**DIGITAL NATIONS GREENING GOVERNMENT INFORMATION TECHNOLOGY ACTIVITIES**

# **Overview**

2020 turned out to be a turbulent year that no one anticipated. While there had been momentum towards environmental sustainability from multiple governments around the world over the last few years, the pandemic seemingly put environmental considerations into the background. A year that started out with horrendous wildfires across Australia directly linked to climate change shifted suddenly towards desperate attempts to minimize the social and economic impact of a deadly world-wide pandemic.

As governments began developing social and economic strategies to recover from the pandemic, a noticeable trend was emerging: “green recoveries”. Governments had to strategize how they could ensure that environmental sustainability was a core principle. At the same time, the global acceleration to digital – whether from everyone working from home, to new and innovative practices for service delivery – became common around the world. Questions started to emerge on how these two currents could be linked. This report is designed as a preliminary survey of the issue – much more work needs to be done.

This is important work, as worldwide the share of greenhouse gas (GHG) emissions from digital technologies continues to rise as the digital transition accelerates. The Information and Communications Technology (ICT) industry’s current carbon footprint contributes 1.4% of global emissions. [[1]](#footnote-1) Studies estimate that the carbon footprint of our gadgets, the internet and the systems supporting them account for about 3.7% of global greenhouse emissions[[2]](#footnote-2) - which is similar to the amount produced by the airline industry globally – and that these emissions are predicted to double by 2025. Studies have also shown that without dramatic increases in efficiency, the ICT industry could emit up to 14% 2040[[3]](#footnote-3).

Governments have the opportunity to implement measures to reduce the direct and indirect environmental impacts from the IT they own and manage. This includes data centres, hardware, electronic waste, IT equipment packaging, toxic materials and as well as their lifecycle impacts.

In turn, [Digital Nations](https://www.canada.ca/en/government/system/digital-government/digital-nations.html) (DN) members are collaborating to consider existing and future ways to green their government’s digital operations through a thematic group on greening government IT. As a first step, members shared their existing approaches, policies, or strategies. These activities demonstrate how DN members are seized with this issue. The list below is an overview of current efforts to green government IT within all 10 DN member countries.

The next steps for this group include collaborating to identify best practices and further actions to solve this common challenge. DN members will also engage with major ICT companies and think tanks to inform this work. As Canada hands the Chair of the DN over to the United Kingdom (UK) for 2021, there are useful alignments to the G7 and COP26, both of which the UK are hosting next year as well.

# **Overview of Current Efforts of Digital Nations Members to Green Government IT**

## CANADA

* The [Greening Government Strategy](https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html) is the Government of Canada’s strategy to reduce the environmental impact of its operations. IT is included in the following commitments:
  + An 80% emission reduction target for government operations by 2050 (and 40% by 2030), which does not include the use of carbon offsets.
  + Includes criteria that addresses carbon reduction, sustainable plastics and broader environmental benefits into procurements by departments for goods and services that have a high environmental impact.
  + Support for green procurement will be strengthened including guidance, tools and training for public service employees.
  + Develop additional guidance for departments to strengthen integration of low-carbon, climate resilience and green considerations in investment planning.
  + Targets for diverting non-hazardous waste and plastics from landfills.
* The [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) requires that the procurement of goods and services by the Government of Canada actively promotes environmental stewardship.
* The [Innovative Solutions Canada (ISC) E-Waste Initiative](https://www.ic.gc.ca/eic/site/101.nsf/eng/00085.html) encourages the development of innovative solutions to challenge electric and electrical equipment plastic waste in Canada, which are functional, cost effective, and energy efficient.
* Via the [Departmental Sustainable Development Strategy 2020 - 2023](https://www.canada.ca/en/environment-climate-change/services/sustainable-development/departmental-strategies.html), 26 departments and agencies prepare sustainable development strategies containing objectives and plans within their mandate that contribute to the whole-of-government Federal Sustainable Development Strategy.
* Developing a Green Service Catalogue to guide procurement by procurement officers and departments.
* Implemented the use of [e-signatures](https://wiki.gccollab.ca/E-Signatures_in_the_GC/E-Signature_Options_Blog_2020-04) to reduce the amount of paper-based documents.
* Moved the [Access to Information and Privacy Request Service](https://atip-aiprp.apps.gc.ca/atip/welcome.do) online, which significantly reduces the amount of paper-based documents.
* Adopted [cloud computing](https://www.canada.ca/en/government/system/digital-government/digital-government-innovations/cloud-services/government-canada-cloud-adoption-strategy.html) and a “cloud-first” strategy to minimize the cost and impact of applications and IT infrastructure.
* Shared Services Canada is working to consolidate Government of Canada data centres.
* Ongoing assessment of reducing the ration of electronic devices per public servant.

# Denmark

* The [National Climate Act (2019)](https://climate-laws.org/geographies/denmark/laws/the-climate-act) is a legally binding commitment to reduce greenhouse gas emissions by 70% by 2030 (compared to 1990 levels).
* The [Danish Government’s national budget for 2021](https://www.dst.dk/en/Statistik/emner/nationalregnskab-og-offentlige-finanser/offentlige-finanser/offentlig-forvaltnings-budgetter-finanslov) reflects the government’s plan for a green, fair, and responsible recovery of the Danish economy in the wake of COVID-19.
* The [Danish Agency for Governmental IT Services](https://statens-it.dk/english/#:~:text=About%20the%20Agency%20for%20Governmental,Government%20counting%20approximately%2028%2C000%20users.) in 2020 will present a strategy for sustainable datacentres and complete an analysis of the agency’s energy usage.
* In 2020, local governments in Denmark published a paper with 48 proposals for reducing greenhouse gas emissions in the public sector, particularly in municipalities. Among these proposals are several suggestions that municipalities—and the public sector more broadly—should focus on green procurement, including ICT assets, to reduce the climate and environmental impact.
* In 2019 the Danish government launched a National Strategy for Green Public Procurement, which will be presented in fall 2020.
* Many public authorities have initiated individual initiatives to ensure green ICT. For example, the Ministry of Finance has reduced how much it prints, and used mobile phones are passed on to new staff. Additionally, digital solutions are used to reduce the climate footprint of the buildings used by the ministry and related agencies.
* As part of the [Danish National Strategy for Artificial Intelligence](https://en.digst.dk/policy-and-strategy/denmark-s-national-strategy-for-artificial-intelligence/), the Danish Government and the Danish municipalities and regions have established an investment fund (€27 million over four years). A second wave of these projects was agreed politically in June 2020. Thirteen new projects were nominated to receive 60 million DKK (€8 million) from the investment fund, and several of these projects focus particularly on climate mitigation and adaptation. This second wave of projects is expected to commence at the end of 2020.
* Since 2001, Denmark has had digital strategies for the entire public sector, spanning national, local and regional government. The current joint-public digital strategy was launched in 2016 and ends in 2020. A new strategy will be developed in 2021.
  + There are several initiatives in this strategy related to reducing the climate and environmental footprints of society, including smart city pilots, climate mitigation through better data on terrain, and improving data on the handling of refuse and recycled materials.

# Portugal

* The 2013 [National Action Plan for Energy Efficiency](http://www.buildup.eu/sites/default/files/content/PT%20-%20Energy%20Efficiency%20Action%20Plan%20EN.pdf) aims to address the reduction of primary energy for 2020.
* The [National Energy and Climate Plan 2021-2030](https://ec.europa.eu/energy/sites/ener/files/documents/necp_factsheet_pt_final.pdf) includes objectives for the digitization of the energy market and industry and the promotion of sustainable mobility.
* The National Strategy for Ecological Public Procurement 2020, approved in 2016, envisions the adoption of a policy of ecological public procurement by defining technical specifications for a set of priority goods and services.
  + The framework agreements signed by the Government Shared Services Entity reflect Portugal’s aims in achieving environmental and sustainable objectives.
  + Additionally, Portugal participates in the development of the international standard ISO 20400 Sustainable Procurement, with a view to implementing a Portuguese Sustainable Procurement Standard.
* Dematerialization of public services and the associated environmental gains are directly addressed by transversal programs such as the [Strategy for Innovation and Modernization of the State and Public Administration](https://eportugal.gov.pt/en/noticias/governo-aprova-estrategia-para-inovacao-e-modernizacao-da-administracao-publica) and the [Action Plan for Digital Transition](https://portugaldigital.gov.pt/wp-content/uploads/2020/06/Presentation-Action-Plan-For-Digital-Transtion.pdf), both launched in 2020 and which foresee, among other measures, the digitization of the 25 public services most used by citizens and enterprises.

# South Korea

* Created a [green public procurement (GPP) system](https://www.oecd.org/governance/procurement/toolbox/search/korea-best-practices-green-public-procurement-gpp-legal-policy-framework.pdf) that is recognized as a best practice among OECD countries.
* Korea calculates the environmental benefit of GPP in two ways by comparing impact reductions on a list of 10 environmental characteristics (ex: resource saving), and the impact of C02 emissions.
* Created an eco-label in 2005, via the Act on Promotion of Purchase of Green Products, which made them mandatory.
* Each government institution is required to create a green public procurement target and implementation plan.
* Reporting data is consolidated online at the Greening Products Information platform, where institutions performances are published and accessible to the public.

# United Kingdom

* The UK government has put in place a number of generic sustainability strategies and policies that tackle the wider implications and benefits from sustainability challenges. These include the [Greening Government Commitments](https://www.gov.uk/government/collections/greening-government-commitments), the [25 Year Environment Plan](https://www.gov.uk/government/publications/25-year-environment-plan), [the Resources and Waste Strategy](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf), National Digital and [Data Strategies](https://www.gov.uk/government/publications/uk-national-data-strategy/national-data-strategy) (which both have specific sections on sustainability[), a cloud first policy](https://www.gov.uk/guidance/government-cloud-first-policy) and many others.
* The UK is proud to have championed Sustainable ICT as an integral component of its Sustainability and ICT policy for over a decade, since 2008. As a result, a significant amount of data, tools, case studies and expertise has been built up.
* The [2020 Greening Government: Sustainable Technology Strategy](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/837733/star-ict-annual-report-2018-2019a.pdf) (an update of the *Greening Government: ICT Strategy 2011)* provides best practices and guidance on the delivery of Sustainable ICT within government spend control processes. Furthermore, it challenges departments to focus on areas of improvements through a departmental technology strategy statement. The Strategy sets out best practices and initiatives for within the UK government:
  + ICT Waste – Zero to Landfill and an increase in re-use. Currently 0.8% of government ICT ends up in landfills, which is an improvement from 2.09% in 17/18. The strategy recommends a unified approach to how departments manage e-waste, as well as adopting a circular model of ownership to reduce waste.
  + A reduction in our ICT carbon footprint from moving to more energy-efficient products and services. The UK is currently trying to gather more accurate measures of its ICT carbon footprint and is working with suppliers on how to best measure this. There is currently a lack of data to inform decision-making.
  + Mapping of the service supply chain to show critical materials and efforts to reduce/remove environmental impact; working with providers on end of life of IT products and requiring recyclable components.
  + The adoption of E-Conferencing services as the preferred meeting technique. We are working towards conducting 40% of government meetings without attendee travel required (this data is still not fully reported).
  + The UK Government has a list of best practices which are scored on [their effectiveness in their report](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/933588/star-ict-annual-report-2018-2019a.pdf).
* The newly published [Greening Government: ICT and Digital Services Strategy 2020-2025](https://www.gov.uk/government/publications/greening-government-ict-and-digital-services-strategy-2020-2025) seeks to establish sustainable ICT as business as usual. This is being achieved through integration within the spend control process, policy, strategy, governance, frameworks and reporting. The targets and key sustainability objectives and commitments across government are outlined below.
  + **For Net Zero by 2050 (or earlier)**
    - Reduce greenhouse gas emissions towards net zero immediately for new suppliers and services of digital and ICT, using science-based targets
    - Existing suppliers working with government to meet legally binding, or existing and emerging departmental targets
    - Adopting a technology and digital first approach, as the key policy driver to reduce travel, energy and waste
  + **For the resources and waste strategy (circular economy) and the 25-year environment plan (YEP)**
    - Reduce the amount of ICT waste going to landfill to 0% from our 2020 baseline
    - Continue to improve our waste management by reducing the overall amount of waste generated and increasing the proportion which is reused and recycled
    - Increase, on a yearly basis, the procurement of remanufactured ICT devices in £/volume
  + **For the modern slavery commitments and wider social value pillar obligations**
    - Continue to buy more sustainable and efficient products and services with the aim of achieving the best long-term, overall value for money for society to achieve:
      * 100% traceability of ICT at end of life (mapping)
      * A reduction in the carbon and ecological footprint of the services we are consuming
      * 100% compliance with the Social Value Framework and the Modern Slavery Assessment Tool
* The government is also becoming increasingly engaged and commissioned to complete work on areas such as the National Data Strategy, Modern Slavery Guidance note for ICT, Cloud Hosting and legacy ICT removal, and many other areas.

# Some Digital Nations members have a number of obligations to advance European Union green initiatives:

* The European Commission is focusing on the ‘twin transition’ towards a green and digital economy. The Commission has already published a number of documents on how to tackle this twin transition, including [European Green Deal](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en), [Shaping Europe’s Digital Future](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/shaping-europe-digital-future_en), [strategies for data and AI](https://ec.europa.eu/digital-single-market/en/news/shaping-europes-digital-future-commission-presents-strategies-data-and-artificial-intelligence), and a [number of initiatives on green procurement](https://ec.europa.eu/environment/gpp/index_en.htm).
* For the coming Multiannual Financial Framework period (2021–2027), the EU will be taking a number of actions to help limit the environmental impact of the ICT sector, including datacentres and cloud service providers.
* The [Digital Europe Programme](https://ec.europa.eu/digital-single-market/en/europe-investing-digital-digital-europe-programme) contains a large number of green initiatives, including greater circularity of hardware and devices, greater access to low-energy cloud solutions, development of new climate data simulations (including a digital twin of Earth), and greater deployment of smart city solutions.
* The [2012 EU Energy Efficiency Directive](https://ec.europa.eu/energy/topics/energy-efficiency/targets-directive-and-rules/energy-efficiency-directive_en) established a set of binding measures to help the EU reach its 20% energy efficiency target by 2020 (including buildings owned and occupied by central governments).

# Denmark and Estonia also have a number of obligations to advance green initiatives as part of the Nordic Council of Ministers:

* The Nordic Council of Ministers [Vision 2030](https://www.norden.org/en/declaration/our-vision-2030) sets out the path to the Nordic region becoming the most integrated and sustainable in the world by 2030 through a circular economy, focus on knowledge, innovation, and digital integration.
* As part of the Danish Presidency of the Nordic Council of Ministers in 2020, [MR-DIGITAL](https://www.norden.org/en/mr-digital)—the ministerial configuration for digitisation, which includes the Baltic countries—will adopt a new ministerial declaration, Digital North 2.0.
  + The new declaration includes a focus on promoting green economic growth and sustainable development through data-driven innovation and efficient sharing and re-use of data.
  + Initiatives will include the better use of data and new technologies, exploring how the carbon footprint of digital services may be reduced, and promoting innovative procurement.
  + Additionally, MR-DIGITAL has launched a study of the digital green transition and the potentials of using data and new technologies to reduce the emissions of greenhouse gasses dramatically. The results of the study will be published in early 2021.

# Digital Nations members will explore some of the following activities and best practices:

* How is GHG emissions data from government IT used, captured, and reported?
* What are opportunities for governments to use data, IT to support a green transition, e.g., the use of AI/data to reduce traffic congestion, improve waste/recycling management, and improve building energy consumption; the use of IoT and smart city initiatives to curb carbon emissions.
* Are there common high-emitting sources of government owned IT?
* How can the carbon footprint of digital services be reduced?
* How can innovative procurement lead to greener IT?
* What are some approaches to reducing the carbon footprint of government-owned data centres?
* Does each government and their departments have a digital strategy that includes greening IT?
* Does each government and their departments have a dedicated greening government IT strategy?
* Are there best practices in re-using technology? Managing e-waste?
* What are approaches to energy efficiency of government buildings (e.g., data centres), government IT?
* How do governments approach procurement? Do they have a green public procurement strategy? How do they work with vendors, and which standards which vendors meet or report against?

1. https://www.weforum.org/agenda/2019/09/want-to-exponentially-reduce-ghg-emissions-look-to-digital-tech-solutions/ [↑](#footnote-ref-1)
2. https://theshiftproject.org/wp-content/uploads/2019/03/Lean-ICT-Report\_The-Shift-Project\_2019.pdf [↑](#footnote-ref-2)
3. https://www.theguardian.com/environment/2017/dec/11/tsunami-of-data-could-consume-fifth-global-electricity-by-2025?awc=11152\_1607442786\_5c4b818f1982eb193149d1993598c3ad&utm\_source=afl&utm\_medium=awin&utm\_content=IDG+Communications%2C+Inc. [↑](#footnote-ref-3)