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The Cognitive Computing Continuum Policy Landscape: Canada

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Executive Summary

Canada is economically the smallest member of the G7, and its cognitive computing continuum landscape is currently dominated at least, if not more, heavily by US hyperscalers than the EU. The current and recent administrations have expressed concerns and are moving to invest heavily in Canadian located, preferably Canadian-owned, cloud and AI computer infrastructure. They do not yet seem to have realised the danger of monopoly leveraging from the cloud and AI sectors into the Edge and IoT areas. Growing and deepening links with the EU on general trade, common values, and digital policies offer an opportunity to develop Canada as a strong partner in a pooled digital sovereignty approach, but this will require concerted diplomatic action certain to be opposed by US commercial and political lobbying.

Background

Canada's Geopolitical Situation

Canada is a member of the G7, the smallest in terms of population at just over 40m and by GDP (10th in the world (nominal) according to the IMF). It is one of the largest countries by land and land/sea area, second only to the Russian federation for total land and sea area and fourth by land area (after the Russian Federation, the People's Republic of China and the USA). Most of its population lives in a strip along its southern border with the USA. In addition to being a member of the G7, Canada is a founding member of NATO, and a member of the British Commonwealth and retains the UK monarch as head of state, represented by a Governor-General. It has a federal constitution with a federal government based in Ottawa, ten provinces with full status under the federal system and three territories with regional government authority set by the federal government. The three territories are mostly the very sparsely inhabited polar regions and cover over one third of the land area.

Canada is officially a bi-lingual country, with both French and English as official languages. It also has a diversity of other languages spoken by citizens ranging from those of the indigenous First Nation groups and immigrants speaking other languages including Mandarin, Japanese, Spanish and many others. English is the dominant language for most provinces, and for official purposes English can generally always be used.

Canada is part of the USMCA (United States–Mexico–Canada Agreement), a free trade agreement which superseded the earlier NAFTA in 2020. Although this agreement was negotiated under US President Trump in his first term in office, since starting his second term in 2025 trade relations between Canada and the US, its main trade partner, have been strained including the imposition, or threat, of tariffs on trade with Canada, disrupting the free trade area. US President Trump has also regularly stated that Canada should become part of the USA (Pereira, 2025; The Canadian Press, 2025).

In recent years Canada has strengthened ties with the European Union including the New EU-Canada Strategic Partnership of the Future (Office of the Prime Minister of Canada, 2025a) Building on the existing Comprehensive Economic and Trade Agreement and others. It is also an associated country to Horizon Europe, the second “global” country (following New Zealand) to join the program under the new rules for association allowing non-European neighbour countries to associate. Canada has had a data protection adequacy decision (under which personal data may be transferred between the EU and New Zealand without special measures since the data protection laws are deemed equivalent in effect) since 2002 (first under the Data Protection Directive, reviewed and renewed under the GDPR).

Canada's Digital Infrastructure

Canada's base household and business connectivity is good, with over 93% of households served by broadband Internet by 2022 (with an estimate of 98% by the end of 2026) (Innovation, Science and Economic Development Canada, 2025). Data Centres physically located in Canada provide substantial service for government and commercial sector usage, including both hosted and cloud computing services. Cheap and low-carbon hydro-electric power availability in a number of Canadian provinces (particularly British Columbia, Ontario and Quebec) also provide competitive electricity availability (Howell, 2025). US or US-based multinational firms own and operate many of these sites, however, while Cloud service running on these physical infrastructures are dominated by the US hyperscalers with AWS, Microsoft and Google serving 60% of the public cloud market (Blair, 2025).

New Zealand's Digital Policy Organisations

As noted above, there is a Minister for Digitising Government a cabinet member within the Department of Internal Affairs (DIA). Below that Minister they recently appointed a Government Chief Digital Officer (GCDO) whose bureau provides services across the government including development of AI, common contracts for service support, and development and deployment of standards for government online services, including the planned development of a common application (probably a smartphone app) for most or all business and citizen interactions with government.

The Ministry for Business, Innovation and Employment (MBIE) currently covers the telecommunications policy brief (which was previously part of the DIA) as well as overseeing the independent public research funding bodies and research institutes. The system of both research funding and of public research institutions are currently undergoing reorganisation. The new system being put in place will create a single funding body for all areas of research called Research Funding New Zealand (RFNZ), and merge/reorganisation existing public research organisations. The New Zealand Institute for Advanced Technology (NZIAT) will be the new institute which covers the cognitive computing continuum.

Canada's Digital Policy Organisations

As a federal country, the policy landscape of Canada can be complicated. Each of the ten provinces, and sometimes the three territories, as well as the federal government, may have overlapping authority. The provincial governments, in particular, may separate policy areas in different ways to each other and from the federal government. The federal cabinet is a highly malleable body which, other than the Prime Minister and the President of the Treasury Board, is appointed directly by the Prime Minister. The duties of the Cabinet members and the ministries and other bureau which report are altered by the Prime Minister according to the needs of the time and the skills of the Cabinet ministers in place. Ministers with current portfolios relevant to the continuum include the President of the Treasury Board, the Minister of Innovation, Science and Industry, and the Minister of Artificial Intelligence and Digital Innovation (a portfolio created in May 2025), and the Department of Employment and Social Development (DESD).

Research and innovation come under the Minister of Innovation, Science and Industry, particularly via the Innovation, Science and Economic Development (ISED) bureau which supports policy development and implementation in many areas of the continuum. That bureau, or other parts of the Ministry, oversees the National Research Council (NRC; the primary innovation funder, with the main remit to ensure the appropriate exploitation of research into innovation), the Natural Science and Engineering Research Council of Canada (NSERC; the primary research funder), the Communications Research Centre Canada (CRC; a government research institute covering telecommunications including wired, wireless, and satellite communications) and the Digital Transformation Service Sector (DTSS; a part of the ministry supporting public sector digitisation). Although the DTSS is within the Ministry of Innovation, Science and Industry, the Chief Digital Officer of the Canadian government works within the Treasury Board of Canada Secretariat.

The Canadian Digital Service (CDS) which focusses on the development of e-government for individuals, was part of the Treasury Board Secretariat until 2023 when it moved to the DESD.

The NPO Digital Governance Council (DGC) provides policy recommendations and defines standards in the area of digital technologies. The DGC includes the Digital Governance Standards Institute (DGSI) as a subsidiary organisation.

Policy Review

Overview

As with many other governments, the federal government is seeking to expand and renew its e-government and digital operations. While currently dependent on US Cloud hyperscalers, there is some movement towards sovereign cloud capacity, particular for AI inference. So far, there has been little attention paid to the dependence of Canadian commercial operations on US hyperscalers, although one of the stated aims of the government's improved digital sovereignty strategy also aims to kickstart nationally located, operated and owned cloud facilities to offer commercial service. To date, the growing Edge/IoT sections of the continuum have not yet attracted significant policy attention.

Cloud-Edge-IoT Policy

As with many other countries at present, there is a push to either digitise or update the foundations of existing, government interactions with citizens and organisations. A Cloud First policy, pushing e-government off local hosting and into government or public cloud services, was adopted in 2013 and updated in 2018 and 2023. In addition to federal government services, this strategy also provides encouragement, and capability boosts for provincial/territorial governments, local government and other public sector bodies to engage in common agreements for cloud services.

At present there is a combined push to shift the bulk of citizen and business interactions with government onto digital platforms, but also to improve the efficiency and utility of internal data processing operations. The vast majority of the cloud provision for Canadian government services is provided by US hyperscalers, dominated by Microsoft (~65%) and to a lesser extent AWS (~15%) and Salesforce (~14%) (Shared Services Canada, 2023), leading to some political visibility for Digital Sovereignty Policies.

Beyond this government cloud usage issue (and some mention of the related broader economic dependence on US companies), there is very little mention of Edge or IoT in government policies beyond references in technical advisories about security and privacy and the risks of poorly controlled Edge and IoT deployments.

Artificial Intelligence Research, Innovation and Promotion Policy

In 2024, the Canadian Artificial Intelligence Safety Institute (CAISI) was created within the Ministry of Innovation, Science and Industry. It works closely with the NRC and CIFAR. The current federal administration has an AI Strategy for the Federal Public Service 2025-2027 (Office of the President of the Treasury Board, 2025). This aims to improve the efficiency and outcomes of public service provision by the federal government through appropriate use of AI. It includes creating an AI Centre of Expertise for the federal government, identification of existing common infrastructure (including data, existing AI systems and other government data systems) and to identify and develop a "lighthouse project", an existing project which can serve as a guiding light for future development and applications. This also includes a review of existing legislation, particularly those which provide for the authority of public services, to enable the use of AI, but also to appropriately constrain it to ensure democratic accountability. In 2022 a bill referred to as C-27 was introduced into the Canadian federal parliament. This portmanteau bill included a significant update to the federal privacy legislation and to create a statutory regulation of AI and related data usage. After three years of debate around various aspects of this large bill, it was allowed to lapse in January 2025 with the resignation of then Prime Minister Trudeau and the dissolution of the parliament for an election (Attard-Frost,

2025). The bill had been heavily criticised by many, particularly labour union and women's rights groups, as being primarily written by and for the tech industry and providing insufficient protection for individuals from a variety of data harms including misuse of personal data generally, and for training AI systems in particular, as well as being too weak on limiting the harms from the deployment of AI systems. A replacement federal bill on AI (nor on data protection updates) has not been produced by the new government as of writing, although some provinces have legislation or proposals covering parts of the issues. In June 2025 the Minister of Artificial Intelligence and Digital Innovation promoted a lighter touch regulatory regime (Scott, 2025; Thompson, 2025)), later creating an AI Strategy Taskforce in September 2025.

On research and development, CIFAR has had a Pan-Canadian AI Strategy since 2017, running three national AI Institutes. It also provides a substantial amount of funding for the CAISI and international collaborations on AI Safety with other AISIs. The total budget allocated via CIFAR for the AI strategy included C\$2.4bn in 2024 and almost C\$1bn in 2025. This included significant funds deliberately aimed at improving Canada's sovereign capacity for AI (see Digital Sovereignty Policies).

Semiconductor Design/Production Policy

Henningsmoen, Lopez and Matthews (2025) point out that Canada is the only G7 nation without a national semiconductor strategy, and that semiconductor production in Canada is relatively small, and focussed on research, design and development activities. They recommend the development of a coordinated semiconductor policy including investment in public education programs to replace an ageing engineering workforce, direct investment in production capacity to build on existing R&D strengths, and government policy supporting national purchasing by government entities, particularly in the area of defence. This last part is aimed at both improving national defence sovereignty, but also at providing a baseline market to create an economy of scale for a robust national semiconductor production industry.

Data Spaces Policy

There is very little attention being paid by the Canadian government to the broad area of data spaces. Despite a mention by Office of the Prime Minister (2025b) in the detailed joint statement about deepened ties between the EU and Canada, the only other mention of data spaces in federal government web pages are from the Office of the Privacy Commissioner of Canada (2022) regarding the G7 discussions of "Data Free Flow with Trust".

The Digital Research Alliance of Canada a non-profit funded by ISED and founded in 2019 is seeking to develop a research data space covering material produced, collected and curated by universities and other research institutes in Canada, including public data from government sources. There seems to be no direct engagement by other public bodies in developing public data spaces, nor in promoting data space services in the commercial and third sectors.

The DGC is involved in promoting standards for Data Governance to allow for the development of commercial and public sector data spaces holding and allowing access to individuals' personal data.

Smart City Policy

In 2017, the federal government created the Smart Cities Challenge, which allocated C\$300m over five years from 2018 to 2022. A 2024 evaluation of this framework by the Housing, Infrastructure and Communities Canada (2024) bureau regarded the challenge program as a success in improving the lives of Canadians by promoting and supporting the development of smart city concepts and funding major pilots in a small number of cases. It recommended a

wider and continuing support mechanism to follow. As of writing, no follow-up federal scheme appears to have been launched.

Digital Sovereignty Policies

In its 2025 briefing to the new minister, the Shared Services Canada (2025) bureau, responsible for negotiating and managing the contracts with cloud providers that underpin internal data processing in the Canadian public sector as well as e-government, included Digital Sovereignty as a key opportunity in its message to its new head politician. They identified the reliance of Canada on US hyperscalers, albeit increasingly with processing physically available in Canada for data with localisation requirements, as a key issue without easy or quick solutions. Calls for increased digital sovereignty in the cloud computing area have also come from think tanks such as the Canadian Centre for Policy Alternatives (Marx, 2025). A desire to increase the use of Canadian owned, as well as Canadian-located, cloud services is tempered by a limited based on which to build.

The situation for AI inference (and training), again an area where Canada has been dropping back rather than moving forward in home-grown infrastructure, which was echoed by other groups such as the AGI House Canada (a nonprofit bringing Canada's academic AI researchers together). ISED has a Sovereign AI Computer Strategy supported by significant investment of up to C\$2bn between 2024 and 2029 (Innovation, Science and Economic Development Canada, 2025a) which will seek to leverage a number of approaches, including public purchase of services from Canadian companies, dual public-private investment in new or expanded facilities, and subsidies for private sector users of Canadian facilities.

Despite concerns around cloud and AI, the digital sovereignty issues around the edge computing and IoT aspects of the continuum do not seem to be currently on the radar of the Canadian federal government.

CONCLUSIONS

Canada is in a similar position to the EU and EU Member States in reliance on US hyperscalers for Cloud and AI computer facilities. Its free trade agreements with the US combined with the physical proximity and common language of English have made it even more dependent on US owned/located or at least US owned capacities. The possibilities for monopoly leveraging into the growing importance of Edge/IoT in the continuum do not seem to have garnered attention yet.

The growing economic, cultural and research links between Canada and the EU offer a significant opportunity for inclusion of Canada into a shift towards pooled digital sovereignty based on federatable, interoperable, and portable new infrastructure. This, however, would require diplomatic efforts by the EU and EU Member States to persuade the Canadian federal and provincial governments of the utility of these approaches. This is likely to be opposed by lobbying from the US commercial parties, backed up covertly and overtly by the US government, as seen by the CCIA (2025) response to the Canadian government's digital sovereign cloud policies. While supposedly an international non-profit association of for-profit companies that claims to promote "open markets, open systems and open network", in reality it is dominated by large US companies such as Amazon and Google and is a classic proponent of "open" meaning "without regulation" rather than a truly free market in which consumers gain benefits from competition amongst suppliers.

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GLOSSARY

AISI: Artificial Intelligence Safety Institute
 CAISI: Canadian Artificial Intelligence Safety Institute
 CCIA: Computer and Communications Industry Association
 CDS: Canadian Digital Service
 CIFAR: Canadian Institute for Advanced Research
 DESD: Department of Employment and Social Development
 DGC: Digital Governance Council
 DGSI: Digital Governance Standards Institute
 DTSS: Digital Transformation Service Sector
 ISED: Innovation, Science and Economic Development
 NAFTA: North American Free Trade Agreement
 NRC: National Research Council
 NSERC: Natural Sciences and Engineering Research Council
 USMCA: United States–Mexico–Canada Agreement