICT has the potential to alleviate geographical and social isolation for rural communities, displaced people or other disadvantaged groups, to provide access to digital learning materials including OERs and digital books, to provide inclusive opportunities for those with disabilities, and to scale up access to learning beyond that possible within a traditional schooling environment. This is closely linked to the movement around Open Education. According to the Commonwealth of Learning, "Open Education is a philosophic construct that refers to policies and practices that allow entry to learning with no or minimum barriers with respect to age, gender, or time constraints."[187]

Online and Distance Learning

42. There is a steady expansion in the development of online open and distance learning courses, particularly in university education. These courses may be accessed fully on line or often adapt a blended learning approach, including both face to face and online learning. These typically include the provision of multimedia learning materials and utilise a Learning Management System (LMS) for accessing online provision.

43. Also significant is increasing access to synchronous online sessions, often using video streaming, either as part of blended learning courses or in the form of 'webinars'.

44. Although originating in North America and Europe, Open and Distance Learning is gaining ground in developing countries. For example, over 90,000 students are online in the Open University of Malaysia and Mumbai University has 78,000 students who study online. There is an increasing convergence between distance learning and campus provision. Anwar Kanar says "Research shows that the blended approach works better in Asia."[188]

45. Mnyanyi and Mbwette (2009) say the future of Open and Distance Learning (ODL) in developing countries will "benefit from a critical analysis of its operational environment due to the belief that it might contribute substantially to poverty reduction if its potentials are recognised."[189] At the same time they recognise that the demand for ODL is increasing with the potential of new Information and Communication Technologies (ICT) and increased demand for knowledge.

46. However, Nigerian Ambassador to UNESCO Mariam Y Katagum points to the "ivory tower mentality that privileges the university environment and traditional lecture methods over online education."[190] She believes Africa is still on the verge of shifting from the firm belief in exclusiveness and the public

[187] Kanwar, A. (2016) Can ODL reach the unreached? Lessons from the Commonwealth, http://oasis.col.org/bitstream/handle/11599/2378/2016_KanwarA_Can-ODL-reach-Unreached_Transcript.pdf?sequence=1&isAllowed=y

[188] http://oasis.col.org/handle/11599/3045

[189] Cosmas B. F. Mnyanyi and Tolly S. A. Mbwette (2009)

[190] https://www.universityworldnews.com/post.php?story=20160630195218201

nature of university education.

47. John Traxler points out that the use of ICT in education requires the transformation in "the roles and responsibilities of teachers and lecturers, expanding these from just being authoritative subject experts facilitating transmissive and discursive learning to include learning with or even from their students."[191] This raises issues over the culture of education in more conservative countries and over how teachers are viewed and view themselves as experts. It also challenges traditional pedagogic approaches to learning. The effective use of ICT in education requires changes in pedagogic approaches and sensitivity to the dynamic, transactional relationship between different components of knowledge situated in unique contexts.[192]

48. A major challenge for Open and Distance Education is removing institutional and organisational barriers, as well as situational barriers (such as insufficient time or resources for study, location and factors related to linguistic and ethnic minority status) and dispositional barriers (psychological factors which impede their participation) to access (UNESCO, 2009). The provision of technology alone will not overcome these barriers for disadvantaged learners

49. There are major challenges in terms of what technologies to utilise within developing countries. ICTs in education are rapidly changing and sometimes, the technology selected becomes obsolete even before developing countries have put into full use[193].

50. One of these challenges is how to ensure inclusion for those lacking basic connectivity and access to computers. The former President of the International Council for Distance Education, Tian Belawati, who is also rector of Indonesia's open institution Universitas Terbuka points out that: "We have to serve all kinds of people, from the richest to the poorest, from rural areas to the capital Jakarta, those who do not have access to the latest technologies and sometimes don't even have electricity. We have to provide people with equal quality."[194]

51. It should be noted that many of these challenges, including changing pedagogies, challenges to traditional authority structures and the need to provide access to poorer segments of society not only confront universities and other educational institutions in developing countries but also in richer developed economies.

52. There is also a tension between investing in technologies and expending scarce resources on more traditional forms of education. Tony Bates, writing in response to a debate on 'Is open and distance learning the key to Quality Higher Education for All?' in UNESCO's blog[195] says "developing or less economically advanced countries will still need more physical schools, colleges and universities, including some elite research institutions focused especially on that country's needs." The issue here is as to what proportion of the population could be reached through open and distance learning and how open and distance learning can be integrated in educational provision.

53. Compared to conventional forms of education, open and distance education requires greater planning, larger upfront infrastructure costs and more complex student and administrative support systems (Lockwood, 1995; Rumble, 1986). Yet, the previous stark distinction between physical schools and ODL is now reduced, and is being replaced by 'blended learning' with both borrowing from each other's approaches.

54. The requirement for such planning and resources is important in the quality of course provision. The Bangladesh Open University provides a wide range of flexible and need based education and training particularly to rural disadvantaged groups. But limitations in access to modern technology restrict the use of media and raises questions about the quality of provision.

55. Capacity building in curriculum, effective learner support, assessment techniques and the adoption and adaptation of OER would be some areas of focus. Adopting and promoting free and open technologies (OER and FOSS) is essential to enabling universal access and a resource rich learning environment.

[191] https://files.eric.ed.gov/fulltext/EJ1173545.pdf
[192] See, for example, the TPACK Framework: http://www.tpack.org/
[193] https://www.academia.edu/2651120/open_and_distance_learning_in_developing_countries_the_past_the_present_and_the_future
[194] https://www.universityworldnews.com/post.php?story=20150917175108463
[195] https://www.tonybates.ca/2012/02/10/is-open-and-distance-learning-the-solution-for-developing-countries/

56. UNESCO is active in developing Open and Distance Learning, especially through universities in developing countries, through many of its projects. ODL has an increasingly key role in teacher education (see section 3, below). The promotion of Open Educational Resources also plays an important role in providing access for content in ODL. Through this work UNESCO also confronts many of the issues raised in this section of the report. UNESCO also plays a key role through the provision of policy support to national governments.

57. An obvious role for UNESCO, given its wide experience in the use of ICT in education, is facilitating the exchange of good practice and in simple terms helping those in developing countries avoid the mistakes, which have been made in earlier developments in other countries. However, this is not a simple undertaking. As Neil Selwyn says, educational technology must be "understood as a knot of social, political, economic and cultural agendas that is riddled with complications, contradictions and conflicts." The development and integration of ODL is heavily contextual. And, as Keri Facer and Neil Selwyn (2013) say, "the promise of online connectivity to (m)any places and people obscures the continued importance of immediate 'local' contexts in framing learning processes and practices." They quote Thompson (1995), in saying it is perhaps erroneous to perceive technology-based learning as somehow "detached from the spatial condition of common locality." What works in one context may not apply in another. Yet UNESCO is well placed to develop an understanding of the different contexts of the ODL in developing countries, not only from the experience of projects, but through its broader networks of Institutes and UNESCO chairs, many of whom have considerable experience in ODL.

58. There are two areas which possibly should receive more focus. The first is the development of new pedagogies for learning with ICT in education. The adoption of ODL does not merely replicate the classroom in a digital context and provides a considerable challenge. The second is the use of technologies: there is a danger that developing countries will follow a 'catch up' strategy copying technologies and practices from more advanced countries which may not be effective or appropriate in the context to which they are being transferred. The use of ICT in education often is based on the transfer of approaches from the north to the south. The research on OER for development (ROER4D) programme aims to develop understanding of OER in the global south[196].

Massive Open Education Courses

59. Perhaps the most visible development in the Open and Distance Learning landscape in the past three years has been the spread of Massive Open Online Courses (MOOCs) providing free access to education for sometimes thousands of participants. MOOCs have been embraced by Higher Education organisations wishing to extend access to courses and by private organisations seeking to develop new business models for education.

60. MOOCs have been criticised for their lack of support for learners and for low completion rates; while others point to the large numbers who do complete courses and that learners are free to access those parts of courses that they wish.[197]

61. Experiments continue with different pedagogical approaches, with the UK, Open University led OpenLearn consortium[198] advocating a social learning approach whereby learners themselves support each other.

62. Despite their origin in North America and Europe, Kanwar (2016) has drawn attention to the steady growth of MOOCs in Asia. This includes Peking University, who offer Chinese language MOOCs for both students and members of the public and JMOOC in Japan which targets home makers and senior citizens. Malaysian MOOCs supported by the Ministry of Higher Education, are also meant for students and members of the public.

63. However, Roberto Rey Agudo (2019) considers that while MOOC platforms bring high-quality educational content to learners anywhere,

[196] http://roer4d.org/

[197] There is a considerable body of research studies on MOOCs – see, for example, Loizzo, L, Ertmer, P. Watson, W. & Lee Watson, S. (2017) Adult MOOC Learners as Self-Directed: Perceptions of Motivation, Success, and Completion

[198] https://www.open.edu/openlearn/

particularly in the developing world, “they do so by catering mostly to a selective sliver of the population.”[199] The major reason for this is the predominance of the English language in MOOC provision.

64. Coursera has 181 partners in 27 countries; edX has 130 partners worldwide. In spite of their international reach, English is the language of instruction for over 80 percent of their courses.

65. This trend is more pronounced in MOOC platforms. A search for Java programming courses on edX finds 60 courses from institutions in Australia, Canada, China, Germany, Guatemala, Spain, Switzerland, the Netherlands and the United States. 56 of those 60 courses are delivered in English with four offered in Mandarin and none in Spanish, Cantonese, German, Dutch or French.

66. Agudo says: “English creates a barrier of inequality for many. Worldwide, proficiency in English is a marker of socioeconomic privilege -- as is access to a stable internet connection or the digital literacy required to navigate online courses.”

67. Nevertheless, the Nigerian Ambassador to UNESCO, Mariam Y Katagum, draws attention to South Africa as a country embracing MOOCs and points to the opportunity of access, cost-effectiveness and quality education as the most prominent benefits of online courses, while the possibility of massive roll-out and participation is peculiar to MOOCs[200]. She sees as barriers not only issues of connectivity and access to computers but also the privatisation of universities, contributing to the absence of government policy in promoting MOOCs as well as a lack of public funding.

68. Despite early hype that MOOCs would disrupt education, both public and private MOOC providers have struggled to develop business models to sustain provision. Charging for accreditation has provided only limited income and some private sector providers are now turning towards more traditional closed commercial provision or are charging for access to online courses. Yet, there is no reason that MOOCs should not be based in public education structures and systems, meaning business models are not necessary, except possibly in charging for certification.

69. UNESCO has some experience and engagement with MOOCs. In 2014 UNESCO’s Institute of IT in Education (IITE) together with the University of London launched its first Massive Online Open course (MOOC) on ‘ICT in primary education’. More than 7000 participants from 166 countries were registered, with over 3000 participants from emerging economies.

70. With support from the European Commission, UNESCO has participated in the Globalizing OpenupEd MOOCs’ initiative in Africa working with the Africa Council for Distance Education (ACDE), and in Asia working with the Asian Association for Open Universities (AAOU).

71. The UNESCO Office in Uzbekistan has developed a portal in cooperation with Tashkent University of Information Technologies. Two courses are currently being offered: ‘Media and Information Literacy in Journalism’ and ‘Safety of Journalists’ Professional Activities’. Importantly the courses are available in Uzbek, as well as in Russian, Karakalpak and English.

72. UNESCO is currently offering open access to a MOOC on the fight against illicit trafficking in cultural property, in the framework of the UNESCO-EU project ‘Engaging the European art market in the fight against illicit trafficking in cultural property.’

73. These activities, from different sections and organisations, point to the potential of MOOCs for UNESCO. However, there appears to be little current development of MOOCs within UNESCO’s work on ICT in education. UNESCO would appear to have an important role in supporting the development of MOOCs in developing countries, including the development of capacity and the training of teachers and other providers, for instance journalists and those working in cultural organisations to develop and implement MOOCs.

74. One present barrier for those wishing to offer MOOCs is the limited access to open MOOC platforms. Given UNESCOs leading role in promoting Open Source Software, this is an area in which UNESCO could play a critical role.

[199] https://www.insidehighered.com/digital-learning/views/2019/01/09/moocs-overwhelming-dependence-english-limits-their-impact-opinion

[200] https://www.universityworldnews.com/post.php?story=20160630195218201

This could be through enhancing the WordPress, Moodle or Open EdX platforms and making them available in local languages.

Mobile Learning

75. Growing access to connectivity and the manufacture of cheap and increasingly powerful mobile devices, both telephones (although something of a misnomer given that these are in reality mini computers) and tablets, are potentially opening access to online education anywhere and anytime. A growing number of countries have embarked on large-scale, government-supported initiatives to distribute tablet devices to students in the K–12 schooling sector.

76. The rationale for such projects is varied. These include making learning more accessible; promoting self-directed learning; and designing future learning environments (UNESCO, 2012).[201] UNESCO have published a series of reports on the development of mobile learning in different regions in the world. In Latin America (Lugo & Schurmann, 2012) indicated that education stakeholders in the public and private sectors are targeting mobile technologies and mobile learning as a viable solution to address pressing educational challenges, particularly among indigenous communities and low-income urban and rural populations. Those challenges include high dropout rates, adult illiteracy, little or no access to education, low educational quality, and insufficient teacher training programmes.

77. The UNESCO report on mobile learning initiatives and policy implications in Africa and the Middle East indicated that numerous projects have been initiated with the aim of supporting ICT integration in the educational context and, in light of the growing access to mobile devices and telephones, "mobile learning is gaining attention as a viable method to improve teaching and learning while enabling educational system reform and transformation".

78. However, despite increasingly cheap Smart Phones that potentially allow access to educational resources and support – in the form of both AI and people - for different educational contents and contexts in the school, in the workplace and in the community, the adoption of mobile learning is being held back by concerns over equality of access to such devices, their potential disruption in the classroom, privacy, online safety and bullying, and the lack of adequate pedagogic approaches to mobile learning.

79. As Tamin et al, (2015) say: "Unfortunately, there is a misconception that by simply putting this technology in the hands of students, educational access issues will be resolved and educational transformation will occur." There remains a shortage of detailed and thorough evaluation reports, but according to Tamin et al available research findings, though limited, indicate that mobile learning activities are successful in engaging students (Wang, Shen, Novak, & Pan, 2009), but there is no conclusive evidence about the impact of those activities on students' performance and attitudes. Tamin et all cite Weston & Bain, (2010) in highlighting concerns about addressing technology use with a replacement mentality.

80. In a World Bank blog post[202] highlighting nine countries that have invested significantly in this technology, Michael Trucano said that, in most cases, there did not appear to be any clearly articulated educational rationale for the initiatives. He concluded that this phenomenon is the "latest manifestation of a long-observed trend that refuses to die: that of simply wanting to buy the latest popular gadget for use in schools."

81. There is a growing realisation that the use of such devices for learning depends on both the quality of learning materials and their pedagogic use. These tablet initiatives are being launched with much the same uncritical enthusiasm that surrounded the One Laptop per Child (OLPC) initiative and with many of the same unchecked assumptions. For example, the OLPC initiative was promoted not as a technology project but as an educational

[201] *UNESCO Working Paper Series on Mobile Learning,* https://en.unesco.org/themes/ict-education/mobile-learning/publications

[202] http://blogs.worldbank.org/edutech/big-educational-laptop-and-tablet-projects-ten-countries

project and as a "transformatory example of educational technology" (Selwyn, 2013)[203] that would "create educational opportunities for the world's poorest children" (OLPC, 2012, as cited in Selwyn, 2013). Yet, much of the focus of the OLPC has been on the devices and their technical specifications. It has been criticised for its cultural insensitivity in attempting to "import a homogeneous set of 'other' principles and values into a diverse range of countries and contexts around the world" (Selwyn, 2013). Stories abound of tablets distributed through initiatives such as the One Computer per Child project being in storage in locked cupboards due to concerns over security and the lack of teachers' confidence and competence in the pedagogic use of such devices for learning.

82. Despite the many concerns, the availability of cheap hardware and increasing access to bandwidth, even in rural areas, reduces previous barriers to the use of ICT in education through mass provision of mobile devices or through support for users own devices. It also may have the effect of opening access to knowledge outside the formal education system, thus possibly reducing the authority of the school and at the same time increasing pressure for new pedagogic approaches in formal education. An important drawback of mobile devices, both phones and tablets, is that they are essentially designed for consuming content created elsewhere. Teachers and students wishing to participate as creators and constructors of knowledge need fully fledged computers.

83. The critique of technocentric approaches to the use of ICT in education reinforces the need for an integrated and transformative strategy when introducing new technologies for learning. This includes at policy level, in institutions and at the level of practice. UNESCO, in its adherence in humanistic education and its convening capacity with governments and international organisations, can lead such an approach. Rather than focus on technology as such, UNESCO's approach to ICT in education and training, whilst embracing the potential of mobile learning, has emphasised policy development, capacity building, teacher development, the adoption and promotion of Open Educational Resources and digital literacy.

84. Only in exceptional circumstances have UNESCO projects become involved in the provision of hardware and software. Instead they have relied on partnerships with national governments and with the private sector to provide infrastructure reports.

85. It also points to the extension of the idea of digital literacy to the ability to undertake self-directed learning (see section 6, below).

86. In this, as in other areas explored in this Landscape study, UNESCO has a role to play in highlighting appropriate and effective practices, especially in developing countries and in encouraging knowledge exchange.

Informal Learning

87. Informal learning and non-formal education are estimated to constitute 70-90% of lifelong learning. Informal learning takes place in a wide variety of settings including the home, community and at work. Much of what people learn takes place through non-formal education, defined by UNESCO (1997)[204] as: "organised and sustained educational activities that do not correspond exactly to the definition of formal education [and] may have differing durations and may or may not confer certification."

88. Haque (2012)[205] has pointed out that in the developing world there are centuries-old traditions of using cultural forms to educate people including street theatre, music, dance, puppetry and poetry (Latchem, 2014)[206]. This allows the design of informal learning to bring people together, present alternative viewpoints, stimulate discussion and build collective commitment to

[203] Selwyn, N. (2013). "Empowering the world's poorest children"? A critical examination of One Laptop per Child. In Selwyn, N. & Facer, K. (eds). *The Politics of Education and Technology: Conflicts, Controversies, and Connections,* London: Palgrave Macmillan, p.101.
[204] UNESCO. (1997). *International Standard Classification of Education ISCED 1997*. Paris: UNESCO.
[205] Haque, R. (2012). Learning through traditional cultural forms. In I. Pringle, E. Mittal & M. Valdés (Eds.). *Learning with community media: Stories from the Commonwealth and Latin America*, pp. 42-48. Vancouver: Commonwealth of Learning.
[206] Latchem, C. (2014) Informal Learning and Non-Formal Education for Development. In Journal of Learning for Development, Vol. 1. No. 1.

change.

89. Latchem (2014) also draws attention to the many forms of non-formal education including “part-time ‘second chance education’ for those unable to benefit from regular classes; youth clubs with substantial educational purposes; adult and continuing education; community education; personal development programmes such as cultural, language, fitness and sports programmes; and professional and vocational programmes for the unemployed and upgrading workforces.”

90. The use of ICT has the potential to extend the reach and further develop informal learning. Christopher Foster (2011) focuses on the importance of informal learning processes and says that the process can be more explicitly 'designed' or 'shaped' through understanding informal learning which links between actions and ICT use, and informal learning outcomes.

91. In this section, we adopt a wide definition of ICTs to include radio, audio-visual media and TV as well as mobile phones and computers: as Edgerton (2007) argues, “the presence of older technologies can still be significant in developing countries”. Indeed, the rising popularity of podcasts for learning as well as entertainment shows that older media and are reinvented through ICT.

92. ICT-mediated group processes are being used for radio production at the Namma Dhwani (Our Voices) community radio station in rural India, and cultural production and sharing using ICTs are also used for the Pontos de Cultura (Cultural Hotspots) in Brazil.

93. In order to go beyond the limits of community radio, some recent projects have focused exclusively on group participation processes using ICTs. For example, UNESCO's Community Media Centres are ICT centres which take a pragmatic approach to participation and ICT, integrating new technologies within existing local 'communicative ecologies' such as social networks, newspapers and oral forms (Tacchi et al. 2003). Tacchi et al say: “The resulting projects have been able to achieve change and high levels of sustainability, and it is notable that these projects have placed a strong focus on learning through their focus on empowerment of local people, providing them with skills to produce local content (Creech 2005; Nair et al. 2006; Tacchi 2005; Tshering & Martin 2007).” IT for Change has developed a model for community knowledge centres for the Knowledge Commission of the Government of Karnataka discussing such approaches[207].

94. Further examples of the use of Web 2.0 technologies shows how, not only can informal learners self-educate but also contribute to learning with others who share educational, intellectual, social or demographic commonalities. In the case of the non-profit Peer to Peer University (P2PU) volunteer course organisers submit their ideas and seek guidance from experts and community members to create open source wiki-type materials and learner support systems.

95. In his extensive review of Informal and non-formal education in developing countries in the inaugural edition of the Journal of Learning for Development, Latchem (2014) concludes that “learning and non-formal education have a great potential for helping a wide range of learners achieve more desirable and rewarding circumstances for themselves and their communities.” However, he notes that developments and issues in these modes of provision are insufficiently represented in the literature of open and distance learning and that more needs to be done to indicate the ways in which informal learning and non-formal education can serve the needs of learners and society.

96. Research and evaluation are needed, he says “in regard to the design, development, application and evaluation of systems, methods, ICT, mass media and traditional forms of communication for learning for development, including cultural factors, inter-institutional, inter-sector and cross-border collaboration, change management, costing, quality assurance and professional development.”

97. These are challenges which UNESCO is well positioned to play a leading role in advancing the development of research and of new and effective models for informal learning and non-formal education given its interdisciplinary character and wide mandate in the fields of not only ICT in education but also

[207] https://itforchange.net/exploring-an-institutional-model-for-community-knowledge-centres-a-research-study-for-karnataka.

ICT and cultural production. UNESCO can also build on its previous extensive experience in areas like community radio looking at how newer technologies can promote the transformation of education and digital communication and production

Micro Credentials, Bite Sized Learning and Open badges

98. The growing use of ICT in Education, the growth of online courses and the move towards outcome and competence-based programmes are causing pressures on traditional ways of accrediting attainment.

99. This is leading to the development of micro-credentials. Micro-credentials are digital representations of educational achievements awarded on completion of requirements set by the organisation issuing the credentials.

100. Metadata is embedded in the micro-credential and therefore has the potential for becoming part of an online record of achievements. The micro-credentials provide information regarding who issued the micro-credentials as well as the competencies that were attained in order to gain them.[208]

101. In part, the increasing popularity of micro credentials reflects a move towards bite sized learning. Bite sized learning is simply short modules, designed to be completed in a limited time and usually accessible on mobile devices. According to the eLearning Industry web site, there are there three main drivers behind bite sized learning: the burgeoning demand for mobile learning; the increasing share of Millennials (those who are born after 1980) in the workforce; and constant pressure to develop courses quickly and economically.[209] The biggest advantage of bite sized learning is seen as being better learner engagement.

102. Bite sized learning has been mainly developed for company-based training. But micro credentialing has had a wider impact, particularly within community and adult education. The Mozilla Foundation have promoted the development and use of 'open badges' allowing organisations to award credit for a wide variety of learning opportunities[210]. Badges can be stored in a secure digital backpack. Open Badges are visual tokens of achievement, affiliation, authorization, or other trust relationship sharable across the web. Open Badges, says Mozilla, represent a more detailed picture than a CV or résumé as they can be presented in ever-changing combinations, creating a constantly evolving picture of a person's lifelong learning.

103. Although popular, the currency of such awards remains to be seen. As yet there are few signs that micro-credentialing is being taken up in developing countries, where traditional accreditation bodies and forms of accreditation are still dominant. Yet the flexible nature of micro-credentialing facilitates recognising attainment in all educational contexts including through open and distance learning and informal learning. It can also be adopted for recognising learning achieved through Open Educational Resources[211]. To this extent it could complement work that UNESCO is currently undertaking.

Lifelong Learning and Technical and Vocational Education and Training

104. The idea of Lifelong Learning is not new. Yet the increasing use of technology in all sectors of society and of technological transformation within businesses and the economy has highlighted the need for education and learning to be seen as an ongoing (or at least continuing episodic) activity within the life-course. ICT is seen as a key enabler in providing access to lifelong learning.

105. George Herd and Alison Mead Richardson (2015) highlight five commonly accepted drivers for the development of ICT in Technical and Vocational Education and Training (TVET)[212] – "the requirements of a knowledge economy, the increase of ICT in the workplace, the demand to increase access to initial vocational education and training, the lack of qualified teachers and the requirement to provide opportunities for continuing professional development,

[208] http://www.perkinselearning.org/earn-credits/microcredentials/faq
[209] https://elearningindustry.com/bite-sized-learning-future-of-elearning
[210] https://openbadges.org/
[211] https://www.oercommons.org/products/badges/
[212] http://dspace.col.org/handle/11599/824

re-skilling and skills upgrading."

106. Herd and Richardson (2015) undertook a survey of the use of ICT in TVET in developing countries finding that "the development of IT and e-learning in iVET institutions is closely connected with broader issues such as the evolution of the information society, the lifelong learning paradigm."

107. However, in Africa and other developing countries, they say, much work is in the informal economy and the industrial base remains heavily dependent upon natural resources, rather than in a knowledge economy. Despite this, in countries like Rwanda, the knowledge economy has become a significant driver for TVET policy, partially in response to the emergence of a 'knowledge divide' (Chen & Dahlman 2005).

108. The past two years have seen increasing concern expressed over the increasing introduction of AI and robots and the future of work. Although there are wide differences in the predicted numbers of jobs threatened by technology and also in the numbers of jobs that advanced technologies may create, there is little doubt that there will be significant changes in employment opportunities in the future. Broadly speaking jobs most at risk are those that involve predictable and routine work, often, but not always in lower skilled occupations.[213] One important role for UNESCO could be to research and develop knowledge on a 'critical understanding of ICT in education' focusing on AI. There appears to be no institution doing this currently and UNESCO is uniquely positioned to take this on through its mandate. Such critical understanding is necessary for ensuring that society is able to take the right decisions on ICT in education.

109. Probably more important is that the nature of jobs and the tasks undertaken will be very different (Hart, 2018)[214]. With the rapid growth in the availability of information and data, there is a concern that knowledge and skills now have an even shorter shelf-life. At the same time individuals are living longer, so the traditional 'job for life' model has disappeared. In fact, a MIT Sloan Management report (2017), entitled 'The corporate implications of longer life'[215], suggests that the flexible nature of the modern workforce is likely to see a 15-year-old today navigating a portfolio of 17 jobs in 5 different industries.

110. Most of the research and reports have been focused on the future of work in the economically advanced economies. But World Bank President Jim Yong Kim, referring to research based on World Bank data, said 69% of all jobs in India could be at risk because of automation. In China, this figure is expected to be around 77%. In Ethiopia, Kim said the proportion of jobs at risk from automation was as high as 85 percent.

111. In terms of ICT and education this means that there will need to be rapid changes and updating of curricula, particularly within TVET. At the same time the changes in work will add to demand for Lifelong Learning.

112. E-learning is seen as being able to provides a flexible system of information dissemination which can take place in a variety of locations including homes, schools, libraries internet cafes and open fields.[216] Thus TVET teachers and trainers can reach learners in different locations and contexts using digital media.

113. The use of ICT in TVET has a multiple focus, for teaching about ICT as a technical subject, and critically the use of ICT within different occupational specialities, as well as a means of delivery.

114. Obwoge and Kwamboka (2016) say that most ICT use in TVET schools in developing is presently directly related to teaching of basic ICT skills and, specifically, to the use of basic software applications. They found little evidence of use of ICT in the teaching of technical subjects and skills in TVET programs, where it has obvious applications. Neither was Open and Distance Learning being used for teaching technical and vocational subjects

115. However, it is not only in developing countries that the Technical Vocational Education (TVET) sector has been slow to embrace the use of ICT in education. The reasons may include a lower level of resources than in HE and the difficulty of developing online learning materials for the large number

[213] https://www.theguardian.com/us-news/2017/jun/26/jobs-future-automation-robots-skills-creative-health

[214] Jane Hart (2018) Introduction to Modern Workplace Learning in 2018

[215] https://sloanreview.mit.edu/article/the-corporate-implications-of-longer-lives/

[216] https://www.researchgate.net/publication/304496725_E-Learning_in_TVET_An_Opportunity_for_Developing_Countries

and further evolving different subjects and occupational specialities. A major barrier has been the lack of training for technical and vocational teachers in the use of technology for learning, especially given that many TVET teachers are occupational specialists, rather than trained teachers and many are part time staff. Herd and Richardson say that in developing countries, particularly in Africa, the Pacific and some Caribbean countries, "TVET teachers tend to have lower levels of technical and vocational qualifications and often no pedagogic training. Coupled with this is a lack of industry experience or industrial practice acquired many years previously."

116. There are signs that the sector is increasingly embracing ICT for learning. Mobile learning can link education in vocational schools with practice-based learning in the workplace, especially important given the renewal of apprenticeship programmes. The use of video can enhance the development of practice-based competence. ICT is a rapidly growing component of TVET programmes in economically advanced countries and is increasingly incorporated within in-company training in larger organisations. However there still remains a considerable challenge in persuading Small and Medium Enterprises (SMEs) to adapt technology for learning.

117. The Asian Development Bank provides examples of how ICT is being used in TVET in different countries.[217]

118. An open-access repository containing technical and skill development materials[218] for downloading and adapting has been developed and is maintained by the Commonwealth of Learning. IT for Change has developed a toolkit for the Commonwealth of Learning for creating the open education environment[219].

119. In the Philippines, the Technical Education and Skills Development Authority (TESDA)[220] provides online vocational courses to migrant Filipino workers in the Middle East. The programmes are affordable and aim to give students other forms of livelihood.

120. The All-India Digital Skill Mission[221], an initiative to raise awareness about internet-based career options in more than 50 major cities and over 100 villages and towns throughout the country, is presented as proof of how a joint initiative between government and digital entrepreneurs can have country-wide impact.

121. In economically advanced counties TVET has increasingly become associated with employability and with the development of skills for a knowledge economy. Herd and Richardson (2015) suggest that in developing countries the lifelong learning agenda should be harnessed by TVET to "support the transformation to strategies supportive of an equitable learning agenda." Some developing countries are exploring the use of ICT in TVET for flexible and blended approaches and curriculum integration from the viewpoint of access.

122. They advance four main success factors in the effective integration of ICT in TVET:

- Enabling national policy
- Commitment of institutional managers
- Champion support for eLearning
- Recognition of the changing role of the teacher

123. For UNESCO it is important that TVET is included in its work in supporting national governments in developing national policy frameworks and plans for the use of ICT in education. There is a need for more research on how AI and automation will impact on future employment and jobs in developing countries and its implications for education and training through TVET. This work could be undertaken in partnership with other international agencies, for instance the International Labour Organization. Once more UNESCO has a role to play in dissemination examples of good practice in this area. A further initiative could be to consider extending the UNESCO ICT Competency Framework for Teachers (ICT CFT) for specific application for the training of TVET teachers and trainers. This also points to the need for close working collaboration

[217] https://development.asia/explainer/preparing-tvet-digital-age
[218] https://www.col.org/resources/tvsd-open-educational-resources
[219] http://oasis.col.org/handle/11599/2764
[220] https://www.e-tesda.gov.ph/
[221] http://aidsm.in/about-mission/

between the different departments of UNESCO headquarters, UNESCO category 1 centres and UNESCO chairs.

3. ICT and Education for Teacher Development

124. The training of teachers to use ICT for education is a major challenge in most countries in the world.

125. In developing countries, the challenge is greater: many teachers have not even received initial teacher training and have no access to continuing professional development. Researchers from the UK Open University (Moon and Villet, 2016[222], 2017[223]; Bateman, Lane and Moon, 2012[224]) have found that many developing countries cannot find sufficient teachers for expanding school systems and equally, many countries have too few teacher training places even if the recruits could be found. This is compounded by a large proportion of those completing teacher-training programmes choosing not to enter teaching. The consequence is the contracting of large numbers of unqualified adults to take on the teacher role. These teachers receive limited, if any, professional support. In addition, there are few opportunities for continuing professional development for qualified teachers in schools who also need support and development, especially in rural communities.

126. The lack of training and professional development is severely acerbated by the shortage of teachers. UNESCO's Institute of Statistics (UIS) has estimated that, globally, 25.8 million extra teachers will need to be recruited by 2030 to meet Education for All targets (UNESCO, 2015)[225]. Of these, 3.2 million would be filling new posts and 22.6 million would be replacing teachers retiring or leaving the profession. There were 59 million children out of school in 2015. For them all to be in school would require the recruitment of 2.7 million teachers if pupil-teacher ratios are not to exceed 40:1.

127. Given the overall issue of teacher development in developing countries, it is perhaps not surprising that no data can be found for the numbers lacking training in the use of ICT in education. However, there is data available for Europe. A survey, funded by the European Commission Directorate General Information Society and Media and undertaken by European Schoolnet and the University of Liège, found that only 40% of pupils in EU member states are taught by teachers who have engaged in any pedagogical training on the use of ICT[226]. The backlog is huge - for example, in Italy the MOE Digital School Plan foresaw training for 157,000 teachers in 2018, France estimated 300,000. The OECD's Teaching and Learning International Survey (TALIS) Teachers' Professional Development in Europe (2013)[227] estimated that 2 million teachers will have received little or no training in using and teaching digital technologies.

128. It is reasonable to assume that the deficit is far greater in developing countries.

129. While early initial programmes focused on training teachers in how to use ICT, there is an increasing focus on their confidence and competence in the use of ICT for teaching and learning in the classroom. Rather than ICT being seen as a subject in itself, this new focus is on the use of technology for learning across the curriculum. Such a focus can be seen in the development of new courses through the more advanced levels of the UNESCO ICT CFT in countries like Rwanda. There is much evidence that the level of basic ICT literacy is lower in developing countries, probably because of lack of access and infrastructure. The best way of making teachers digitally literate is to focus on programmes that support them to integrate ICT in their practice and subject

[222] Professor Bob Moon and Charmaine Villett (2016) Digital Learning: Reforming Teacher Education to Promote Access, Equity and Quality in Sub-Saharan Africa, Commonwealth of Learning.
[223] Professor Bob Moon and Charmaine Villet (2017) Can New Modes of Digital Learning Help Resolve the Teacher Crisis in Sub-Saharan Africa?, In Journal of Learning for Development - JL4D 1(4)
[224] Peter Bateman, Professor Andy Lane and Professor Bob Moon (2012-10) Out of Africa: a typology for analysing open educational resources initiatives, In Journal of Interactive Media in Education (JIME)(2)
[225] UNESCO. (2015). Sustainable Development Goal for Education cannot advance without more teachers (UIS Fact Sheet No. 33).
[226] European Commission/EACEA/Eurydice (2015). Appendix to the Teaching Profession in Europe: Practices, Perceptions, and Policies. Eurydice Report. Luxembourg: Publications Office of the European Union.
[227] OECD: TALIS 2013 Results. An International Perspective on Teaching and Learning, TALIS. OECD Publication, Paris (2014).

teaching through the enhancement of pedagogic skills, rather than learning business IT packages.

130. Programmes of initial teacher training need to be updated to reflect these priorities. In addition, there is a need for extensive programmes of continuing professional development to ensure all teachers are confident and competent in using ICT for teaching and learning. New models of professional development are required to overcome the resource limitations of traditional course based programmes.

131. Both the European Commission and UNESCO have developed competence-based Frameworks for adoption in different countries by initial and continuing teacher training organisations.

132. The UNESCO ICT CFT provides a basis for developing initial and continuing teacher training programmes but requires ongoing updating to reflect changes in the way technologies are being used for learning and changing understandings of digital competence. The development and sharing of OERs and learning materials based on the Framework has been found to be effective in this process.[228]

133. The major problem is how to scale initial and continuing teacher training in order to meet this need. The PLC-OER model implemented in Kerala offers a scaled up model in a global south context[229]. A second model has been developed through the CLIx programme (The Connected Learning Initiative) in India which was awarded the UNESCO ICT in Education award in 2017[230]. A European project is supporting the education professionals responsible for designing strategies, developing different models of intervention and delivering or facilitating staff development events developing exchanges of effective practice together with collections of resources, materials and a critical examination of different strategies and modes of delivery.[231]

134. The European Joint Research Council is piloting self-assessment tools for both individual teachers and for schools to facilitate the development of action plans[232].

135. The major issue is how to scale teacher training to meet the need. This is particularly so in poorer countries such as those in Sub Saharan Africa, where there are massive shortages of teachers and many teachers have not received any initial teacher training, and appropriate infrastructures and equipment are lacking.

136. An emergent model in sub Saharan Africa is to develop blended training programmes including short periods of face to face training, combined with longer period of part time online learning, often utilising OERs[233]. At the same time there is a tendency towards providing in-school training. Such programmes also are often based on cascade training provision, with initial cohorts of learners subsequently providing training for other teachers. There are some question marks over the effectiveness of cascade-based provision which, essentially, is dependent on the weakest link in the chain.

137. Teacher development is a key role for UNESCO's work in ICT in Education. There is an issue for UNESCO as to whether prioritise enhanced training in the use of ICT for learning in Initial Teacher Training as opposed to Continuing Professional Development programmes. While the latter may have higher initial impact, and thus be attractive to donors, the former may lead to more sustainable development and longer term change if they meet national educational objectives.

4. Open Educational Resources

138. There has been considerable progress in the development and adoption of OERs in many countries and cultures. This has been to a large extent based on awareness-raising around potentials and important practices at local, national and international level, initiatives which need to continue and be

[228] See ICT CFT Harnessing OER project discussed later in this report
[229] See https://www.slideshare.net/oeconsortium/teacher-professional-learning-communities-a-collaborative-oer-adoption-approach-in-karnataka-india
[230] https://en.unesco.org/news/projects-india-and-morocco-receive-unesco-king-hamad-bin-isa-al-khalifa-prize-innovation
[231] http://tacle4cpd.eu/
[232] https://ec.europa.eu/education/schools-go-digital_en
[233] See the accompanying case study on Teacher Development in the use of ICT in Education, undertaken as part of the evaluation of UNESCO's work in ICT in Education.

deepened. Nevertheless, there remain barriers to be overcome. These include how to measure and recognise the quality of OERs, the development of interoperable repositories, how to ensure the discoverability of OERs, and the localization of different OERs including in minority languages. The PLC-OER model provides an approach for OER development in native languages.

139. While progress has been made, policy developments are uneven in different countries. There remains an issue of ensuring teachers' capacity to understand the discovery, potential and use of OERS and, importantly how to themselves develop and share OERs. This requires the incorporation, of OER use and development in both initial and continuing professional development for teachers.

140. De Los Arcos and Weller (2018) have undertaken a study funded by the Hewlett Foundation[234] addressing concerns that "established trends in open educational resources (OER) research originate largely in the US and Europe, while the provision of open content and pedagogy tend to be dominated by English-speaking, developed countries."

141. They reference Albright (2009) in introducing the danger that the world of OER risked being separated into contributors and consumers, if the North was allowed to lead the production of knowledge without reciprocity from the less developed nations of the South. De Los Arcos and Weller's paper presents the results of an extensive survey of 7700 responses from participants in over 180 countries, nearly a quarter of them native speakers of a language other than English, grouping the survey responses into those from the Global North and the Global South. Perhaps unsurprisingly, a higher percentages of computer users in developed nations had broadband at home, use a mobile phone or a tablet to go online, and are able to connect to the internet at work, impacting on their ability to perform effectively in a digital environment. These challenges have been identified as strategic areas of action in the Ljubljana OER Action Plan and Ministerial Statement adopted at the 2nd OER World Congress hosted by UNESCO and the Government of Slovenia.[235]

142. Other results were more surprising. Teachers in developed countries indicated that they create classroom resources and share them online with an open license marginally more often than teachers in developing countries; however, teachers in the global south were more likely to tell others how they have used a resource and assessed its quality. 75.4% of educators in the South said that they use OER because it allows them to better accommodate diverse learner needs in the class, compared to 62.3% in the North.

143. Obviously, teachers in the South faced bigger technological barriers to finding and contributing resources. The authors cite Perryman and Seal (206, in their study of OER users in India, who observed that educators who experience a high incidence of inhibitors also show high levels of engagement with OER.

144. Arcos and Weller (2018) conclude that the survey results provide no evidence to talk about a divide, still less to brand the South as passive consumers. But, the challenge of developing OERs in local languages is still very significant and requires support from UNESCO.

145. The growing diversity of Open Educational Resources (OER) initiatives coupled with better understanding of the limitations of open content has led to an understanding that a narrow focus just on OER may not be enough for educational institutions to fundamentally embrace and establish effective open pedagogical practices.

146. Open Educational Practices (OEP) are defined as practices which support the production, use and reuse of high quality open educational resources (OER) through institutional policies, which promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong

[234] De los Arcos, B. and Weller, M. (2018). A Tale of Two Globes: Exploring the North/South Divide in Engagement with Open Educational Resources. In J. Schöpfel and U. Herb (Ed.) Open Divide: Critical Studies on Open Access, pp. 147-155. Sacramento, CA: Library Juice.

[235] These five strategic areas are; building the capacity of users to find, re-use, create and share OER; language, and cultural issues; ensuring inclusive and equitable access to quality OER; developing sustainability models; and developing supportive policy environments.

learning path. OEP address the whole OER governance community: policy makers, managers and administrators of organisations, educational professionals and learners.[236] Open educational practices seek to fully use the potential inherent in OER to support learning and to help students both contribute to knowledge and construct their own learning pathways. Such open practices provide the architecture and philosophical underpinning for fulfilling the promise of using OER to expand collaborative, inclusive, accessible, and active learning and related pedagogy. Open educational practices are also seen as giving agency to students by allowing them more control over the structure, content, and outcomes of their learning and by creating opportunities to generate their own learning materials.

147. UNESCO plays a leading role in the OER movement 2nd World OER Congress in 2017 co-organised by UNESCO and the government of Slovenia. The Draft Outcome and Recommendations[237] details the challenges for the future development of OER in terms of:

- Capacity of users to access, re-use and share OER
- Language and culture issues
- Ensuring inclusive and equitable access to quality OER
- Developing Sustainability Models
- The development of supportive policy environments.

148. UNESCO has developed close working partnerships with other international organisations in developing OER. This includes with the Hewlett foundation and the Commonwealth of Learning. 2017 also saw the creation of the UNESCO ICT CFT Hub on OER Commons by ISKME. This repository indexes existing openly licensed units of study linked to specific UNESCO ICT CFT competencies and objectives. It is designed to collect known OER linked to the ICT CFT Framework in one place.

149. OERs are increasingly integrated into the work and projects undertaken by UNESCO in ICT in Education, particularly in the area of teacher development. Project activities include support for capacity building for Ministries of Education, Teacher Training Institutions and teachers in the effective use of ICT by teachers in their professional practice, and the development and use of OER for education.

5. ICT and the use of data in education

150. The growing power of ICT based data applications and especially big data and AI (see section 10, below) are of increasing importance in education.

The use of data for policy and planning

151. One use is in education policy and planning, providing near real-time intelligence in a wide number of areas including future numbers of school age children, school attendance, attainment, financial and resource provision and for TVET and Higher Education demand and provision in different subjects as well as providing insights into outcomes through for instance post-school trajectories and employment. More controversial issues include the use of educational data by government authorities for comparing school performance, and by parents in choosing schools for their children.

Learning Analytics

152. A further rapid growth area in the use of data in education is Learning Analytics (LA). LA has been defined as “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs” (SoLAR, 2011).[238] It is seen as assisting in informing decisions in education systems, promoting personalized learning and enabling adaptive pedagogies and practices. At least in the initial stages of development and use, universities

[236] http://www.teaching-learning.utas.edu.au/content-and-resources/open-educational-resources/open-educational-practices

[237] https://www.oercongress.org/wp-content/uploads/2017/07/WOERC-2017-Outcomes-and-Recommendation-Document-V1-EN.pdf

[238] SoLAR (2011). Open Learning Analytics: An Integrated & Modularized Platform. White Paper. Society for Learning Analytics Research. Retrieved from http://solaresearch.org/OpenLearningAnalytics.pdf.

and schools have tended to harvest existing data drawn from Virtual Learning Environments (VLEs) and to analyse that data to predict individual performance and undertake interventions which can, for instance, reduce drop-out rates. Other potential benefits include that LA can allow teachers and trainers to assess the usefulness of learning materials, to increase their understanding of the learning environment in order to improve it, and to intervene to advise and assist learners. Perhaps more importantly, it can assist learners in monitoring and understanding their own activities and interactions and participation in individual and collaborative learning processes and help them to reflect on their learning.

153. Pardo and Siemens (2014)[239] point out that "LA is a moral practice and needs to focus on understanding instead of measuring." In this understanding: "learners are central agents and collaborators, learner identity and performance are dynamic variables, learning success and performance is complex and multidimensional, data collection and processing needs to be done with total transparency." This is an important distinction. There is the risk that the popular use of LA based on AI will result in the displacement of teachers and the development of schools without teachers which will impoverish learning. Such developments will occur in poorly resourced schools as teachers' displacement tools, and certainly not in elite well-resourced schools.

154. Although initially LA has tended to be based on large data sets already available in universities, school based LA applications are being developed using teacher inputted data. This can allow teachers and understanding of the progress of individual pupils and possible reasons for barriers to learning.

155. There has been only very limited use of Learning Analytics in developing countries. However, in 2018 Global Learning for Development published 'Learning Analytics for the Global South; (Lim, C. P., & Tinio, V. L. (Eds.), 2018).[240] The publication considered how the collection, analysis, and use of data about learners and their contexts have the potential to broaden access to quality education and improve the efficiency of educational processes and systems in developing countries around the world. An opening discussion paper by Gašević examined how the potential of learning analytics could support critical digital learning and education through quality learning at scale and the acquisition of 21st century skills.

156. This was followed by four responses from experts in Africa, mainland China, Latin America and South East Asia.

157. In viewing Learning Analytics through the lens of three key challenges facing education systems in the Global South: quality, equity, and efficiency, Gašević suggested "that the implementation of learning analytics in developing countries has significant potential to support learning at scale, to provide personalized feedback and learning experience, to increase the number of graduates, to identify biases affecting student success, to promote the development of 21st century skills, and to optimize the use of resources."

158. Gašević acknowledged that while there is an increasing number of guidelines for addressing issues of privacy and ethics in learning analytics, citing Ferguson et al (2016) and Sclater, (2016), guidelines specific to different regions of the Global South, consistent with local cultures, legislation, and practices, need to be developed. Moreover, he said that in order to promote equity in the Global South, specific guidelines for the use of learning analytics need to be designed.

159. Paul Prinsloo from the University of South Africa, citing Selwyn (2014), said Learning Analytics, like all (educational) technology, must be "understood as a knot of social, political, economic and cultural agendas that is riddled with complications, contradictions and conflicts."

160. In Africa, most published research and analysis about student data fall in the category of academic analytics and institutional research. However, there are a growing number of examples of the use of Learning analytics in South Africa.

161. But few Higher Education institutions in Africa have the capacity to collect

[239] Pardo A. and Siemens G. (2014) Ethical and privacy principles for learning analytics in British Journal of Educational Technology Volume 45, Issue 3, pages 438–450, May 2014.

[240] http://dl4d.org/portfolio-items/learning-analytics-for-the-global-south/.

sufficient student data for detailed analysis and those wanting to take up Learning Analytics are likely to look for commercial providers, thus running the danger of beings subjected to inappropriate models from the Global North.

162. He said that: “In every society, there are cultural determinants of what constitutes leadership, decision-making, representation, group membership, participation, legitimacy, and accountability. And different behaviours, standards and measures may apply.” Quoting Smith (2016), he asked “Whose voice is given priority in determining the meaning, validity, and values attached to data?”

163. The concerns expressed by Bodong Chen of the University of Minnesota, USA and Yizhou Fan of Peking University with regard to the development of Learning analytics in mainland China related to the protection of student privacy, the change from exam driven teaching practices, and the decentralisation of top down models for educational decision making. For learning analytics efforts in China, they say, “there may be fewer lessons to learn from the Global North in this regard.”

164. Writing about Learning Analytics in Latin America, Cristóbal Cobo and Cecilia Aguerrebere from the Ceibal Foundation, Uruguay believe Learning Analytics could help solve the issue of the nearly 10 million Latin Americans between the ages of 15 and 18 neither studying nor working (Cárdenas, De Hoyos, & Székely, 2015).

165. Learning analytics can provide relevant and actionable information by analysing the impact of learner’s socio-economic context, the school or college’s quality, the learner’ engagement, and the effectiveness of the educational systems.

166. As far as we are aware UNESCO has to date undertaken little work in the area of Learning Analytics. But this would appear an important area of work for the future, especially considering the likely extension to include Artificial Intelligence. This could include working with governments and institutions in developing countries to assess the availability of data and its potential use on education. UNESCO’s Institute of Statistics (UIS) may also have a role in providing open data and advising on how this data can be used. Another role will be the training of educational leaders and technical support staff in how to implement Learning Analytics. Given the concern expressed above over the role of commercial providers in providing Learning Analytics platforms and support, UNESCO could seek collaboration and partnership in the development of Open Source solutions, capable of being configured as appropriate models for developing countries. Finally, as in the case of AI, the use of Learning Analytics raises serious questions around ethics: an area UNESCO is well placed to intervene and provide guidance and leadership.

E-assessment

167. E-assessment is becoming more widely used by educational institutions and examination awarding bodies, particularly those with multiple or international study centres and those which offer remote study courses. Online assessment is used primarily to measure cognitive abilities, demonstrating what has been learned after a particular educational event has occurred, such as the end of an instructional unit or chapter, although the use of automated testing can provide formative feedback in near real time

168. E assessment can provide efficiencies through allowing online marking and uploading of results.

169. To assist in the sharing of assessment items across disparate systems, global standards such as the IMS Question and Test Interoperability specification[241] have emerged.

170. However, for large-scale examining bodies the transition from traditional paper-based exam assessment to fully electronic assessment can take time. Practical considerations such as having the necessary IT hardware to enable large numbers of students to sit an electronic examination at the same time, as well as the need to ensure security, are among the concerns that need to be resolved to accomplish this transition. Question and Answer systems also require the development and updating of question banks.

[241] https://www.imsglobal.org/question/index.html

171. As in the example of Learning Analytics, despite the widespread use of e-Assessment in economically advanced countries, there are limited documented examples of its use in developing countries.

172. The University of Rwanda, through the UNESCO funded KFIT project, has been developing e-Assessment and intends to extend its implementation following the period pf project funding.

173. H. Ndume, S.I. Dasuki & P. Ogedebe (2014) from Baze University in Abuja, Nigeria have published a paper in the IEEE journal, African Journal of Computing & ICT, entitled 'E-Assessment Systems for Universities In Developing Countries: A Nigerian Perspective'.[242] They say the present paper based examination systems used in Nigerian universities are resource and time consuming. More seriously, they say the present systems are "marred with problems" including "massive examination leakages, demand for gratification by teachers, bribe-taking by supervisors and invigilators of examinations."

174. The paper focuses on the technical description of the development of an e-assessment system for university entrance and they argue that this system should be extended for students sitting term time and final assessment exams. But they note that the successful implementation of such a system is dependent on sufficient resources including infrastructural support, electricity supply, and skilled ICT workers.

175. Ndume et al (2014) also draw attention to the limitations of multiple choice questions. This reflects wider pedagogic considerations around e-assessment from educationalists in advanced economies. Multiple choice questions may fail to reflect the practical application of competence in, for example, many TVET programmes and focus excessively on cognitive knowledge.

176. Advances in the development of automated semantic systems and of Artificial Intelligence (see below) may help overcome these limitations.

177. As was noted above, UNESCO already have some involvement in E-Assessment through projects in developing countries. This is another area in which UNESCO could develop access to examples of good practice as well as guidance and advice and training on the introduction if E-Assessment systems. Once more, the development of Open Source solutions would facilitate uptake and implementation.

6. Digital literacies

178. The rapid development of technology and more importantly the use of digital technologies in almost all areas of society is also leading to changes in understandings of digital literacy. While previously definitions tended to comprise narrow competency or skill sets and to focus on the skills required to effectively use technology, there is now a wider understanding of the changes the use of technology is bringing.

179. There are different definitions of digital literacy reflecting perhaps both the breadth of the area and its fast changing nature.

180. Martin (2005) defines digital literacy as:

181. "the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this Process."

Beetham, McGill and Littlejohn (2009)[243] define digital literacy as follows:

- a foundational knowledge or capability, such as reading, writing or numeracy, on which more specific skills depend on cultural entitlement - a practice without which a learner is impoverished in relation to culturally valued knowledge communication - expressing how an individual relates to culturally significant communications in a variety of media

242 https://pdfs.semanticscholar.org/0e4d/643c6ed6b9bceb4ac89594e673ee744386eb.pdf

243 Beet ham, H., McGill, L., & Littlejohn, A. (2009). Thriving in the 21st century: Learning Literacies for the Digital Age (Lleida project). Glasgow: The Caledonian Academy, Glasgow Caledonian University.

- the need for practice – acquired through continued development and refinement in different contexts, rather than once-and-for-all mastery
- a socially and culturally situated practice – often highly dependent on the context in which it is carried out – of self-transformation - literacies (and their lack) have a lifelong, life wide impact. Digital literacy includes developing a critical perspective on the use of digital technologies.

182. Gillen and Barton (2010)[244] say that digital literacies are always dynamic – in part because technology is perceptibly developing so fast - but also because human purposes continue to develop and are reshaped in collaboration. They offer a definition of digital literacies as "the constantly changing practices through which people make traceable meanings using digital technologies."

183. While Beetham, McGill and Littlejohn see the social and cultural situatedness of digital literacy in terms of context, Traxler (2018)[245] draws out the implication that "empowering people and communities requires culturally specific and culturally sensitive definitions of digitally literacy, rather than appropriating those generated outside the region and outside the community."

184. In a paper exploring digital literacy in the specific context of the Palestinian refugee community in the Middle East, Traxler asserts that digital technology embodies "language, values, gestures and culture that are overwhelmingly Anglophone American; it is largely under the control of global corporations and thus alien to many of the world's cultures and communities."

185. He points out how digital literacy implies the transformation of the roles and responsibilities of teachers and lecturers, from just being authoritative subject experts facilitating transmissive and discursive learning to include learning with or even from their students. But this, he says, may be culturally specific and challenging to cultures with a more traditional and didactic conception of teaching. Traxler cites Halstead (2004) in viewing digital literacy as a cultural attribute resting on the notions of literacy, learning, education and knowledge, local, albeit often tacitly, to a specific culture or subculture.

186. The notion of digital competence is expanding. Some countries, such as Estonia[246], are already including coding and computational thinking in primary schools: a trend likely to spread but once more requiring professional development for teachers. Reference Frameworks are important in providing a base line for curriculum development and teacher training but require constant updating to reflect such new understandings.

187. Other work in this area refers to the importance of creativity in the ability to use technologies and of resilience to cope with the changes digital technologies are bringing in societies.

188. The importance of digital skills is increasingly recognised for future employability. This includes both the skills to use digital technologies but also their use in vocational and occupational contexts. Discussions over the future of work, based largely on the growing applications of AI and automation, suggest future jobs will require higher level skills including in digital technologies.[247] This will require changes in a wide range of curricula. Mapping of changing needs for digital skills provide a reference point for such development.

189. It is important that digital skill development is not reduced to an employability agenda. Instead it needs to include the use of such skills for providing a decent life within society and community and to equip young people with the skills and understanding of the appropriate use of technology within their social relations and their life course. Yet again, such skills and understanding require continuing considerations of ethical issues and of how digital skills can help advance gender equality.

190. UNESCO provide programmes for digital literacy, particularly for disadvantaged people and groups in developing countries. The experience of these programmes can assist in understanding the contextual meanings of

[244] Gillen, J., & Barton, D. (2010). Digital Litofacies. TLRP.

[245] https://www.researchgate.net/publication/323661286_Digital_literacy_a_Palestinian_refugee_perspective .

[246] https://www.bbc.com/news/av/education-25648769/computer-coding-taught-in-estonian-primary-schools.

[247] See, for example, http://reports.weforum.org/future-of-jobs-2016/skills-stability/.

digital literacy. The sharing of curricula and of learning materials as OERs could help in the wider adoption of such programmes.

Media Literacy

191. Media literacy is seen as increasingly important, given concerns over the impact of social media on young people's mental health and the echo chamber effect of social media in terms of propaganda and false news. Becoming media literate means young people build communication skills, and also become equipped with the tools to interpret, to understand, to critically question and to interact with media. From a positive viewpoint, the ability to create your own media is empowering and outlets such as a blog or a podcast give a platform especially for young people to tell their personal story so as to build a place in culture and society. Media literacy includes critical thinking, presentation, understanding texts, technical and digital skills.

192. Through its work with media and particularly with journalists UNESCO has the potential to play a leading role in this area.

Digital literacy and policy

193. A challenge for policy in ICT in Education is the development and introduction of measures to safeguard students but at the same time encourage their creative use of ICTs. Education policies also have to address the issues of privacy and bullying as well as digital literacy, particularly understanding the veracity and reliability of data sources. Further issues include privacy and data ownership. UNESCO can contribute to policy development and address ethical concerns in using not only educational technologies but big data and social networks.

7. Social inclusion and gender equality

ICT and education for people with Disabilities

194. Adaptive technologies have the potential to provide inclusive, accessible and affordable access to information and knowledge and to support the participation of Persons with Disabilities in lifelong learning opportunities.

195. Assistive, or adaptive technology has undergone a revolution in recent years. There is a wide range of established commercial and free and open source software products available (such as screen readers, on-screen keyboards and spelling aids), as well as in-built accessibility features in computers and programs.

196. More people use mobile and portable devices with assistive apps. One significant benefit of ICTs is the provision of a voice for those who are unable to speak themselves. Apps for tablet devices for example that use scanning and a touch screen interface can now provide this at a fraction of the cost of some of the more complex and advanced hardware technologies.

197. Most countries have moved towards including young people with Special Educational Needs within mainstream educational provision. The use of technology for learning can allow differentiated provision of learning materials, with students able to work at a different pace and using different resources within the classroom.

198. Regardless of these potentials there is a need to ensure that institutional policies include the needs of students with disabilities and that teaching staff have time to properly engage with these students and the institutions provide staff awareness and training activities. Alternative formats for learning materials may be required and the adoption of OERs can help in this process.

Gender equality, ICT and education

199. Any consideration of the issues of ICT in Education and gender equality have to be taken within the wider issue of gender equality in terms of access to education. Despite progress at a global level, in Afghanistan and South Sudan, there are only about 70 girls enrolled in primary school for every 100 boys while large gaps persist in countries like the Central African Republic (76 girls for every 100 boys), Chad (78 girls for 100 boys) as well as Guinea, Eritrea, Niger

and Pakistan (85-86 girls each)[248].

200. A study by the International Development Research Centre of Canada (IDRC) on ICT for poverty reduction strategies states that despite contributing to poverty reduction, existing persistent gender discrimination in labour markets, in education and training opportunities, and allocation of financial resources for entrepreneurship and business development, negatively impact women's potential to fully utilize ICT for economic, social and political empowerment.[249]

201. Girls still are likely to have less access to technology in the classroom than boys. Furthermore, in terms of careers, despite progress in gender equality, men continue to substantially outnumber women in terms of employment in the technology industry. Research attributes the gender disparity in technical fields to the fact that fewer women than men study science, technology, engineering and mathematics (STEM)[250]. Cultural expectations also influence the gender divide causing women to feel pressured to pursue careers in other industries while the culture of technical companies may also put off women from pursuing a career in the industry.

202. There are a wide range of programmes and projects by UNESCO, both to integrate girls and women into the full curriculum, including many around STEM, and other projects targeted specifically at women and girls. These include projects for teaching girls programming and to secure women employment in the technology industry. Other measures include targets and quota for the inclusion of women within education and ICT.

203. Other areas of work in this field include the need to counter false news and programmes to counter extremism, areas that UNESCO are already involved in.

8. Foresight and emerging technologies

204. There are at any time a plethora of innovations and emerging developments in technology with the potential to impact on education, both in terms of curriculum and skills demands but also in their potential for teaching and learning. At the same time, educational technology has a tendency towards a 'hype' cycle, with prominence for particular technologies and approaches rising and fading. Some technologies, such as virtual worlds fade and disappear; others retreat from prominence only to re-emerge in the future. For that reason, foresight must be considered not just in terms of emerging technologies but in likely emerging and future uses of technologies in education.

205. Emerging innovations on the horizon at present include developments for the use of Big Data for LA in education; the use of AI for Personalised Learning (see below), and the development of OERS and MOOCS continue to proliferate.

206. There is renewed interest in a move from VLEs to Personal Learning Environments (PLE), although this seems to be reflected more in functionality for personalising VLEs than the emergence of new PLE applications. In part, this may be because of the need for more skills and competence from learners for self-directed learning than for the managed learning environment provided by VLEs. Personal Learning Networks have tended to be reliant on social networking application such as Facebook and Twitter. These have been adversely affected by concerns over privacy and fake news as well as realisation of the echo effect such applications engender. At the same time, there appears to be a rapid increase in the use of WhatsApp to build personal networks for exchanging information and knowledge. Indeed, one area of interest in foresight studies is the appropriation of commercial and consumer technologies for educational purposes. Professional learning communities and Communities of Practice represent a powerful method of teacher development using ICT for networking.

207. Although hardly an emerging technology, the use of multimedia in education is likely to continue to increase, especially with the ease of video making. Podcasting is also growing rapidly and is like to have increasing impact in the education sector. Yet another relatively mature technology is the

[248] http://uis.unesco.org/en/news/international-womens-day-explore-latest-uis-data-eatlas-gender-inequality-education

[249] https://www.idrc.ca/sites/default/files/openebooks/539-7/index.html

[250] https://www.aauw.org/research/why-so-few/

provision of digital e-books which, despite declining commercial sales, offer potential savings to educational authorities and can provide enhanced access to those with disabilities.

208. Educational games have been around for some time. The gamification of educational materials and programmes is still in its infancy and likely to continue to advance. However, some educationalist have expressed concerns over issues such as addiction with games technologies.

209. Another educational technology due for a revival is the development and use of e-Portfolios, as lifelong learning becomes more of a reality and employers seek evidence of job seekers current skills and competence.

210. A further response to the changing demands in the workplace and the need for new skills and competence is “bite–sized” learning through very short learning modules. A linked development is micro-credentialing be it through Digital Badges or other forms of accreditation.

211. As ICT is increasingly adopted within education, there will be a growing trend for redesigning learning spaces to reflect the different ways in which education is organised and new pedagogic approaches to learning with ICT. This includes the development of “makerspaces”. A makerspace is a collaborative work space inside a school, library or separate public/private facility for making, learning, exploring and sharing[251]. Makerspaces typically provide access to a variety of maker equipment including 3D printers, laser cutters, computer numerical control (CNC) machines, soldering irons and even sewing machines.

212. Despite the hype around Augmented Reality (AR) and Virtual Reality (VR), the present impact on education appears limited although immersive environments are being used for training in TVET and augmented reality applications are being used in some occupational training. In the medium-term mixed reality applications may become more widely used in education.

213. Similarly, there is some experimentation in the use of wearable devices for instance in drama and the arts but widespread use may be some time away.

214. The block chain has been developed for storing crypto currencies and is attracting interest form educational technologists. Block chain is basically a secure ledger allowing the secure recording of a chain of data transactions. It has been suggested as a solution to the verification and storage of qualifications and credentials in education and even for recording the development and adaption of Open Educational Resources. Despite this, usage in education is presently very limited and there are quite serious technical barriers to its development and wider use. Wayne Skipper, the CEO of Concentric Sky says: ”what is needed is an open technology ecosystem that combines public blockchains, private blockchains, and off-chain storage, combining the strengths of each technology to create a decentralized storage mechanism whose verification incentives are not tied to currency markets.” But even then, he advises that “it will take time for these technologies to reach the maturity, scale, and reliability needed for enterprise deployment in education.”[252] The blockchain can be seen as a solution searching for a problem to solve.

215. Serge Ravet (2019) has written an extended case against the use of blockcerts in education. The term 'blockcert' refers to a specific approach using blockchain to validate digital credentials. The question being posed asks what advantage they have over badges and (especially) the Verifiable Claims W3C specification. The problem, argues Ravet, is different from the solution offered by blockchain: "A credential is not fungible, i.e. its ownership can’t be transferred to someone else or transformed into something different, like exchanging a credential for a bowl of lentil stew." So there is no 'double-spending' problem, the one thing he says the blockchain was invented to solve.

216. In research undertaken for this report, a number of interviewees raised the importance of Artificial Intelligence in education (although a number also believed it to be over hyped).

[251] https://www.makerspaces.com/what-is-a-makerspace/.
[252] https://er.educause.edu/blogs/2019/1/is-blockchain-ready-for-prime-time-in-education.

217. A recent report from the EU Joint Research Council (2018)[253] says that:

> "in the next years AI will change learning, teaching, and education. The speed of technological change will be very fast, and it will create high pressure to transform educational practices, institutions, and policies."

218. It goes on to say AI will have:

> "profound impacts on future labour markets, competence requirements, as well as in learning and teaching practices. As educational systems tend to adapt to the requirements of the industrial age, AI could make some functions of education obsolete and emphasize others. It may also enable new ways of teaching and learning."

219. However, the report also considers that "How this potential is realized depends on how we understand learning, teaching and education in the emerging knowledge society and how we implement this understanding in practice." Most importantly, the report says, "the level of meaningful activity—which in socio-cultural theories of learning underpins advanced forms of human intelligence and learning—remains beyond the current state of the AI art."

220. Although AI systems are well suited to collecting informal evidence of skills, experience, and competence from open data sources, including social media, learner portfolios, and open badges, this creates both ethical and regulatory challenges. Furthermore, there is a danger that AI could actually replicate harmful pedagogic approaches to learning.

9. Conclusions

221. This short report is not intended to provide an in depth account on the entire ICT in Education landscape. Indeed, each of the areas included above could warrant a full study on their own. Furthermore, there are areas of development of ICT in education that have not been mentioned. However, one of the key conclusions is that ICT is having a profound influence in most areas and subsectors of education. This influence is only likely to increase in the future, at different pace in the different regions of the world.

222. A longer term review of cutting edge educational technology development would reveal the tendency for short term 'hype' around particular developments which may or may not enter mainstream provision. While technologies such as Virtual Learning Environments continue to be widely used, ideas such as the use of virtual worlds, like Second Life, which provoked much excitement at one time, have failed to impact on the longer-term landscape. Other areas of development such as Digital Literacy are fast undergoing revision and change. It is notable that UNESCO's ICT CFT Framework is now in a third edition in response to ongoing change in the use of ICT for learning, showing the need for both engagement with emerging cutting edge technologies but also for updating and advancing on existing provision for ICT in Education.

223. The greatest impact of many of these technologies may be the opening up education for informal and self-directed study and for learning in the community and in cultural settings, raising the challenge of how to bring together informal and formal learning and to recognise the competences acquired through learning which occurs outside the classroom. Given UNESCOs multidisciplinary mandate including education, sciences, culture and communication, UNESCO is well placed to play a leading role in these areas. However, this has to be balanced against the potential for ICT in more traditional formal education institutions and the imperative for policy development in ICT in Education, especially building the future resilience of education system to deal with potential digital disruptions.

224. There is a challenge in how to recognise emerging best practice and move from pilot projects to widespread adoption and how to ensure the sustainability of such pilot initiatives. Furthermore, despite the understandable desire to scale and mainstream technologies to provide enhanced access to learning, what works in small scale projects may not necessarily work on a large scale. Mainstreaming is not necessarily always the best approach to developing the

[253] Tuomi, I. The Impact of Artificial Intelligence on Learning, Teaching, and Education. Policies for the future, Eds. Cabrera, M., Vuorikari, R & Punie, Y., Publications Office of the European Union, Luxembourg, 2018.

use of technology for learning.

225. This landscape study suggests there are four key conclusions for UNESCO. The first is that the most important role for work in ICT in Education is to support and facilitate programmes that integrate ICT for teacher professional development and teacher education in order to strengthen teacher quality, agency and empowerment.

226. The second is to support the creation and sharing of Open Educational Resources in local languages.

227. The third is to support free and open ICT (including FOSS and OERs) which is essential for public education systems.

228. A number of those interviewed in the course of the evaluation of UNESCO's work in ICT in Education, pointed to the role of UNESCO to provide "intellectual leadership" in a fast changing area. This points to the importance of research but also to drawing on the broad experiences and knowledge that UNESCO is continuing to develop through its policy and field based programmes, including in areas like Digital Literacy, Open Education resources, Programming for girls, education for those with disabilities, cultural heritage and teacher development. Few international organisations are so well placed in this respect.

229. At the same time the development and sharing of foresight studies can help in developing awareness and understanding of the possible potential of new technologies as well as their implications for education and the knowledge economy. The sharing of findings and practices in pilot projects in these areas can facilitate their development and adoption. However there is a need for care in avoiding newly hyped areas and technologies which are not yet proven to be of value in education.

230. Technologies such as Artificial Intelligence and the use of big data also provide challenges for personal privacy, data, and security and require ethical considerations, as well as consideration of inclusion and gender equality. Once more UNESCO is well placed to provide intellectual leadership in these areas.

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N. Biodata of the Evaluators

Nexus Research Cooperative: Nexus is a registered not-for-profit research organisation based in Dublin Ireland, formed in 1981. Nexus Research Directors work extensively on social and economic issues, designing, support and evaluating projects. Nexus also has a long-history of advocating for, and working with, community development organisations in Ireland, and almost three decades of work in Europe and all continents globally.

The following outline the team's suitability for the assignment.

Seán O Siochrú: Team Leader, has over 30 years' experience of programme design, implementation, and evaluation in development and empowerment projects, deploying and designing all major quantitative and qualitative methodologies. Domain specialties include ICTs for development, access to information, and education; mainly in Asia, Africa and Europe. He has led many major evaluations for international organisations such as the evaluation of UNESCO's International Programme for the Development of Communication (2017), the C4I Programme (Communication for Integration: Social Networks for Diversity for the Council of Europe and EU (2015), Oxfam Novib's Access to Information (A2I) Global Priority Programme (2014), and the global Sustainable Developing Networking Programme for UNDP (2003). In addition to his extensive experience in the UN system, in ICTs and education, of particular relevance here is the application of Theory of Change in evaluation contexts; Sean is a member of the Advisory Board of the Centre for Theory of Change in New York: http://www.theoryofchange.org/about-us/theory-of-change-advisory-board/

Graham Attwell: Lead Consultant, has over 30 years of experience in developing and managing national and international programmes and projects in the use of ICTs for learning in the school, vocational education and training and Adult and Higher Education sectors and in enterprises. His main research focuses on the use of technologies for learning and knowledge development, informal learning, careers education, the training and professional development of teachers and trainers and Open Education. He has worked as an evaluator and consultant for many international organisations including the European Commission and OECD. He has published extensively, including handbooks for project evaluation and the evaluation of eLearning.