Canada's Sustainable Future – Creating a Digital Action Plan

SUSTAINABILITY IN THE DIGITAL AGE

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Abstract

How might digital innovations help Canada achieve the Sustainable Development Goals (SDGs) by 2030? This is the question Future Earth, Sustainability in the Digital Age, and the Canadian Science Policy Centre sought to address in 2021 through a virtual, national dialogue series called: Canada's Sustainable Future – Creating a Digital Action Plan.

We organized four public town halls and three consultation sessions, connecting 50 leaders in sustainability science and digital innovations, with over 375 participants attending from all regions of Canada. Discussions covered multiple sectors, included Indigenous and non-Indigenous participation and examined success stories and challenges to the implementation of the SDGs in Canada. Dialogues focused on the role digital technologies play and explored how Indigenous Science and Knowledge can contribute to a more coordinated, national SDG approach.

This report presents the key results of that work and pathways to action. We present insights on how to help raise public awareness around sustainability practices, enable cross-sectoral partnerships, and foster ethical collaboration with Indigenous Peoples and Knowledge Systems, to help Canada advance toward the United Nations' Sustainable Development Goals.

An overarching conclusion is that the Sustainable Development Goals cannot be tackled effectively in isolation. They require a holistic perspective and approach. Their success depends on how individuals, communities, schools, and institutional frameworks can work together towards a new imagined future – one collectively conceived for the long term.

Acknowledgements

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1. A Digital Action Plan – Moving Forward Together

As a means to build partnerships, digital technologies have much to offer. Information and communication tools can help generate the social links and data needed to tackle sustainable development problems collectively. Nonetheless, use of digital tools comes with obstacles in the form of procurement, training, and the maintenance of vital digital infrastructure. Add to this, the colonization of data and the potential for digital technologies to enshrine systemic biases and historic inequities and it's clear Canada needs to ensure an inclusive digital path forward (Canada's Digital Government Strategy, 2021).

Priority Recommendations

> **Accelerate investments in digital infrastructure across Canada to ensure access to affordable high-speed Internet for all, especially remote, rural, and Indigenous communities. Access in these communities to relevant digital infrastructure like geographic data systems, data collection drones, satellite imagery, etc. is also vital for resource management, environmental monitoring, and sustainability efforts.**

Despite recent efforts to provide better digital infrastructure across Canada, a significant gap between rural and urban upload and download speeds remains. While nearly 90% of people in Canada have access to unlimited high-speed Internet, only 53% of those in rural areas can take advantage of the benefits of fast, stable Internet. Among Indigenous populations, this rate declines to 24%. What's more, Internet prices in Canada remain higher than those of international peers and Canadian telecommunications policy tends to favour urban centers over rural and Indigenous communities.

Improving digital infrastructure will help people across Canada learn about and communicate with one another, facilitating the sorts of connections that produce the leaders and data we need to create a sustainable future. Accelerating the pace of programs like the Canadian Universal Broadband Fund, aimed specifically at improving rural Internet access for people living in Canada, and creating new avenues for digital infrastructure investment is critical.

As the world's climate continues to change, the only way Canada can make informed decisions about climate strategies is with accurate, up-to-date information that properly represents the variety of voices and landscapes across different ecological regions. With Indigenous Peoples' extensive knowledge of the lands and waters on which they live, equipping Indigenous communities with the latest digital tools to gather this vital data will result in more agile ecosystem management and superior sustainable development practices.

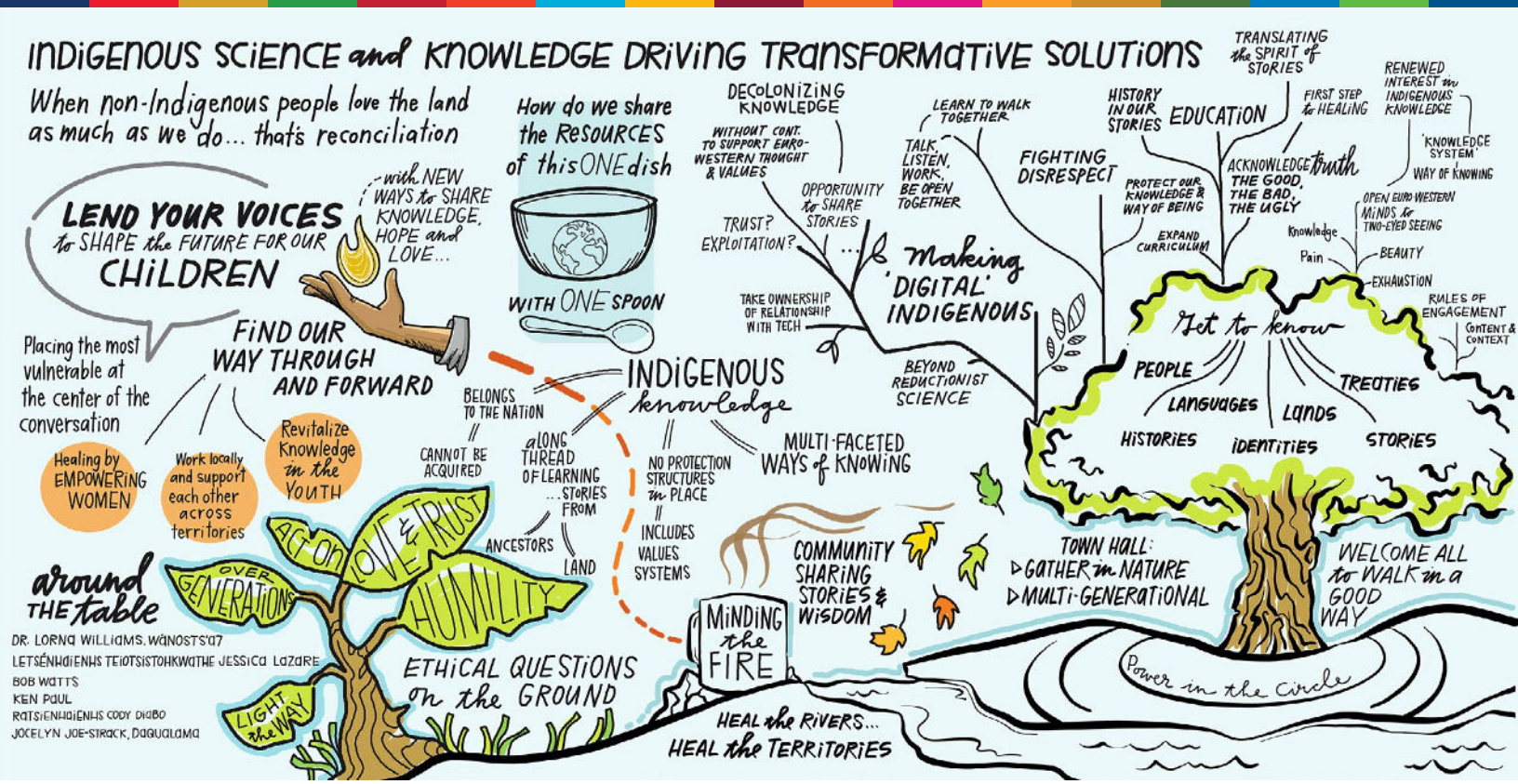


Illustration: Ideas generated from the third public town hall of the National Dialogue Series (Dpict)

Recognize Indigenous Knowledge Systems and decolonize data through the CARE Principles for Indigenous Data Governance.

The colonization of knowledge and the resulting systemic inequality and division hinders sustainability research and progress on climate science solutions. Within Indigenous communities, concern exists around how their knowledge and data may be treated when transferred to digital platforms. Dr. Wanósts'a7 Lorna Williams highlights the need "to be careful about how our Knowledge Systems can become distorted, abused, taken through the digital systems."

In cases where institutions have focused on Indigenous Knowledge, this knowledge has often been viewed through the lens of a resource to extract, rather than a complex information system requiring active collaboration with and permissions from First Nations, Métis, and Inuit to learn. This has led to exploitation of Indigenous communities, misunderstandings, incomplete knowledge transfer, incorrect interpretation of data, benefits going to the institutions but not back to the Indigenous communities involved, and the legal loss of "ownership rights" for the Nations to their collective knowledge. This last issue is due to the legal framework surrounding intellectual property (IP) rights in Canada. Under Canadian IP laws "mechanisms for the protection of IP are based on protecting the rights of identified individual creators and innovators over their creations and innovations that exist in physical format; this is not easily adapted to protecting collectively-owned TK [traditional knowledge] or TCEs [traditional cultural expressions] of significance to communities, dating back generations."

To create inclusive data management processes, Indigenous Knowledge must first be recognized as a "System." By adopting the CARE principles, – which stand for "Collective Benefit," "Authority to Control," "Responsibility," and "Ethics" – Canada can work towards the decolonization of data, which will benefit all peoples in the push towards a sustainable future. An understanding of the digital space that allows for the sharing of knowledge between communities has the potential to bring new wisdom to our collective actions.

Definition: Indigenous Knowledge System

"Indigenous Knowledge is a systemic way of thinking applied to phenomena across biological, physical, cultural, and spiritual systems including insights based on evidence acquired through direct and long-term experiences, and extensive and multi-generational observations, lessons, and skills. It has developed over millennia and is still developing in a living process, including knowledge acquired today and in the future. [...] It goes beyond observations, ecological knowledge, and research offering a unique way of knowing."

– Monica Ell-Kanayuk, President of the Inuit Circumpolar Council (ICC)

Photo: Inuit mother and daughter on Baffin Island, Nunavut
(Getty Images Signature. Canva – Ryerson Clark)

Develop Indigenous data sovereignty regulations consistent with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), informed by nuances of the digital age, and following the UNESCO recommendations on Open Science and the Decolonization of Knowledge.

When it comes to sharing Indigenous Science and Knowledge, new protocols must be established. To shift existing colonial policies, individual researchers, institutions, and governments must work with Indigenous communities to co-create these new research methods and protocols in line with UNDRIP and UNESCO recommendations. To respectfully support the creation of practices and protocols for data sovereignty and use is to recognize and reaffirm Indigenous Knowledge Systems in the digital age.

Photo: First Nations lead Montreal Climate March (Unsplash - Pascal Bernardon)

Promote Open Science principles (for example FAIR, 2016), while taking into consideration CARE principles, by making all publicly funded research outcomes open access to power innovation, scientific cooperation, and international collaboration for sustainability.

Academic institutions, particularly those funded by the public, have an integral role to play in the development of sustainable technologies and ideas. The United Nations Educational, Scientific and Cultural Organization's Recommendation on Open Science contains a variety of principles, including translation and open availability of research data and results, which collectively serve to promote a vision of science conducive to the global scope of the challenges of sustainability.

Governments, industry, and research institutions should collaborate and coordinate to establish standards for collection, ownership, and sharing of environmental data across jurisdictions, to maximize transparency, access, and utilization in the interest of tackling sustainability challenges.

To ensure that data collected by one jurisdiction can help in another, a common language for the sharing and collection of environmental data must be developed. This language must respect Indigenous Knowledge practices and work to promote truly global datasets. Instruments like Microsoft's Planetary Computer have the power to connect environmental monitoring data from across the world, in consistent, analysis-ready formats.

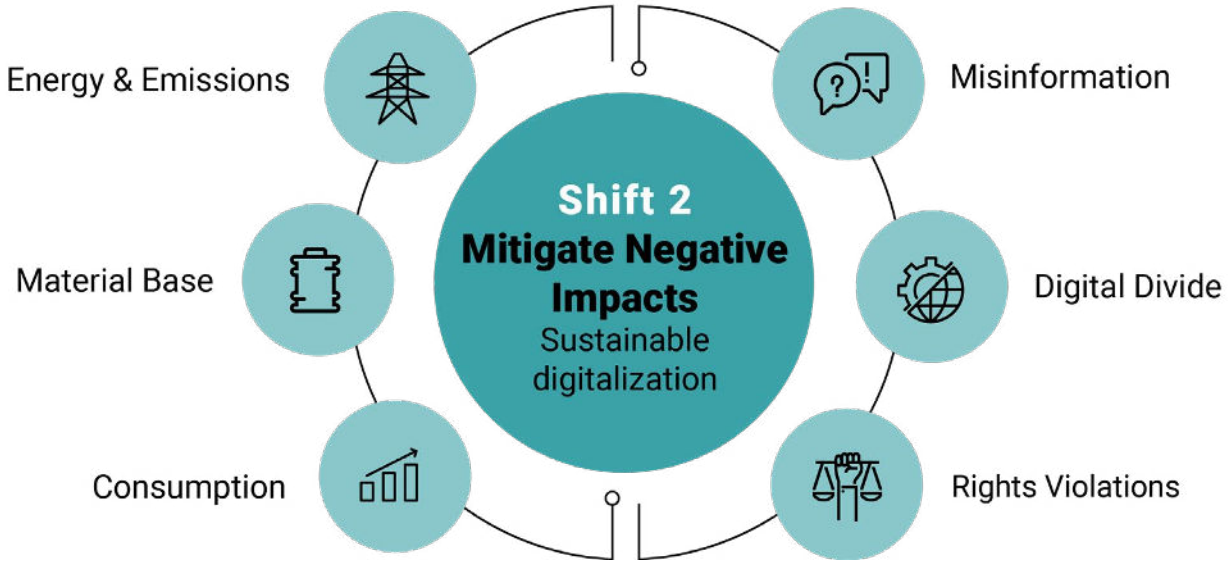


Figure 1. Shifts in policies for sustainable digitalization. Illustration from the Coalition for Digital Environmental Sustainability (CODES) - Action Plan for a Sustainable Planet in the Digital Age.

Institute policies to minimize adverse environmental impacts of large-scale digitalization.

Digitalization is not without ecological consequences and some studies are now ranking information and communications technology (ICT) ahead of the aviation industry in emissions. Regulations on re-purposing that energy generated by data centers will be needed. In Quebec, Laval University's data centers re-utilize the energy generated where the excess heat is redeployed into the campus gym, pool, and cafeteria for heating.

Done with haste, large-scale digitalization has the potential to seriously degrade the environment. In order to capture the fullest benefits of digitalization as a tool to realize the SDGs, policies that address the ecological impacts of every stage of the production, use, and disposal of electronic goods must be enacted.

Work with international partners, Canadian companies, local communities, and citizen scientists to create environmental monitoring frameworks and digital platforms that enable real-time monitoring and enforcement of environmental regulations.

Canada has an enormous opportunity to create a digital environmental monitoring framework, working with for example UNEP or companies like GHGSat. Real-time monitoring, especially for early warning systems in climate and building resilience in communities can rely on citizen science to complement institutional efforts. SmartICE, based in St. John's, Newfoundland, is an organization that measures sea ice levels in partnership with local community members who collect the data and feed it into the centralized system to help community members make informed decisions about their travel on the sea ice. This allows for cost-effective and continuous data collection. This example demonstrates how digital innovation of environmental monitoring is fundamentally changing our ability to tackle the sustainability challenge.

Technological developments need to be paired with environmental monitoring frameworks that provide common definitions for ecological degradation. Initiatives like the World Benchmarking Alliance seek to create a global standards network for companies to work towards SDGs. Further investment in such projects will help to fully realize the benefits of technological advances in real-time environmental monitoring.

Photo: Screenshot of SmartICE Website

2. Public Engagement and Education – Building Awareness

Citizen engagement and action at the individual, communal, national, and global level are key to achieving the SDGs. Building the public awareness necessary for this kind of mass action requires an innovative approach to all forms of education. In addition, evolutions in education should center the principle of Etuaptmumk / Two-Eyed Seeing and showcase the need to understand and respect the knowledge of others.

Priority Recommendations

Enhance the offering of issue-based education curricula that bridge disciplinary boundaries to address sustainability challenges.

According to Bonnie Schmidt, President of Let's Talk Science, the "SDGs can actually begin to anchor a shift in thinking about how to create issue-based education at all levels that will actually develop (informed) citizens."

Bonnie reports that across Canada "there are 27 separate agencies that are responsible for early learning to post-secondary." This often means that individual successes within the school systems struggle to translate into national improvements. Those departments or ministries that have yet to incorporate sustainability into their school curricula and sustainability-minded educators within these systems must be provided with tools, guidance, and latitude to create the new programs needed to inspire change.

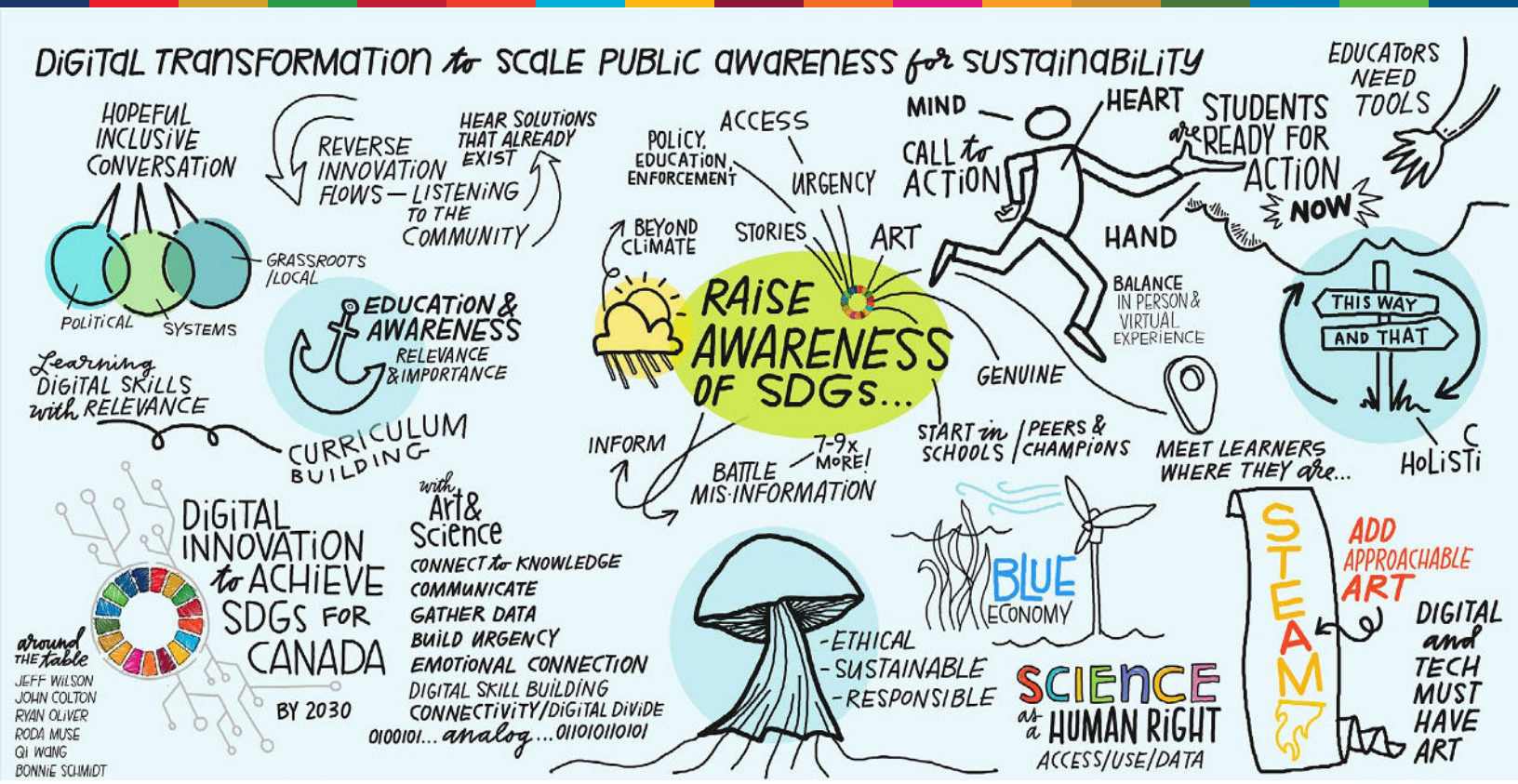


Illustration: Ideas generated from the first public town hall of the National Dialogue Series (Dpict)

Update institutional mandates to incorporate sustainability and digital literacy content into formal education curricula and enhance relevant teacher training to support students in taking climate actions.

Creating a digitally literate population that can think critically about sustainability and be more aware of the SDGs requires both equipment and training. Organizations such as Let's Talk Science, Brilliant Labs, and #Kids2030 by Kids Code Jeunesse challenge kids to make a difference in the environment by using innovation with technology, and using digital tools to achieve the UN SDGs. Additionally, Learning for a Sustainable Future LSF is a Canadian charity that has been working for over 30 years to integrate sustainability education into Canada's school system to empower youth to change the world by mobilizing awareness and action on the SDGs.

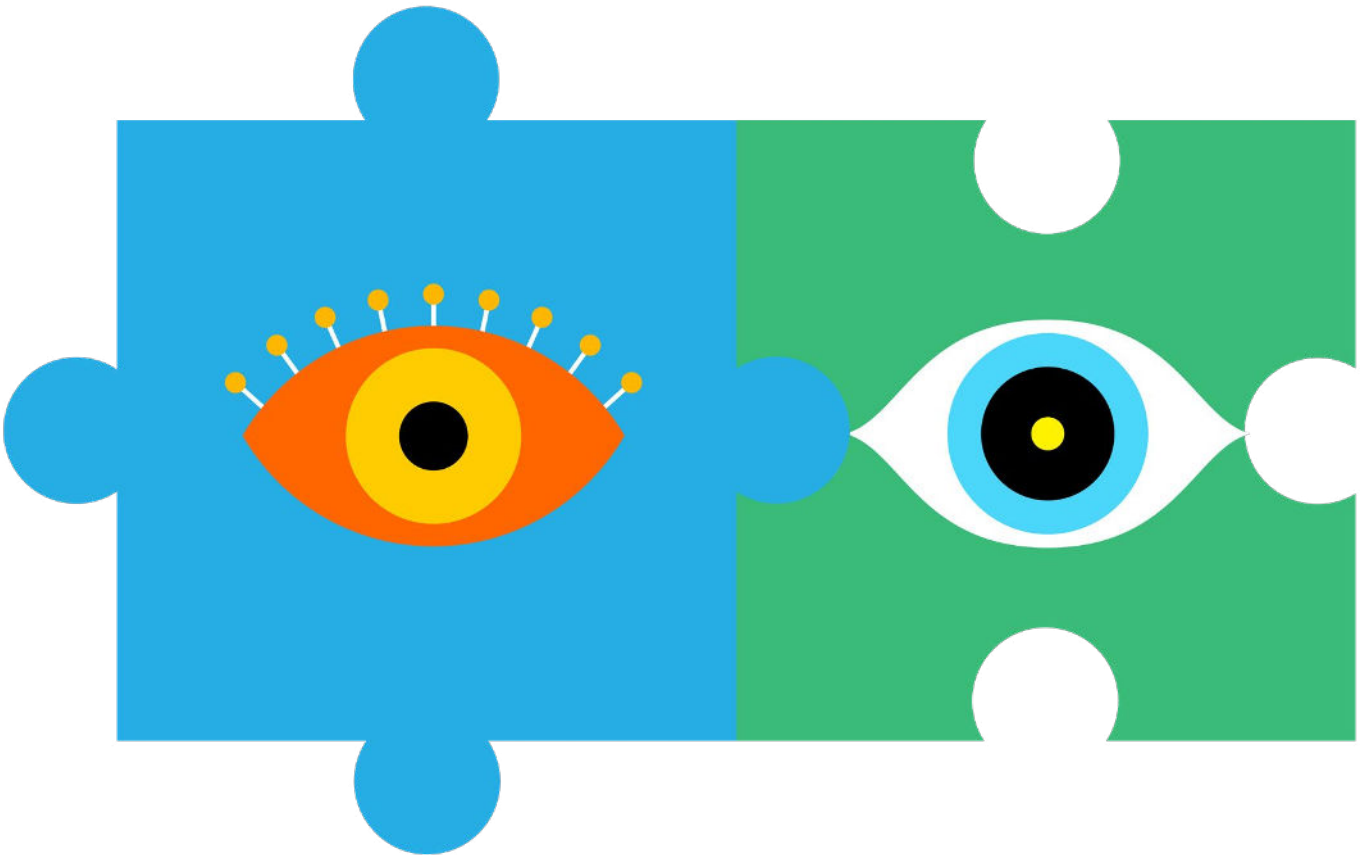
As trusted leaders and providers of information, educators and those who support them have a vital role to play in this transformation. The Teacher Leader program at Let's Talk Science provides educators training with the knowledge and tools they need to support students in tackling climate change challenges as well as prepares them to build leadership skills focused on supporting other educators.

The goals and strategies outlined in the Learn Canada 2020 report that center conversations about sustainability will need both time and resources, particularly for communities historically underserved by digital infrastructure, to come to fruition.

Incorporate diverse perspectives into the education system, including enhancing coverage of Indigenous Knowledge Systems.

For Indigenous and non-Indigenous Peoples to work collectively in ways that benefit all communities, there needs to be collective understanding through changes to education systems at all levels. Indigenous stories, histories, science, and languages should be taught alongside current educational approaches. We can achieve this by using a framework that Indigenous Peoples refer to as Etuaptmumk (in Mi'kmaw) or Two-Eyed Seeing. Etuaptmumk / Two-Eyed Seeing is a guiding principle developed by Mi'kmaw Elders Albert and Murdena Marshall. It embraces learning "to see from one eye with the strengths of Indigenous ways of knowing, and from the other eye with the strengths of Western ways of knowing, and to use both eyes together for a holistic and truly informed perspective."

By correcting current imbalances and inequities within research and education institutions using new curriculum, methods, and ethical protocols established in collaboration with Indigenous communities, everyone working on sustainable development goals in the digital age can benefit. An example in action: Memorial University's policy on Research Impacting Indigenous Groups – the first of its kind known in Canadian universities – was led by Indigenous researchers based on extensive consultations conducted in 2018 and 2019.



Etuaptmumk / Two-Eyed Seeing

Utilize digital tools and incorporate art more effectively to inspire, inform, and engage youth in sustainability discussions.

Informing students of the real need for sustainability requires the fullest use of available tools. The use of art to support learning in science and technology fields has a rich and effective history that can be transferred to sustainability studies. Programs with art integration can help students gain access to digital skills to achieve sustainability as suggested by the Canada Council for the Arts. ArcGIS StoryMaps' Photovoice for Sustainable Development Goal Action leverages the power of digital storytelling to empower youth as changemakers to tell compelling, data-driven stories about the SDGs through photo sharing.

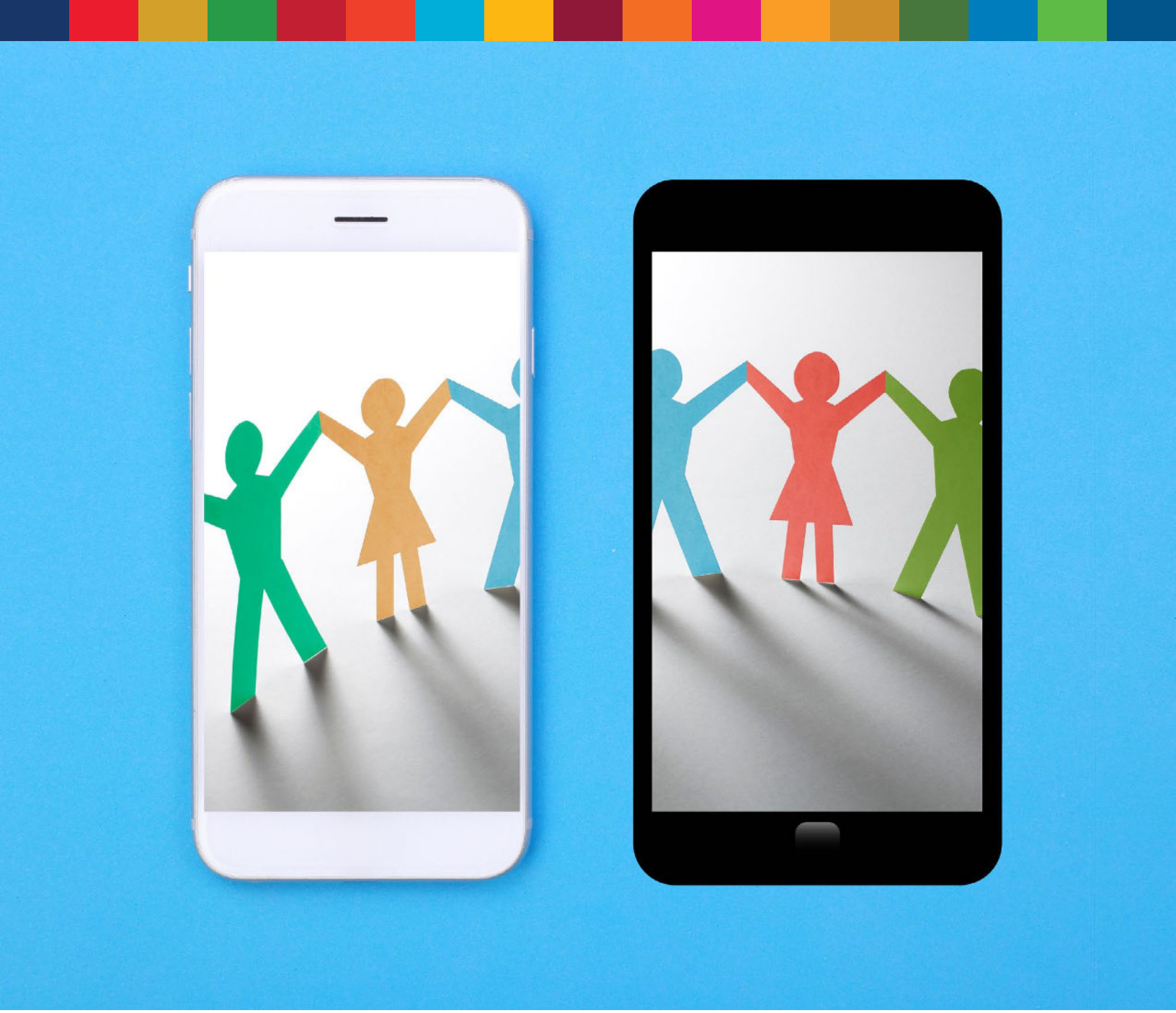
Build mechanisms to enhance sustainability awareness and digital literacy among the public by leveraging the education system's reach and capabilities.

The education system is viewed as a critical node not only for knowledge generation but also for raising awareness. The panelists observed, however, that the education system has been slow to react when it comes to raising awareness of the SDGs and sustainability in general. Yet, most indicated this system is still the best channel to reach youth in particular as they tend to be tech-savvy and highly motivated.

In education settings, providing educators and leaders the needed support to engage youth as key actors in scaling up sustainable innovation and to train them to be more digitally enabled is a critical step. It is vital to inspire today's young generation to get involved in purpose-driven technologies and in program design of digital literacy for sustainable development.

The education systems of Canada's provinces and territories also have a reach that extends beyond children. As institutions, schools have a wide variety of tools that include school buildings, a local focus, access to software and equipment, and trained educators. Collectively, these resources have the potential to inform and educate adults through evening lectures, night classes, and similar offerings.

Finally, citizen engagement and action at the individual, communal, national, and global level are also cornerstones of meeting the SDGs. These, however, require stakeholder enthusiasm, which depend not only on a high degree of awareness, but also the motivation and ability to act. Awareness raising needs to be on a broad scale to be impactful. A 2019 global survey conducted by Ipsos Group for the World Economic Forum showed that only 11% of adults in Canada were aware of the SDGs, while about half had never heard of them (World Economic Forum, 2019). So, increasing knowledge on sustainability and digital literacy within the general citizen population can contribute to collective actions and citizen engagement in communities to achieve the SDGs and other local sustainability goals.



3. Policy and Decision-Making – Strengthening Partnerships

The need to combine knowledge, skill sets, and inspirations from different segments of society to pursue the SDGs, calls for the construction and reinforcing of partnerships. These partnerships, be they at the personal, institutional or governing level of society, all intersect with governmental programs that can support a blending of abilities and interventions for sustainability.

Priority Recommendations

Use the Sustainable Development Goals as a unifying framework to inform sustainability policies, such as incorporating SDG elements into Canada's Innovation and Skills Plan.

The Sustainable Development Goals are a group of 17 global principles encompassing a variety of environmental, social, and cultural goals adopted by the United Nations in 2015. The experts and panelists that we spoke to highlighted the need for policymakers and academics to take inspiration from the SDGs when thinking about sustainability.

One place to start with this effort is with Canada's Innovation and Skills Plan. Created in 2017, the Innovation and Skills Plan already seeks to establish "greater connectivity between firms, researchers, educators, venture capitalists, incubators, all levels of government, non-profits, and other innovation actors," paying particular attention to those often left behind in discussions of digital innovation such as Indigenous Peoples.

While the Innovation and Skills Plan mentions sustainability and contains many of the elements mentioned in the SDGs, improvements and lessons learned since it was created could include further integration of the SDGs into the Plan to bring a wider variety of people to work towards implementation in Canada. Taking advantage of the holistic nature of the SDGs by folding them into Canada's innovation strategies encourages more innovation in more parts of society.

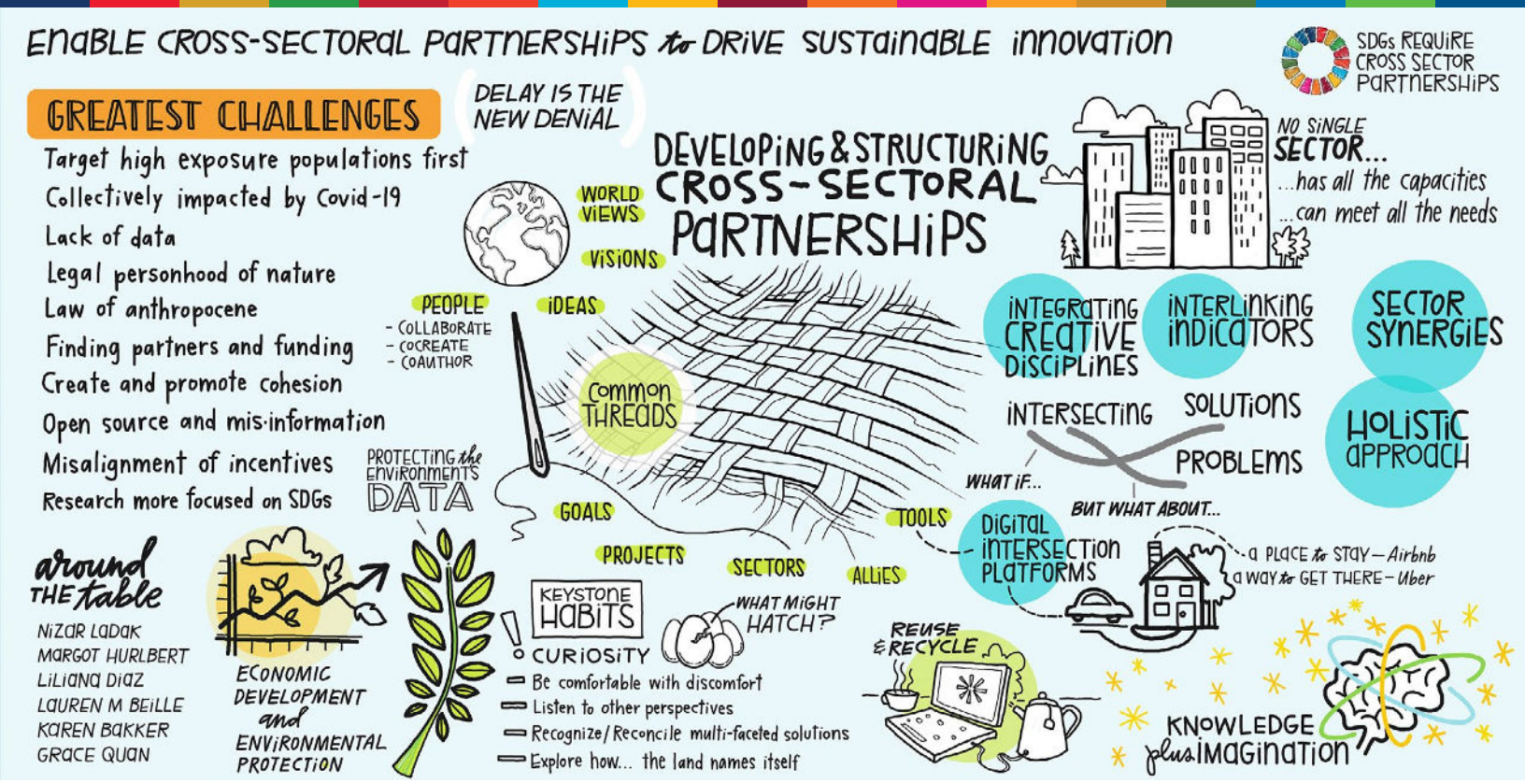


Illustration: Ideas generated from the second public town hall of the National Dialogue Series (Dpict)

> **Support boundary-spanning organizations and industry clusters to stimulate cross-sectoral partnerships for sustainability innovation through funding, and foster collaborative, global, and sustainability-minded leadership qualities across society and key institutions to address complex challenges in a holistic manner.**

Achieving the SDGs will require the skillsets of a wide variety of industries and organizations. Unfortunately, many of the terms and ideas used in one field do not readily translate into terms that are usable in other fields. In response to this barrier, institutions like the Open Geospatial Consortium have emerged to connect groups that might otherwise never communicate with one another. In the same way that the SDGs represent a wide variety of scientific and social goals, our institutions must develop the communications tools to generate holistic sustainability innovation solutions.

This report highlights the broad public support for the concepts enshrined in the SDGs. Climate leaders – people who are flexible, responsive, and adaptive – need to come from every level of society. To encourage the emergence and training of the sustainability leaders of tomorrow, more dialogues of the sort used in our research need to take place. The reach of these collaborations must extend beyond major cities and specifically include voices that are too often not heard.

Build relationship-based, localized research methodologies across institutions.

To create successful sustainable development projects with Indigenous Peoples, scientists and institutions should approach communities in relational rather than strictly analytical ways. In this reversed system, the scientific analysis flows from established relationships within Indigenous communities and answers scientific questions raised by the Nations specific to those lands. This hyperlocal approach leads to higher quality scientific data, more thorough research analysis, and more beneficial outcomes for everyone. It also aids the integration of digital technologies into Indigenous methodologies. Current projects demonstrating this process include:

1. Pinnguaq's Te(a)ch Program, connecting STEAM education to community wellness to encourage young people to lead at the interface of sustainability and the digital age.

2. The Indigenous Futures Research Centre (IFRC) who "welcome all researchers, Indigenous and non-Indigenous, who engage in research that prioritizes the co-generation of knowledge that is of direct use to Indigenous Peoples and our communities."

3. The Climate Atlas of Canada that "combines climate science, mapping, and storytelling together with Indigenous Knowledges and community-based research and video to inspire awareness and action."

4. Aboriginal Territories in Cyberspace is a research network that's been conducting work at the nexus of Indigenous cultures and digital and computational technology since about 2005 with the objective to ensure Indigenous presence on the web, according to Jason Edward Lewis, one of its co-founders.

Adopt the Indigenous framework of Etuaptmumk / Two-Eyed Seeing as a way to bring together Indigenous and non-Indigenous community members to collaborate on sustainability and environmental challenges.

Collaboration with Indigenous Peoples must happen if we are to realize the fullest potential of the SDGs. In Canada, we can reconcile Indigenous and Western approaches and digital technology tools to arrive at sustainability solutions, using the Etuaptmumk / Two-Eyed Seeing framework. Etuaptmumk / Two-Eyed Seeing is viewed as a progressive approach that would help to ground solutions in communities, especially when integrating digital technology into sustainable development projects. Two-Eyed AI, a reflection paper prepared for the Canadian Commission for UNESCO, guides the ethical implications development and application of AI technologies by adopting the Two-Eyed Seeing principle.

Projects like the Nisga'a salmon fishery showcase the potential to use both Indigenous and Western Knowledge Systems to tackle problems.

Collaborative not top-down leadership.

To enable digital transformation, it is critical that leadership models are more participative, shared, and distributive because flatter models create space for complex and difficult conversations and have a greater chance of ensuring equity, diversity, and inclusion. This approach also allows for engagement from the outset with industries and individuals who will be most impacted by a green transition – for instance in the move away from fossil fuels – and invites them to be part of identifying and implementing sustainability solutions.

Utilize government procurement mechanisms to stimulate sustainable technology development and deployment in Canada through increasing investments to early-stage grassroots organizations and by being an early adopter of promising sustainable innovations.

Federal, territorial, and provincial governments have a significant role to play in the adoption of new technologies through their purchasing power. Through their ombudspeople and oversight mechanisms, governments should act as key partners as a whole and also have the ability to provide 'lessons learned' that can inform and advise future adopters of a new technology.

Financing and access to capital have been the main struggle for many companies in Canada, especially startups and those led by women. Equipped with funding mechanisms and being responsible for a wide variety of services, governments have the unique ability to support innovations and companies that align with their broader social goals.

Because of their unique position in the innovation landscape, the federal, territorial, and provincial governments of Canada should be among the first to study the utility of promising innovations and to support those ideas which pass scrutiny. By leading the way across the wide variety of services that they provide, governmental procurement systems can help to further push for the broader adoption of sustainable innovations.

Reflect sustainability aspirations into building and other infrastructure codes and regulations.

Construction and building maintenance are major sources of greenhouse gas emissions. Building and construction accounted for "36% of final energy use and nearly 40% of energy and process-related carbon dioxide emissions" in 2018, and an international effort to ensure energy-efficient air conditioning could keep 460 billion tons of greenhouse gasses out of the atmosphere. The World Economic Forum calculated that air conditioning alone could heat the planet by 0.5 degrees centigrade by 2100. The need for more climate-friendly construction and management of buildings is clear and apparent.

From roadways to renewable energy facilities and even to the way that we design our waste disposal spaces, our construction habits can provoke climate change unless sustainability is central in deciding what our society builds. Nova Scotia's provincial strategy and regulations on waste management demonstrates that policy supported by education (Acadia University's Planet Protectors – Waste Management Education) is needed to influence sustainability behavior for environmental, economic, and social benefits. Institutions like the University of British Columbia have begun piloting the use of low-carbon construction materials for their campus buildings. American cities have begun tearing down urban freeways in an effort to reduce emissions. With a huge variety of creative options to consider, municipal, provincial, territorial, and federal governments must rewrite their building codes and infrastructure priorities so that sustainability is at the heart of construction decisions.

Final Reflection

The Sustainable Development Goals are not without flaws, but they are the best blueprint society has for "peace and prosperity for people and the planet, now and into the future." This cross-Canada dialogue was a first step in raising awareness on the SDGs and the capacity of digital innovation to help achieve them by 2030. Recommendations emerged on the need to embrace communities, diverse sectors, cultures, and knowledge systems to build an inclusive digital action plan, on the power of public engagement and education to build much needed awareness, and on the value of strong partnerships for strong innovative sustainable policymaking.

In the words of Dr. Eliane Ubalijoro, Director of Sustainability in the Digital Age:

"We believe the best way to overcome difficult challenges is to face them together. Sharing knowledge across regional, cultural, and professional communities can reinforce shared values, shape new norms, and strengthen our capabilities to become a more sustainable society. By facilitating national dialogues around these issues, we can come together and use this framework to push for positive change."

Annex: Tools and Resources Collected in the National Dialogues Series

- Corporate Social Responsibility Mandates (CSR Mandate) teaches students the importance of individual social responsibility.
- National High School Big Data Challenge engages youth to find open data-based solutions to solve SDGs problems.
- The Canada Council for the Arts' Digital Greenhouse supports short-term projects that leverage digital technology to address sectoral and digital challenges.
- The Canada Council for the Arts' Digital Generator supports Canadian art groups, collectives, and organizations to build their digital capacity and transform their business model and operations.
- Waste Not, Want Not composting initiative is an example of institutional-level composting programs led by students on Canadian university campuses.
- Institute of Electrical and Electronics Engineers (IEEE) is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.
- Future Earth's Montreal Statement provides a guide for collaboration and action to steer the digital revolution in support of human-centered, sustainable development.
- Simon Fraser University's SDGs Mapping Project involves gathering data quantitatively and qualitatively about research, teaching and learning, operations and engagement, based on predetermined indicators that align activities with the SDGs.
- Atlantic Youth Weavers Photovoice Project explores what resilience looks like from the perspective of the youth.
- ArcGIS StoryMaps' Photovoice for Sustainable Development Goal Action leverages the power of digital storytelling to empower youth to share photo narratives related to the SDGs.
- Northern Council for Global Cooperation's SDG photography project.
- Global RCE Network conducts work on education for sustainable development.
- Community Transcultural Support Services (CTSS) on youth and (non-digital) sustainable education.
- The Sustainability Tracking, Assessment & Rating System measures university sustainability performance.

- Doughnut Economics is a teaching tool for people to think about sustainability.
- Simon Fraser University's 2025 Sustainability Plan provides the foundation for the university's sustainability efforts from 2020 to 2025. Climate action is embedded in the institution's approaches in operations, research, academics, and community engagement.
- Let's Talk Science's Clothing4Climate initiative looks at the impact of the clothing industry and fast fashion on climate.
- Medina-Works gamification app, developed for kids to engage with the SDGs and take SDG related actions in their community for points.
- The Sustainable Superheroes contains educational materials and activities to teach children grades 3-6 across Atlantic Canada about the 17 SDGs.
- Learning for a Sustainable Future LSF integrates sustainability education into Canada's school system to empower youth to change the world by mobilizing awareness and action on the SDGs.
- Global Schools Program aims to transform learning environments globally and make schools the hubs of education and leadership on the SDGs.
- #Kids2030 by Kids Code Jeunesse challenges kids to make a difference in the environment by using innovation with technology and has a goal to educate over one million kids and half a million educators on AI & ethics and using digital tools to achieve the UN SDGs.
- World's Largest Lesson promotes use of the SDGs in learning so that children can contribute to a better future for all.
- From the Paris Agreement to corporate climate commitments: evaluation of seven methods for setting 'science-based' emission targets explains how we can use planetary boundaries to set corporate environmental performance targets.
- World Benchmarking Alliance includes digital technologies in their framework in which the transformative benchmarks will compare companies' performance on the SDGs in the private sector.
- Smart Earth is an innovative approach to environmental governance including real-time regulation, enhanced predictive management and citizen sensing.
- FieldKit is an open-source environment sensing kit that offers reliable, low-cost tools to monitor and advocate for the world around us.
- Coalition for Digital Environmental Sustainability (CODES) is part of the broader follow-up to the UN Secretary-General's Roadmap on Digital Cooperation within which the importance of digital technologies for accelerating environment and climate action are recognized.

- Ruha Benjamin's book, Race After Technology, is an important perspective on how we can change race in technology. It's another important reason for partnerships.

- Jason Lewis' Making Kin with the Machines helps us understand our relationship with AI through Indigenous epistemologies.

- Sustainable Innovation can be defined as a driver for sustainable development according to Centre interdisciplinaire de recherche en opérationnalisation du développement durable (CIRODD).

- The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) is known as the most comprehensive international reference on Indigenous Peoples' Rights.

- The purpose of the Indigenous Circle on Open Science and the Decolonization of Knowledge was to inform UNESCO's drafting of a recommendation on open science and to ensure that Indigenous Knowledge is respectfully incorporated to help reshape how institutions use and recognize it.

- Two-Eyed Seeing is a guiding framework which focuses on learning to see from one eye with Indigenous Knowledge and ways of knowing, and from the other eye with the Western knowledges and ways of knowing, and to use both eyes together, for the benefit of all.

- First Nations Information Governance Centre (FNIGC) is responsible for research, planning, surveys, capacity development, education, and training. They focus on the development and administration of national First Nations survey initiatives with regional partners. The data from the surveys has contributed to closing the data gap for First Nations communities and informed the development of community health.

- The First Nations Principles of OCAP (Ownership, Control, Access, and Possession) pursues the rightful ownership, control, access and possession of First Nations' data by First Nations and also forge the path toward First Nations data sovereignty.

- The CARE Principles for Indigenous Data Governance are people and purpose-focused, reflecting the important role of data in advancing Indigenous innovation and self-determination.

- Two-Eyed AI guides the ethical implications development and application of AI technologies by adopting the Two-Eyed Seeing principle advanced by Indigenous leaders, including Mi'kmaw Elders Albert and Murdena Marshall.

- National Indigenous Fisheries Institute promotes national consistency and standards across Indigenous programs and practices, guided by principles such as co-development, inclusion, openness, and respect.

- Indigenous Futures Research Centre at Concordia University is an Indigenous-led environment with Indigenous and non-Indigenous researchers exploring how Indigenous Peoples imagine the future of their communities.