COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

Twenty-eighth session
Geneva, 7-11 April 2025

Submissions from entities in the United Nations system, international organizations and other stakeholders on the progress made in the implementation of the outcomes of the WSIS during the past 20 years

Submission by

United Nations Educational, Scientific and Cultural Organization

This submission was prepared as an input to the report of the CSTD secretariat that will inform the substantive discussion at the CSTD on the progress made in the implementation of the outcomes of the WSIS during the past 20 years during its 28th annual session in April 2025, in response to the request by the Economic and Social Council, in its resolution E/RES/2023/3, to the CSTD to conduct such substantive discussions and to report thereon, through the Economic and Social Council, to the General Assembly.

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28th session

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Submissions from entities in the United Nations system, international organizations and other stakeholders on their efforts over the past twenty years to implement the outcomes of the WSIS

Submission by

United Nations Educational, Scientific and Cultural Organization

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made over the past twenty years in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 28th session of the CSTD), in response to the by the Economic and Social Council request to the Commission to submit, after its twenty-eighth session, the results of its twenty-year review, through the Council, to the General Assembly as it makes an overall review of the implementation of the outcomes of the World Summit in 2025.

UNESCO Contribution to the 20-year report to the Commission of Science and Technology for Development on the implementation of the World Summit Information Society (WSIS) outcomes

I. What is your organization's formal role and responsibilities concerning WSIS implementation?

a. Mandates of your organization relevant to the WSIS implementation

UNESCO holds three main mandates in the implementation of the World Summit on the Information Society (WSIS) outcomes:

1. Coordinator: UNESCO, along with the International Telecommunication Union (ITU), UN Trade and Development (UNCTAD), and the United Nations Development Programme (UNDP), is responsible for the overall multi-stakeholder coordination and facilitation of all 11 Action Lines of the WSIS Action Plan.
2. Facilitator: UNESCO facilitates the implementation of six Action Lines within its areas of competence:
    - C3: Access to Information and Knowledge
    - C7: E-learning and E-science
    - C8: Cultural and Linguistic Diversity
    - C9: Media
    - C10: Ethical Dimensions of the Information Society
3. Implementer: UNESCO implements concrete activities included in the WSIS Action Plan within the framework of its own areas of competence and programmes.

b. Brief History of your organization's contribution to the World Summit on the Information Society (WSIS)

UNESCO made significant contributions to the World Summit on the Information Society (WSIS) in both 2003 and 2005:

In the 2003 Geneva Phase, UNESCO:

1. Expanded the WSIS agenda: UNESCO broadened the summit's focus beyond just technology to include ethical, legal, and socio-cultural dimensions of the Information Society.
2. Introduced the concept of Knowledge Societies: UNESCO promoted a more comprehensive vision that defines *Knowledge Societies* as societies where individuals possess the capabilities not only to acquire information but also to transform it into knowledge and understanding. This transformation empowers individuals to improve their livelihoods and contribute to the social and economic development of their communities.
3. Shaped key principles, as reflected in the Declaration of Principles, which addresses:

- Freedom of expression
- Universal access to information
- Capacity-building in ICT
- Cultural and linguistic diversity
- Access to education
- Importance of traditional, free, and pluralistic media
- Sciences' central role in developing information societies

In the 2005 Tunis Phase, UNESCO:

1. Continued advocacy: UNESCO reiterated its support for the Geneva Declaration of Principles and Plan of Action.
2. Focus on implementation: UNESCO contributed to discussions on financial mechanisms for bridging the digital divide and Internet governance.
3. Promoted inclusive participation: UNESCO encouraged involvement from decision-makers, professional communities, civil society, and the private sector in debates on developing an information society for everyone.
4. Regional Forums: Between 2002 and 2005, UNESCO supported several regional forums worldwide to address various aspects of both WSIS phases.
5. A new concept was implemented: The "Towards Knowledge Societies" UNESCO report (2005), laid the comprehensive conceptual foundation for understanding the role of knowledge in development, going beyond Information Societies as a vision. In the 2030 United Nations Development Agenda, only Knowledge Societies were referred to.

Throughout the WSIS process, UNESCO played a pivotal role in shaping the global discourse on the information society. The Organization consistently championed a vision that extended beyond mere technological advancement, emphasising the creation of people-centred, inclusive, and development-oriented Information Societies. UNESCO's approach focused on the critical task of transforming raw information into applicable knowledge, recognising that true progress lies not just in access to data but also in the ability to understand and utilise it effectively. Central to this vision was the empowerment of individuals and communities, enabling them to harness the potential of information and communication technologies for their development. Moreover, UNESCO advocates for bridging digital divides and improving accessibility, ensuring that the benefits of the information society can be enjoyed by all, regardless of geographical, social, or economic barriers. This comprehensive and humanistic approach significantly influenced the outcomes of the WSIS, steering the global community towards a more equitable and inclusive digital future.

UNESCO's contributions helped shape the WSIS outcomes to reflect a more holistic and human-centred approach to the global information society.

In 2006, the United Nations Chief Executives Board (CEB) established the United Nations Group on the Information Society (UNGIS) as a crucial inter-agency mechanism within the UN system. This group was created primarily to coordinate the implementation of outcomes from the World Summit on the Information Society (WSIS). UNGIS seeks to promote policy coherence and program coordination across the UN system, specifically focusing on information and communications technologies and their role in supporting internationally agreed development goals. By facilitating collaboration and partnerships among CEB members, UNGIS contributes significantly to the achievement of WSIS objectives. The group's leadership structure reflects its collaborative nature, with UNESCO, along with ITU, UNDP, and UNCTAD, serving as rotating chairs, ensuring diverse perspectives and expertise in guiding its activities.

Together with ITU, UNDP, and UNCTAD, UNESCO co-organizes the annual WSIS Forum, bringing together various stakeholders, such as governments, civil society, the private sector, academia, international organizations, and technical communities. The WSIS Forum serves as a platform for:

1. Implementation and monitoring of WSIS Action Lines, which are essential for building an inclusive and development-oriented information society.
2. Multistakeholder collaboration: It brings together diverse stakeholders, including governments, civil society, the private sector, academia, and international organizations, fostering collaboration and partnerships to address digital challenges.
3. Knowledge sharing: The forum provides an opportunity for information exchange, knowledge creation, and sharing of best practices related to information and communication technologies (ICTs) for development.
4. Emerging trends identification: It helps identify emerging trends in the rapidly evolving digital landscape, allowing stakeholders to stay ahead of technological advancements and their societal impacts.
5. Alignment with SDGs: The WSIS Forum aligns its action lines with the 17 Sustainable Development Goals (SDGs), ensuring that the information society directly contributes to sustainable development efforts.
6. Policy discussions: It facilitates multistakeholder discussions on timely and pertinent issues affecting science, technology, and development, contributing to global digital governance.
7. Capacity building: The forum supports capacity-building initiatives, helping stakeholders develop skills and knowledge necessary for the digital age.

By providing these opportunities, the annual WSIS Forum plays an important role in ensuring multistakeholder participation in shaping the future of the global information society and that digital technologies contribute to inclusive and sustainable development worldwide.

c. Implementation processes and initiatives within your organization and/or in partnership with other organizations

UNESCO has been co-organizing with ITU, UNDP, and UNCTAD the annual WSIS Forum since 2009, a crucial platform for dialogue and collaboration among various stakeholders. UNESCO's involvement includes organizing and contributing to numerous sessions that address critical issues related to information and communication technologies (ICTs) for development. The WSIS Forum provides a unique opportunity for the WSIS Community to share knowledge, best practices, and innovative solutions to advance the implementation of the WSIS outcomes.

As one of the rotating Chairs of the United Nations Group on the Information Society (UNGIS), established by the CEB in 2006, UNESCO plays a pivotal role in coordinating efforts to achieve the WSIS outcomes with other United Nations agencies to align their strategies directed towards the common goal of leveraging ICTs for sustainable development.

UNESCO has been at the forefront of promoting the concept of knowledge societies. The seminal UNESCO report, "Towards Knowledge Societies" (2005), laid the foundation for understanding the role of knowledge in development. This report highlighted the transformative potential of knowledge and information in driving social, economic, and cultural progress. Building upon this foundation, we published "Renewing Knowledge Societies" in 2013, which addressed the evolving challenges and opportunities in the digital age. These reports have been instrumental in shaping global discourse on knowledge societies and guiding policy development.

In 2013 and 2014, UNESCO led the WSIS+10 review process, titled "Connecting the Dots." This comprehensive review assessed the progress made since the original WSIS and identified future priorities. The review emphasized the importance of fostering inclusive, equitable, and sustainable knowledge societies. It provided a critical evaluation of the achievements and challenges faced in the implementation of WSIS outcomes, laying the foundation for future actions.

UNESCO contributes to the Secretary-General's annual WSIS implementation report, providing insights and updates on our activities and achievements. This contribution ensures that our efforts are recognised and integrated into the broader United Nations framework for WSIS implementation. UNESCO also presents a biannual report to the UNESCO General Conference, detailing its progress in implementing the WSIS outcomes and its ongoing commitment to advancing knowledge societies. These reports serve as important accountability mechanisms and help track the impact of UNESCO initiatives.

II. What have been your organization's main contributions to the direct implementation of the WSIS outcomes and related areas of digital development since the Summit, particularly since 2015?

***Note:* In your answer, please kindly refer to the following points in correspondence to your Action Line(s):** *1) WSIS Action Lines (as lead, co-facilitator or supporting participant); 2) WSIS-related projects; 3) Indicators used to measure the impact of ICT in the achievement of the SDGs in your organization's area of work; 4) What assessment has your organization made of its engagement in WSIS-related work and digital development in its areas of responsibility?*

C3 – Access to information and knowledge

Since its establishment in 1945, UNESCO has championed global access to information as a cornerstone of informed societies. Over the past two decades, aligned with the World Summit on the Information Society (WSIS) process and the 2030 Agenda for Sustainable Development, many governments have become legally obligated to provide their citizens with access to official information through domestic legislation based on international standards. The intrinsic connection between access to information and the realization of other human rights, and the promotion of sustainable development has become increasingly evident to stakeholders and beneficiaries alike.

For the past two decades, UNESCO has played a pivotal role in strengthening access to information and fostering an environment conducive to its implementation. The Organization has supported Member States in adopting Access to Information (ATI) laws, which have proliferated from 14 in 1990 to an impressive 140 in 2024. Recent examples include Cabo Verde, Namibia, and Qatar, which enacted ATI legislation in 2022, followed by Zambia in 2023. UNESCO has actively assisted many countries, including Cambodia, Fiji, Madagascar, Morocco, Tunisia, Uzbekistan, and others, in developing and adopting such laws.

The expansion of ATI laws represents a significant milestone in enhancing access to information. These frameworks equip Member States with powerful tools to address not only issues related to information and knowledge, but also such challenges as promoting health and gender equality, building efficient and accountable institutions, and combating corruption.

Beyond technical assistance, UNESCO has monitored and reported on global progress in ATI legislation since 2018. Its robust survey methodology evaluates and reports on the adoption and implementation of access-to-information guarantees worldwide. Based on lessons learned globally, this reporting framework encourages countries to strengthen their regulatory frameworks and improve the enforcement of ATI policies. In 2019, 43 Member States participated in the reporting exercise, which has grown to 125 by 2024.

Drawing on data collected over the past eight years from nearly 140 Member States and technical assistance activities launched by UNESCO since the inception of the WSIS process, the Organization has consistently encouraged Member States to adopt comprehensive access-to-information legislation and ensure its effective implementation.

The Organization emphasizes the importance of establishing independent oversight institutions to promote transparency and accountability in the public sector. These institutions play a critical role in overseeing compliance with ATI laws, raising public awareness, maintaining records of information requests and appeals, and guiding public officials in implementation. For countries lacking oversight bodies, UNESCO underscores the importance of creating such institutions to advance ATI governance.

Additionally, UNESCO advocates for leveraging Information and Communication Technology (ICT) tools to enhance the accessibility, management, and transparency of information. ICT solutions, particularly through the Internet, streamline ATI processes across public systems and ensure the free flow of information. To ensure inclusivity, UNESCO provides technical assistance and policy guidance aimed at addressing the needs of vulnerable groups. For example, adopting the Web Content Accessibility Guidelines (WCAG) is pivotal in improving web accessibility for persons with disabilities and ensuring that ICT solutions leave no one behind.

Through a holistic approach encompassing independent oversight, advanced digital solutions, inclusive policies, and comprehensive monitoring, governments and stakeholders can significantly advance the universal right to information. These efforts are instrumental in fostering transparency, enabling public engagement, and nurturing a culture of openness and accountability—particularly during times of crisis and digital transformation.

UNESCO has made a key contribution to advancing access to information and knowledge, particularly in the realm of digital development, by promoting the Internet Universality framework and its associated Internet Universality Indicators (IUI). The IUI framework, based on the ROAM principles (Rights, Openness, Accessibility, and Multistakeholder Participation), serves as a tool to assess national internet environments and guide policy reforms that foster inclusive, rights-based, and equitable digital development. Since 2018, UNESCO has supported over 40 countries in applying the Internet Universality Indicators, working with governments, civil society, the private sector, and academia to conduct assessments. While the framework includes some quantitative indicators, such as internet penetration rates and digital infrastructure statistics, it primarily focuses on qualitative indicators to assess broader aspects like policy effectiveness, legal frameworks, and stakeholder engagement. For example, qualitative indicators evaluate how national policies promote human rights online (SDG 16: Peace, Justice, and Strong Institutions), or how inclusive and participatory policymaking processes are (SDG 17: Partnerships for the Goals). By utilising this mixed-method approach, UNESCO's IUI framework captures the nuanced impact of ICT on sustainable development, offering a comprehensive understanding of both the quantitative data

and the qualitative context, which is crucial for shaping policy recommendations that foster sustainable, rights-based, and inclusive digital ecosystems.

While supporting the conduct of these assessments, UNESCO facilitates the establishment of a national multi-stakeholder advisory board, composed of representatives from various sectors, such as government, academia, private sector, civil society and the technical community. The Board guides the assessment process and, through active dialogue, validates the policy recommendations put forward by the assessment reports and collaborates on their implementation.

C4 – Capacity Building

The potential of transformative technologies can only be fully realised through dedicated capacity building and enhanced digital literacy and competencies. UNESCO has been at the forefront of these efforts, driving significant advancements across various sectors.

In the realm of education, UNESCO has been instrumental in enhancing the capacity of teachers to utilise Information and Communication Technology (ICT) for e-learning. Through regional capacity development workshops and a series of Open Educational Resources (OER) Dynamic Coalition webinars, UNESCO explored the impact of emerging technologies like generative AI and blockchain on education, discussing their potential synergies and implications. In parallel, UNESCO has focused on promoting Indigenous languages through OER and addressing the challenges and opportunities in developing culturally and linguistically relevant educational materials. These initiatives have empowered policymakers and educators with essential digital skills, fostering a culture of innovation in teaching and knowledge sharing.

Operating in over 160 countries, since 2014 UNESCO's Judges Initiative offers comprehensive and practical training tools to members of the judiciary, to address emerging challenges in the judiciary, focusing on the protection of fundamental human rights and freedom of expression. Over the years, it successfully trained over 23,000 judicial operators through a combination of online and on-the-ground training sessions.

As judicial operators apply international human rights standards to address ethical concerns related to bias, discrimination, privacy, and transparency, they also leverage AI systems to strengthen access to justice and enhance the efficiency of judicial administrations.

In response to this evolving scenario, the UNESCO AI Needs Assessment Survey in Africa (2021) contributed to understanding policy priorities and capacity-building needs of 32 Member States in Africa. Notably, 90% of the respondents (i.e., 29 countries) requested support for the training of officials, both in terms of support for capacity building of the judiciary.

UNESCO further launched a worldwide questionnaire involving 1,200 judicial actors in 100 countries, revealing that 90% of respondents underscored the need for legal training concerning the implication of AI systems for bias, discrimination, freedom of expression, privacy, and understating the ethical challenges presented by the use of AI in different social contexts.

Responding to these needs, UNESCO launched a Massive Open Online Course (MOOC) on AI and the Rule of Law for judicial operators worldwide in 2022. In 2023, UNESCO conducted a survey of judicial operators, highlighting a significant gap in institutional guidance and training on the use of AI systems. Furthering its efforts, UNESCO, in collaboration with international experts, published a Global toolkit on AI and the rule of law for the judiciary in 2024 and established a Global Network of Experts on AI & the Rule of Law, to support the responsible adoption and governance of AI technologies in judicial systems globally.

In the 21st century, AI lies at the core of significant socio-economic challenges and opportunities. Governments must equip themselves with essential digital competencies to adapt their national strategies. In 2022, UNESCO, as the co-lead of the Broadband Commission Working Group on AI Capacity Building and in collaboration with Nokia, developed a competency framework to support national digital capacity-building efforts. This framework encompasses key competency domains such as digital planning and design, data use and governance, and digital management and execution. These competencies empower civil servants to develop digital strategies and action plans for the trustworthy, inclusive, and human rights-centric implementation of AI technology.

UNESCO has consistently worked to enhance Basic Sciences, Engineering, and STEM capacity building. The Global Open Science Partnership, consisting of over 70 partners, supports the implementation of open science through technical knowledge exchange and practices. UNESCO has also developed an Open Science Toolkit and conducted numerous capacity-building initiatives, to build the necessary skills and understanding to implement open science effectively.

UNESCO has been also actively working to bridge the digital gender gap, recognizing that access to digital technologies and skills is crucial for achieving gender equality. UNESCO has integrated gender perspectives into its digital initiatives, aligning with the WSIS goal of creating an inclusive Information Society. In the Gender Equality Action Plan (GEAP II) for 2014-2021, UNESCO ensured that gender equality was a fundamental consideration in all its activities, including those related to ICTs.

UNESCO's efforts to address gender bias in artificial intelligence, such as the publication "I'd blush if I could" have been crucial in promoting gender equality in the digital realm. Through the Internet Universality Indicators, UNESCO has helped countries develop gender-sensitive digital policies These initiatives align with the WSIS objective of promoting the use of ICTs for development by ensuring that AI technologies do not perpetuate existing gender inequalities

There are significant global disparities in access to technology and digital skills between genders as highlighted by the UNESCO Global Education Monitoring Report 2024: Gender Report - Technology on Her Terms. The report provides a comprehensive analysis of the intersection between gender, education, and technology, and emphasizes the critical need for increased capacity building to bridge the gender gap in technology and education.

UNESCO's strategy for gender equality in and through education 2019-2025, outlines several major challenges and actions to address the digital gender gap and harness digital technologies for gender equality, including access and connectivity, device affordability, digital literacy and cultural and social norms.

C7 – e-Learning

UNESCO has been actively advancing WSIS C7 – E-learning by supporting its Member States in policy development, capacity building for education communities, and knowledge exchange with key stakeholders globally. It also fosters partnerships to transform education through shared values and the effective use of technology. Notably, UNESCO collaborates with other UN agencies, such as UNICEF and ITU, as well as the private sector, to harness the full potential of technology in education.

More specifically, over the past two decades, UNESCO has made significant progress in advancing Open Educational Resources (OER) as part of its commitment to the WSIS outcomes. The term "Open Educational Resources" was first introduced at UNESCO's 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries. This early initiative established the groundwork for promoting open access to educational resources.

In 2011, UNESCO published the ICT Competency Framework for Teachers (ICT CFT V2), which provided a comprehensive framework to support educators in integrating technology into their teaching practices. This framework was instrumental in guiding the effective use of technology in education.

In 2012, the Paris OER Declaration was adopted at the First UNESCO World OER Congress. This declaration emphasized the importance of open access to publicly funded educational resources and set the stage for further developments in OER policy.

Between 2015 and 2017, the Qingdao Declaration on ICT in Education was adopted, and the ICT CFT Version 3 was released. These documents addressed emerging challenges, including the integration of AI and OER into educational practices.

In September 2017, the Ljubljana OER Action Plan was adopted at the Second UNESCO World OER Congress in Ljubljana, Slovenia. This plan outlined strategies for implementing the UNESCO 2019 Recommendation on OER, emphasizing open access and effective utilization of OER.

In 2019, the UNESCO Recommendation on OER was adopted by 193 UNESCO Member States. This recommendation was a landmark achievement, being the first United Nations normative instrument addressing technologies and education. Following this, the Open Educational Resources (OER) and Internet Governance Forum (IGF) Dynamic Coalition was established in

March 2020 by UNESCO to support the implementation of the first four areas of action defined in the Recommendation.

In 2024, the Dubai Declaration on OER was formally adopted by the UNESCO 3rd World Open Educational Resources Congress (Dubai, United Arab Emirates). This document serves as a roadmap for governments, institutions and other stakeholders to strengthen their commitments to OER and to ensure that digital public goods are central to achieving the 2030 Agenda for Sustainable Development Goals.

Other recent developments include the Beijing Consensus on Artificial Intelligence and Education (2019), adopted during the International Conference on Artificial Intelligence and Education in May 2019, which provides comprehensive guidelines and recommendations for integrating AI into global education systems, the Rewired Global Declaration on Connectivity for Education (2021), which highlighted the role of connected technology in education, and the Transforming Education Summit (2022-2023), which focused on digital transformation and the use of AI in education. UNESCO has also recently chaired two C7-focused working groups of the Broadband Commission for Sustainable Development on Digital Learning and Data for Learning.

To respond to the increasingly pervasive AI technologies, UNESCO has been supporting Member States to promote trustable AI in education, guide the ethical and effective use of AI for teaching and learning, and develop requisite AI competencies for meaningful human-machine collaboration. These efforts span across policy guidance in AI and education, including AI and Education: Guidance for Policy-makers (2021), a mapping of government-endorsed AI curricula (2021), and Guidance for Generative AI in Education and Research (2023); as well as AI Competencies and skills development via its AI competency frameworks for teachers and students to provide a global reference in this respect.

Furthermore, throughout these years, UNESCO has supported Member States in policy development, capacity building, and knowledge exchange, helping countries integrate digital technologies into education systems. Notably, countries have been supported to develop national ICT in education policies and masterplans based on UNESCO guidelines on ICT in Education Policies and Masterplans. Other key WSIS-related projects include Digital Open Schools, Global Education Coalition and its sub-group the Digital Transformation Collaborative (DTC) and the Global Skills Academy (GSA), AI in education, Gateways to Public Digital Learning global initiative, in partnership with agencies like UNICEF and ITU, and the private sector. In support of the Global Digital Compact, the multistakeholder alliance of the DTC created and published a common framework for the digital transformation of education during the 2024 Summit of the Future.

The focused mission of the Global Education Coalition like **Global Teacher Campus (GTC)** empowers educators worldwide with digital skills to operate in hybrid learning environments. By 2023, GTC supported nearly 800,000 teachers through self-paced courses on digital pedagogy,

fostering secure and effective teaching practices leveraging digital platforms and polling Coalition partner pertinent courses accessible after a thorough pedagogical review. For deeper country contextualization, UNESCO's ImagineLearning open-source platform enables educators to create secure, adaptable educational resources tailored to local contexts. Its focus on open-source technologies and content validation workflows ensures reliable data governance and equitable access to quality learning materials.

Furthering equitable e-learning objectives, Global Education Coalition's **Global Skills Academy (GSA)** mission addresses the growing demand for AI and digital skills, targeting 10 million learners by 2029 through partnerships with global tech leaders and the UNEVOC network. By providing free, certifiable training, GSA fosters employability and resilience, in line with UNESCO Strategy for TVET 2022-2029 in line with UNESCO Strategy for TVET. The Global Skills Academy exemplifies UNESCO's demand-driven and UNESCO's multi-stakeholder approach, collaborating with governments, educational institutions, and private sector partners, offering a diverse range of free, high-quality and certified skilling, reskilling and upskilling opportunities, available in multiple languages to ensure accessibility. By December 2024, GSA has reached over 1,200,000 learners across 63 countries, contributing to SDG4 (Quality education), SDG8 (Decent work and economic growth), and SDG17 (Partnerships for the goals).

To measure the impact of ICT on the achievement of SDG 4 (Quality education), UNESCO utilises various indicators, including the annual Global Education Monitoring Report, which tracks access to digital learning tools, teacher readiness, and infrastructure improvements. These indicators assess progress in inclusivity, equity, and digital literacy.

In assessing its engagement in WSIS-related work, UNESCO acknowledges both progress and ongoing challenges. While partnerships and digital initiatives have expanded access to education, the digital divide and unequal access to technology remain significant barriers. Moving forward, UNESCO continues to prioritise competency development, including AI and strong governance frameworks to ensure that digital education remains accessible, inclusive, and aligned with the 2030 Agenda for Sustainable Development.

UNESCO also regularly convenes global policy dialogues on digital learning, AI, and education, including four editions of International Forums on AI and Education since 2019 and the annual Digital Learning Week (formerly Mobile Learning Week) since 2011, a key global platform for agenda-setting and knowledge-exchange among stakeholders.

C7 – e-Science

Since 1993, UNESCO has published the UNESCO Science Report at regular intervals, to provide a wide range of stakeholders with comprehensive information and data on the evolving status of science governance and priorities for scientific research around the world. The report is available in open access. Since the 2005 edition, the report has monitored the development of digital policies

and strategies within the wider context of science governance. The most recent edition in 2021 observed that countries of all income levels were prioritizing their dual green and digital transition. One striking trend was that lower-middle-income countries contributed 20% as many scientific publications on artificial intelligence and robotics as high-income countries in 2015 but 50% as many in 2019. Since the adoption of the Sustainable Development Goals in 2015, the report has accentuated its analysis of the extent to which policies, resources and research priorities are all pointing in the same strategic direction towards sustainable development. The 2021 edition concluded that sustainability science was not yet mainstream at the global level. Although national and regional policies tended to prioritize the sustainable development agenda, scientific output was modest for many sustainability topics. It is worth noting that, between 2011 and 2019, there was a surge in lower middle-income countries' global share of scientific output on such strategic topics for the dual digital and green transition.

The Abdus Salam International Centre for Theoretical Physics (ICTP), a UNESCO Category 1 Institute, has been a beacon of scientific advancement, particularly in the realm of e-Science, aligning closely with the goals of the WSIS C7 e-Science Action Line. ICTP has focused on bridging the gap between developed and developing countries through impactful initiatives. These include organizing workshops and courses to empower researchers from developing countries with skills in big data, machine learning, and computational physics. By fostering international research collaborations, ICTP has helped bridge the digital divide, providing access to advanced scientific tools and resources.

In line with UNESCO's vision of open science, ICTP advocates for open access to scientific publications and data, democratising science and fostering innovation. The institute has also played a pivotal role in developing scientific infrastructure in developing countries, providing high-performance computing facilities and supporting local research networks. Additionally, ICTP is involved in policy advocacy, promoting policies that support open access, data sharing, and the ethical use of scientific data, creating an enabling environment for scientific research and innovation. As an example, since 2021, ICTP has been framing and leading the TinyML educational project launched together with Harvard University and Columbia University. The project now has over 50 universities as members of a TinyML Academic Network.

In the *UNESCO Recommendation on Open Science* adopted by UNESCO's Member States in 2021, countries recognised the growing importance of collective scientific processes carried out by research communities using shared knowledge infrastructure to advance shared research agendas dealing with complex problems, underpinned by reliable internet connectivity. Investing in open science infrastructure and services is set out as a key action area under the 2021 Recommendation. UNESCO convenes a globally representative Working Group on Open Science Infrastructure and has produced guidance on strengthening equitable and sustainable open science infrastructure.

Since the adoption of the Recommendation, more than 11 countries have adopted more holistic open science policies or policy instruments, including instruments to create open access to

scholarly data and publications. There is a positive trend towards using the values and principles of open science to transform science overall.

In 2023, the ICTP, along with some of Europe's top research institutes, launched a new international initiative called the Open Quantum Institute, which seeks to unlock the potential of quantum computing for the benefit of all, irrespective of geographical, economic or scientific constraints. The Open Quantum Institute brings together public and private stakeholders to provide inclusive access to quantum computing, offering concrete solutions to address the United Nations Sustainable Development Goals (SDGs). Highlighting the significance of quantum science, UNESCO is the lead agency for the 2025 International Year of Quantum Science and Technology (IYQ), which aims to foster international and interdisciplinary cooperation and focus on sustainable development applications. UNESCO's efforts include reducing the global quantum divide by promoting innovation, building capacities, and advancing inclusion between the Global North and South to emphasize the transformative potential of quantum science and technology while ensuring its ethical and responsible applications.

UNESCO's commitment to e-science and open science spans other key programs, such as the Man and the Biosphere (MAB) Programme, including the contribution of UNESCO Chairs active in research and training on digital tools for geographical information systems and remote sensing for education and science.

C8 – Cultural diversity and identity, linguistic diversity and local content

In the culture domain, following the Universal Declaration on Cultural Diversity in 2001, the 2005 Convention on the Protection and the Promotion of the Diversity of Cultural Expressions officially came into effect in March 2007. The Convention is the latest in UNESCO’s culture normative framework.

In line with the WSIS Action Line C8, the 2005 Convention invites Member States to formulate and implement policies and regulatory measures to protect and promote the diversity of cultural expressions and to provide opportunities for domestic cultural activities, goods and services. Linguistic diversity along with the influence of the digital environment on cultural diversity are key concerns of the UNESCO 2005 Convention.

UNESCO-led efforts to protect and promote cultural diversity and linguistic diversity in the digital environment include:

- Monitoring of the implementation of the 2005 Convention through statutory meetings, the Policy Monitoring Platform and the Global Report series “Re|Shaping policies for creativity”, funded by Sweden International Development Agency.
- Information gathering and sharing through the production of sub-sectoral research (African fashion sector, African film sector), specific themes (gender equality and artistic freedom), and methodological tools (peer-to-peer exchanges for policy elaboration and Status of the Artist Law in cooperation with International Labour Organization). UNESCO also created a reflection group on the diversity of cultural expressions in the digital environment.

- Advocacy on national and global levels, such as the International Year of Creative Economy for Sustainable Development in 2022, together with UNCTAD.
- Since 2010, UNESCO has put in place several technical assistance programmes to support Parties to the 2005 Convention, such as the programmes on policy monitoring (funded by Swedish International Development Cooperation Agency) and policy elaboration (funded by the European Union and Norway) that take into account linguistic diversity and the rights of artists in the context of the digital environment.
- Encouraging the creation and dissemination of multilingual content online, including by documenting and sharing information about the world's languages.

As part of its emergency response, UNESCO has conducted a damage assessment of cultural property through satellite imagery including in Iraq, the Syrian Arab Republic, Ukraine, and Yemen, building on a longstanding partnership with UNITAR/UNOSAT.

More specifically, UNESCO has been working on:

1. **Strategic frameworks and guidelines:**
   - In 2003, UNESCO adopted the "Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace", providing a comprehensive framework aimed at promoting linguistic diversity and ensuring universal access to information in the digital age.
   - In 2017, UNESCO published the "Operational Guidelines on the Implementation of the 2005 Convention in the Digital Environment", providing a strategic framework for Parties to protect and promote cultural goods, services and diversity in the digital environment.
   - The guidelines were further enhanced by the "Open Roadmap for the Implementation of the 2005 Convention in the digital environment", offering Parties concrete benchmarking activities to safeguard cultural diversity online.
   - UNESCO organized, the World Conference on Cultural Policies and Sustainable Development, MONDIACULT 2022, which addressed the challenges of cultural diversity in the digital age.
2. **Policy monitoring and global reports:**
   - UNESCO's Policy Monitoring Platform features over 350 policy measures aimed at promoting cultural diversity in the digital environment as best practices.
   - This platform also serves as the foundation for the report series "Re|Shaping Policies for Creativity" (2015, 2017, 2022). Each edition includes a dedicated chapter addressing the challenges, opportunities and policy recommendations for cultural diversity in the digital environment. "Re|Shaping Policies for Creativity" provides valuable insights and data on cultural diversity and identity within the information society.
3. **Reflection group on cultural diversity (2024):**

- In 2024, UNESCO established a reflection group focused on the diversity of cultural expressions in the digital environment. This group discusses critical topics such as:
  - Linguistic diversity of cultural content
  - Discoverability of cultural content
  - Transparency of digital platforms
  - The impact of artificial intelligence

4. **Technical assistance and training:**
   - Since 2011, UNESCO has supported 36 countries in developing policies, measures and strategies to protect and promote cultural industries through technical assistance. The digital environment has been integrated as a key topic in all such efforts (e.g., intellectual property rights).
   - UNESCO trains artists and professionals to access the digital environment. The Organization has implemented "Artvocacy" initiatives in museum education and outreach, promoting cultural diversity through digital means.
   - UNESCO has developed programmes to protect artists in emergencies, including components that leverage digital technologies.

5. **Other contributions:**
   - UNESCO contributes to safeguarding cultural sites and practices in emergencies by applying digital tools for archiving, site monitoring and damage assessment. At the start of the war in Ukraine, an online Cultural Heritage Monitoring Platform was established as a pilot tool in partnership with UNITAR/UNOSAT. The platform monitors cultural heritage through satellite imagery, including World Heritage properties and Tentative List sites, as well as 6 historic city centres in Ukraine. The outcomes allow UNESCO to maintain an overview of the impact of an emergency on culture, to plan a response and to support the recovery phase while ensuring culture is well coordinated and included in the damage assessment initiatives.

C9 – Media

UNESCO's work has become more critical than ever, in the context of the evolving landscape of media and information, emphasising the challenges and opportunities posed by digital transformation, keeping in mind that the world remains a hybrid place (off-line and online), and the imperative of safeguarding human rights in the digital age and the "real world". This includes acknowledging that Information is a Public Good, addressing the crisis facing traditional news media business models due to revenue losses to digital platforms, exploring innovative solutions to ensure media viability, private and public support to public interest media, and examining the

dual trends of decreasing journalist killings in non-war zones but increasing online harassment and legal threats.

UNESCO has been promoting and protecting freedom of expression through the production of new knowledge which responds to contemporary challenges, strengthening the capacities of media actors and the authorities and providing the space for multistakeholder collaboration. A key element in these efforts is the annual commemoration of World Press Freedom Day, which has become the reference event for all key stakeholders working for the promotion and protection of Freedom of Expression, to take stock of the status of press freedom globally, assess emerging challenges and propose new solutions, and roadmaps to guide these efforts.

The work to promote the safety of journalists gained new momentum with the adoption in 2012 of the UN Plan of Action on the Safety of Journalists and the Issue of Impunity as a result of a process that began in 2010 upon request of UNESCO's Intergovernmental Council of the International Programme for the Development of Communication (IPDC). The Plan is pursuing efforts to create a free and safe environment for journalists and media workers, thus strengthening peace, democracy and sustainable development worldwide. It addresses the fundamental aspects of prevention, protection, and prosecution through the creation of networks, alliances, national and international mechanisms for the protection of media professionals, monitoring, capacity building, and the adoption of resolutions and strengthening national legal frameworks.

Within this framework, and in response to the increase in detentions and new types of attacks on journalists online and through surveillance as well as the misuse of legal systems (SLAPP), and to address the high levels of impunity for crimes against journalists, UNESCO created the Global Media Defence Fund, supporting non-profit organizations to bolster the legal defence of journalists.

The World Trends in Freedom of Expression and Media Development (WTR) has been published periodically since 2014. UNESCO provides a macro-level perspective that informs UNESCO Member States, international organizations, civil society groups, academia and individuals about key developments and challenges in freedom of expression and media development. Issue briefs and other publications in the World Trends Report series offer further insights into emerging and evolving challenges in this field. The WTR responds to a key mandate assigned to UNESCO by Member States during the 36th General Conference in 2011. This mandate directs UNESCO to "*work with other UN agencies and other relevant organizations to monitor the state of press freedom and the safety of journalists and report on developments in these areas to the General Conference*". As part of the WTR series, UNESCO has been publishing issue briefs giving timely insights into new and emerging challenges in the field of freedom of expression and media development. These briefs offer key summaries of urgent issues as well as recommendations for action.

In 2022, as part of its broader strategy to tackle the problems derived from the growing influence of digital platforms in the online information ecosystem, and to counter hate speech and

disinformation online, UNESCO launched the "Internet for Trust" initiative which led to the publication of the Guidelines for the Governance of Digital Platforms. They were produced through multi-stakeholder consultations held from December 2022 to June 2023 that gathered more than 10,000 comments from 134 countries. These global-scale consultations fostered inclusive participation, ensuring a diversity of voices to be heard, including those from groups in situations of marginalization and vulnerability. The second consultation was organized at UNESCO's Headquarters in Paris, France, in February 2023, on the occasion of the Global Conference "Internet for Trust" which gathered over 4,000 multi-stakeholders from around the world including representatives from member States, Academia, tech companies, experts and civil society.

C10 – Ethical Dimensions of the Information Society

UNESCO has emerged as a key player within this dynamic landscape due to its global reach and resolute commitment to navigating the intricacies of AI governance. Through a combination of normative instruments, the Recommendation on the ethics of AI (2021), and a comprehensive implementation programme, UNESCO has garnered recognition as a frontrunner in this domain, in influential international forums such as the G7 Hiroshima AI Governance process (2023), G20 Digital Economics working group and Ministerial meeting, Series of AI Action Summit, GPAI (2020), and W20. In line with the Global Digital Compact (2024), UNESCO's Recommendation is referenced as a key instrument on AI governance and UNESCO is among a few United Nations entities that are called on to lead the implementation of the GDC.

UNESCO is also co-chairing the United Nations Inter-Agency Working Group on AI, together with the ITU. With nearly 50 UN system entities as members, the group's main objective is to combine the diverse expertise and mandates of the United Nations to provide a solid foundation for current and future system-wide efforts on AI. The group published in 2024 its UN System's White Paper on AI Governance, which informs the elaboration of the report by the UNSG's High-Level Advisory Body on AI and the inter-governmental negotiation process of the Global Digital Compact (GDC). The group will continue its function to support the programmatic coordination within the UN System, in line with the GDC requirement.

The 2021 Recommendation on the Ethics of Artificial Intelligence has seen strong implementation momentum at the national and global level, starting with the deployment of the UNESCO Readiness Assessment Methodology (RAM) and the Ethical Impact Assessment. To date, almost 60 countries are working directly with UNESCO in implementing the RAM and the EIA across the regions. The early outcomes of the RAM contribute to the formulation of national AI policies and strategies, in countries such as Chile, Gabon, Morocco, Mozambique, and Senegal. These enriched country-level activities and outcomes also lay the foundation for UNESCO's direct technical support to the African Union in developing the AU Continental AI Strategy and its implementation plan, as well as the formation of the Latin America and Caribbean Council on the Ethics of AI.

This leadership position is further augmented by partnerships with prominent organizations such as the European Commission, the Patrick J. McGovern Foundation, and the Development Bank of Latin America (CAF). Of notable significance is the establishment of a distinguished Business Council co-chaired by Microsoft and Telefonica, with its members including major ICT companies such as Salesforce, LG AI Research, Lenovo, and Telstra.

UNESCO is also reinforcing its role in the global debate on AI by conducting research and producing new analytical outputs. Currently, UNESCO is in the process of producing and publishing several major knowledge products, such as the Model AI Governance Framework, the Global Landscape of AI Supervision, the Report on AI and Market Trends, and the Report on AI and Inequalities, among others.

On other related emerging technologies, Member States of UNESCO are in the process of elaborating a new Recommendation on the Ethics of Neurotechnology.

Key milestones in this work include:

- **1998**: Establishment of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) – This advisory body within UNESCO provides a forum for reflecting on and formulating ethical principles related to science and technology, laying the groundwork for addressing the ethical implications of the Information Society.
- **2003**: Adoption of the Universal Declaration on Bioethics and Human Rights – This Declaration addresses ethical issues arising from advancements in life sciences, marking an early step towards considering the ethical implications of emerging technologies relevant to the Information Society.
- **2005**: Adoption of the International Declaration on Human Genetic Data – This Declaration focuses on the ethical handling of sensitive personal information, which is particularly relevant in the context of the Information Society where data privacy is paramount.
- **2017**: Adoption of the Recommendation on Science and Scientific Researchers – This Recommendation promotes ethical principles in scientific research, including aspects relevant to the development and application of Information and Communication Technologies (ICTs).
- **2021**: Adoption of the Recommendation on the Ethics of Artificial Intelligence (AI) by all 193 UNESCO Member States – This landmark achievement provides a global framework for addressing ethical challenges and opportunities presented by AI.
    - The implementation of this Recommendation is ongoing, with UNESCO supporting almost 60 countries in building ethical AI governance frameworks.
    - This has resulted in tangible outcomes, such as Chile using the recommendations to inform national legislation and other countries integrating them into their AI strategies.

- **2022-2024**: Deployment of various tools, platforms, and networks focused on AI ethics – UNESCO has actively developed and deployed practical resources and initiatives to support the implementation of ethical AI principles. Some notable examples include:
    - **Readiness Assessment Methodology (RAM)**
    - **Ethical Impact Assessment (EIA)**
    - **Women for Ethical AI platform (Women4EthicalAI)**
    - **Business Council for Ethics of AI**
    - **Global Forum on the Ethics of AI**
- **2024 and beyond**: UNESCO continues its work on AI ethics through various initiatives:
    - Participation in global forums like GPAI, G20, and the Hiroshima Process on AI
    - Collaborations with organizations like the OECD and ITU
    - Organization of global and regional events like the Global Forum on the Ethics of AI and the East African Subregional Forum on AI
    - Research and publications on AI and Democracy, AI and Synthetic Content, Global Landscape of AI Supervision, Model Governance Framework on AI, Report on AI and Market trends, Report on AI and Inequality and more.
- **Elaboration of a Recommendation on the Ethics of Neurotechnology** – Recognising the ethical implications of neurotechnology, UNESCO has embarked on the elaboration process of a new Recommendation on the Ethics of AI.

These milestones illustrate UNESCO's continuous efforts to address the ethical dimensions of the Information Society, from broader principles in science and technology to specific frameworks for AI and considerations for emerging fields like neurotechnology.

III. What does your organization see as the main achievements, problems and emerging issues arising from WSIS and from digital development in its areas of responsibility since the Summit, particularly since 2015?

In your answer, please kindly refer to the following points in correspondence to your Action Line(s): 1) What have been the main achievements of WSIS and digital development? ; 2) What problems, obstacles and constraints have been encountered? ; 3) What new opportunities and challenges have emerged over the years since WSIS which need to be addressed?

C3 – Access to information and knowledge

Since 2015, UNESCO has played a pivotal role in promoting Access to Information (ATI) legislation as a cornerstone of SDG 16.10.2. One of the key objectives of UNESCO was to provide guidance and assistance in harnessing the results of the digital revolution while strengthening the implementation of access to information laws.

To achieve the above UNESCO through a multistakeholder process, adopted the following documents:

- The Accra Statement (2024) The UNESCO Accra Statement, titled "Harnessing the Power of Data for Positive Change: A Commitment to Access to Information," emphasizes leveraging the digital revolution to enhance ATI implementation globally, ensuring that public data is open, accessible, and managed responsibly.
- The Oxford Statement (2023) emphasizes the vital role of universal, affordable, and equitable access to the internet in ensuring the right to information in particular, and access to information in general.
- The Tashkent Declaration (2023) called for the alignment of ATI frameworks with emerging digital technologies and stressed the necessity of building resilient information ecosystems that respect human rights and promote inclusivity.

UNESCO has implemented numerous capacity-building initiatives to assist Member States in drafting, adopting, and implementing ATI legislation that aligns with the demands of the digital revolution. These projects focus on training policymakers and information commissioners on best practices for digital information governance and enhancing the capacity of public institutions to manage and disseminate information effectively in the digital era.

UNESCO has guided Member States on incorporating digitalisation into the implementation of ATI laws, highlighting key elements such as establishing online information request portals for seamless access to public data and digitizing archives and public records to ensure accessibility and preservation.

UNESCO has advanced a free, open, and rights-based Internet through its Internet Universality framework and Indicators (IUI), helping 40 countries assess their Internet landscapes and develop inclusive policies. This has been vital in UNESCO's work on global priority groups Africa and Small Island Developing States, where internet access is limited but crucial for social and economic growth. Challenges remain, including the digital divide, particularly in low-income countries and marginalized communities. IUI assessments highlight gaps in infrastructure, affordability, and inclusivity, affecting broader WSIS outcomes. Privacy, data protection, and freedom of expression also pose ongoing concerns. Emerging issues, such as artificial intelligence and its ethical use, along with the environmental impact of the digital sector, are now central to UNESCO's work. The Second Generation of the Indicators, published in 2024, aim to address these challenges, ensuring the internet remains open, rights-based, sustainable, and governed by multistakeholder participation.

C4 – Capacity building

UNESCO has made remarkable progress in capacity building under the WSIS Framework, by implementing various programs as outlined in part II. UNESCO has successfully fostered strong

relationships with international organizations, governments, and the private sector. These collaborations have led to the development of innovative solutions and resources, amplifying the reach and effectiveness of capacity-building programs.

However, the rapid pace of technological advancements presents both opportunities and challenges. Keeping up with new technologies and integrating them into educational programs is crucial for staying relevant and effective.

Global priorities such as gender equality, climate change, and sustainable development are becoming increasingly important. Furthermore, reliable data and statistics, supported by evidence-based policies and actions, are essential for informed decision-making and effective program implementation.

Among the notable initiatives in this regard, is the work of the UNESCO/ITU Broadband Commission for Sustainable Development. One of its key initiatives is the Data Governance Toolkit, started in 2024 under the leadership of UNESCO, aiming to guide governments and regulators in managing data responsibly, and offering a strategic framework to address the complex challenges of data governance.

Prior to this, the Commission's Working Group on AI Capacity Building, also led by UNESCO, has developed a competency framework specifically for civil servants. This framework outlines the essential skills needed for digital transformation and the implementation of AI in the public sector. It aims to enhance the capabilities of civil servants, enabling them to effectively use digital tools, develop and implement digital projects, and tackle complex governance issues.

C7 – e-Learning

The main accomplishments in Action Line C7 include the integration of ICT in education policies, capacity building for educators, and strengthened global partnerships that have expanded access to digital learning tools. However, several obstacles and constraints persist. The digital divide remains a major challenge, with unequal access to connectivity, devices, and digital skills disproportionately affecting marginalized communities. Others include the lack of high-quality digital content and innovative pedagogies, as well as insufficient governance frameworks and regulations. The challenges are especially pronounced in the face of emerging technologies such as AI.

Over the years, new opportunities have emerged, including the potential of AI, data analytics, and adaptive learning to personalize education, along with the growing interest from all actors in the digital transformation of education. However, these advancements also pose challenges, such as the need for ethical AI use, privacy concerns, and the risk of further deepening inequalities. Addressing these requires stronger policy frameworks, greater emphasis on capacity building, and continued cross-sector collaboration.

Concerning Open Educational Resources (OER), despite significant progress as part of the commitment to the WSIS outcomes, several challenges have been identified in the implementation of OER initiatives:

1. **Digital Divide:** A significant digital divide continues to hinder access to OER. Inequities in technology access and infrastructure affect learners' ability, particularly in low-income and rural areas, to benefit from OER.
2. **Global Connectivity:** Ensuring global connectivity and creating inclusive digital learning spaces for all continues to be a major challenge.
3. **Quality and Multilingualism:** Addressing the need for high-quality, diverse, and multilingual digital educational content is crucial for equitable access and usability.
4. **Teacher Training:** Providing continuous and effective professional development for educators to integrate ICT and OER into their teaching practices remains a challenge.
5. **Digital Cooperation:** Bridging the digital divide by addressing disparities in technology access, content quality, teacher training, and securing sustainable funding for e-learning initiatives is essential.

UNESCO's efforts over the past twenty years have significantly advanced the OER agenda in line with the 2019 UNESCO Recommendation on OER, contributing to enhanced educational access and quality worldwide. Addressing existing challenges and exploring innovative solutions will be crucial for achieving global education goals and continuing the progress made in the field of OER.

C7 – e-Science

World leaders took a visionary step in 2003 to include eScience in the WSIS agenda, recognizing the symbiosis of technology with science and the transformative potential of ICTs in advancing global scientific research and innovation. This move highlighted the critical importance of all technologies, advances in tools, processes and computational power in solving complex global challenges such as health, environmental sustainability, and education. The move promoted open access to scientific knowledge and encouraged the adoption of ICTs to lay the foundation for collaborative research across borders. This forward-thinking inclusion highlighted the necessity of global cooperation in science and technology to achieve equitable development. As a result, eScience became integral in supporting the Sustainable Development Goals (SDGs), ensuring that science and technology are accessible to all nations.

e-Science represents a transformative shift in the scientific community, where the integration of advanced digital technologies, data-intensive research methodologies, and collaborative networks is driving discoveries and innovations. As the world progresses further into the digital era, the convergence of high-performance computing, vast data repositories, and global collaboration tools is enabling scientists to tackle complex problems with unprecedented scale and precision.

Over the past two decades, e-Science has undergone significant transformation, shaped by technological advancements and global efforts to enhance collaboration, data transparency, and research capabilities.

As soon as the WSIS processes began, the value of ICTs and their relevance in enhancing data management and computational capabilities also began to take roots. The completion of the Human Genome Project in 2003, highlighted the power of large-scale scientific collaboration and data sharing. Cloud computing technologies were integrated into scientific experimentation, which started revolutionizing data storage and accessibility. The rise of scientific big data further expanded the capacity for handling massive datasets, pushing the boundaries of experimental research across various fields, from genomics to climate modelling, thereby expanding the scope for cross-border and cross-disciplinary collaborations.

Between 2009 and 2014, e-Science experienced a shift towards greater transparency and public engagement. The adoption of open-access data portals enabled wider sharing of scientific results, promoting inclusivity in research dissemination. Governments and organizations increasingly launched initiatives that provided public access to data, emphasizing the importance of transparency in scientific advancements. During this period, the UNESCO Open Access Strategy was introduced (2013), which incidentally became the seed for the Open Science Recommendation adopted by Member States in 2021. This period also witnessed notable advancements in artificial intelligence and machine learning, which began to influence scientific methodologies. Primarily, the idea of using graphics processing units (GPUs) to train large neural networks for large-scale deep unsupervised learning was proposed.

Between 2015 and 2018, eScience became increasingly integrated into global development efforts. The United Nations Sustainable Development Goals (SDGs) formally recognized the role of eScience and data in achieving these goals. Tools such as virtual and augmented reality became more prevalent in scientific research and contributed to improve data visualization and analysis. This period was marked by the adoption of the UNESCO 2017 Recommendation in Science and Scientific Researchers, which reinforced the importance of open collaboration and scientific integrity using new technologies.

The period from 2019 to 2021 highlighted the importance of openness and ethical considerations in scientific research, particularly during the COVID-19 pandemic. The global health crisis underscored the need for open data sharing to support collaborative research and accelerate the development of solutions. The adoption of the UNESCO 2021 Recommendation on Open Science and the Recommendation on the Ethics of AI reinforced the need for responsible data use and collaboration in scientific advancements. High-performance computing capabilities also continued to expand, enabling more complex scientific modelling and large-scale data analysis.

Since 2022, e-Science reached a new phase of automation and technological innovation, while simultaneously revealing policy and governance gaps. Tools such as ChatGPT started to be utilized

for data analysis, showcasing the power of AI-driven research assistance. This period also marked the growth of non-commercial models of scientific knowledge exchange, emphasizing the importance of open access to data. Nevertheless, the need for stronger policies and frameworks to ensure data privacy, security, and ethical considerations in scientific practices remained unchanged.

C8 – Cultural diversity and identity, linguistic diversity and local content

Under this Action Line, the main achievements include:

- **Adoption of normative frameworks and standards by UNESCO's Member States:** The standard-setting international instruments include the 2005 Convention on the Protection and Promotion of Cultural Diversity and its operational guidelines in the digital environment; the 2021 Recommendation on the Ethics of Artificial Intelligence; the MONDIACULT 2022 Declaration; and the "Guidelines for the governance of digital platforms: safeguarding freedom of expression and access to information through a multi-stakeholder approach" in 2023.
- **Increasing awareness among national governments**: Stakeholders have been sensitized on the importance of cultural diversity for sustainable development and the opportunities and challenges of the digital environment. This is evidenced by the actions that Parties have taken in promoting digital creativity and reinforcing skills:
    - 71% of countries indicated that they implemented measures in this regard.
    - 60% of the Parties aimed to enhance the discoverability of domestically produced digital cultural content.
    - 44% reported efforts to promote diversity among e-players in the digital cultural and creative markets.
- **Provision of knowledge tools and platform of discussion:** UNESCO has supported policy-making on a national level in view of protecting cultural diversity through advocacy, sharing good practices and technical assistance. UNESCO has contributed through its Policy Monitoring Platform, which tracks policies related to cultural diversity in the digital environment. The Organization has also produced the series "Re|Shaping Policies for Creativity", which provides insights and data on cultural diversity in the information society. UNESCO also organized the World Conference on Cultural Policies and Sustainable Development, MONDIACULT 2022, which addresses issues of cultural diversity in the digital age. The Organization has implemented "artvocacy" initiatives in museum education and outreach, promoting cultural diversity through digital means.
- UNESCO has been leveraging ICTs to **enhance the capacity of local professionals and community stakeholders** in assessment, documentation, archiving and knowledge management of cultural assets before, during and after crises such as conflicts or disasters resulting from human-induced and natural hazards. The Organization has developed programs for the protection of artists in emergencies, which include digital components. In the field of World Heritage, digital technologies have become a crucial tool to ensuring the conservation

and protection of sites through monitoring and remote sensing, while virtual visits have enhanced the accessibility to sites for the greater public.

- The UNESCO World Atlas of Languages was launched in 2022, as part of the International Decade of Indigenous Languages (2022-2032) to support multilingualism by facilitating the documentation and preservation of languages, helping to identify those at risk and supporting their revitalization.

Some of the key challenges, obstacles, and emerging issues include:

- According to UNESCO's report "Re|Shaping Policies for Creativity: Addressing Culture as a Global Public Good", the current challenges include the increasing digital divide due to a lack of internet access and digital literacy, net neutrality and monolingualism, and an imbalanced landscape of platforms/algorithms and unsustainable remuneration models.
- National digital strategies often fail to address the specific concerns and needs of the cultural and creative industries. Oftentimes, major content platforms are international, with their operations not subject to national regulations. Moreover, there is a need for training national governments, particularly concerning the effects of artificial intelligence.
- Access to certain technologies is not yet available at the same level between Global North and Global South, leading to digital fragmentation. Countries that do not prioritize funding for digitization rely on the help of external partners such as universities, private companies and researchers, and do not own the data generated through ICTs or have the possibility to host it and use it properly.
- The main challenges for the UNESCO World Atlas of Languages are data collection, technological integration, sustainability, language preservation, and community engagement.
- Lastly, the implications of AI for cultural diversity in the digital environment are becoming increasingly challenging. Complex questions are posed around the ethics of AI in terms of social and economic equality and the (re)definition of creative work and subsequent property rights. Challenges posed by the digital environment are linked to Diversity, Equity, Accessibility, and Inclusion (DEAI), as well as economic development. This was echoed by the members of the UNESCO Expert Reflection Group on the need for protection and promotion of the diversity of cultural expressions in the digital environment.

C9 – Media

Freedom of expression and safety of journalists

In 2021, during the 30th anniversary of the World Press Freedom Day, the Windhoek+30 Declaration was adopted. The Declaration takes forward the spirit of the original 1991 Windhoek Declaration, referring to nowadays persistent and new challenges to media freedom such as the risk of media extinction amid a "severe economic crisis" and disruption of traditional media

business models; ”increasing proliferation, amplification and promotion of […] disinformation and hate speech;” as well as “enduring and new threats to the safety of journalists and the free exercise of journalism, including killings, harassment of women, offline and online attacks”. The Declaration acknowledges information as a public good, essential for empowering citizens to exercise their fundamental rights, promoting gender equality, fostering participation and trust in democratic governance, and advancing sustainable development without leaving anyone behind. The Declaration also contains recommendations to take effective steps to nurture a diversity of viable public, private and community media, while safeguarding their independence. Furthermore, it calls on mainstreaming Media and Information Literacy, as well as work on ensuring transparency of technological companies.

Since its adoption, the UN Plan of Action on the Safety of Journalists and the issue of Impunity pushed forward the agenda for the protection of freedom of expression and journalists globally. The issue of the safety of journalists has today higher visibility in the UN, as evidenced by the increasing number of declarations, resolutions and other normative texts. This includes a growing number of recommendations accepted by Member States related to safety of journalists, as witnessed through the Universal Periodical Review; as well as Individual or joint reports by the Special Rapporteurs on Freedom of Expression, sand the UN Secretary General’s Call to Action for Human Rights. These milestones have contributed hugely to further understand the political, policy and programmatic challenges that need to be addressed to increase the safety of journalists. With UNESCO’s work, protecting journalists became part of the 2030 Agenda for Sustainable Development through SDG indicator 16.10.1. The Plan has also contributed to building international coalitions of governments and civil society and served to bring about changes on the ground, such as the creation of national safety mechanisms in at least 50 countries and Global and regional platforms in Europe and Africa that were developed to monitor the safety of journalists. The 10th anniversary of the Plan in 2023 was a milestone to reaffirm, recommit and reposition efforts to advance the UN Plan.

As part of the World Trends Report series, UNESCO has been guiding the global agenda on freedom of expression and media development, publishing issue briefs giving timely insights into new and emerging challenges in the field of freedom of expression and media development. These briefs offer key summaries of urgent issues as well as recommendations for action. The latest issue brief “Press and Planet in Danger: Safety of environmental journalists – trends, challenges and recommendations,” published in 2024, examines attacks against journalists covering environmental issues over the past fifteen years.

In the same spirit of the Windhoek +30 Declaration, to ensure that information remains a public good in the era of the internet, in 2023, responding to the challenges posed by the rapid digital transformation and greater influence of tech giant, UNESCO released the "Guidelines for the Governance of Digital Platforms". The Guidelines outline a set of duties, responsibilities and roles for States, digital platforms, intergovernmental organizations, civil society, media, academia, the

technical community and other stakeholders to enable the environment where freedom of expression and information are in the core of digital platforms governance processes.

In the framework of the implementation of the Guidelines, UNESCO launched the Global Forum of Networks (GFN) in June 2024. The GNF provides a space for collaboration and discussion between various international regulatory authorities, enabling them to exchange best practices and the latest developments in the governance of digital platforms with a human rights-based approach. It supports regulators across the world in the implementation of the UNESCO Guidelines.

The GFN gathers seven main networks of regulators: the African Communication Regulation Authorities Network (ACRAN), the European Platform of Regulatory Authorities (EPRA), the European Regulators Group for Audiovisual Media Services (ERGA), the Global Online Safety Regulators Network (GOSRN), the Mediterranean Network of Regulatory Authorities (MNRA), the Platform of Ibero-American Audiovisual Regulators (PRAI), and the Francophone Network of Media Regulators (REFRAM). Over the next two years (2024-2026), UNESCO will continue to facilitate the Global Forum of Networks' core activities to enable GFN members' collective actions, consolidate its organizational structures, ensure its sustainability beyond 2026 and use its convening power to integrate the GFN into the broader UNESCO multistakeholder dialogues and initiatives.

UNESCO has placed gender equality at the center of its efforts to protect and promote freedom of expression, addressing the challenges posed by digital platforms to information integrity, and tackling the safety of journalists. The groundbreaking global research "The Chilling: global trends in online violence against women journalists" revealed that 73% of women journalists face online violence, with 25% receiving threats of physical harm, including death threats, and 20% subjected to offline abuse linked to their online experiences. Since the research in 2019/2020, the problem has worsened with the rise of generative AI, which has escalated online violence. The study's recommendations continue to guide efforts to address these issues.

In response to the identification of technology-facilitated gender-based violence (TFGBV) as a global issue by the United Nations in 2022, UNESCO exposed, backed with evidence, how emerging technologies, particularly generative AI, are exacerbating gender-based violence worldwide. This was highlighted in the publication "Your opinion doesn't matter, anyway": exposing technology-facilitated gender-based violence in an era of generative AI," under the UNESCO series, World Trends in Freedom of Expression and Media Development (WTR).

Media and Information Literacy

Since 2015, technological advancements have significantly transformed the role of media as an indispensable institution in society. Most recently, the rapid emergence and widespread accessibility of AI and generative AI tools are revolutionizing how people access and engage with information, digital technologies, and media. This transformation highlights the urgent need for Media and Information Literacy (MIL) competencies. As AI continues to evolve, it becomes

increasingly crucial for individuals to develop the skills necessary to navigate and critically assess the vast array of information available.

To address this need, there is a pressing call for the expansion of access to Media and Information Literacy learning, which should be synergized across all WSIS Action Lines, and integrated across existing platforms and initiatives, towards ensuring that individuals are equipped with the knowledge and skills to effectively engage with digital content.

One promising approach to promoting Media and Information Literacy could be the deployment of tailored AI tools specifically designed for this purpose. These tools could provide personalized learning experiences, making MIL learning more accessible and engaging for diverse audiences. By leveraging AI, innovative solutions could be created, catering to the unique needs of learners, and fostering a deeper understanding of media and information literacy.

In this context, collaboration among various stakeholders, including governments, educational institutions, and media organizations, is necessary towards enhancing MIL competencies worldwide.

UNESCO has already taken a significant step in this direction with initiatives such as the Global Media Partnership on Media and Information Literacy and the UNESCO Media and Information Literacy Alliance, to empower people and build trust in media. WSIS should support such initiatives to promote multistakeholder collaboration on Media and Information Literacy worldwide.

C10 – Ethical dimensions of the Information Society

There has been a significant rise in global awareness and acknowledgement of the ethical implications of Artificial intelligence (AI). Governments, international organizations, and other stakeholders increasingly recognize the need to address ethical considerations related to AI development and deployment. This heightened awareness is evident in the growing number of national and international initiatives, regulations, and guidelines focusing on responsible AI.

One significant achievement is the development of international ethical frameworks and guidelines, particularly in the realm of AI. UNESCO's Recommendation on the Ethics of AI, adopted by 193 Member States, is a prime example of such a framework, providing guidance for countries navigating the complexities of AI ethics. Beyond high-level frameworks, practical tools and resources have emerged to support the implementation of ethical principles in AI. Tools like UNESCO's Readiness Assessment Methodology (RAM) and Ethical Impact Assessment (EIA) provide tangible mechanisms for countries and organizations to assess and address ethical risks and opportunities associated with AI systems. A comprehensive implementation programme of the Recommendation has also been developed and operationalized at the global, regional and national level (see previous responses)

We also observe several emerging trends in the technology landscape. As new technologies such as neurotechnology and the Internet of Things (IoT) advance, there is a growing need to proactively address the ethical implications of emerging and converging technologies in a holistic manner. Establishing ethical frameworks and guidelines for these emerging fields, similar to those developed for AI, will be crucial to ensure their responsible development and use. Furthermore, the increasing reliance on digital technologies raises significant challenges related to privacy and security. Protecting sensitive personal data, ensuring data security, and addressing the ethical implications of data collection, storage, and use are paramount concerns in the evolving digital landscape.

The potential impact of AI on democratic processes, social interactions, and the overall social fabric requires careful consideration. Addressing issues like algorithmic bias, the spread of mis/disinformation, and the potential for manipulation of public opinion are critical to preserving democratic values and social cohesion in the digital age. As digital technologies become increasingly central to various aspects of life, ensuring inclusive and equitable access and benefits becomes paramount. Bridging the digital divide, promoting digital literacy, and addressing inequalities in access to technology and digital skills are essential for harnessing the full potential of the Information Society for all.

UNESCO, in its role as a leading organization promoting the ethical dimensions of the Information Society, is actively working to address these achievements, problems, and emerging issues through research, policy development, capacity building, and international cooperation. Their efforts aim to ensure that digital developments align with ethical principles, promoting a more just, equitable, and inclusive Information Society.

IV. Lessons learned in the implementation of the Summit outcomes in your organization's specific areas of responsibility

A multi-stakeholder approach is key to solving most of the issues discussed at the Summit. Involvement of the private sector and attention to policy implementation are essential to scale up the proposed solutions. Other lessons include:

- **Lagging cultural policies and weak governance:** Cultural policies that address the digital environment are not yet adequate, with multi-stakeholder governance of culture often proving weak across the globe. While UNESCO's normative standard-setting instruments offer crucial guidance for policymakers, several factors contribute to the difficulties in implementation. These include the lack of prioritization of resources for culture, the informal nature of many cultural and creative industries, and the widespread lack of awareness regarding culture's role in sustainable development.
- **The need to strengthen efforts to protect and promote freedom of expression and freedom of the press**, which includes ensuring the safety of journalists, and

sustainability and diversity of the media, is an indispensable prerequisite for information integrity.

- **Impact of the digital divide:** The persistent digital divide in many countries further exacerbates these challenges, creating a situation where, by the time they are addressed, the issues may become overwhelming.
- **Complex challenges of digital transformation and AI integration:** The rapid pace of technological advancements presents significant challenges that outpace the ability of policymakers to respond effectively. This gap threatens not only the viability of cultural and creative industries but also broadens concerns such as human rights, cultural rights and democracy. These challenges require urgent and comprehensive policy responses that align with the UNESCO Culture Conventions and the UNESCO 2021 Recommendation on the Ethics of Artificial Intelligence.
- **Key areas in need of policy responses:** The regulation of digital platforms is necessary to ensure fair access to cultural expressions, provide fair remuneration for artists and cultural professionals, and maintain the discoverability of national and local content. This will also support linguistic diversity in an increasingly globalized digital environment.
- **The integration of ICTs into culture in emergencies**: For better preparedness and response, the application of digital tools, such as 3D scanning, GPS monitoring and digital archives has proven to be effective and essential.
- **The need for proactive development and implementation of ethical frameworks to keep up with the rapid pace of technological advancement:** The emergence and diffusion of new technologies like AI often outpace existing governance mechanisms, highlighting the importance of establishing guidelines and principles early on. UNESCO's work on AI ethics, particularly the Recommendation on the Ethics of AI, demonstrates this proactive approach by providing a framework for responsible development and deployment. Furthermore, The Recommendation interprets AI broadly and recognises that any definition would have to change over time due to the evolving nature of the technology. With values and principles identified and deliberated, the ambition of the Recommendation is to address those evolving features of AI systems through forward-looking and actionable policy actions. Since AI is centrally embedded in a wider range of digital and automation-based technologies, the Recommendation has a substantial influence on the entire digital development agenda. This anticipatory approach ensures that the instrument remains relevant and the sustainability of its implementation programme. While high-level ethical frameworks are essential, UNESCO's experience also underscores the value of developing practical tools and resources to support their effective implementation. Translating ethical principles into concrete actions requires tangible mechanisms. For instance, the Readiness Assessment Methodology (RAM) and Ethical Impact Assessment (EIA) offer practical ways for countries and organizations to integrate ethical considerations

into the design, development, and deployment of AI systems, ensuring that ethics are not just aspirational but actionable. The upcoming Model AI Governance Framework, building on the early implementation outcomes of the RAM, will further ensure that tailored guidance is provided to interested Member States.

- **The need for inclusive and multi-stakeholder engagement in addressing the ethical dimensions of the Information Society**: No single entity can address these complex challenges alone. Finally, the ever-evolving nature of the digital landscape necessitates a proactive approach to identifying and addressing emerging ethical challenges. UNESCO's exploration of a Recommendation on the Ethics of Neurotechnology exemplifies this forward-thinking approach.
- **Need to incorporate and expand a deeper people-centred digital transformation where Media and Information Literacy is prioritized**: synergize Media and Information Literacy with digital skills to empower all citizens everywhere affording them a deep understanding and appreciation of the digital transformation, their rights online and how they can better participate as informed citizens.
- **Take a holistic and forward-looking approach**: UNESCO's achievements in promoting access to information and advancing SDG 16.10.2 reflect a holistic and forward-looking approach. By grounding its work in key declarations such as the Accra Declaration, Oxford Statement, and Tashkent Declaration, UNESCO has provided Member States with robust frameworks for aligning ATI legislation with the demands of the digital age. Through capacity-building projects and strategic partnerships, UNESCO continues to empower nations to embrace digitalization while safeguarding human rights and ensuring inclusivity in governance.

V. Observations or recommendations concerning the future of WSIS and digital development, taking into account the outcomes of the Summit of the Future in September 2024

The Summit of the Future adopted the Global Digital Compact as part of the Pact for Future. The Compact establishes an inclusive global framework, essential for multi-stakeholder action required to overcome digital, data and innovation divides. It emphasizes the need for strengthened digital public infrastructures, including for educational services.

Understanding that the protection of information integrity is critical to protect democratic processes and society, WSIS should reposition itself and play a greater role in facilitating and strengthening international cooperation to address misinformation, disinformation and hate speech online, and address the challenges posed by information manipulation, in line with international human rights laws.

The Summit also underlined the critical need for global cooperation in addressing digital challenges. This strengthens the mandate for WSIS to act as a central platform for multi-stakeholder dialogue and collaboration on digital policy. Discussions at the Summit highlighted the widening digital divide and the need for equitable access. WSIS might therefore need to prioritize initiatives that promote digital inclusion and bridge gaps in connectivity, skills, and opportunities. At the same time, topics such as the establishment of digital commons as a global public good were also addressed, which play a critical role in shaping the future of digital education and advancing the goals of WSIS.

Additionally, AI governance and the ethical use of emerging technologies were discussed at the Summit. This positions WSIS as an important platform for developing frameworks and guidelines that ensure responsible use of these technologies.

Overall, WSIS should focus on assessing how digital technologies can accelerate progress towards the SDG goals of the 2030 Agenda and identify areas where further action is needed. Further efforts should be made to engage a wider range of actors, including grassroots organizations, youth, and marginalized communities, in decision-making processes. Innovation and public-private partnerships should be encouraged to leverage the full potential of digital technologies.

More specifically, for the future of WSIS, several aspects should be taken into consideration:

- **Revision of the Action Lines in light of new challenges:** Given the increasing complexity and speed of technological advancements, there is a need for more agile and adaptive policy frameworks that can anticipate and respond to these developments. It is proposed that WSIS Action Lines be revised to address emerging challenges more effectively.
- **Reinforcing the role of WSIS as a multi-stakeholder and multilateral platform**: WSIS must continue its role in facilitating political engagement on critical issues with regard to the digital environment and new technologies.
- **Reinforcing dialogue with multinational companies and emerging market actors:** Given the significant influence of multinational companies and emerging market actors in shaping the digital environment, dialogues with these stakeholders need to be reinforced. These exchanges must align the interests of these powerful actors with broader societal goals, ensuring that digital developments contribute to the public good, human rights and fundamental freedoms and uphold ethical standards across all regions.
- **Enhancing the protection of cultural rights and promoting the diversity of cultural expressions**: Emphasis must be placed on digital policies and initiatives to support the creation, dissemination and access to a wide range of cultural expressions, particularly those of minority and indigenous groups.
- **Global collaboration and integration of emerging technologies into strategies in the context of emergencies:** It is crucial to develop guidelines for the use of advanced

technologies in culture, such as Artificial Intelligence, while identifying ICT tools accessible in emergencies and building local capacities to use these tools effectively and sustainably.

- **Global collaboration and assistance in integration of emerging technologies into legal frameworks of access to information** as well as provision of guidance to the Member States on comprehensive frameworks and commitments to advancing access to information in the digital age.
- **Integrating ethical considerations across all Action Lines**: Based on UNESCO's experience and the information provided in the sources, a key recommendation for the future of WSIS and digital development is to integrate ethical considerations across all action lines, rather than treating them as a separate concern. This approach reflects a growing understanding that ethics are not peripheral to digital development but are fundamental to ensuring that technology serves humanity and promotes a more equitable and inclusive society. Treating ethics as a separate action line risks relegating it to an afterthought, potentially leading to unintended consequences and exacerbating existing inequalities. Instead, integrating ethics across all WSIS action lines ensures that ethical considerations are woven into the fabric of digital development, informing policy decisions, technological innovations, and capacity-building efforts.
- **Focus on new challenges from the continuous evolution of e-Science:** Looking forward, the continued evolution of e-Science will require strategic focus in several key areas. The cost of GPUs and high-performance ICTs, cross-border data sharing arrangements, lack of green technologies for scientific data centers and strengthening global data governance frameworks will all emerge as significant challenges. These may further continue to deepen technological dependence that could result in a new form of digital divide.
- **Need for clear policies on openness for scientific research**: In order to deal with these, newer clearer policies on openness and digital infrastructures for scientific research must be developed. New regimes for scientific data privacy, intellectual property, and the ethical use of AI in research may also result and should be a priority agenda for WSIS. As Artificial General Intelligence, quantum computers, 6G, secure cloud environments, and singularity may become new scientific tools, greater efforts will have to be made to enhance their reach in scientific practices in developing countries. Thus, a critical priority will be to enhance inclusivity and open access to scientific technologies in developing regions. Finally, collaborations in developing new digital infrastructure and capacity-building initiatives will be vital for the continued advancement of e-Science.

VI. Please identify publications, reports and other documents by your organization which you consider can contribute to the work of the review.

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Annex: Other useful reference links

- Geneva and Tunis outcome documents from WSIS – https://www.itu.int/net/wsis/outcome/booklet/index.html

- Geneva Plan of Action, with definitions of the Action Lines – https://www.itu.int/net/wsis/docs/geneva/official/poa.html#c4

- The General Assembly's ten-year review report – https://publicadministration.un.org/wsis10/Portals/5/N1543842.pdf

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