

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION  
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

**Geneva, Switzerland  
7-8 November 2019**

Contribution by USA

to the CSTD 2019-2020 priority theme on “Harnessing rapid technological change  
for inclusive and sustainable development”

**DISCLAIMER:** The views presented here are the contributors’ and do not necessarily reflect the views and position of the United Nations or the United Nations Conference on Trade and Development

## CSTD 2019-2020

### Submission by the United States Government

#### **Theme 1: “Harnessing rapid technological change for inclusive and sustainable development.”**

*As you are aware, the CSTD 22nd annual session selected “Harnessing rapid technological change for inclusive and sustainable development” as one of the priority themes for its 23rd session (2019-20 period).*

*We live in a time of growing prosperity alongside growing concerns about inequality. Recent developments in frontier technologies (e.g. AI, robotics, big data, blockchain, space technologies, biotechnology, and nanotechnology) have shown tremendous potential for making development truly sustainable, but they also have raised fears of increasing disparities by worsening and creating new divides between the technology-haves and have-nots. This priority theme will critically examine how to make frontier technologies work for all. The analysis will explore the potential of frontier technologies to improve inclusiveness not only in terms of income, gender, various age groups, people with special needs or other groups facing specific challenges, but also to improve the situation of small economies including Least Developing Countries, Landlocked Developing Countries, and Small Island Developing States. The analysis will focus on the strategies, policies and immediate actions at national and international levels for creating an environment for harnessing frontier technologies to ensure that no one is left behind.*

*The CSTD secretariat is in the process of drafting an issues paper on the theme to be presented at the CSTD inter-sessional panel meeting. In this context, we would like to solicit inputs from the CSTD members on this theme. We would be grateful if you could kindly answer the following questions based on your experience from your country or region.*

*1. From the perspective of your country/region, what is the role of the government in creating the ecosystem for innovation on frontier technologies for inclusive and sustainable development? What are the most effective ways to support the improvement of skill levels and better match the supply and demand of skills? What is the role of the government in facilitating a fair relation between workers and employers in the digital economy? What are the current options and lessons learned from policies to protect people affected by rapid changes in labour markets (e.g. greater benefits for those whose jobs are destroyed, retraining, federal job guarantee)? What is the role of redistributive policies to ensure that no one is left behind in a world of rapid technological change?*

The United States economy and national security benefits from a healthy science, technology, and innovation ecosystem. Studies and written accounts are publicly available exploring how these ecosystems formed and operate in U.S. technology centers, and many examine roles of government. Key characteristics of the U.S. Government approach to innovation include: avoiding ex-ante policies or regulations that stifle innovation or stigmatize new technologies, providing federal funds for S&T research and development, encouraging public-private partnerships and multi-stakeholder participation in technology development, establishing pro-competitive policies and keeping barriers to new market entrants low, protecting consumers,

## CSTD 2019-2020

### Submission by the United States Government

promoting interoperability, ensuring enforceability of business-related laws, and creating a predictable environment for investment.

President Trump has said, “We’re on the verge of new technological revolutions that could improve virtually every aspect of our lives, create vast new wealth for American workers and families, and open up bold, new frontiers in science, medicine, and communication.” The United States values the strength provided by a decentralized scientific ecosystem—rather than imposing top-down scientific directives. That is not to say that there is not value in providing a strategic vision. In 2018, the U.S. government released an Executive Order on Artificial Intelligence and the National Quantum Initiative Act. We reestablished the Space Council. The U.S. National Security Strategy includes science and research as key components of our national and economic security. Furthermore, the United States increasingly recognizes that greater cross-border coordination can help to accelerate discoveries and the application of frontier technologies.

There may be direct opportunities for governments to manage the social impacts of technological change, such as training and job transition assistance. For example, the U.S. Department of Labor runs the Trade Adjustment Assistance Program, which seeks to provide adversely affected workers with opportunities to obtain the skills, credentials, resources, and support necessary to (re)build skills for future jobs. When providing these opportunities, care should be taken regarding the design of incentives. Poorly considered policies may disincentivize local or foreign investment, or both. Redistributive policies will depend on local conditions as they are political, but should always be transparent.

*2. Can you provide examples of STI policies/projects/initiatives intended to promote and give directionality to technological change to make it work for inclusive and sustainable development? Are there policies/projects/initiatives that mitigate the potential negative effects of rapid technological change on inequality? Are there any of these policies/projects/initiatives directed to women, youth, people with special needs or other groups facing specific challenges? How have the policies targeted inequalities? What are the challenges confronted in implementing these policies/projects/initiatives?*

Among the first bills signed by President Trump included legislation promoting women recruitment in the NASA workforce and the inclusion of issues related to Women in Science in the National Science Foundation’s innovation and commercialization programs.

In general, the United States seeks to train a technology-empowered workforce, including by empowering women and youth. We look to promote apprenticeships, reskilling, STEM education, and digital skills. Additionally, the United States invests significantly toward women entrepreneurs throughout the world. The White House in conjunction with U.S. Departments of State and Commerce, Overseas Private Investment Corporation (OPIC), Agency for International Development, and others coordinate global entrepreneurship engagements regularly, including the signature Global Entrepreneurship Summit (GES), which has included the theme of “Women First, Prosperity for All.” The Department of State’s [GIST](#) initiative encourages women in

## CSTD 2019-2020

### Submission by the United States Government

emerging economies to create science and technology businesses, and the [OPIC](#) provides investments to projects supporting women entrepreneurs in developing countries. The [Women's Global Development and Prosperity Initiative](#) also empowers women so that they may re-invest in their families and their communities.

The United States is committed to building a capable STEM workforce through investment in STEM education. America's Strategy for STEM education focuses on building strong foundations for STEM literacy, increasing diversity, equity, and inclusion in STEM, and preparation of the STEM workforce for the future. This strategy implements four pathways to reach its goals: develop and enrich strategic partnerships, engage students where disciplines converge, build computational literacy, and operate with transparency and accountability.

Promoting STEM education among underrepresented groups, the U.S. Geological Survey (USGS) Secondary Transition to Employment Program connects USGS scientists with young adults with cognitive and other disabilities (ages 18-22), who are enrolled in workforce training programs. These young adults enjoy and excel at repetitive and routine tasks that are data- and detail-oriented. They have processed over 90,000 wildlife time-lapse images, scanned over 517,000 bird banding lab sheets, and supported other data preservation projects further described in [this article](#). One student alone delineated in ArcGIS (geographic software) the footprints of over 18,000 oil, gas, and other well pads in the Williston Basin—a contribution so substantial that he was named a co-author on a paper and was eventually hired by USGS. Private initiatives are also important in engaging and meeting needs of underserved or disadvantaged groups. For example, [Byte Back](#) is one example of a local digital literacy/computer certification program to help low-income/unemployed people improve their skills and find jobs. Another local example is the SPARK tech program, which runs summer camps for DC schoolchildren to teach digital literacy and computer skills like web design. At the national level, [Girls Who Code](#) runs clubs, camps, and courses to encourage young girls to learn computer skills and pursue computer science careers.

NASA is advancing these objectives by providing student learning opportunities and experiential work assignments during the school year and over summer breaks. These include internships, fellowships, and student “challenges,” contests, and competitions. NASA is also providing support to educators and university faculty by providing direct financial support where possible, and access to NASA science and technology personnel and facilities. STEM Education Conferences and experiential activities are an important part of NASA's approach to STEM Engagement.

The United States has also been a champion for promoting women in STEM as a vital component in reaching full scientific, economic, and social potential of any country. To this end, we have initiated the development of Women in STEM principles and actions in APEC and, in August 2019, secured full endorsement. Other than recognizing the potential of women in STEM, the principles and actions call for increased representation of women in STEM matters and the breakdown of social, cultural, and economic barriers that prevent women and girls from fully engaging in STEM opportunities.

## CSTD 2019-2020

### Submission by the United States Government

*3. Can you provide examples of innovative initiatives in partnership with (or by) the private sector in/from your country that harnesses frontier technologies for inclusive and sustainable development? What are the innovations in terms of the use of technology? What are the innovations in terms of business models?*

Public-private partnerships and social entrepreneurship have significantly leveraged and extended public sector reach. The field is broad and diverse, but one example relevant to development is impact sourcing. Impact sourcing is a component of business processing management that connects commercial companies with workers in developing countries to perform select tasks. Impact sourcing companies hire workers from traditionally marginalized areas or communities to carry out tasks such as data annotation, sometimes with explicit effort to support the community.

For example, [Cloudfactory](#) provides services for machine learning (computer vision and NLP) and data processing. Their model does not require physical colocation of their employees, although for sensitive data they offer packages that carry out the tasks in secure facilities. Cloudfactory representatives develop task plans with corporate customers and then trains employees to work remotely on tasks, and it currently employs 2800+ staff. [ImpactHub](#) connects companies looking for data processing and internet services with outsourcing providers in Africa and India. They help companies break down tasks for outsourcing, and then connect them to companies that specialize in those tasks.

Artificial Intelligence (AI) might also offer potential solutions to development challenges. One such example is the USAID-funded start-up [Grillo](#), which processes vast amounts of ground motion data to generate earthquake early warnings. Exploring similar approaches might provide early warnings of political instability, crop pest infestations, or commodity price shocks. USGS will soon make data from the Landsat land-imaging satellites available in the Amazon Web Services cloud environment. This environment will facilitate advanced data access, exploitation, and analysis through AI and machine learning protocols.

*4. What are the actions that the international community, including the CSTD, can take to contribute to maximize the benefits associated to rapid technological change and mitigate the risk of these technologies widening or creating new inequalities within and across countries? Can you give any success stories in this regard from your country or region?*

The United States leverages a multistakeholder approach to maximize the benefits of technological change. As technological capabilities change and as new scientific discoveries come to the fore, the U.S. Government routinely seeks public input on strategy and policy. The United States also engages the international community in various standards-setting bodies to work toward the adoption of consensus-based technical standards, which aim to promote interoperability. The [APEC Cross-Border Privacy Rules \(CBPR\) System](#) serves as a successful example of the benefits to all of society from multistakeholder collaboration to improve interoperability.

**CSTD 2019-2020**  
**Submission by the United States Government**

CSTD can convene stakeholders, encourage sharing of experiences, and curate materials or lessons for countries to draw on and implement according to respective national priorities and circumstances.

*5. Could you suggest some contact persons of the nodal agency responsible for policies related to rapid technological change and its impact inequality as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.*

Many U.S. Government agencies have a stake in U.S. policies and activities touching on emerging technologies and use models. To find contacts on particular topics, direct questions to the Office of the Science and Technology Adviser to the Secretary, U.S. Department of State ([STAS-Staff@state.gov](mailto:STAS-Staff@state.gov)).

*6. Do you have any documentation, references, or reports on the specific examples on the priority theme in your country or region?*

Focused on digital development and digital inclusion, USAID operates in many developing countries and provides [resources](#) such as a [Blockchain Primer](#).

[Executive Order Establishing the President's National Council for the American Worker](#)  
[Executive Order on Maintaining American Leadership in Artificial Intelligence](#)  
[Charting a Course for Success: America's Strategy for Stem Education](#)  
[The Global Competitiveness Report 2018](#)