

HARNESsing SCIENCE TECHNOLOGY AND INNOVATION FOR SUSTAINABLE DEVELOPMENT



Secretary-General Opens Internet Governance Forum
- Photo Credit: UN Photo/Tobias Hofsäss

In 2019-2020, UN DESA continued its leadership in harnessing science, technology and innovation for sustainable development and governance.

UN DESA...

- Coordinated across more than forty UN system entities for joint analysis and capacity building around science, technology and innovation for the Sustainable Development Goals (STI for the SDGs).
- Mobilized record participation at the Internet Governance Forum for community-shaped messages and best practice dissemination around issues such as cybersecurity and digital inclusion.
- Analysed the implications of COVID-19 for science-policy advisory systems and showcased technology solutions to the pandemic.
- Focused the biennial United Nations E-Government Survey on local governments and on use of digital instruments by national governments to respond to the pandemic.
- Strengthened multi-faceted and multi-stakeholder analysis and dissemination of impacts of emerging/frontier technologies on sustainable development.

Harnessing science, technology and innovation for sustainable development

UN DESA plays a global leadership role in advancing cooperation at the science-policy-society interface, and in multi-stakeholder engagement on science, technology and innovation for the SDGs, areas of work established through the Rio+20 conference and the 2030 Agenda for Sustainable Development. This on-going engagement across multiple entities, disciplines and stakeholders, aimed at enhancing trust and capacity in STI, is proving particularly valuable during the ongoing global COVID-19 pandemic.

Mobilizing multi-stakeholder collaboration on science, technology and innovation for the SDGs

UN DESA, together with UNCTAD, brings together 44 entities across the UN system to advance STI for SDGs through the United Nations Interagency Task Team on Science, Technology and Innovation for the SDGs (IATT). The Task Team prepares regularly updated briefs on the impact of emerging technologies on the SDGs, including ethical and normative issues, and provides guidance to countries for developing STI roadmaps for the SDGs.

While the annual multi-stakeholder STI Forum was deferred due to COVID-19, webinars, virtual expert dialogues and surveys have engaged various stakeholders from across the world. In 2020 an innovation challenge competition attracted several hundred applicants with winners featured in an online exhibition. Developed in partnership with the Global Innovation Exchange, the challenge featured innovations that emphasize concrete action and transformative results, particularly through one or more of the six entry points for transformation identified in the **Global Sustainable Development Report**. In addition, an expert dialogue in February 2020 highlighted new areas for science-policy-society collaboration such as norms for open science, fighting misinformation, building

public trust and ensuring universal access to global public goods such as vaccines.

In response to the urgent need for policy and good practices for addressing the impacts of the COVID-19 pandemic, UN DESA leveraged its analytical capacity to produce a policy brief on the science-policy-society interface in COVID-19 response. A weekly blog series, *Dispatches from the field*, featuring UN DESA-affiliated scientists and experts, further showcased technology-based strategies for combatting COVID-19. Webinars and virtual expert dialogues continued to mobilize stakeholders to identify collaborative STI solutions for the SDGs. Key recommendations and commitments developed through these initiatives and consultations were presented at the 2020 High-level Political Forum (HLPF) in July 2020 and other high-level UN conferences.

Supporting global cooperation on internet governance

More than 3,500 in-person and 3,000 online delegates came together at the 14th Annual Meeting of the Internet Governance Forum (IGF), hosted by the Government of Germany in Berlin, in November 2019. Participants included a record number of national parliamentarians



UN Secretary-General and German Chancellor at the IGF 2019 Opening Ceremony. - Photo Credit: UN Photo/Tobias Hofsäss

and delegates from the Global South. Convened under the theme, *One World. One Net. One Vision*, the IGF provided a multi-stakeholder platform for exchanging good practices and discussing issues around digital policy. The event saw the UN Secretary-General and the German Chancellor both call for the Internet to be used as a global commons, while respecting human rights and guaranteeing inclusion. The meeting resulted in community-shaped messages on cybersecurity, data governance and digital Inclusion, as well as output documents outlining best practices on cybersecurity, gender and access, local content, big data, Internet of Things and artificial intelligence. As Secretariat of the IGF, UN DESA has begun preparations for the 15th annual IGF meeting to be held in 2020. Inputs are being received for each of its four thematic tracks: data, environment, inclusion and trust. The Forum will explore practices to foster participation of vulnerable groups, including women and youth.

Assessing e-government for sustainable development

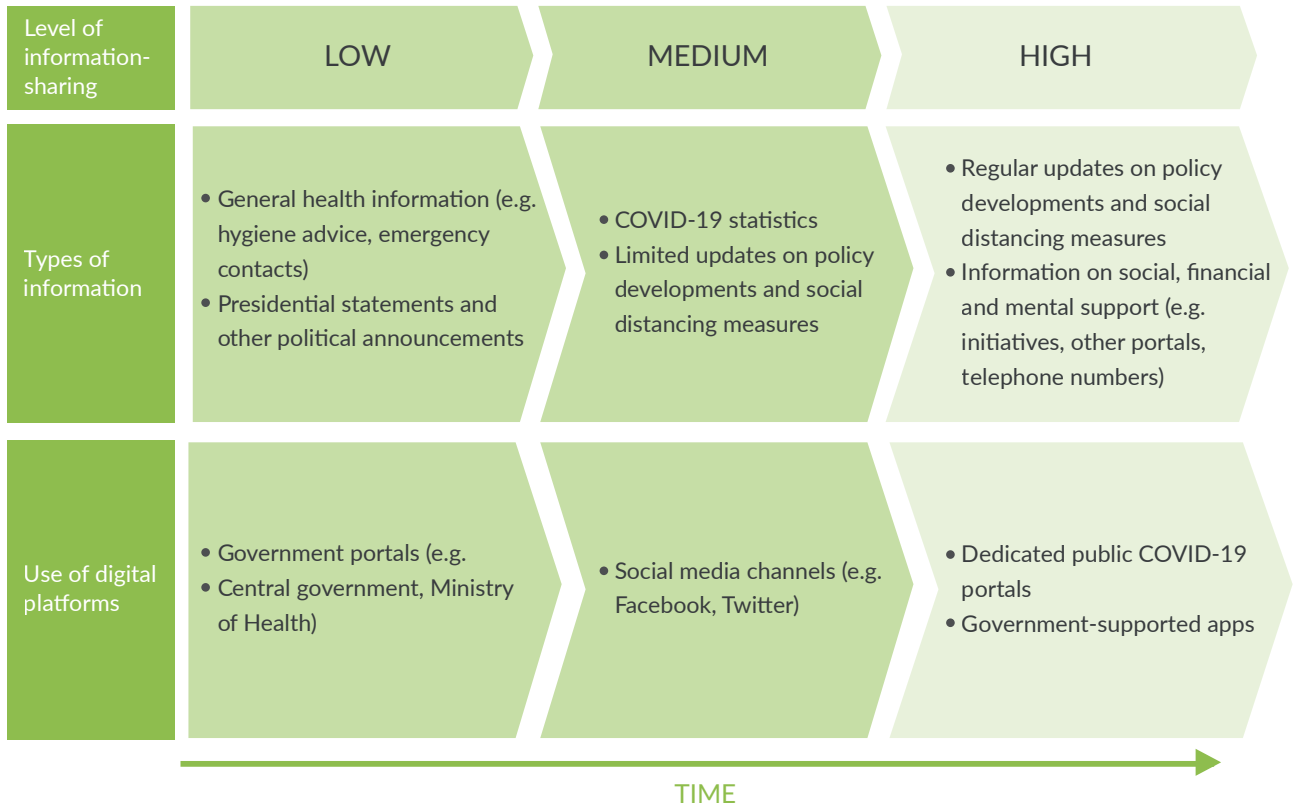
The biennial **United Nations E-Government Survey** presents a systematic data-driven assessment of digitalization in transforming the public sector by enhancing its efficiency, effectiveness, accountability, inclusiveness, trustworthiness and supporting people's participation and engagement. By collecting primary survey data and studying broad patterns of e-government around the world, the Survey comparatively ranks the e-government development status of the 193 United Nations Member States. The 2020 edition of the Survey analyses the increasingly central role of e-government in connection to the everyday lives of people, focusing particularly on local governments' services, e-participation and the generation and use of data in e-government. It examines digital government trends globally and regionally, and with respect to capacity development and digital transformation.



An Addendum provides a timely analysis of the digital responses of countries to the COVID-19 pandemic. In general, governments increased their level of information-sharing as the pandemic progressed in their countries, including through using more social media channels to report on COVID-19 statistics, national policy updates and information on where people can receive social, financial or mental health support.


Capacity-building activities have built on the findings of the E-Government Survey. For example, the Development Account project on “Evidence-based e-government policies for advancing governmental service delivery and accountability in support of the Sustainable Development Goals” was implemented in LDCs to enable governments to grow and leverage their e-government capacity. The project supported initiatives such as Bangladesh’s Access to Information (a2i) initiative, and Ethiopia’s reform of its ICT Ministry into the Ministry of Innovation and Technology.

INCREASING E-GOVERNMENT INFORMATION SHARING DURING COVID-19



Reviewing frontier technologies

UN DESA's quarterly review of frontier technologies examines the implications of frontier technologies for sustainable development. The quarterly review has covered a rich range of topics, including exploring how technologies such as nanotechnology and genetic modification can help deal with plastic pollution, and how the rapidly expanding sharing economy shows little signs of delivering fair and equitable welfare gains. These reviews stimulate broader discussions to help guide effective, evidence-based policymaking, and inform contributions to other workstreams and interagency efforts across the UN system, including the **2020 Financing for Sustainable Development Report** and the UN Economists' Network (UNEN) 75th Anniversary Report on megatrends.


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FRONTIER TECHNOLOGY QUARTERLY
FRONTIER TECHNOLOGIES FOR ADDRESSING PLASTIC POLLUTION

The severity of plastic pollution is now well recognized, and scientists and communities are looking for innovative solutions for addressing this menace of the modern age. This issue of the *Frontier Technology Quarterly* shows that new technologies such as nanotechnology, genetic modification and advanced chemical processes can help curb plastic pollution by developing biodegradable and producing more biodegradable plastics. However, appropriate policies are needed to maximize the potential of new technologies for winning the fight against plastic pollution. Interventions at the production stage will have to be complemented by interventions at other stages of the plastic life cycle, including its unregulated disposal, where frontier technologies can play equally important roles.

THE PLASTICS THREAT

Plastic pollution has emerged as the second most serious threat to the global environment, after climate change. The annual production of plastic has increased from 1.7 million metric tons in 1950 to 342 million metric tons in 2018 (Figure 1). More than eight billion tons of plastic have accumulated on earth. Plastics have become an ubiquitous material that some have characterized the current stage of human history as the "Plastics Age."

The huge and rapidly rising volume of plastic is harming the environment and human health. This is because most of the plastic produced and accumulated so far are non-biodegradable. Where plastic is disposed in landfills, it



Seas Debris in the Seven Seas for One Ocean (SDO)

Can't remember the last time you saw a dead marine animal, when they were in plastic? The answer was a laboratory for fish to eat and for birds to swallow.

World Economic and Social Survey 2018 Frontier Technologies for Sustainable Development is a flagship publication of the UN system that provides a global overview of frontier technologies and their development impacts. Edited by the Deputy Assistant Secretary-General for Economic Analysis and Policy Studies, it highlights the work of the staff in quarterly reviews of Frontier Technologies. The series covers almost all specific aspects of a new technology, including challenges, policy options—and emerging, if any, social, marketing policy research in UN DESA and beyond.

Abdul Hakeem, Senior Program and John Stein authored the Frontier Technology Quarterly under the supervision of Haniya Rashid, Chief of the Development Research Branch, Economic Analysis and Policy Division of UN DESA. Krishna Reddy, Harish Alankar, Manoj Kumar, Manoj Kumar, Manoj Kumar, and Anil Choudhary provided general comments on the draft. Research support was provided by Haniya Rashid. The views and opinions expressed herein are those of the author and do not necessarily reflect those of the United Nations Secretariat.

Figure 1
Global primary plastics production according to industrial sector from 1950 to 2018 (in million metric tons)

Source: UN Department of Agriculture, <http://www.fao.org/faostat>, a production and use generally reported over the 1950-2018 period.

