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Economic and environmental questions: Science and technology for development

Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels

Report of the Secretary-General

Summary

This report has been prepared in response to Economic and Social Council resolution 2006/46, which requested the Secretary-General of the United Nations to inform the Commission on Science and Technology for Development about the implementation of the outcomes of the World Summit on the Information Society. The report highlights major developments and activities by stakeholders in 2023. It was prepared by the secretariat of the United Nations Conference on Trade and Development, based on information provided by entities in the United Nations system, international organizations and other stakeholders.

* E/2023/1.

Introduction

1. This report has been prepared in response to Economic and Social Council resolution 2006/46. It includes information provided by 38 entities in the United Nations system, international organizations and other stakeholders in response to a letter from the Secretary-General of the United Nations Conference on Trade and Development (UNCTAD) requesting contributions on trends, achievements and obstacles in the implementation of World Summit on the Information Society (WSIS) outcomes.[1] The report summarizes developments and activities in 2023.

I. Key trends

A. Context of digital cooperation and security

2. The year under review has seen the rapid development of digitalization and increased intergovernmental and multi-stakeholder activity in identifying the future direction of digital development. Work has proceeded towards a global digital compact, to be considered by the General Assembly in 2024 and which will contribute to the Summit of the Future. The WSIS outcomes will be reviewed, after 20 years, by the General Assembly in 2025. A wide range of other forums, within and beyond the United Nations system, have explored both long-standing and emerging issues, ranging from cybersecurity to the governance of artificial intelligence. The range of issues covered by these forums becomes broader every year, as information and communications technology (ICT) becomes pervasive in all aspects of human society, at both the national and international levels. Digitalization has substantial impacts in every public policy domain, making dialogue between the digital sector and those concerned with other domains ever more critical in achieving sustainable development. This pervasiveness brings associated risks, including the threat posed to society at large and, thereby, social order, if digital infrastructures fail through natural disasters or cyberattacks. Addressing the opportunities and risks posed by digital ubiquity requires the participation of all countries, all stakeholders and all sectors.

3. The international community has faced major challenges since WSIS, including the financial crisis of 2008/09 and the coronavirus disease (COVID-19) pandemic. These have set back progress towards achievement of the Sustainable Development Goals. The need to

[1] Association for Progressive Communications (APC); Council of Europe; Economic and Social Commission for Asia and the Pacific (ESCAP); Economic and Social Commission for Western Asia (ESCWA); Economic Commission for Africa (ECA); Economic Commission for Europe (ECE); Economic Commission for Latin America and the Caribbean (ECLAC); End Child Prostitution in Asian Tourism International; Food and Agriculture Organization of the United Nations (FAO); Global System for Mobile Communications Association (GSMA); Internet Corporation for Assigned Names and Numbers (ICANN); International Federation for Information Processing; International Federation of Library Associations and Institutions (IFLA); Internet Governance Forum (IGF); International Telecommunication Union (ITU); International Trade Centre; Office of the Secretary-General's Envoy on Technology; Organisation for Economic Co-operation and Development (OECD); UNCTAD; United Nations Children's Fund (UNICEF); United Nations Department of Economic and Social Affairs (DESA); United Nations Development Programme (UNDP); United Nations Educational, Scientific and Cultural Organization (UNESCO); United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women); United Nations Environment Programme (UNEP); United Nations Framework Convention on Climate Change (UNFCCC); United Nations Industrial Development Organization (UNIDO); United Nations Office on Drugs and Crime (UNODC); United Nations Relief and Works Agency for Palestine Refugees in the Near East; Universal Postal Union; World Bank; World Economic Forum (WEF); World Food Programme; World Health Organization (WHO); World Intellectual Property Organization (WIPO); World Meteorological Organization (WMO); World Trade Organization (WTO); World Wide Web Foundation. See https://unctad.org/publication/2023-report-secretary-general-progress-made-implementation-and-follow-outcomes-world.
Note: All websites referred to in footnotes were accessed in January 2023.

address poverty and inequality remains fundamental, and concerns about climate change have intensified since WSIS. Conflicts in several regions threaten global stability and have undermined global cooperation. The role of digitalization in addressing these challenges is significant, and will be a major feature of the proposed global digital compact and the Summit of the Future.

B. Digital inclusion

4. There has been continued growth in access to ICT and its use by Governments, organizations and individuals. ITU estimates that two thirds of the global population is now online.[2] GSMA states that only 5 per cent of the global population is not yet covered by mobile broadband networks, although over 40 per cent does not yet make use of mobile Internet.[3]

5. This growth continues to be accompanied by severe inequalities or digital divides within and between countries. Internet use is linked to the level of economic development; the proportion of individual users ranges from 93 per cent in high-income countries to 27 per cent in low-income countries and from 91 per cent in Europe to 37 per cent in Africa.[4] There is a persistent gender-based digital divide in many countries, particularly lower-income countries. Affordability, literacy and levels of education also affect the quantity and quality of connectivity and usage experienced in different countries. Progress towards universal, affordable and meaningful connectivity remains a priority in ensuring that no one is left behind in the information society.

C. Rapid development of artificial intelligence

6. In 2023, the most significant development in the information society was the emergence in the public sphere of generative artificial intelligence, particularly large language models. These represent a significant advance on the pace and scale with which artificial intelligence is expected to impact many aspects of human societies, and may be an inflection point in human development. The potential of artificial intelligence and other emerging technological innovations such as quantum computing to transform aspects of economic, social and cultural life has generated both interest and concerns. The significant increase in computational ability of artificial intelligence, by assimilating and analysing multiple data sets, is expected to enable improvements in medicine, product design and development and the efficiency of service provision, bringing within reach advances formerly considered unachievable. This could have value in advancing prosperity and welfare, and help to achieve lasting sustainable development.

7. The outcomes of such rapid change are, however, uncertain, and present risks as well as opportunities. New technologies can be used for harm as well as good, not least by criminals or those wishing to undermine stability and trust within society. There is widespread concern about the impact of artificial intelligence on employment, and its potential for domestic, commercial or government surveillance and intrusion, as well as debate about the possibility of more existential threats if human institutions lose control of decision-making in important areas of governance or the economy. The differential rate of adoption and the geographical concentration of artificial intelligence-related businesses and skills pose problems of equality and equity. Many ongoing initiatives are exploring the related practical and ethical challenges, including through international norms and regulations, to promote responsible innovation.

[2] https://www.itu.int/en/mediacentre/Pages/PR-2023-09-12-universal-and-meaningful-connectivity-by-2030.aspx.

[3] https://www.gsma.com/r/somic/.

[4] https://www.itu.int/hub/publication/d-ind-ict_mdd-2023-1/.

D. Platform regulation

8. In recent years, the importance of digital platforms as gateways for services used by Governments, businesses and citizens has grown rapidly. Such platforms fulfil many different purposes, including access to governmental or financial services and to goods for sale from electronic commerce (e-commerce) vendors. Those most widely used by individuals are free-to-use social media platforms that enable access to and the sharing of information. For many, they have become crucial forums for interpersonal communications, and have displaced traditional media as the main source of news and interaction on political and social issues. For some individuals, known as influencers, they have become highly profitable businesses.

9. Platforms have added value to the digital environment, extending the range of goods and services that are readily accessible and enabling easier access to a wider range of information. Their business models have, however, raised concerns, because of the ways in which algorithms prioritize content and because it is increasingly difficult for users to distinguish between reliable information, misinformation and deliberate disinformation. These concerns have been exacerbated by the market concentration of major platforms and the possibility that they may dominate individuals' overall online experience. There has therefore been growing interest in platform regulation, whether through self-regulatory norms or legislative requirements. Some platform businesses have expressed the wish for clearer rules of conduct, particularly as artificial intelligence enables more extensive and potentially exploitative use and abuse, including fraud and election interference. Platform regulation raises complex questions with regard to national sovereignty and human rights, particularly concerning privacy, freedom of expression and equality.[5]

E. Data governance

10. Another area of digital governance that has received increased attention in recent years is data governance. The volume of data generated by digital services has grown rapidly, leading to significant increases in the storage capacity of data centres. Advances in computation have enabled much more complex analyses of data, including the combination of data from multiple sources in ways that can achieve greater insight into social, economic and environmental patterns but can also jeopardize the privacy and security of individuals.

11. Ownership and the right to make use of data have become increasingly important questions in national and international digital policy. Increasingly, the largest data sets and, thereby, capacity for data analysis, are held by global data corporations.[6] Individuals have limited agency over how their data are used. The resulting questions of ownership and control are addressed in some countries through data protection mechanisms, such as the General Data Protection Regulation of the European Union, but in other countries, ownership and control are less protected from exploitation by either Governments or businesses. National Governments, particularly in developing countries, have less access to data that could be valuable, when disaggregated, for improving public services or targeting resources, than commercial businesses, which often assert commercial confidentiality concerning data they hold. This has led to recognition of the need for greater data sovereignty or strategic autonomy, that is, the capacity of a country to independently formulate policies regarding data and their movement; however, the interpretation of and driving factors behind data sovereignty can differ greatly between countries.[7]

[5] https://unctad.org/publication/digital-economy-report-pacific-edition-2022.
[6] E/CN.16/2024/2.
[7] https://unctad.org/publication/digital-economy-report-2021.

F. Sustainable digital development

12. Sustainable development has been a goal for the international community for three decades. The Sustainable Development Goals are aimed at advancing economic prosperity and social welfare in ways that are equitable and environmentally sustainable for present and future generations. As the capabilities of digital technologies have increased, there has been increasing interest in the relationship between ICTs and the environmental aspects of sustainable development. New technologies and the data analysis they enable are powerful resources in facilitating the understanding of environmental challenges and enabling interventions to reduce, mitigate or adapt to environmental risks and harms. However, such technologies also have environmentally detrimental impacts through the extraction and depletion of natural resources; energy consumption that contributes to climate change; and pollution, including electronic waste. Artificial intelligence and the growth of the Internet of things exacerbate these impacts, which also raise equity-related concerns, since the benefits and burdens of digitalization on the environment are unevenly distributed between developed and developing countries.

13. This combination of factors has led to the increased exploration of ways to optimize the contribution of digitalization to environmental aspects by maximizing the effectiveness of data-gathering and analysis and minimizing or mitigating adverse impacts. There is increased interest in ways to develop a circular digital economy, with greater use of renewable energy, more environmentally efficient infrastructure and devices, the repair and reuse of devices displacing early obsolescence and more intensive recycling of digital equipment and components. All stakeholders have roles in leveraging digital resources to improve environmental management and achieving more sustainable production and consumption, through international cooperation, regulation, standard development, business model formation and consumer awareness-raising. Monitoring and measurement are critical for success.

II. Implementation and follow-up at the regional level

A. Africa

14. The ECA Digital Centre for Excellence supports digital governance, policy development and cybersecurity across the continent, including the single digital market framework for Africa. ECA has published *Africa Digital Identity Landscape* and *State of Instant and Inclusive Payment Systems Report*. The Digital Transformation Strategy of the African Union, reinforced by the Digital Economy for Africa Initiative of the World Bank, aims to support infrastructure, regulation, skills development, innovation and entrepreneurship for economic growth on the continent. The African Union High-Level Panel on Emerging Technologies is preparing a continental strategy for artificial intelligence.[8]

B. Asia and the Pacific

15. ESCAP promotes digital cooperation and inclusion through its Action Plan for Implementation of the Asia-Pacific Information Superhighway 2022–2026, which is informed by *Asia-Pacific Digital Transformation Report 2022: Shaping Our Digital Future*. The region includes countries with different levels of digital development and inclusion, and particular attention has been paid to connectivity challenges in countries with special needs, including small island developing States.[9] New initiatives have been

[8] https://www.nepad.org/news/artificial-intelligence-core-of-discussions-rwanda-au-high-level-panel-emerging.

[9] https://www.unescap.org/kp/2023/strengthening-regional-cooperation-seamless-and-sustainable-connectivity.

launched to strengthen the policy capacity of member countries of the Association of Southeast Asian Nations and advance cross-border data-sharing.

C. Western Asia

16. Arab Digital Agenda for 2023–2033, with 35 strategic digital development goals, was adopted following collaboration between ESCWA and the League of Arab States. A collaboration and partnership framework for implementation will be agreed in 2024. ESCWA continued to support capacity development and facilitate national digital development reviews. UNDP and regional organizations issued a call for action to support regional digital development.[10]

D. Europe

17. ECE coordinates the United Nations Centre for Trade Facilitation and Electronic Business, which develops trade facilitation recommendations and electronic standards for government and commercial activity; maintains a shared environmental information system and indicators; [11] and manages the Aarhus Clearing House for participation in environmental decision-making. The Council of Europe has prioritized work on freedom of expression and the implications of artificial intelligence for human rights. The European Commission took stock of progress in *Report on the State of the Digital Decade 2023* and provided guidance to member States on the preparation of national digital decade strategic road maps.[12]

E. Latin America and the Caribbean

18. Digital Agenda 2024 for Latin America and the Caribbean, developed by ECLAC and agreed by regional Governments, sets out strategic objectives for digital development, focused on inclusive digitalization, the digital economy, social welfare and trade integration.[13] ECLAC has published *A Digital Path for Sustainable Development in Latin America and the Caribbean*; reported on fifth-generation networks, the measurement of the Internet economy and data governance in the public sector; promoted the development of a digital economy observatory to develop metrics and identify research priorities; presented preliminary results from the region's first artificial intelligence index; and entered a digital alliance with the European Union to promote bilateral cooperation on digital and space-related development.[14]

[10] https://www.undp.org/sites/g/files/zskgke326/files/2023-09/Call%20to%20Action.pdf.

[11] https://unece.org/shared-environmental-information-system#accordion_3.

[12] https://ec.europa.eu/newsroom/dae/redirection/document/98641; https://ec.europa.eu/newsroom/dae/redirection/document/96939.

[13] https://www.cepal.org/en/digital-agenda-latin-america-and-caribbean-elac2024/digital-agenda-2024.

[14] https://www.cepal.org/es/publicaciones/48485-redes-5g-america-latina-desarrollo-potencialidades; https://www.cepal.org/es/publicaciones/48908-medicion-la-economia-internet-america-latina-casos-brasil-chile-colombia-mexico; https://www.cepal.org/es/publicaciones/49009-analisis-modelos-gobernanza-datos-sector-publico-mirada-bogota-buenos-aires; https://www.cepal.org/es/proyectos/observatorio-regional-desarrollo-digital; https://www.cepal.org/en/news/first-latin-american-artificial-intelligence-index-will-be-presented-eclac; https://ec.europa.eu/commission/presscorner/detail/en/statement_23_3892.

III. Implementation and follow-up at the international level

A. United Nations Group on the Information Society

19. The United Nations Group on the Information Society coordinates the inter-agency implementation of WSIS outcomes and their alignment with the Sustainable Development Goals across the United Nations system. In 2023, the Group contributed to the global digital compact and the high-level political forum on sustainable development, as well as the fifth United Nations Conference on the Least Developed Countries.[15]

B. General Assembly and Economic and Social Council

20. The General Assembly adopted a resolution on ICTs for sustainable development and a resolution on developments in the field of information and telecommunications in the context of international security.[16] The Economic and Social Council adopted a resolution on WSIS outcomes.[17]

C. Commission on Science and Technology for Development

21. At its twenty-sixth session, the Commission on Science and Technology for Development discussed technology and innovation for cleaner, more productive and competitive production; progress made in the implementation of and follow-up to the outcomes of WSIS; and science, technology and innovation for development.[18] During the intersessional panel meeting, the Commission focused on data for development and global cooperation on science, technology and innovation.[19]

D. Facilitation and coordination of multi-stakeholder implementation

22. WSIS Forum 2023 was held under the theme of "WSIS action lines for building back better and accelerating the achievement of the Goals". Over 2,500 in-person and 5,000 online participants, from over 150 countries, took part in nearly 250 sessions held in Geneva and online. High-level policy sessions discussed issues such as the 20-year review of WSIS and the future of WSIS beyond 2025, the global digital compact, digital divides and the enabling environment, trust and security, ICT applications and digital governance.[20] There were separate tracks for ministers, ambassadors and mayors, who explored smart city initiatives. WSIS Forum 2024 will contribute to the 20-year review of WSIS by the General Assembly. The WSIS stocktaking platform now includes over 14,000 entries illustrating the development potential of ICTs. A global stocktaking report is supplemented by regional reports and supported by repositories on particular themes, including women in technology. In 2023, the meeting of the ITU/UNESCO Broadband Commission for Sustainable Development focused on the need to achieve universal and meaningful connectivity and related contributions to achieving the Goals.[21]

[15] https://www.un.org/techenvoy/sites/www.un.org.techenvoy/files/GDC-submission_UNGIS.pdf; https://hlpf.un.org/sites/default/files/vnrs/2023/HLPF%202023%20Inputs%20UNGIS.pdf.

[16] A/RES/78/132; A/RES/78/237.

[17] E/RES/2023/3.

[18] https://unctad.org/meeting/commission-science-and-technology-development-twenty-sixth-session.

[19] https://unctad.org/meeting/commission-science-and-technology-development-2023-2024-inter-sessional-panel.

[20] https://www.itu.int/net4/wsis/forum/2022/HighLevel.

[21] https://www.broadbandcommission.org/annual-fall-meeting-2023-press-release/.

E. Civil society, business and multi-stakeholder partnerships

23. There has been continued growth in the number of civil society and multi-stakeholder organizations and initiatives concerned with digital opportunities and risks. Access Now organizes the multi-stakeholder Rights Conference and publishes reports on biometric technology, content governance, surveillance and Internet shutdowns; APC is an international network of civil society organizations concerned with development, the environment, rights and gender; the Diplo Foundation provides opportunities for dialogue on digital policy and promotes digital diplomacy; End Child Prostitution in Asian Tourism International is a global civil society network addressing child sexual exploitation and advocating for children's rights; GSMA represents mobile communications businesses and has published research on mobile Internet connectivity and the mobile gender gap; IFLA promotes digital access and skills through libraries and explores ways of enhancing library services through new technology; ICANN coordinates the domain name system of the Internet; and the Internet Society works with the technical community to develop global infrastructure, support Internet security, train community members and campaign on Internet-related issues.

F. Action lines and selected implementation of activities of United Nations entities

1. Implementation of action lines

24. Implementation of WSIS outcomes is aligned with implementation of the 2030 Agenda for Sustainable Development through General Assembly resolutions 70/1 and 70/125. In 2005, 11 action lines were agreed for multi-stakeholder implementation of the outcomes. Action line facilitators review implementation annually using an agreed matrix of the action lines and the Goals.[22] A meeting of facilitators was held during WSIS Forum 2023.

(a) The role of public governance authorities and all stakeholders in the promotion of information and communications technologies for development (C1)

25. The Equals Global Partnership of United Nations entities and sectoral agencies seeks to close gender-based digital divides in ICT access and leadership and, with ITU, published a handbook on mainstreaming gender in digital policies.[23] UNODC works with Governments to address the criminal use of digital technology. WIPO coordinates international action and supports capacity development on copyright and intellectual property.

26. WEF launched a network to promote cooperation in innovation between Governments, technologists and enterprises; developed a digital transition framework to support public–private collaboration; and established a platform for Governments, businesses and academia to consider the technical implications of a potential quantum economy.[24]

27. OECD hosts the Global Partnership on Artificial Intelligence, which promotes the responsible development of artificial intelligence based on human rights, inclusion, diversity, innovation and economic growth. Stanford University published a comprehensive review of developments in *Artificial Intelligence Index Report 2023*. WEF hosted summits on artificial intelligence governance and leadership and launched the Artificial Intelligence Governance Alliance, to consider responsible global design and transparent and inclusive systems.

[22] https://www.itu.int/net4/wsis/sdg/.

[23] https://www.itu.int/hub/publication/d-hdb-gender-2023-01/.

[24] https://initiatives.weforum.org/govtech-network/about; https://www.weforum.org/publications/digital-transition-framework-an-action-plan-for-public-private-collaboration; https://initiatives.weforum.org/quantum/home.

28. The Brazil Internet Steering Committee plans to hold a Net Mundial+10 multi-stakeholder event in 2024, to consider developments in Internet governance and the digital ecosystem since the conference in 2014.[25]

(b) Information and communication infrastructure (C2)

29. ITU provides technical support for infrastructure development; mapped the availability of infrastructure in *Global Connectivity Report 2022*; and launched a universal service financing efficiency toolkit to help policymakers navigate business models for extending connectivity.[26] The Broadband Commission, in *The State of Broadband 2023*, tracked progress towards advocacy targets for broadband connectivity, explored the potential of demand-driven communications access and considered funding requirements for future connectivity.

30. UNDP and the Office of the Secretary-General's Envoy on Technology launched an initiative on universal safeguards for digital public infrastructure, to safeguard against potential risks and contribute to the achievement of the Goals.[27] The Group of 20, with support from UNDP and the World Bank, agreed on high-level guiding principles for digital public infrastructure and published a compendium of the potential for supporting the achievement of the Goals.[28]

31. Many agencies explore the implications of meaningful access, namely, the relationship between connectivity and social and economic inclusion. APC worked with regulators and policymakers to promote community approaches to rural connectivity, particularly in southern Africa.[29]

(c) Access to information and knowledge (C3)

32. The definition of digital inclusion of the United Nations Round Table on Digital Inclusion is equitable, meaningful and safe access to use, lead and design digital technologies, services and associated opportunities for everyone.[30] Efforts to achieve such inclusion form a central part of discussions on the global digital compact, with the goal of ensuring universal access to digital networks and services.

33. The Commission on the Status of Women stressed the importance of incorporating women's rights and empowerment in the global digital compact. GSMA, in *The Mobile Gender Gap Report 2023*, analysed barriers to women's participation and made recommendations for policymakers and mobile and Internet companies. The Broadband Commission published recommendations for stakeholders on measures to reduce the gender-based digital divide.[31]

34. UNESCO promoted Internet universality through indicators on rights, openness, access and multi-stakeholder participation; and held a global conference on Internet accessibility and connectivity as part of the International Day for Universal Access to Information.[32]

[25] https://cgi.br/noticia/notas/netmundial-10-global-challenges-for-the-governance-of-the-digital-world/.
[26] https://www.itu.int/itu-d/reports/regulatory-market/usf-financial-efficiency-toolkit/.
[27] https://www.undp.org/digital/press-releases/un-tech-envoy-and-undp-launch-initiative-ensure-digital-infrastructure-turbocharges-sdgs-safely-and-inclusively.
[28] https://www.undp.org/publications/accelerating-sdgs-through-digital-public-infrastructure-compendium-potential-digital-public-infrastructure.
[29] https://www.apc.org/en/community-networks-and-local-access-monthly-newsletter; https://www.apc.org/en/news/regulators-southern-african-countries-take-deep-dive-community-networks-alternatives-digital.
[30] https://www.un.org/techenvoy/content/digital-inclusion.
[31] https://www.broadbandcommission.org/publication/recommendations-on-sdg5/.
[32] https://www.unesco.org/en/internet-universality-indicators/roam-x; https://www.unesco.org/en/articles/international-day-universal-access-information-2023.

(d) Capacity-building (C4)

35. Many intergovernmental and multi-stakeholder agencies work to build the capacity of digital professionals and digital literacy among the public. During UNESCO Global Media and Information Literacy Week, participants considered the potential for a collective global agenda on digital media literacy; and UNESCO also addressed capacity-building for civil servants and judges.[33] The Broadband Commission working group on artificial intelligence capacity-building has developed assessment tools for understanding and improving digital capabilities and, through the Artificial Intelligence and the Rule of Law programme, reached over 5,000 judicial personnel and introduced a global toolkit for the judiciary.[34]

36. ITU established the Digital Transformation Resource Hub to facilitate access to publications from many organizations on aspects of digital development. The ITU Centres of Excellence began a new phase of capacity-building with ICT professionals through the online academy.

(e) Building confidence and security in the use of information and communications technologies (C5)

37. The concept of data free flow with trust was developed by international organizations, including OECD, seeking to establish a framework to promote the free flow of data while protecting privacy, security and intellectual property rights.[35] OECD adopted the Declaration on a Trusted, Sustainable and Inclusive Digital Future, underpinned by respect for law, human rights and democratic values;[36] published *Policy Framework on Digital Security: Cybersecurity for Prosperity* and a report on enhancing the security of communications infrastructure; launched recommendations on risk management and national digital security strategies; and adopted a ministerial declaration on government access to personal data held by private sector entities.

38. WEF published *Global Cybersecurity Outlook 2023* and *Earning Digital Trust: Decision-Making for Trustworthy Technologies*; and proposed a consent and trust framework to identify appropriate trust mechanisms.[37] The 2023 Network Readiness Index of Portulans Institute focused on trust in a network society.

39. The Council of Europe implemented capacity-building projects through the Cybercrime Programme Office, and the Octopus Cybercrime Community provides a database for information-sharing on cybercrime and electronic evidence.[38]

40. The World Bank Cybersecurity Multi-Donor Trust Fund works with partners to build knowledge and support initiatives in low-income and middle-income countries. ITU works with Governments in many countries to build cybersecurity capacity and is gathering data for the fifth edition of the Global Cybersecurity Index.

(f) The enabling environment (C6)

41. ITU, through the ICT regulatory tracker, monitors regulatory developments worldwide; established the digital regulation network to bring together expertise in regional regulatory associations;[39] and published *Global Digital Regulatory Outlook 2023: Policy and Regulation to Spur Digital Transformation*. Over 750 participants attended the Global Symposium for Regulators, at which best practice guidelines on regulatory and economic

[33] https://www.unesco.org/en/weeks/media-information-literacy; https://unesdoc.unesco.org/ark:/48223/pf0000386925.

[34] https://www.unesco.org/en/artificial-intelligence/rule-law/mooc-judges; https://unesdoc.unesco.org/ark:/48223/pf0000387331.

[35] https://www.oecd-ilibrary.org/science-and-technology/moving-forward-on-data-free-flow-with-trust_1afab147-en.

[36] https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0488.

[37] https://initiatives.weforum.org/data-for-common-purpose-initiative/consent-and-trust.

[38] https://www.coe.int/en/web/octopus.

[39] https://www.itu.int/itu-d/sites/ra-network/regional-regulatory-associations/.

incentives for a sustainable digital future, including meaningful connectivity, were endorsed.[40]

42. The World Bank works with ITU to support the development of regulatory agencies and policies on universal access, competition, interoperability and related challenges, through the digital regulation platform.

43. The OECD Going Digital project focuses on digital inclusion, climate change and responsible technological development; and OECD published *Going Digital to Advance Data Governance for Growth and Well-Being*.

44. The ITU Artificial Intelligence for Good Global Summit considered practical applications that could contribute to achieving the Goals. UNESCO published *Missing Links in Artificial Intelligence Governance*, addressing challenges arising from uncertain technological development.

(g) Information and communications technology applications (C7)

E-government

45. DESA conducted an assessment of municipal and national portals and updated the methodology for its biennial e-government survey, due in 2024. The Digital Impact Alliance published the first in a series of reports on human-centred data governance and public service delivery in developing countries.[41]

46. DESA, in *World Public Sector Report*, included an assessment of the regulation of digital technology to protect and strengthen human rights. WEF, in *State of the Connected World 2023*, collected insights on governance gaps in interoperability and system architecture, inclusion and cybersecurity, finance and environmental sustainability.

47. The United Nations Human Settlements Programme published a report on digitalization and human rights in local governance in Europe.[42] The Council of Europe published a report on deliberative and participatory democracy, including digital engagement, and is working on the role of digitalization in improving judicial processes.[43]

E-business

48. The Intergovernmental Group of Experts on E-commerce and the Digital Economy, at its sixth session, adopted agreed policy recommendations on how to make data work for the 2030 Agenda and agreed that UNCTAD should coordinate a task group of interested working group participants, to support the development of UNCTAD guidelines on measuring the value of e-commerce.[44] E-Week at UNCTAD focused on shaping the future of the digital economy. The eTrade for all partnership, coordinated by UNCTAD, promotes international support for developing country efforts to effectively engage in and benefit from e-commerce. UNCTAD built on *COVID-19 and E-Commerce: A Global Review* to develop a new e-commerce course for policymakers.[45] In *Digital Economy Report Pacific Edition 2022*, UNCTAD highlighted the unique opportunities and challenges related to e-commerce in the region and the work of the Pacific Digital Economy Programme, managed by UNCTAD, UNDP and the United Nations Capital Development Fund.[46]

[40] https://www.itu.int/itu-d/meetings/gsr-23/consultation/.

[41] https://dial.global/research/human-centered-data-governance-and-better-public-digital-service-delivery/.

[42] https://unhabitat.org/news/18-jul-2023/human-rights-in-the-digital-era-governance-learnings-from-local-pilots-in-europe.

[43] https://rm.coe.int/report-on-deliberative-democracy-eng/1680aaf76f.

[44] TD/B/EDE/6/4.

[45] https://unctad.org/publication/e-commerce-and-digital-economy-programme-year-review-2022.

[46] https://unctad.org/topic/ecommerce-and-digital-economy/pacific-digital-economy-programme.

49. Discussions on trade aspects of digitalization, including e-commerce, continued at WTO. UNIDO launched an international alliance to harness artificial intelligence for industry, to address issues such as ethical use in manufacturing, and held a Development Dialogue on Digital Transformation.[47]

50. UNCTAD assessed cross-border payments in the Group of 20.[48] ECE is promoting work towards a more circular economy and published a white paper on single window assessment methodology.[49] WEF addressed regulatory frictions in cross-border payments.[50]

51. The UNCTAD eTrade for Women initiative continued to support women entrepreneurs. ITC trained over 650 digital entrepreneurs and assisted over 350 technology start-ups from developing countries. The Broadband Commission published *Making Digital Connectivity Work for Microenterprises and Small and Medium-Sized Enterprises*. UN-Women and GSMA published reports on the use of digital technology by women-led microenterprises.[51]

E-learning

52. The Broadband Commission published *The Transformative Potential of Data for Learning*.

53. UNESCO published *Global Education Monitoring Report Summary 2023*, which explored the potential and limitations of technology in education, focusing on ownership and content generation. The Gateways to Public Digital Learning partnership promotes public education platforms and access to learning resources.[52] UNESCO published *Guidance for Generative Artificial Intelligence in Education and Research*, including papers on subjects such as digital literacy, open educational resources, technology-based assessments and implications for rights and gender equality.[53]

54. The Commission on the Status of Women considered the impact of innovation and digitalization on education in the achievement of gender equality and empowerment.[54]

E-health

55. The Digital Health Centre of Excellence, co-led by WHO and UNICEF, works to improve donor coordination and provide targeted assistance, to address national health priorities. The Global Health Observatory provides comprehensive access to health data for policymakers. The WEF Digital Health Action Alliance seeks to bring together stakeholders to share information and advocate digital health interventions.

56. WHO launched a new global initiative to support *Global Strategy on Digital Health 2020–2025*, aimed at achieving more effective networking and monitoring of digital health outcomes; and, with the European Commission, established a digital health partnership aimed at facilitating certification and protection against future health crises and pandemics.[55]

[47] https://www.unido.org/news/development-dialogue-digital-transformation.
[48] https://unctad.org/publication/g20-members-regulations-cross-border-data-flows.
[49] https://unece.org/trade/documents/2023/08/white-paper-single-window-assessment-methodology.
[50] https://www.weforum.org/publications/unlocking-interoperability-overcoming-regulatory-frictions-in-cross-border-payments/.
[51] https://asiapacific.unwomen.org/en/digital-library/publications/2023/04/multicountry-study-on-womenled-msmes-with-a-focus-on-microenterprises; https://www.gsma.com/mobilefordevelopment/resources/understanding-women-micro-entrepreneurs-use-of-mobile-phones-for-business/.
[52] https://www.un.org/en/transforming-education-summit/gateways-public-digital-learning.
[53] https://www.unesco.org/gem-report/en/technology-background-papers.
[54] https://www.unwomen.org/en/csw/csw67-2023.
[55] https://www.who.int/initiatives/global-initiative-on-digital-health; https://www.who.int/news/item/05-06-2023-the-european-commission-and-who-launch-landmark-digital-health-initiative-to-strengthen-global-health-security.

57. OECD published an assessment of the future of telemedicine after the pandemic.[56] WHO published *Regulatory Considerations on Artificial Intelligence for Health* and *Classification of Digital Interventions, Services and Applications in Health*. WEF explored the potential of artificial intelligence in health applications.[57]

E-employment

58. The International Labour Organization (ILO) published *Changing Demand for Skills in Digital Economies and Societies.* Digital economy ministers of the Group of 20 discussed skill requirements for the information society, adopted a road map to facilitate cross-country comparisons of digital skills and agreed on a toolkit for digital upskilling and reskilling.[58]

59. ILO, in *World Employment and Social Outlook Trends 2023*, considered digitalization and productivity; and assessed the potential impact of generative artificial intelligence on jobs, including transition management.[59] WEF explored the potential impact on employment of large language models.[60]

60. The European Commission published *Industry 5.0 and the Future of Work.* OECD considered the impact of artificial intelligence on the workplace.[61]

61. ILO and the Office of the United Nations High Commissioner for Refugees established a partnership to support the inclusion of refugees and host communities in the digital economy.[62]

E-environment

62. UNEP revised the conceptual framework for the development of a global environmental data strategy, for expected adoption in 2025,[63] and renewed the platform for the World Environment Situation Room, for data and knowledge-sharing on environmental issues.

63. UNFCCC established a Technology Mechanism Initiative to explore the role of artificial intelligence in addressing climate-related challenges.[64] The Coalition for Digital Environment Sustainability proposed a science-based world commission on sustainability in the digital age, to consider sustainable approaches to digitalization, and a clearing house for digital sustainability standards.[65] A report by Digitalization for Sustainability proposed a path towards more environmentally responsible digitalization, including sustainable consumption and a more circular economy.[66] The Digital Impact Alliance discussed ways for policymakers to navigate digitalization for climate action.[67]

[56] https://www.oecd.org/coronavirus/policy-responses/the-future-of-telemedicine-after-covid-19-d46e9a02/.

[57] https://www.weforum.org/publications/scaling-smart-solutions-with-ai-in-health-unlocking-impact-on-high-potential-use-cases/.

[58] http://www.g20.utoronto.ca/2023/230819-digital.html.

[59] https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_884840.pdf; https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_898026.pdf; https://www.ilo.org/static/english/intserv/working-papers/wp096/index.html.

[60] https://www.weforum.org/publications/jobs-of-tomorrow-large-language-models-and-jobs/.

[61] https://www.oecd.org/publications/the-impact-of-ai-on-the-workplace-main-findings-from-the-oecd-ai-surveys-of-employers-and-workers-ea0a0fe1-en.htm.

[62] https://www.ilo.org/emppolicy/projects/of-digital-economy/lang--en/index.htm.

[63] https://wedocs.unep.org/handle/20.500.11822/42307.

[64] https://unfccc.int/ttclear/artificial_intelligence; TEC/2023/27/08.

[65] https://www.codes.global/initiatives.

[66] https://digitalization-for-sustainability.com/digital-reset/.

[67] https://dial.global/research/greener-future-navigating-digital-frontier-for-climate-action/.

64. ITU facilitates access to information on sustainable digital innovations through the Global Portal on Environment and Sustainable Digital Transformation; explored private-sector commitments to monitoring emissions and climate commitments; and published an equipment procurement guide for the circular economy.[68] The European Commission proposed the adoption of digital product passports to facilitate circularity.[69]

65. WMO upgraded the information system, which shares monitoring data on weather, climate and water, and adopted the goal of ensuring universal protection through early warning systems by 2027.[70] ITU issued a paper on digitalization and early warning systems.[71]

66. The World Food Programme is the lead agency of the Emergency Telecommunications Cluster, which coordinates digital support for humanitarian interventions and, in 2023, offered assistance in crises in Africa, Asia, Europe and Western Asia, and built on its return to investment model to strengthen crisis preparedness through infrastructure, capacity-building and stakeholder coordination.[72] ITU, in collaboration with the Emergency Telecommunications Cluster, published a report on women, ICT and emergency telecommunications.[73]

E-agriculture

67. FAO, in *Strategic Framework 2022–2031* and *Science and Innovation Strategy*, recognized the potential of digital technologies in improving agricultural production. UN-Women is implementing programmes to leverage digital technology to advance women's economic empowerment by enhancing agricultural productivity and market access.

68. FAO facilitates the e-agriculture community of practice, for sharing knowledge of agriculture and rural development, and supports the development of e-agriculture strategies in developing countries. The Digital Village Initiative addresses rural hunger, poverty and inequality in Asia and the Pacific.

69. FAO and ITU published *Digital Excellence in Agriculture Report*, highlighting trends and achievements in Central Asia and Europe. Further examples of digital agribusiness development are featured by the Global Network of Digital Agriculture Innovation Hubs.[74]

E-science

70. Many reports discussed artificial intelligence technology and the associated opportunities and risks.[75] The World Bank summarized the potential and scope of generative artificial intelligence.[76] The Group of 7 adopted guiding principles for organizations developing advanced artificial intelligence systems, to promote opportunities and mitigate risks associated with artificial intelligence development.[77] The Government of the United Kingdom of Great Britain and Northern Ireland held a summit, to consider the potential and challenges of frontier artificial intelligence.[78]

[68] https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx; https://www.itu.int/hub/publication/d-them-33-2023-01/; https://www.itu.int/hub/publication/d-hdb-guidelines-04-2023/.

[69] https://www.wbcsd.org/Pathways/Products-and-Materials/Resources/The-EU-Digital-Product-Passport.

[70] https://wmo.int/site/wmo-and-early-warnings-all-initiative.

[71] https://www.itu.int/hub/publication/d-gen-digital-transfor-01-2023/.

[72] https://www.etcluster.org/document/return-investment-roi-model.

[73] https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Women-ICT-and-Emergency-Telecommunications.aspx.

[74] https://www.fao.org/in-action/global-network-digital-agriculture-innovation-hubs/en.

[75] https://www.itu.int/cities/dt-resource-hub/ai/.

[76] https://openknowledge.worldbank.org/entities/publication/4f623641-ba34-4f0d-9a7d-105f02a5ee00.

[77] https://digital-strategy.ec.europa.eu/en/library/hiroshima-process-international-guiding-principles-advanced-ai-system.

[78] https://www.gov.uk/government/publications/ai-safety-summit-introduction/ai-safety-summit-introduction-html.

71. The UNESCO recommendation on open science provides a framework for Governments and other stakeholders, to facilitate access to scientific knowledge; and UNESCO developed an open science toolkit and published an overview of trends in *Open Science Outlook*.[79]

72. The UNESCO-supported Global Open Access Portal provides access to a range of open access resources worldwide. FAO, ILO, UNEP, WHO and WIPO collaborate with publishers in the Research for Life programme, which offers access for developing countries to scientific journals, books and databases. WIPO provides online access to laws and regulations concerned with intellectual property through the Patent Register Portal and published *Global Innovation Index 2023: Innovation in the Face of Uncertainty*.

73. The Commission on the Status of Women addressed the importance of women's participation and leadership in science, technology and innovation.[80]

(h) Cultural diversity and identity, linguistic diversity and local content (C8)

74. UNESCO promotes linguistic diversity and the availability of minority languages online; addressed the need for digital empowerment through multilingualism; and published *Digital Initiatives for Indigenous Languages*.

75. ICANN led an international initiative to adapt digital systems and enable the universal acceptance of internationalized domain names by Internet-enabled applications, systems and devices.[81]

76. The development of digital identity systems and associated data-sharing continued, with significant debate concerning data ownership, management and privacy. The World Bank Identification for Development initiative promotes the adoption of trusted digital identity systems to support inclusion and development. The European Commission agreed on the introduction of digital identity wallets, subject to formal approval by the European Parliament and the Council.[82]

(i) Media (C9)

77. The Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression issued a joint declaration on media freedom and democracy, with leading rights advocates and the Organization for Security and Cooperation in Europe.[83] The Council of Europe launched a five-year campaign for the safety of journalists.[84]

78. The emergence of social media and other digital platforms has had a significant impact on journalism and news consumption by the general public. This has led to concerns about the quality of information and the scale of disinformation, misinformation and harmful content, and the potential for related problems to be exacerbated by the emergence and capabilities of large language models. UNESCO, to explore these issues, hosted a conference on Internet for trust, consulted on potential guidelines for platform regulation and published guidelines on safeguarding freedom of expression and access to information.[85]The International Fund for Public Interest Media seeks to sustain independent media and investigative journalism in contexts of political threats and financial challenges.

[79] https://unesdoc.unesco.org/ark:/48223/pf0000379949; https://www.unesco.org/en/open-science/toolkit.

[80] https://www.unwomen.org/en/csw/csw67-2023/official-documents.

[81] https://www.icann.org/ua.

[82] https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5651.

[83] https://www.osce.org/representative-on-freedom-of-media/542676.

[84] https://www.coe.int/en/web/freedom-expression/safety-of-journalists-campaign.

[85] https://www.unesco.org/en/internet-conference; https://unesdoc.unesco.org/ark:/48223/pf0000384031.locale=en.

(j) Ethical dimensions of the information society (C10)

79. The United Nations High Commissioner for Human Rights gathered inputs for a report on the relationship between human rights and standard-setting processes for new and emerging digital technologies.[86] The Special Rapporteur on the right to privacy considered the treatment of data gathered during the COVID-19 pandemic.[87]

80. UNESCO issued a readiness assessment methodology and ethical impact assessment tool for the recommendation on the ethics of artificial intelligence.[88] The International Federation for Information Processing has a code of ethics and professional conduct for ICT professionals.[89]

81. UNICEF published a global review of children in digital inclusion policies, an assessment of the potential impact of the metaverse on children and guidance on children's rights and online gaming; and is developing guidance on child rights impact assessments for digital businesses and on the design of digital play experiences.[90] Following discussions at UNODC, over 70 countries issued a call to action statement on removing child sexual exploitation and abuse materials online.[91]

82. The Council of Europe published a recommendation on future-proofing human rights protection in the age of artificial intelligence and an overview of artificial intelligence and education.[92] WEF published global principles on digital safety, considering the implications of digitalization for international human rights, and a toolkit for digital safety design, addressing online harms.[93] The 2023 edition of the multi-stakeholder Rights Conference, focused on a rights-respecting digital future, was held in Costa Rica.[94]

(k) International and regional cooperation (C11)

83. The Office of the Secretary-General's Envoy on Technology leads the implementation of the Secretary-General's road map for digital cooperation and supports preparations for the global digital compact, led by co-facilitators appointed by the President of the General Assembly. The Office organized online consultations, including a series of multi-stakeholder discussion forums on key themes.[95] The United Nations issued a policy brief presenting principles, objectives and potential actions to deliver outcomes from the global digital compact, with a view to ensuring an open, free and secure digital future for all.[96] The Secretary-General convened a High-Level Advisory Body on Artificial Intelligence, with the secretariat based in the Office of the Secretary-General's Envoy on Technology.[97]

[86] https://www.ohchr.org/en/calls-for-input/2023/call-inputs-relationship-between-human-rights-and-technical-standard-setting.

[87] A/HRC/52/37.

[88] https://unesdoc.unesco.org/ark:/48223/pf0000381137; https://unesdoc.unesco.org/ark:/48223/pf0000385198; https://unesdoc.unesco.org/ark:/48223/pf0000386276.

[89] https://www.ipthree.org/wp-content/uploads/IFIP-Code-of-Ethics.pdf.

[90] https://www.unicef.org/globalinsight/reports/global-review-digital-inclusion-policies; https://www.unicef.org/globalinsight/reports/metaverse-extended-reality-and-children; https://www.unicef.org/reports/childrens-rights-and-online-gaming.

[91] https://www.unodc.org/unodc/en/justice-and-prison-reform/endvac_egm_csam-removal_june-2023.html.

[92] https://rm.coe.int/follow-up-recommendation-on-the-2019-report-human-rights-by-design-fut/1680ab2279; https://rm.coe.int/prems-092922-gbr-2517-ai-and-education-txt-16x24-web/1680a956e3.

[93] https://www.weforum.org/publications/global-principles-on-digital-safety-translating-international-human-rights-for-the-digital-context/; https://www.weforum.org/publications/toolkit-for-digital-safety-design-interventions-and-innovations-typology-of-online-harms.

[94] https://www.rightscon.org/about-and-contact/.

[95] https://www.un.org/techenvoy/global-digital-compact/intergovernmental-process.

[96] https://www.un-ilibrary.org/content/papers/10.18356/27082245-28.

[97] https://www.un.org/techenvoy/ai-advisory-body.

84. Preparations began for the 20-year review of WSIS, with United Nations agencies working to develop a unified approach, with regular meetings to facilitate collaborative planning. Road maps of preparatory work have been developed by the Commission on Science and Technology for Development, ITU and UNESCO.[98] The open-ended working group on security of and in the use of ICTs 2021–2025, established by the General Assembly in 2020, continued work on building build a common understanding of digital security issues and rules, norms and principles for responsible behaviour among States.[99]

85. The multi-stakeholder forum on science, technology and innovation for the Sustainable Development Goals considered the role of science, technology and innovation, including digital technology, in achieving the Goals. The Capital Development Fund inclusive digital economies scorecard considers countries' progress towards digital transformation.[100] The role of digital technologies in post-pandemic recovery and the revitalization of work to achieve the Goals was discussed at the high-level political forum on sustainable development. An action weekend was held to focus attention on high-impact initiatives in support of the Goals.[101]

86. ITU held its quadrennial World Radiocommunication Conference, addressing revisions to regulations on the use of the radio-frequency spectrum and satellite orbits. The theme of World Telecommunication and Information Society Day 2023 was empowering the least developed countries through ICTs.

2. Implementation of themes

(a) Financing mechanisms

87. The United Nations, in *Financing for Sustainable Development Report 2023*, considered the role of science, technology and innovation and capacity-building, including digital finance and digital inclusion.

88. The World Bank, through Digital Development Practice, focuses on business lines related to broadband connectivity and use, data infrastructure, industry and jobs, safeguards and the potential of digitalization in climate action; issued a report addressing the need for financial commitments to growing digital economies in countries experiencing fragility, conflict and violence; and coordinates the Digital Development Partnership, bringing together public and private sector organizations to leverage digital innovation for sustainable development.[102]

89. The ITU Economic Experts Round Table considered economic and fiscal incentives to accelerating digital transformation.[103] The Joint Sustainable Development Goals Fund, with entities in the United Nations development system, is developing a digital transformation window, to support national-level joint programmes in achieving the Goals.[104]

[98] https://www.itu.int/md/S22-CL-C-0059/en.

[99] A/RES/75/240; https://media.un.org/en/asset/k1o/k1ovl7bhl9#:~:text=The%20Open%2Dended%20Working%20Group,the%20context%20of%20international%20security.

[100] https://www.uncdf.org/article/8473/a-clear-path-for-our-digital-transformation.

[101] https://www.un.org/en/sdg-summit-2023/page/transformative-action.

[102] https://thedocs.worldbank.org/en/doc/b16e2ba1cb754ab47a2dd1b214dd374e-0400062023/original/DigitalDevelopmentBrochure.pdf; https://openknowledge.worldbank.org/entities/publication/4c028cd1-b41c-4f25-988f-ab880f9c6f97.

[103] https://www.itu.int/hub/publication/d-pref-ef-gov_ps-02-2022/.

[104] https://jointsdgfund.org/event/digital-divide-actions-towards-2030-agenda.

(b) Internet governance

90. The Tunis Agenda for the Information Society recognized the need for enhanced cooperation on international public policy issues pertaining to the Internet. The General Assembly has noted the work of the working group on enhanced cooperation of the Commission on Science and Technology for Development and the need for continued dialogue.[105]

91. The eighteenth meeting of IGF was held in Kyoto, Japan, in October 2023, under the theme "The Internet we want: Empowering all people". Over 10,000 stakeholders from Government, business, civil society and the technical community participated in over 300 sessions. High-level panels considered data security, misinformation and disinformation, artificial intelligence, the future of digital governance and digital technologies for accelerating progress towards the Goals. Outcome messages derived from the discussions, addressed issues such as cybersecurity and the impact of digitalization on the environment.

92. The IGF ecosystem includes over 150 national, regional and youth forums.[106] Intersessional work is undertaken by policy networks on Internet fragmentation, meaningful access and artificial intelligence, a best practice forum on cybersecurity and 28 dynamic coalitions formed by diverse stakeholders to explore a range of issues.[107] The Leadership Panel, initiated in 2022, worked to build engagement and financial support and issued a statement on "the Internet we want".[108]

93. The mandate of IGF will be reviewed by the General Assembly in 2025 as part of the 20-year review of WSIS. The nineteenth meeting will take place in Saudi Arabia in 2024.

(c) Measuring information and communications technology for development

94. The Partnership on Measuring ICT for Development brings together 14 United Nations and international entities concerned with data collection and analysis, assesses trends and proposes indicators to improve measurement with regard to the information society; the Partnership considered the need to improve data quality and availability in order to facilitate the monitoring and achievement of the Goals, including additional challenges posed by the rapid evolution of technology.

95. ITU maintains the World Telecommunication/ICT Indicators database, which includes data from over 200 economies, with data on connectivity, usage and prices summarized on the data hub and the digital development dashboard; monitors progress towards achieving the Goals through the Connect 2030 Agenda; and considered data on the least developed countries and the affordability of ICT services.[109] GSMA details mobile connectivity and usage in the annual *State of Mobile Internet Connectivity Report.*

96. The Office of the Secretary-General's Envoy on Technology has established targets to facilitate interventions aimed at achieving universal meaningful connectivity by 2030. ITU and the European Commission have initiated a joint project to support the achievement of this goal.[110] The United Nations Statistics Board issued a methodological guide on the use of mobile telephone data.[111]

[105] A/RES/76/189.

[106] https://www.intgovforum.org/en/content/national-and-regional-igf-initiatives.

[107] https://www.intgovforum.org/en/content/dynamic-coalitions.

[108] https://www.intgovforum.org/en/content/the-internet-we-want.

[109] https://www.itu.int/highlights-report-activities/2018-2022/connect2030/; https://www.itu.int/itu-d/reports/statistics/facts-figures-for-ldc/; https://www.itu.int/hub/publication/d-ind-pol_brief-02-2023/.

[110] https://www.itu.int/hub/2023/04/itu-teams-up-with-european-commission-to-promote-and-measure-meaningful-connectivity/.

[111] https://unstats.un.org/wiki/display/MPDMIS.

97. ITU organized the World Telecommunication/ICT Indicators Symposium under the theme “Advancing the measurement agenda to achieve universal and meaningful connectivity” and held meetings of expert groups on telecommunications/ICT indicators and on household indicators, attended by Government and private sector statistical specialists, to discuss issues such as the measurement of broadband penetration, indicators for ICT skills, e-waste and the outcomes of a pilot study of mobile money.

98. There is growing interest in the monitoring and measurement not only of connectivity and related factors such as affordability, but also of the impact of digitalization in areas such as e-commerce, health and education. The UNESCO Internet universality indicators provide a framework for assessing national Internet environments, with regard to human rights, openness, accessibility and multi-stakeholder participation; national studies are progressing in over 40 countries and revision of the indicators is under way, to take account of recent digital developments. The International Monetary Fund, OECD, UNCTAD and WTO issued the second edition of the handbook on measuring digital trade.[112] UNCTAD published *Measuring the Value of E-Commerce* and coordinates the working group on measuring e-commerce and the digital economy established by the Intergovernmental Group of Experts on E-commerce and the Digital Economy. WTO, in *Global Trade Outlook and Statistics*, provided estimates of exports of digitally delivered services.

IV. Findings and suggestions

99. Nearly 20 years have passed since the two sessions of WSIS established a framework for international action to take advantage of what were then relatively new digital technologies, to address some of the fundamental challenges facing humanity and build a people-centred, inclusive and development-oriented information society. The framework included a declaration of principles setting out the aspirations of the international community for the information society; a plan of action, including targets and goals in critical areas of digital governance, sustainable development and human rights; and new norms for international discourse on these themes, built on multi-stakeholder engagement and cooperation, including IGF.[113]

100. The period since WSIS has seen significant advances in digital technology, in the use of digital networks and services, and in their impact on almost every aspect of social, economic and cultural development. Many of the hopes expressed at WSIS about the future contribution of ICTs have become realities as ICTs have become more pervasive and more capable. Recent developments in digital technology, including rapid advances in artificial intelligence, have raised the prospect that digitalization in social, economic and cultural development will accelerate, with the potential to contribute substantially towards sustainability and the common good.

101. These are exciting prospects, but experience since WSIS has heightened awareness of several factors that need to be addressed if the benefits of the information society are to be maximized. Inclusion and equality are the most important. The goal of enabling everyone to have access to digital resources, leaving no one behind, is far from being achieved. One third of the global population still does not make personal use of the Internet and the value of online resources for many more is restricted by poor connectivity, unaffordability or the lack of digital skills. Digital inequalities both reflect and potentially exacerbate existing inequalities due to gender, geography and opportunity. Much further progress is needed to make the information society people-centred and inclusive.

102. WSIS was broadly optimistic. Along with opportunities, however, the period since WSIS has shown that digitalization leads to new challenges that need to be addressed alongside the opportunities. Growing concern about cybersecurity reflects the abuse of digital networks by cybercriminals and the risk, as digitalization becomes more pervasive in their management, that public utilities, services and democratic processes could be

[112] https://unctad.org/publication/handbook-measuring-digital-trade.

[113] https://www.itu.int/net/wsis/documents/doc_multi.asp?lang=en&id=1161|1160|2266|2267|2316|2369.

undermined by malicious actors. Similar concerns have been raised about the risk of misinformation and disinformation undermining public trust and jeopardizing social welfare. The environmental footprint of digital infrastructure and networks has been growing rapidly, with increased attention paid to the sustainability of digitalization. Concerns in these areas have been heightened by uncertainty about the impact that frontier technologies, including artificial intelligence and quantum computing, will have on future governance, economic norms and social life.

103. The opportunities and challenges of the information society occur within the context of other challenges facing the international community. The period since WSIS has seen major crises in the world economy, including the financial crisis of 2008/09, and in health, due to the COVID-19 pandemic, along with intensified concerns about the threat posed by climate change and geopolitical tensions. These have undermined progress towards achievement of the Goals, and it is critical to maximize the contribution that digital technology makes to bringing progress back on track and building for the future.

104. These global themes will be addressed at the Summit of the Future in 2024 and, as part of the Summit process, the global digital compact is expected to outline shared principles, paying particular attention to digital connectivity and inclusion, governance, human rights, trust and security. Lessons learned from the growing complexity of digitalization and its impact on other aspects of international and public policy, in the period since WSIS, will be critical, drawing on the experience of all countries, all stakeholders and all sectors that are affected.

105. The experience of implementing WSIS goals will be reviewed by the General Assembly in 2025. The 20-year review of WSIS will help the multi-stakeholder community build on the principles in the global digital compact as the world moves towards the target date for achieving the Sustainable Development Goals and absorbs the impact of the new and emerging wave of digital technology. To do so, the review will need to consider how far the world has come from the situation at the time of WSIS, reflecting on what has been achieved and what remains to be accomplished; to assess how digital technologies can help achieve the present public policy goals; and to question how to achieve aspirations for the future and to avoid or mitigate those problems that can be anticipated. The views of all stakeholders, including the United Nations and other international agencies, Governments, the private sector, civil society organizations and experts in digital technology and in other affected fields, will be crucial in building this understanding.