THE MONTREAL STATEMENT ON
SUSTAINABILITY IN THE DIGITAL AGE

Preamble

We recognize

We ask

- A New Social Contract for the Digital Age
- Open and Transparent Access to Data and Knowledge
- Public-Private Collaborations
- Research and Innovation
- Targeted Communication, Engagement, and Education

Sustainability in the Digital Age

The following is a statement prepared from discussions held during the CIFAR workshop September 18-20, 2019, in Montreal, Quebec, Canada, which included participants from multiple sectors and geographies.

The workshop was co-sponsored by CIFAR, U.K. Research and Innovation (UKRI), and the French National Center for Scientific Research (CNRS), and co-hosted by Future Earth, The Observatory of Social Impacts on AI and Digital Technology, the U.K. Office for AI, and CNRS.*

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**Formerly the Canadian Institute for Advanced Research.*

WITH FUNDING FROM

CIFAR

Québec
Fonds de recherche – Nature et technologies
Fonds de recherche – Santé
Fonds de recherche – Société et culture

UKRI UK Research and Innovation

CNRS

climateworks FOUNDATION

IN COLLABORATION WITH

futureearth

UN environment programme

UNDP

Office for Artificial Intelligence

Umwelt Bundesamt

OBSERVATOIRE INTERNATIONAL SUR LES IMPACTS SOCIÉTAUX DE L'IA ET DU NUMÉRIQUE

ELEMENT AI

Mila

BSC Barcelona Supercomputing Center
Centro Nacional de Supercomputación

CIO STRATEGY COUNCIL

ENDORSED BY

International Science Council

DNV·GL

Université Concordia University

Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship

EXPONENTIAL ROADMAP

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PREAMBLE

Two major forces are shaping the future of human civilization: anthropogenic climate change and the digital revolution. The changing climate is driving systemic shifts that threaten to destabilize the health and wellbeing of humankind and the natural systems on which they depend. Big data, digital platforms, and artificial intelligence (AI) are rapidly transforming society in ways that pose systemic risks to the global social fabric. But fortunately, AI and other digital technologies also present systemic opportunities for driving the large-scale societal transformations needed to build a climate-safe and equitable world. Investors and strategists working on the climate crisis are increasingly turning to digital innovations to increase efficiencies and reduce emissions from high-emitting sectors such as electricity, transport, food, land, and industry. However, little attention to date has focused on how AI and digital technologies are transforming the underlying socio-economic systems that are keeping society on a carbon-intensive and vulnerable path, and the opportunities these present for driving the large-scale transformative changes needed for decarbonization.

Recognizing the severity of the risks and the magnitude of the opportunity, we call for a global collaboration among business, civil society, researchers, and innovators to focus on leveraging AI and the digital age to help build a sustainable and equitable world.

The objectives of this Collective Statement are to:

- Call on leaders tackling the climate crisis and those working towards a just and equitable digital world to recognize that these agendas are interconnected.
- Define priority areas for guiding digitally-enabled societal transformations—building on the strengths of all regions and communities—to facilitate a transition to a climate-safe and equitable world.
- Build an international network of researchers, innovators, business leaders, and policy makers collectively working to leverage the digital age to drive these societal transformations.

WE RECOGNIZE THAT:

To avoid the most dire consequences of the changing climate, we must decarbonize our society over the coming 30 years. Doing this requires global transformations in social, economic, and governance systems that are currently sustaining our high-carbon society. AI and digitalization are already driving transformations in these systems at an unprecedented scale and pace. Digital technologies are rapidly re-shaping the way we interact with each other and the world, the way we conduct business, and how we govern our society.

The digital age presents powerful levers for the types of societal transformations needed for decarbonizing our economy while building resilience and increasing equity achieving the UN Sustainable Development Goals. Yet, a stabilized climate and, more broadly, achieving the SDGs are far from inevitable outcomes of the digital revolution. In fact, digitalization has helped drive the exponential rise of the human imprint on the natural environment that now threatens life-supporting Earth systems. Furthermore, the digital revolution is raising ethical and equity issues that need to be addressed.

WE ASK:

Leaders in business, government, and civil society to recognize that building a climate safe and equitable world requires a conscious effort to steer the societal transformations unfolding from the development and deployment of new digital technologies.

Immediate action is needed in five specific areas described below.

1. **Build a new social contract for the digital age, which addresses individual rights, justice and equity, inclusive access, and environmental sustainability;**
2. **Ensure open and transparent access to data and knowledge critical to achieving sustainability and equity;**
3. **Foster public and private collaborations to develop and manage AI and other technologies in support of sustainability and equity;**
4. **Promote research and innovation to steer digital transformations toward sustainability and equity; and**
5. **Support targeted communication, engagement and education to advance the social contract.**

1

A NEW SOCIAL CONTRACT FOR THE DIGITAL AGE

The basic premise of the digital economy is simple: digital services are provided to users in exchange for data. These data is then used to improve services to users with tailored individual preferences on what to read, who to listen to, what to consume, and with whom to interact. While society benefits tremendously from these services, the economic logic of the markets behind them fuels inequities, encroaches on individual privacy, threatens democracy, and promotes unsustainable production and consumption.

The initial prospect for the digital age was that it would democratize information, improve governance through broader citizen engagement, enable a new, green, sharing economy, and help to measure and manage previously intractable global environmental challenges. Many of these aspirations have not yet been realized, in large part because the digital revolution evolved with limited governance frameworks to guide its development. As a result, the digital age of today poses threats to individual rights, social justice, and environmental sustainability.

But it is not too late. The potential for leveraging the digital age to benefit people and the planet is massive. To seize on this potential, we urgently need a social contract for the digital age that respects individual rights, social justice, is inclusive, and protects the Earth's life-support systems. This new social contract must be founded on the following four principles:

1. **Individual Digital Rights.** Support ongoing processes to develop a universal declaration of digital rights, as an extension of the human rights declaration laid out by the United Nations. This might include an international convention or other type of institution with the mandate to implement and enforce a digital rights declaration. Digital rights should include, but not be limited to: online privacy, control over personal data, control over individual digital identities, and freedom of expression.
2. **Just and Equitable Society.** AI and other digital technologies must be designed to avoid creating, reinforcing, or reproducing discrimination and bias. To ensure just and equitable digital systems, transparency in the provenance of online data and derivative information products is required.
3. **Inclusive Access.** Bridge the digital divide by ensuring everyone has affordable access to reliable and secure internet services, equalize the quality and quantity of data around the world, and build capacity to enable equitable participation in the digital world.
4. **Environmental Sustainability.** AI and other digital technologies must be developed in an environmentally responsible manner to minimize waste, protect natural resources, and achieve net-zero carbon emissions by 2050.

2

OPEN AND TRANSPARENT ACCESS TO DATA AND KNOWLEDGE CRITICAL TO ACHIEVING ENVIRONMENTAL SUSTAINABILITY AND SOCIAL EQUITY

Colossal quantities of data are produced and made accessible as a result of the digital age. Nevertheless, much of the data most valuable for building a climate-safe and equitable world are either not available for public use or are simply not being collected. As AI is increasingly turning collected data into usable knowledge, steps that could ensure open access to this critical data and knowledge include:

The creation and support of multi-stakeholder, consensus-based processes to identify priority data needed in the public domain. This includes understanding:

- What data, critical for environmental sustainability and social equity, already exists in private or public domains? Who is harvesting and providing such data, and who has access to them?
- What critical data are missing and how can they be obtained?
- What are the environmental and social costs of data collection, storage, and use?

Ensuring access to good quality data.

- This entails developing standards—such as providing for data transparency, traceability, ownership, and anonymity—to ensure that data for public use is of the highest quality, and is widely accessible and usable.

Instilling trust and transparency in processes that turn data into knowledge. This includes understanding and supporting:

- Transparency in data provenance and algorithms,
- Safety checks before deployment of autonomous systems operation and on-going monitoring, and
- Clear governance of algorithm development and use.

Implementing laws, standards, and regulations to enable all of the above.

3

PUBLIC-PRIVATE COLLABORATIONS TO DEVELOP AND MANAGE AI AND OTHER DIGITAL TECHNOLOGIES THAT SUPPORT ENVIRONMENTAL SUSTAINABILITY AND SOCIAL EQUITY

Public-private collaborations provide a model for advancing complex, large-scale projects. While traditionally used in sectors like transport and infrastructure, the same model can be extended to sustainability transformations and the generation of digital public goods. This would enable a broad diversity of actors – from global technology, finance, and media industries, to non-governmental organisations, national and local governments, and civil society groups – to rally expertise, financing , and ideas toward the common goal of a sustainable and equitable world. Strong, enforceable measures should be instituted to ensure the needed collaborations and outcomes. These include:

Regulation of platforms. Similar to the management of public utilities, regulation can facilitate more equitable and just collaboration and market opportunities. Public and private actors should be involved in developing and monitoring guidelines and regulations for the equitable use of platforms, technology, software, and data (including a universal right to be forgotten).

Diversified investments. Governments are limited by budgets, whereas the private sector can be risk-averse. Public-private collaborations can overcome these limitations with scope for creativity in investment type, including impact investments, blended finance, prizes and competitions, and public procurement. Public-private investments can also be targeted to a broader range of recipients along the entire innovation spectrum, from fundamental research, to engagement activities, to technology.

Innovative revenue models. Various revenue models must be explored to facilitate public-private collaborations in support of building and managing AI and other digital technologies for the benefit of people and the planet. For example, privately owned data (proprietary basis) could be bought and sold in a fine-grained state but be made publicly available free of charge in a less granular state.

Expanded ownership and institutional vehicles. These might include the expansion of and open access to data trusts (mechanisms for stewardship of data for the benefit of a group of organisations or people), mission-focused incubators, and cooperatives (for example, socially oriented platforms for innovation).

4

RESEARCH AND INNOVATION FOCUSED ON TRANSDISCIPLINARY CHALLENGES AND OPPORTUNITIES

Deeper investigation is needed to better understand the underlying drivers and dynamics of the systems that are maintaining our unsustainability. It will also be imperative to assess the opportunities and risks of leveraging AI and other digital technologies for steering these systems towards a more sustainable and equitable world. Examples of questions to be explored include:

- How are AI and other digital technologies shifting the distribution of power, norms and values, rules, practices, and worldviews that currently maintain our unsustainability?
- How can new data streams—from satellite imagery sensors to crowdsourcing applications—be credibly, ethically, and legitimately used to expose and quantify the cost of externalities and generate accountability?
- What are the opportunities and threats that come with new forms of radical transparency and the use of AI for governance, surveillance, and informational control?
- How can we better understand and leverage new models of governance, including elements of anticipatory governance, reflective governance, and AI- powered governance, especially given that some of these models are already in use?
- How can we build platforms for social coordination which encourage prosocial entrepreneurship and empower grassroots collective action, ensuring that control and self-determination are retained and maintained by the beneficiaries? How can such platforms be coordinated to achieve large-scale—indeed, planetary-scale—collective action?
- How can trust and accountability be effectively created in a world where decisions are based on collective and artificial intelligence?
- How can we reconceive knowledge as a common-pool resource? Can AI and digital technologies enable the creation of a trusted knowledge commons? If so, can the transformation of big data into common knowledge be used to enhance collective awareness that can motivate users to self-organize and create innovative collective action solutions to socio-economic problems?
- What are the implications of the transformative changes and disruptions brought about by the digital revolution for equity between and within countries? Are there opportunities to leverage AI and other technologies to help communities and countries achieve an equitable and just distribution of resources which can be maintained over time?
- How can AI and other digital technologies help to minimize the psychological distance to climate change and incentivize sustainable behavior? How can AI and other digital technologies be used to incentivize collective action?

5

TARGETED COMMUNICATION, ENGAGEMENT, AND EDUCATION TO ADVANCE THE SOCIAL CONTRACT

As this movement grows, knowledge transfer will be critical. The following can help foster widespread dissemination of learning:

In the education sector, we can create opportunities for stronger interdisciplinary training, teaching opportunities, and cross-fertilization of ideas to build a new generation of leaders versed in digital rights and protection of the Earth's life- support systems. This could include, for example, ethics and social impact courses for computer scientists, AI and digital technologies courses for environmental social sciences and humanities scholars, early introduction for all students to ethics, environment, and digitalization, and a stronger emphasis on critical thinking and civic training in education more broadly.

Using a variety of targeted communications and engagement channels, we must build public understanding of the importance for the collection of data for the public good and garner support for a new social contract for the digital age.

We encourage worldwide engagement with these critical questions about big data, digital platforms, and artificial intelligence that will have a significant impact on the future of humankind and the planet that sustains us.

For more information, go to www.sustainabilitydigitalage.org/

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2020