

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

## *Thematic Session 1: Strengthening trust in science and technology*

**(12:00-13:00 EDT, 3 May 2023)**

### **Background**

While science, technology and innovation are producing ever more efficient solutions to numerous global challenges, distrust towards scientific information and new technological products has been growing. In some cases, information pollution is affecting the citizens' and policy makers' capacity to make informed decisions. Disinformation and misinformation, together with the growth of hate speech and propaganda, especially online, are inciting social divisions and creating mistrust in public institutions. This "infodemic" plaguing our world can only be tackled by defending a common, empirically backed consensus around facts, science and knowledge. In other cases, malicious use of new technologies and the challenges related to them are causing well placed concerns about the pace of technological change and lack of associated governance structures. Here, ethical frameworks and strategies, legal frameworks and regulations are needed to ensure citizens trust in new technologies, but also to ensure that these emerging technologies benefit humanity as a whole.

Trust in technology is a complex and multifaceted issue that concerns both developed and developing countries and building trust in technology is a long-term process that requires substantial investment in education and capacity building, infrastructure, and policy frameworks that prioritize transparency, privacy, and security. As reliance on digital networks and technologies accelerates, the trust gap towards technologies grows every year. The rise of emerging technologies has huge potential, but it also deepens worries about the future of work, the sustainability of established businesses, the spread of cyber-criminality, and the weaponization of data. Despite the clear benefits of the use of emerging technologies for everyday life and socioeconomic development in the era of the digital economy, technology innovations have also been increasingly questioned for their uneven impact on the economy and society.

The COVID-19 pandemic clearly demonstrated the importance and potential of science and technology to address mankind's shared challenges, including by having vaccines developed at record-speed and highlighting the significance of the digital economy, which played an important role of macroeconomic stabilizer during COVID-19 and allowed continued access to essential public services. At the same time, the pandemic has also highlighted the need to foster trust in science and technology as an essential basis for swift and effective policy actions. If people do not trust scientific information or advice, it hampers the contributions of science at best, and sidelines them at worst. In this spirit, the United Nations Secretary-General called for an end to the "war on science" in his report titled *Our Common Agenda* (2021). The report stresses that all policy and budget decisions should be backed by science and expertise and calls for a global code of conduct that promotes integrity in public information.

One institutional tool for enhancing trust in science are the scientific advisory commissions, science academies, and committees. These commissions are often responsible for evaluating scientific evidence and providing recommendations on various issues related to science and technology. By providing independent and objective assessments of scientific evidence, scientific commissions help to ensure the accuracy and reliability of scientific findings. This helps to build trust in the scientific process and the validity of research findings. Furthermore, scientific commissions are often composed of experts from

various disciplines and backgrounds, ensuring a diverse perspective and preventing bias. This diversity helps to strengthen the credibility of the scientific process and the trustworthiness of scientific findings.

Another tool for enhancing credibility of science and increasing science diplomacy is open science. When scientific research is conducted in a transparent and collaborative manner, it can enhance the credibility of scientific findings and promote greater confidence in scientific conclusions. Open science practices such as publishing in open access journals, making research data and protocols publicly available, can help to facilitate the scrutiny and critique of scientific peers and reproducibility of scientific findings, thereby increasing the transparency and accountability of the scientific process. Open science also promotes greater collaboration between researchers from different disciplines, institutions, and countries, and can foster innovation and creativity in scientific discovery. The UNESCO Recommendation on Open Science was adopted by the General Conference of UNESCO in November 2021. The Recommendation affirms the importance of open science as a vital tool to improve the quality and accessibility of both scientific outputs and scientific process, to bridge the science, technology and innovation gaps between and within countries and to fulfill the human right of access to science.

In addition to open science, direct public engagement with, and participation in, scientific processes and innovation, can potentially enable greater trust in science and technology. Citizen science and opportunities for the public, including indigenous peoples and local communities, to engage directly with scientific information and develop their own views on the credibility of scientific information can enhance scientific findings but also encourage mutual learning between science and society. This is also referred to as knowledge co-creation that facilitates co-ownership and adoption of new innovations and technologies. Citizen participation in innovation, including in prototyping, testing, evaluating new technologies, can also improve trust and legitimacy of the innovation process.

Individuals have an expectation that new technologies will protect all stakeholders' interests and uphold societal expectations and values. To ensure this, proper institutional arrangements and regulatory frameworks should be in place to support sustainable and ethical technological development and use. Developing countries, especially least developed countries, may need capacity building support to undertake foresight and technological assessment initiatives to better understand the socio-economic and environmental implications of new technologies, as well as to engage effectively in international standards setting and regulation of technology to guide technology adoption so as to leave no one behind.

New sources of data and information can both rouse distrust and build shared understanding and accountability. Innovative technological solutions can also be used to ensure that the public have access to information and that there is shared accountability towards joint agreements. For example, satellites can play an integral role in accomplishing what is pledged in internationally agreed frameworks. Satellites can guarantee a fully global coverage, and as they collect comparable, reliable and impartial data, this allows the global community to track changes over time and develop tailored solutions for global concerns. Access to such information and data can be helpful in building general public's trust in intergovernmental processes and utilization of new scientific and technological solutions.

## **Objectives**

This session will take stock of the overall global picture and critically explore specific recent cases to answer the question of how stakeholders can work together to jointly build trust in science and technology, to tackle misinformation, and to explore how the science-advisory systems across the UN system, governments, civil society and private sector could work together in a more effective way.

The session will address one of the key mandates of the STI Forum, namely the science-policy interface, and demonstrate the value of robust scientific facts and understanding for policy-making and related actions. Speakers will also discuss the impact of distrust in technology on economic development and social inclusion in developing countries.

### **Format**

The session will be structured as a moderated panel discussion.

### **Guiding questions**

The discussion will be guided by the following questions:

- How can different stakeholders work together to build trust in science and technology?
- What is the role of science commissions and other similar institutional arrangements in ensuring that decision-making is evidence-based?
- What are the lessons learned for the scientific community from the COVID-19 pandemic regarding ways in which scientific results are communicated? How to balance the need for certainty with urgency to act, and how to better communicate uncertainty?
- How can open science and civic participation enhance scientific findings, technological innovation and people's trust in them?
- What role can governments and the international community play in building trust in science and technology? How can international cooperation be promoted to address distrust and ensure that science and technology benefits all people?
- What are some examples of successful initiatives that have helped build trust in technology in developed and developing countries and what lessons can be learned from them? What capacity gaps need to be addressed to enhance trusted, regulated, sustainable and equitable technology adoption and use?
- What is the role of new sources of data and information, such as space-based data and satellite imaging, private sector data and citizen-generated data in building trust in science and information? How can concerns over data privacy, security, reliability be addressed?

### **Supporting documents/publications**

- UNESCO Recommendation on Open Science, 2021  
<https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en>
- UNESCO Recommendation on the Ethics of Artificial Intelligence, 2021  
<https://unesdoc.unesco.org/ark:/48223/pf0000381137>
- UNESCO Recommendation on Science and Scientific Researchers, 2017,  
<https://unesdoc.unesco.org/ark:/48223/pf0000263618>
- [UN Technology Bank for the Least Developed Countries \(2022\). The state of science, technology and innovation in the LDCs](#)

The following *science-policy briefs* have been prepared by TFM stakeholders on emerging science and technologies (will also be made available here: <https://sdgs.un.org/tfm/STIForum2023>):

- Sheng Wu, Innovative Digital Public-Private Partnership from Pandemic Response to Resilient Recovery, United Nations University, Portugal
- María Cecilia Sanmartin et al., Between regional convergence, and locally rooted technological and cultural aspects: lessons from the case of COVID-19 vaccines in Latin America, Universidad de San Martín and CONICET, Argentina
- Natalie Harms et al., Bridging science and policy for evidence-based action on plastic pollution in the East Asian Seas and beyond, UNEP, Thailand
- International Federation of Library Associations and Institutions, A Permanent Science-Policy Interface: Realising the Potential of Libraries to Integrate Science into Policy-Making, the Netherlands
- Sarosh Nagar, Lessons for SPIs from Novel Developments in Emerging Biotechnologies, Harvard University, United States
- Alma Cristal Hernandez Mondragon et al, The possibilities for improving science-policy-society interfaces through training programs, Centro de Investigación y de Estudios Avanzados del IPN and Centro de Estudios de Derecho e Investigaciones Parlamentarias, Mexico
- Alexander Dill, Science shift to supporting the SDGs, Basel Institute of Commons and Economics, Switzerland
- Franklin Carrero-Martínez et al., Operationalizing Sustainable Development: Positive Case Studies for Improving the Science-Policy-Society Interfaces, The National Academies of Sciences, Engineering, and Medicine, United States
- Luisa Echeverría-King et al., Science in Latin America: towards public policy proposals focused on the development of international cooperation, Corporación Universitaria del Caribe, Colombia
- Josefina Moya et al, Iniciativas y desafíos para el fortalecimiento del Asesoramiento Experto en política en los Poderes Ejecutivo y Legislativo, Facultad Latinoamericana de Ciencias Sociales, Argentina
- Willem Fourie et al., Using machine learning to improve the science-policy-society interface on the SDGs in South Africa, University of Pretoria, South Africa
- Khalid Mahmood, Primary & secondary education syllabus to be revised based on current Science & Technology requirements of SDGs, University of Engineering and Technology, Lahore, Pakistan
- Jaako Kuosmanen et al., Science Sparring: An Emerging Science-for-Policy Interaction Model for Systemic Policy Issues, Finnish Academy of Science and Letters, Finland
- Dang Thu Giang, Linking science and technology tasks from the state budget with the implementation of sustainable development goals in Vietnam: Efforts and future actions, Ministry of Science and Technology, Viet Nam
- Dorothea Kleine, A human-centred approach to innovation to accelerate progress towards the SDGs, University of Sheffield, United Kingdom
- Catarina Baptista et al, Bridging the science-policy-society gap for water management: lessons learnt from the G-STIC international conferences, VITO, Belgium
- Pete Furlong et al, Technology and Geopolitical Crisis – A New Compact for a New World Order, Tony Blair Institute for Global Change, United States

- Rachel Figard et al., STEM Education's Misalignment to Proactive Accessible Design, Arizona State University, United States
- Lorena Lamas, Gender lens into STI policies to effectively address socio-economic development challenges, UN Women, Uruguay
- Tommaso Ciarli et al, Steering science, technology and innovation towards the Sustainable Development Goals, University of Sussex, United Kingdom
- Carolina Rojas et al, Mobilizing and equipping the technical workforce for the SDGs through platforms for interdisciplinary and multi-stakeholder collaboration, Engineering for Change, Panama