STI FORUM

Science, Technology & Innovation for the Sustainable Development Goals

# Seventh annual Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals

## *Thematic Session 4: Global digital public goods, digitalization, artificial intelligence, and connecting the world by 2030*

**(11:00-12:00 EDT, 6 May 2022)**

**Background**

The 2030 Agenda for Sustainable Development recognizes that the spread of information and communication technology (ICTs) and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies, as does scientific and technological innovation across areas as diverse as medicine and energy. The COVID-19 pandemic has both accelerated the pace of digitalization and widened existing inequalities and it has never been as clear that access to the Internet and frontier platform, data and AI technologies will be essential to achieving the SDGs by 2030.

Despite significant progress on digital connectivity during the pandemic, which saw global Internet usage rise 40 percent during pandemic lockdowns, 2.9 billion people, 96% of whom are in developing countries, have not once accessed the Internet. Billions more have expensive and/or unreliable connectivity constraining the use they can make of it to learn, work, conduct their business or access health, financial or other services. The gender gap in connectivity is yet to be bridged. Digital divides today include not just the divide in Internet access, but also the divide in digital infrastructural capabilities. In order to bridge these divides, the discovery, development, use of, and investment in digital public goods becomes critical. Only then can we fully leverage the potential of digital technology for the SDGs for all. On the industry and productive transformation side, as productivity is essential for recovery, the role of small and medium enterprises and the renewal of their productive capacities will also be essential for development.

Digital technologies (such as frontier platform, data and artificial intelligence technologies, machine learning, internet of things), despite their transformative characteristics, also entail risks and challenges. When data and AI are leveraged for good by ensuring they are safe and beneficial for all, and their value is shared among and within countries, they can rapidly accelerate progress towards all 17 SDGs. For example, machine learning algorithms are able to sift through and interpret massive amounts of data from various sources to carry out a wide range of tasks. They can analyze high-resolution images from satellites, drones or medical scans to improve responses to humanitarian emergencies, help tackle climate change, increase agricultural productivity, or help doctors identify and treat illness. The transformative power of AI and such intelligence technologies, however, also comes with challenges, ranging from issues of transparency, trust and security, privacy and biases, to concerns about displacing jobs and exacerbating inequalities and injustice.

The Secretary-General's Roadmap for Digital Cooperation (June 2019) called for action in eight areas to improve digital cooperation: achieving universal connectivity by 2030 – including specifically supporting efforts to establish a baseline of digital connectivity that individuals need to access the online space; promoting equal access to digital public goods; ensuring digital inclusion for all including the most vulnerable; strengthening digital capacity building; ensuring the protection of human rights in the digital era; supporting global cooperation on artificial intelligence; promoting trust and security in the digital environment; and building a more effective architecture for digital cooperation.

This session will solicit perspectives and ideas from scientific and technical communities on progress, challenges and solutions in a number of these areas - ***global digital public goods, digitalization, artificial intelligence, and connecting the world by 2030*** - which are also addressed and built on in proposals for how to improve digital cooperation in the Secretary-General's Our Common Agenda report (September 2021) as part of his vision on the future of global cooperation and to reinvigorate inclusive, networked, and effective multilateralism. The proposals include a multistakeholder digital technology track in preparation for a Summit of the Future to agree on a Global Digital Compact.

In General Assembly resolution A/RES/76/189 on Information and Communication Technologies for Sustainable Development, UN Member States took note of the recommendations of the Secretary-General in the Our Common Agenda report "to improve digital cooperation, with a view to bridging digital divides and accelerating the positive contribution that digital technologies can play in society, including towards achieving the 2030 Agenda for Sustainable Development". The support of many Member States for a Global Digital Compact and for multistakeholder consultation on the proposal, including with the scientific and technical community, was expressed in a recent thematic discussion convened by the President of the General Assembly.

**Objectives**

This session will focus on global digital public goods, the role of pervasive digitalization and artificial intelligence trends, and what it will take to fully connect the world (people and things). The session will address three main areas:

- Building vibrant and inclusive innovation ecosystems around digital public goods, their provisioning and governance, creation of innovation ecosystems, and the role of development financing in building infrastructural capacities of developing countries to leverage digital public goods. Examples and good practices of digital public good innovations that have emerged during the COVID-19 pandemic to tackle inequalities particularly in access to good quality healthcare, education, and finance, will be discussed.
- Bridging the digital divide in connectivity and digital infrastructural capacities. The session will address current baselines and aims for digital connectivity, along with exploring specific pathways to achieving universal access to connectivity and foundational platform, data and artificial intelligence infrastructure. The spotlight will also be on how the Technology Facilitation Mechanism (TFM) can address the unique STI challenges faced by developing countries in this data moment.
- Addressing key issues of international coordination, collaboration and governance in the sphere of digital technologies and exploring how we can build on the proposals made in the Secretary-General's reports titled *Road map on for digital cooperation: implementation of the recommendations of the High-level Panel on Digital Cooperation* and the *Our Common Agenda*.

**Format**
The session will be structured as a moderated panel discussion.

**Guiding questions**
The discussion will be guided by the following questions:

- What is universal and meaningful connectivity? What is needed for closing global technology divides post-COVID? What is the role of digital public goods?
- How can we safely and effectively turbo-charge ICTs, including frontier, platform, data and AI technologies, for the SDGs so they can benefit all while minimizing risks and challenges?
- How can we scale up discovery, development, use of, and investment in digital public goods to accelerate implementation of the SDGs? What directions for provisioning, governance, and creation of innovation ecosystems around digital public goods will be most effective in catalysing democratic innovation? What is the role of development financing in digital public goods and digital infrastructure creation?
- What lessons can be learned from efforts in progress, such as in follow up to the Secretary-General's Roadmap on Digital Cooperation, to strengthen and build digital cooperation in the areas addressed in this session?
- What is the role of the Global Digital Compact, as proposed by the United Nations Secretary-General in his report title Our Common Agenda? What kind of institutional arrangements can support a rights- and development-based Global Digital Compact?
- What global partnerships could be explored or further expanded within the context of SDG 17?

**Supporting documents/publications**

- Report of the Secretary-General: Road map for digital cooperation: implementation of the recommendations of the High-level Panel on Digital Cooperation (June 2019)
- Secretary-General's report titled Our Common Agenda (September 2021)
- UN AI Actions (September 2021)
- Digital Public Goods Alliance – Five-year strategy
- UNCTAD Digital Economy Report 2021
- Standards & Digital Transformation: Good Governance in a Digital Age
- COVID-19 Implications & Responses; Digital transformation and industrial recovery (UNIDO)
- TFM findings on the impacts of rapid technology change on the SDGs (IATT, May 2021)
- IATT report for the STI Forum: "Emerging science, frontier technologies, and the SDGs – Perspectives from the UN system and science and technology communities" (IATT, May 2021)
- UN Technology and Innovation Report (UNCTAD, 2021)
- Commission on Science and Technology for Development: Harnessing blockchain for sustainable development: prospects and challenges (March 2021)

The following science-policy briefs have been prepared by TFM stakeholders in support of this session (see also https://sdgs.un.org/tfm/STIForum2022 and IATT report 2022).

- On digitalisation, AI and robotics

- *Digital Public Goods for an Inclusive Digital Future: A Roadmap Towards 2030*, by Anita Gurumurthy, Nandini Chami and Tanay Mahindru (IT for Change)
- *Strike Mission: El Salvador, Blockchain Technology, and Sustainable Development*, by Daniel Cooper (California State University San Marcos, U.S.A) and Nina Kruglikova (University of Oxford, U.K.)
- *TinyML: Applied AI for Development*, by Marco Zennaro, ICTP/UNESCO; Brian Plancher, Harvard University; Vijay Janapa Reddi, Harvard University
- *Metaverse for UN SDGs – An Exploratory Study*, by Amjad Umar (Harrisburg University of Science and Technology and ICT4SIDS)
- *Beyond a black-box approach to artificial intelligence policy – a simple guide to definitions, functions and technology types*, by Richard A Roehrl (DESA).
- *Towards a New Social Contract: Reducing Inequalities through Digital Public Goods and Youth Collaboration for the Sustainable Development Goals*, by Mauricia Abdol Tshilunda, Mohammad Atif Aleem, Eileen Cejas, Marta Galambos, Fernando García, Aleksandra Ivankovic, Victoria Lovins, Oumaima Makhlouk, Elliott Mann, Tristan Norman, Juliana Novaes, Aoife O'Mahony, Carolina Rojas, Gustavo Souza (Youth Coalition on Internet Governance; UN Major Group for Children and Youth; Science-Policy Interface Platform; and DESA)

- On data systems, big data and remote sensing
  - *Big Data and A.I. for the SDGs: Private corporation involvement in SDG data-driven development, policy and decision-making*, by Ciarán O'Brien (UCD Centre for Sustainable Development Studies)
  - *Digital technologies to empirically measure the underpinning of public goods in each locality,* by Alexander Dill (World Social Capital Monitor)
  - *Democratizing Data: Insights and Lessons on Standardization and Interoperability as a Foundation for Humanitarian Action*, by Oscar Maria Caccavale, Valerio Giuffrida, Anna Ong and Nynne Warring (World Food Programme, Research, Assessment and Monitoring Division)
  - *Realising the Potential of Space-Based Data and Services for Sustainable Development*, by Xing Yi Ang and Luc St-Pierre (OOSA)
  - *Indigenous Knowledge Research Infrastructure (IKRI): A Tool to Achieve Sustainable Development Goals and Lessons from the COVID-19 Pandemic*, by Milind Pimprikar (CANEUS); Myrna Cunningham and Gabriel Muyuy (FILAC); Simonetta Di Pippo and Shirish Ravan (OOSA)
  - *Structuring indicators for the development of a smart city plan*, by Rafael de Lima, Valdemiro da Rocha Júnior, Felipe Teixeira Dias, Manoel Honorato Filho, José Baltazar Salgueirinho Osório de Andrade Guerra (University of Southern Santa Catarina, Brazil); and Robert Samuel Birch (University of Liverpool, UK)
  - *Lessons learned about the effect of reduced anthropogenic activities on water quality in a large lake system and opportunities towards sustainable management*, Gemma Kulk (Plymouth Marine Laboratory, UK), Grinson George (ICAR-Central Marine Fisheries Research Institute, India), Anas Abdulaziz (CSIR-National Institute of Oceanography, India), Nandini Menon (Nansen Environmental Research Centre, Kerala University of Fisheries and Ocean Sciences, India), Varunan Theenathayalan (Plymouth Marine

Laboratory, UK), Chiranjivi Jayaram (Indian Space Research Organisation, India), Robert J. W. Brewin (University of Exeter, UK), Shubha Sathyendranath (Plymouth Marine Laboratory, UK)

- On digitalisation and gender
    - *Replicating Gender Bias from Above: Earth Observation, Machine Learning and SDG 5*, by Anthony Deen, Mateo Rojas Guerrero, Juan Enrique Bonilla Morales, Zinnya del Villar (Data-Pop Alliance)
    - *Encoding Digital Technologies for a Feminist Social Contract*, by Anita Gurumurthy, Anuradha Ganapathy, Nandini Chami (IT for Change, India)
    - *Leveraging online advertising data for measuring the Sustainable Development Goals: applications for gender gaps and SDG5*, by Reham Al Tamime, Masoomali Fatehkia, and Ingmar Weber (Qatar Computing Research Institute, Hamad Bin Khalifa University), Ridhi Kashyap (University of Oxford)