

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

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Contribution of Canada

to the CSTD 2018-19 priority theme on 'The impact of rapid technological change on sustainable development'

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**United Nations Commission on Science and Technology for Development  
(CSTD)**

**Theme 1: The impact of rapid technological change on sustainable  
development**

**Canadian contribution**

**1. From the perspective of your country/region what are the key emerging technologies and their current and potential applications that could give an opportunity to solve great societal challenges and achieve the SDGs in your country or region?**

In addition to the frontier technologies already identified, we would also like to highlight the following:

3D Printing  
Artificial intelligence  
Blockchain  
Biotechnology  
Nanotechnology  
Clean technologies  
Virtual Reality  
Natural Language Processing

From a business view point, you might also want to refer to Gartner's perspective for ICTs in Africa: <https://www.gartner.com/newsroom/id/3884512>

**2. Can you provide examples of policies/projects/initiatives that promote rapid technological change in your country/region and mitigate their potential negative effects? Are there any of these policies/projects/initiatives directed to women, youth or other groups of the society? How have the policies targeted inequalities? What are the challenges confronted in implementing these projects?**

A. Canada's Feminist International Agenda

Gender equality and the empowerment of women and girls is the main focus of Canada's Feminist International Assistance Policy. This includes promoting equal access for women to capital, markets, digital technology and business development services in developing countries. In addition, Canada is focused on using innovative approaches, which includes (but is not limited to) the use of digital technologies to support development assistance programming that addresses deep-rooted gender inequalities. This may include building digital literacy skills and using digital technologies to build self-confidence, increase independence and influence and make better-informed decisions; and enabling women to communicate with peers online, to exchange information, build solidarity and to lobby decision-makers.

Canada has many projects that promote the access and use of ICTs to support its six Action Areas in development assistance, which include: Human dignity, Growth That Works for Everyone, Environment and Climate Action, Inclusive Governance, and Peace and Security. The following link provides a tool to search Global Affairs Canada's international assistance projects and download information as open data files:

<http://w05.international.gc.ca/projectbrowser-banqueprojets/?lang=eng>

## B. Principles for Digital Development

Canada puts the Digital Principles into practice through its development activities and programming. These Digital Principles are a set of living guidance intended to help practitioners succeed in applying digital technologies to development programs. Being evidence-based, they improve development projects' chances of success while mitigating the potential negative effects.

## C. Gender Equality in a Digital Age

While digital technologies have the potential to be used in transformative ways to empower women and girls and advance gender equality, they have also enabled new forms of violence against women and girls. Canada believes that advancing gender equality and bridging the gender digital divide must include promoting and protecting the human rights of all women and girls to access and use digital technologies without being targeted by online violence and abuse.

Canada believes that governments need to understand and engage on issues relating to artificial intelligence (AI) particularly as it relates to human rights and the impact these new technologies can have on women and girls. The potential exists for AI to enable perpetrators of violence and abuse, of which women and girls are disproportionately the targets.

In collaboration with key partners, Canada developed a Playbook for Gender Equality in the Digital Age. This playbook outlines a set of best practices for a multi-stakeholder approach to ensure that our collective digital future is positive and empowering for all.

[http://international.gc.ca/world-monde/issues\\_development-enjeux\\_developpement/human\\_rights-droits\\_homme/playbook-manuel\\_instructions.aspx?lang=eng](http://international.gc.ca/world-monde/issues_development-enjeux_developpement/human_rights-droits_homme/playbook-manuel_instructions.aspx?lang=eng)

## D. Gender-based Analysis +

Canada has also developed a Gender Based Assessment tool (GBA+). This is an analytical tool used to assess how diverse groups of women, men and gender-diverse people may experience policies, programs and initiatives, including those involving frontier technologies. The Government of Canada is committed to using this GBA+ tool to advance gender equality:

E. Addressing rapid technological change – examples of Canadian initiatives

The [Innovation and Skills Plan](#) as well as international collaboration are components of the Government of Canada's efforts to leverage the opportunities of frontier technologies that can help to create a more inclusive and sustainable future. Clean technology and digital advancements provide critical solutions that advance sustainability while also improving productivity and competitiveness.

The Government of Canada recognizes that the path to robust and inclusive economic growth must be led by innovation. In 2017, Canada launched the Innovation and Skills Plan, a strategy to strengthen Canada's position as a world-leading nation of innovators, providing a series of new client-centric measures to support innovation in a digital age and strengthen Canada's innovation ecosystem across the country. Delivered in partnership with the private sector, research and postsecondary institutions, and others, the Plan focuses on: skills; research, technology and commercialization; program simplification; and the investment and scale-up of companies.

The Innovation and Skills Plan supports all Canadians across the innovation system. Plan initiatives such as [Connect to Innovate](#) and [Connecting Families](#) ensure that high-speed Internet is available and affordable for more Canadians; [CanCode](#) and the Digital Literacy Exchange provide digital training with an emphasis on traditionally underrepresented Canadians; [Computers for Schools](#) and [Accessible Technology Development](#) foster inclusivity in access to technology that enables participation in the digital economy; and the [Pan-Canadian Artificial Intelligence \(AI\) Strategy](#) is developing global thought leadership on the economic, ethical, policy and legal implications of advances in artificial intelligence.

The Government of Canada is also working to leverage the opportunity Canada has to be a leader in the clean technology sector, by tackling the unique challenges that clean technology companies have related to access to patient capital and both domestic and international markets. This includes Innovation and Skills Plan support of \$1.4 billion in financing to help clean technology companies grow and expand to international markets, as well as recapitalization of [Sustainable Development Technology Canada](#) to help Canadian innovators bring their ground-breaking clean technologies to market. Concerted efforts on supporting the use of clean technologies across all sectors, improving energy infrastructure, developing smart cities, and working with remote and northern communities to reduce their reliance on fossil fuels are important dimensions of accelerating clean growth.

Clean technologies are defined as any process, product, or service that reduces environmental impacts. Investing in clean technology and supporting innovation in the industry will help Canada transition to be more resource-efficient with less pollution, achieving economic, social and environmental benefits for the entire population. The Government of Canada, through Budget 2017, has allocated more than \$2.3 billion to support clean technology research, development, demonstration and adoption.

The benefits of clean technology include lower greenhouse gas emissions and increased resilience to climate change, healthier communities including cleaner drinking water and air in addition to more sustainable and competitive economic sectors as we move to a circular economy that maximizes the value of materials and closes the loop on pollution. Clean growth is also a central component of the Government of Canada's 2016-2019 Federal Sustainable Development Strategy with the development and adoption of clean technologies as a strong driving force towards the transition to a sustainable economy.

The natures of economies and societies are changing. Waves of technological progress spurred by emerging digital capabilities are quickly becoming the key to success for any industrialized nation, its citizens and companies. In this era of transformation, embracing and leveraging the power of digital technologies and big data matters. It improves the quality of life, and is increasingly the central pillar that will drive productivity, growth and competitiveness. The pace of this transformation is impressive, and the sheer power of digital and data processing is reshaping nearly all aspects of the global economy. Canadians and Canadian businesses are using digital technologies to their advantage, creating jobs and providing pricing, product features and beneficial services that improve lives for all that have the skills and access to use and adopt them.

Further actions in this transformation include the G7 Employment and Innovation Ministerial on [Preparing for Jobs of the Future](#), held in March 2018. G7 Ministers produced a [joint Statement on AI](#) to commit to leveraging the capacities for AI to stimulate sustainable growth and promote the inclusivity of AI development. In addition, Canada's National [Digital and Data Consultations](#) launched in June 2018 are the next steps of the Innovation and Skills Plan to further promote an inclusive digital economy. The consultations seek ideas and recommendations from all Canadians in three key areas: the Future of Work, Unleashing Innovation, and Trust and Privacy.

**3. What are the actions that the international community, including the CSTD, can take to contribute to maximize the benefits and mitigate the risk associated to rapid technological change? Can you give any success stories in this regard from your country or region?**

UN CSTD could encourage its members to apply the Digital Principles to their policies, processes and activities.

UN CSTD could examine the effectiveness of gender-responsive policies in the area of rapid technological change, including ones that address barriers to affordability, threats that hamper access and use, digital literacy and confidence, and the availability of relevant content, applications and services. The World Wide Web Foundation R.E.A.C.T. tool could serve as a good basis of measurement: <https://webfoundation.org/react/>

UN CSTD and other bodies in the international community could work to build capacity for applying a gender and human rights based lens to issues of rapid

technological change, to better enable governments to develop policies that mitigate risks and support the benefits of these technologies for their populations. It could draw on the experience and expertise of the UN agencies engaged in innovation work, including through the UN Innovation Network.

**4. Could you suggest some contact persons of the nodal agency responsible for policies related to rapid technological change and its impact on sustainable development 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.**

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

Canada's feminist international assistance Policy  
[http://international.gc.ca/world-monde/issues\\_development-enjeux\\_developpement/priorities-priorites/policy-politique.aspx?lang=eng](http://international.gc.ca/world-monde/issues_development-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng)

Principles for Digital Development  
<https://digitalprinciples.org/about/>

Government of Canada's official source for science and technology information:  
<http://science.gc.ca/eic/site/063.nsf/eng/home>