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EUCLUSTERS MATCHMAKING EVENTS

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EU-Canada

#ECCPMatchmaking

EUROPEAN CLUSTER COLLABORATION PLATFORM

European Commission

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Business Support on Your Doorstep

Contents

I. Extract from the Input paper on the cluster policy landscapes and collaboration opportunities in the European Union and Canada

Source: ECCP

1. Key insights from the Input paper on the cluster policy landscapes & collaboration opportunities in the European Union and Canada

This section provides a summary of key insights from the Input paper on the cluster policy landscapes & collaboration opportunities in the European Union and Canada. This Input Paper outlines the state of play of Canadian and EU trade relations is presented by focusing on the different economic profiles and key value chains of the EU and Canada as well as the existing cluster landscapes and policies in the EU and Canada. In the second part of the paper, a closer look is taken at existing and possible future cluster cooperation between the EU and Canada. **The Input paper can be accessed *here*.**

1.1. Economic Profile of Canada and key value chains in EU & Canadian trade flows

In Canada, the **dominance of the services sector** is reflected in the top industry sectors by GDP.[1] Real estate, rental and leasing make up the largest share of all industries in Canada by GDP, accounting for 13.0 %. Other significant services sectors include Finance and insurance (7.4%) and Professional scientific and technical services (6.5%). Additionally, Wholesale trade and Retail trade combined comprise 10.5% of the total economy. Other major industries in Canada include Manufacturing as well as Mining quarrying and oil and gas extraction, representing 9.4% and 7.7% of the Canadian economy, respectively. Particularly, the latter underscores the **importance of raw materials**, such as crude oil, to the Canadian economy, highlighting its exposure to commodity price fluctuations.

The Input paper on the cluster policy landscapes & collaboration opportunities in the European Union and Canada includes an assessment of key value chains in EU & Canadian trade flows. According to this examination, the EU27 Member States imported goods from Canada with a **trading volume of EUR 24.3 billion**. At the

[1] Statistics Canada (2023). Table 14-10-0202-02 Employment by industry, annual. Available under: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410020201 (last access 05.05.2023).

same time, the EU27 Member States exported goods with a value of EUR 38.8 billion to Canada in 2021 leading to a **trade surplus of EUR 13.89 billion** for the European Union in 2021. Moreover, this analysis identifies several value chains that are particularly relevant for trade between the European Union and Canada and also exhibit particular potential for further cooperation. These value chains can be linked to the following **six key Industrial ecosystems**[2], which can be key areas for further cooperation between the EU and Canada, through Cluster programs and complementary to other government initiatives:

- **Aerospace & Defence**
- **Agri-food**
- **Digital**
- **Health**
- **Mobility-Transport-Automotive**
- **Renewable Energy**

In addition, the analysis of the EU and Canadian trade flows points to the importance of **raw materials** which can play a role in various Industrial ecosystems (e.g., hydrogen for "Renewable Energy). Against the background of various recent agreements achieved between the EU and Canada (e.g., the strategic partnership on raw materials[3] which was set up in 2021) the importance of raw materials can be expected to increase in the future of EU and Canadian trade flows.

1.2. Canada's Global Innovation Clusters programme

In Canada, cluster development is supported by different programs at different levels of government, particularly national, provincial and territorial governments. At the federal level, over the last three decades, Canada has invested in a broad portfolio of programmes that promote collaboration and investment toward research and development (R&D) and commercialization of innovations through networks, centres, and organizations that stimulate activity and connections between industry, academia, government, and not-for-profits.

[2] The concept of the EU Industrial ecosystem has been introduced as part of the "A new industrial strategy for Europe" of the European Commission to provide an analytical tool which is not related to a fixed nomenclature. for more information on the Industrial ecosystems see https://www.clustercollaboration.eu/in-focus/industrial-ecosystems (last access 22.07.2024)

[3] https://single-market-economy.ec.europa.eu/news/eu-and-canada-set-strategic-partnership-raw-materials-2021-06-21_en (last access 07.03.2023)

At the national level, in 2017 the Canadian government introduced the 'Innovation Superclusters Initiative'[4] (ISI) which was rebranded as the **'Global Innovation Clusters'** (GIC) programme in 2022 and recapitalised with additional funding.[5] It can be seen as part of a larger trend in the cluster policies of advanced industrial countries to refocus their efforts on a selection of leading and globally competitive industries.[6] In this vein, the Canadian initiative aims to aggregate the country's cluster landscape into so-called 'superclusters' in a handful of **flagship innovation ecosystems**, with sufficient scope and scale to have a significant impact. In 2018, after a competitive selection process, five successful superclusters were announced by the Department for Innovation, Science and Economic Development (ISED).

This program supports **five clusters** that are independent, not-for-profit industry-led entities in key sectors of Canadian advantage: digital technologies, plant protein, advanced manufacturing, artificial intelligence in supply chains, and ocean economy. The Global Innovation Clusters program supports the acceleration of world-leading ecosystems, builds partnerships, and translates the country's strengths into new commercial opportunities for Canadian firms. More information on the Global Innovation Clusters can be found on the program's website.

Table 1: Overview of the five Canadian Global Innovation Clusters

DIGITAL SUPERCLUSTER	SCALE AI	CANADA'S OCEAN SUPERCLUSTER	Protein Industries Canada	NGen Next Generation Manufacturing Canada
Digital Supercluster Digital technologies $125 million (GIC) $173 million (ISI)	**Scale AI** Artificial intelligence $125 million (GIC)	**Canada's Ocean Supercluster** Ocean-based industries $125 million (GIC)	**Protein Industries Canada** Plant-based protein alternatives $150 million (GIC)	**Next Generation Manufacturing** Advanced manufacturing $177 million (GIC)

[4] ISED (2017): Innovation Superclusters. Program Guide. Available under: https://publications.gc.ca/collections/collection_2017/isde-ised/Iu4-214-1-2017-eng.pdf (last access 22.03.2023).
[5] ISED (2023): Government of Canada announces renewed funding for the Global Innovation Clusters. Available under: https://www.newswire.ca/news-releases/government-of-canada-announces-renewed-funding-for-the-global-innovation-clusters-807801125.html (last access 22.03.2023). The programme page can be consulted at https://ised-isde.canada.ca/site/global-innovation-clusters/en (last access 22.03.2023).
[6] See Rangen, C. (2021): Rise of Innovation Superclusters. Strategy Tools. Available under: https://www.strategytools.io/rise-of-innovation-superclusters/ (last access 21.03.2023).

$298 million (total) Virtual, mixed, and augmented reality; data collection & analytics; quantum computing Regional headquarters: British Columbia	$230 million (ISI) $355 million (total) AI & supply chain technology Regional headquarters: Quebec	$153 million (ISI) $278 million (total) Digital sensors & monitoring, autonomous marine vehicles, energy generation, marine biotech & engineering Regional headquarters: Atlantic Canada	$173 million (ISI) $323 million (total) Agri-food enabling technologies, incl. genomics, processing, and IT Regional headquarters: Prairie provinces	$250 million (ISI) $427 million (total) IoT, machine learning, cybersecurity, additive manufacturing Regional headquarters: Ontario

Source: Own elaboration based on information from ISED and Invest Canada, see here, here, and here. Budget numbers are shown in Canadian dollars ($).

1.3. Cluster Landscape in Canada

Membership structures vary across Canada's five innovation clusters, as each cluster has the ability to choose a membership structure that meets the evolving needs of its respective innovation ecosystems. All five clusters have built and nurtured membership networks that span across the country, playing a significant role in strengthening and building healthy innovation ecosystems. With over 9,300 members across all five clusters, they leverage their ecosystems to invest in networking and capacity building activities, and collaborative projects that accelerate innovation beyond what any one project partner could accomplish on its own. The table below provides updated information on the membereship structure of the Global Innovation Clusters.

Table 2: Membership by Global Innovation Cluster in Canada

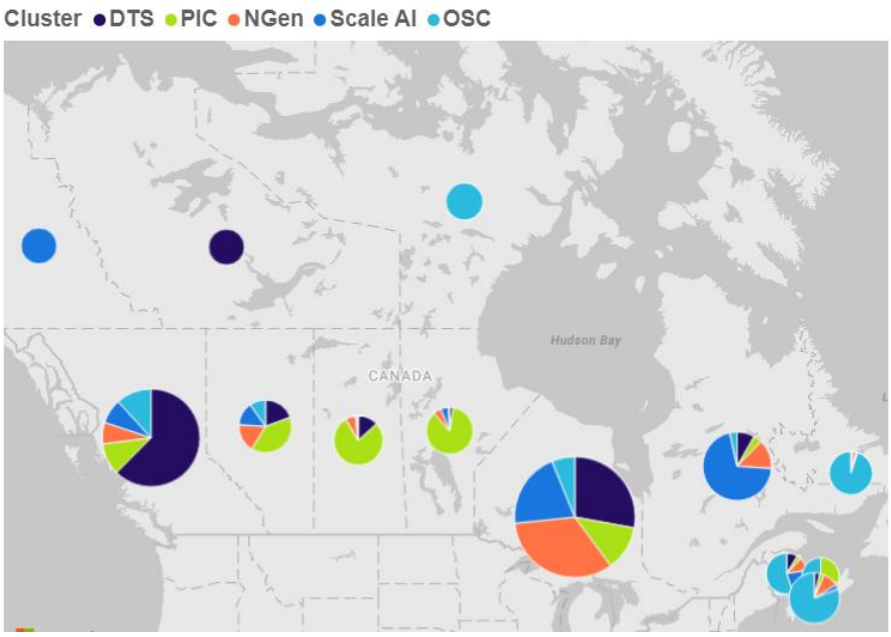
Cluster	Membership
Digital Technology Cluster	1,479
Protein Industries Cluster	205
Advanced Manufacturing Cluster	3,374
Scale AI Cluster	3,602
Ocean Cluster	642

Total	9,302

Source: ISED. Data as of 30.06.2024.

The **Global Innovation Clusters incent large-scale collaboration** among industry leaders, small and medium-sized enterprises (SMEs) and post-secondary institutions to develop and scale high-potential technologies in Canada. The clusters aim to jointly address sectoral challenges and foster innovation through collaboration. This collaborative model requires that each project be executed by a consortium of multiple partners, including at least one small- or medium-enterprise (SME), to provide Canadian SMEs with opportunities to access both domestic and global supply chains and membership networks that span across the country, increasing access to potential customers and collaborators. Through cluster projects and ecosystem activities, Canadian SMEs gain access to mentorship, resources and information, helping them build capacity internally. That knowledge transfer between large and small firms helps them scale up more quickly and successfully. The collaborative model also reduces risks and allows participants to share the costs of innovation, a key component to scaling. As of June 30, 2024, 2,955 partners are actively participating in cluster projects, with over 75% of business partners being SMEs.

Figure 1: Geographical distribution of the Global Innovation Clusters' project partners



Source: ISED. Data: 30.06.2024.

Figure 1 above displays the current **geographical distribution** of the Global Innovation Clusters' project partners. It shows clearly that cluster collaborations are pan-Canadian, though cluster organizations have regional headquarters. The size of the pie charts represents the total number of project partnerships. Ontario has the largest number of partnerships (912), followed by British Columbia (688) and Quebec (351). The absolute numbers of project partnerships, however, should be viewed with caution as they do not necessarily reflect project volumes.

Project partners across all cluster organizations include: SMEs (51%), large firms (14%) and research organizations (15%), while the remaining 20% are made up by other types of partners. The composition varies across regions and cluster organizations (see Table 3 below with updated information).

Table 3: Partnership composition across Global Innovation Clusters, by number and percentage

	SMEs	Large firms	Research organisations	Other	Total
Digital	327	143	142	249	**861**
	38%	17%	16%	29%	
NGen	372	39	73	7	**491**
	76%	8%	15%	1%	
Ocean	231	49	50	142	**472**
	49%	10%	11%	30%	
Protein	255	55	118	120	**548**
	47%	10%	21%	22%	
Scale	312	139	59	73	**583**
	54%	24%	10%	12%	
Total	**1497**	**425**	**442**	**591**	**2,955**
	51%	14%	15%	20%	

Source: ISED. Percentages refer to the shares within the same cluster. Data: 30.06.2024.

II. Global Innovation Clusters program

Source: Global Innovation Clusters, Innovation, Science and Economic Development Canada, Government of Canada

1. Overview

The Global Innovation Clusters program is investing $2B CAD over 10 years, matched by industry contributions, to build innovative ecosystems through collaboration. By bringing together industry, private, academic, and non-profit organizations, the clusters are creating high-quality jobs, building a diverse and skilled workforce, helping firms scale up and commercialize, investing in promising projects, and helping position Canada as a global innovation leader.

Canada's Global Innovation Clusters support the acceleration of world-leading ecosystems, build partnerships, and translate the country's strengths into new commercial opportunities for Canadian firms. Specifically, the program makes investments for the clusters to be:

- **A national force:** Develop ecosystems that create a global advantage for Canada by attracting investment, developing a global profile, and collaborating on projects at a national scale.

- **A driver of growth:** Accelerate the scale-up of SMEs in cluster projects by fostering collaboration and integration into emerging value chains, in order to drive international opportunities, expand market share, and grow revenues.

- **A creator of networks:** Strengthen connections and collaborations between private, public and academic organizations to drive impactful commercialization outcomes and develop domestic capacity.

- **A catalyst for skills development:** Address skills gaps, act as a magnet for global talent, collaboration, and skills and talent development, and foster opportunities for equity-seeking groups to benefit from connections, in order to drive innovation and contribute to inclusive economic growth.

The Global Innovation Clusters have proven successful at creating stronger ecosystems, de-risking adoption of technology, maximizing the value of intellectual property, and forging new partnerships that increase firms' market potential.

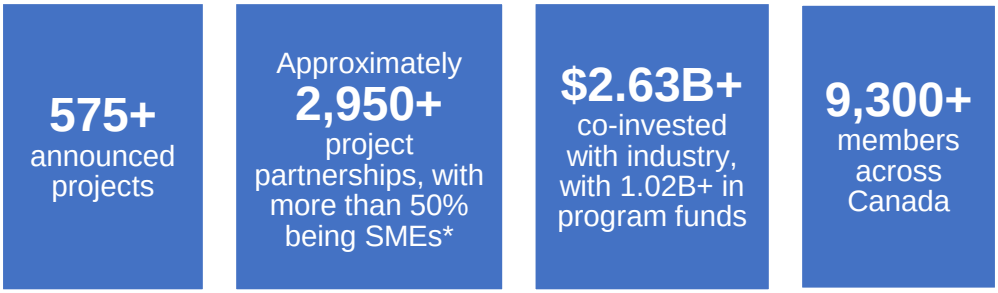
The clusters have emerged as effective economic tools that can help governments respond to national priorities by leveraging their connection with their ecosystems and expertise.

- All clusters have been selected to support the second phase of the Pan-Canadian AI Strategy (PCAIS), where clusters are accelerating the commercialization and adoption of made-in-Canada AI technologies.
- Under the National Quantum Strategy, the Digital Technology Cluster and the Advanced Manufacturing Cluster are jointly advancing efforts to translate quantum science and research into commercial innovations that generate tangible benefits.
- The Advanced Manufacturing Cluster has been selected to launch the Homebuilding Technology and Innovation Fund to help support the scale-up, commercialization, and adoption of innovative housing technologies and materials.

The clusters continue to demonstrate their impact. Several cluster-funded projects have already received international and national recognition for their innovative technology:

- Aspire Food Group led a project, funded through the Advanced Manufacturing Cluster, that was named one of the Top 10 AI solutions in the world in pursuit of the United Nations Sustainable Development Goals.
- Projects funded through the Digital Technology Cluster and led by Firstline Clinical and DNAStack have also been recognized by the World Health Organization and the World Economic Forum respectively, for their innovative technologies to support health.
- Ideon Technologies' low-impact mining project, funded through the Digital Technology Cluster, was awarded a Governor General's Innovation Award in 2023.

2. How The Clusters Have Been Delivering



Last Updated: June 30, 2024

3. Meet Our Clusters

The **Digital Technology Cluster** is developing and deploying digital innovations as a catalyst to grow Canadian companies, advance human and environmental health and build an inclusive, skilled workforce for the digital world.

The **Protein Industries Cluster** is creating a reliable, sustainable and long-term plant-protein industry, supporting Canadian companies and economic reconciliation, reducing GHG emissions related to agriculture and food processing, building out an integrated and resilient value chain towards food security, and anchoring Canada as a global leader in the rapidly growing sector.

The **Advanced Manufacturing Cluster** is helping to commercialize transformative industry-led projects that develop, scale-up, and apply advanced technology solutions in manufacturing, attracting talent and investments and supporting Canada's transition to being a leading green supplier to the world.

The **Scale AI Cluster** is working to boost industry performance by leveraging AI technologies to improve value chains, with a specific focus on building resilient and sustainable supply chains while contributing to the development of an innovative, competitive, diverse, inclusive and greener Canadian economy, with a focus on supporting small and medium enterprises and creating a Canadian market for AIs.

The **Ocean Cluster** is accelerating the growth of Canada's ocean economy through innovative technology projects, leveraging Canada's indigenous and western knowledge of its oceans, delivering cross-sectoral solutions, building a strong global ocean brand, connecting ocean communities, and building Canada's diverse ocean workforce.

Learn More

- About the program
  - Pan-Canadian Artificial Intelligence Strategy
  - Canada's National Quantum Strategy

Our Impact

- Success Stories
- Impacting the lives of Canadians
- Taking Canada further and faster

3.1. Digital Technologies Cluster DIGITAL

Overview

The Digital Technology Cluster accelerates the development and adoption of digital innovations as a catalyst to grow Canadian companies, advance human and environmental health and build an inclusive, skilled workforce for the digital world. The Cluster is capitalizing on Canada's world class digital capabilities and distinct advantages by growing businesses, creating a digitally skilled workforce and positively impacting lives across the country.

The Digital Technology Cluster has developed a robust and engaged ecosystem of collaborators, attracting a pan-Canadian member community that now numbers more than 1,475 organizations in areas of digital health, natural resources and environment, and workforce development.

Its cluster engagement model has proven to be successful in attracting collaborations that grow the digital ecosystem and capitalize on new investment and collaboration opportunities while providing opportunities for members to connect and participate in ideation forums, thought leadership sessions, networking programs and project development workshops.

Since its inception, the Digital Technology Cluster has increased the competitiveness and accelerated the growth of Canadian industry leaders and start-ups. The Cluster continues to unlock the potential of Canadian enterprises to lead and succeed in the digital world, helping bring digital innovation from concept to market, keeping Canadians healthy, contributing to economic productivity and mitigating the impacts of climate change.

Program Streams

- Digital Health – Data driven innovation that improves patient outcomes, access to health care, and sustainable healthcare systems.
- Environmental Health – Increase the global competitiveness of natural resources companies while reducing their environmental impact and carbon footprint, through investing in resilient forestry, low impact critical minerals extraction and mining, and regenerative agriculture supply chain solutions.
- Talent – Investing in innovative upskilling and reskilling, leadership capacity building, and growing the digital skilling ecosystem to meet current and future workforce demand, while reducing barriers faced by underrepresented groups in industry.

Pan-Canadian Artificial Intelligence Strategy (PCAIS)

In support of the Pan-Canadian AI Strategy (PCAIS), the Digital Technology Cluster is building a commercially focused AI ecosystem through investments in three main areas:

- AI for Health: Support the resiliency and sustainability of health care systems that improve patient diagnostics and increase access to health services.
- AI for Earth: To advance the transition to clean agricultural and natural resources sector such as environmental protection, natural disaster preparation and food security.
- AI for Services: To augment personal service and support with digital assistants that can help improve efficiency in administrative tasks and across customer service sectors.

National Quantum Strategy

Under the National Quantum Strategy Commercialization Pillar, the Advanced Manufacturing Cluster (NGen) and the Digital Technology Cluster, are supporting the commercialization and adoption of quantum technologies. The clusters are focusing their projects in three key categories of quantum technologies: quantum sensors, quantum networks and quantum computing.

CEO – Sue Paish

As CEO, Sue Paish leads a portfolio of digital innovation and capacity-building initiatives, which are helping to create world-leading solutions. Prior to leading DIGITAL, Sue held leadership roles in major Canadian organizations, including as CEO of LifeLabs, where she led significant growth and technological advancements across Canada's diagnostic sector. Sue was also the CEO of Pharmasave, and oversaw the delivery of some of the first online access tools for medication management.

Learn More

Program Resources

- Canada's Digital Technology Cluster
- Success stories
  - A larger and deeper pool of talent
  - Adopting a commercial mindset
  - Collaboration enables reconciliation
  - Creating capacity for new tech adoption
  - Measurable, meaningful equity, diversity and inclusion results
  - More savings, more adoption
  - The voice of the customer
  - COVID Cloud: a virus tracker
  - Digital technology that heals
  - The future of crop health is precise
  - The intelligent marketplace for unsold food
  - Uncloaking dark vessels

Cluster Resources

- News releases
- 2022-2023 Annual report
- Success stories

Connect to DIGITAL

- Events
- Newsletter

Contact:
info@digitalsupercluster.ca

3.2. Digital Technologies Cluster DIGITAL, Next Generation Manufacturing Canada

Overview

The Advanced Manufacturing Cluster is leveraging Canada's technology and industrial strengths to commercialize transformative industry-led projects that develop, scale-up, and apply advanced technology solutions in manufacturing, attract talent and investment, and position Canada as a leading green supplier to the world.

By creating connections and strengthening collaboration, the Cluster is building world-leading capabilities and solving some of the world's most pressing issues. With over 3,370 members, the Cluster has built an ecosystem that has benefitted

SMEs and accelerated innovation. The Cluster's projects are securing supply chains, protecting the environment, improving healthcare, and supporting technology adoption across Canada.

Program Streams

- Technology Development – Develop and scale new technologies with significant commercial potential.
- Process Transformation – Adopt advanced technologies to transform existing manufacturing processes, such as food processing, automotive, and the EV value chain.
- Technology Diffusion – Expand the user base for new and unique applications of technologies and solutions in other areas of advanced manufacturing like aerospace, advanced materials, biomanufacturing, electronics, customized automation, and robotics.
- Ecosystem Development – Support for training, collaboration, and the development of tools and test beds.
- SME Capacity Building – Providing opportunities to grow, strengthen, and scale up SME partners, beyond what they could do on their own.

The Advanced Manufacturing Cluster's efforts and outcomes have led to the successful development of new products, processes, and services, which, in turn, has led to the creation of new jobs, upskilling opportunities to strengthen the workforce, and increased SME participation in cluster projects and scale up potential.

Pan-Canadian Artificial Intelligence Strategy (PCAIS)

Under the Pan-Canadian AI Strategy (PCAIS), the Advanced Manufacturing Cluster is supporting AI-enabled advanced manufacturing technology development and commercialization through systems optimization within manufacturing facilities and across supply chains, and the development of new advanced manufacturing capabilities.

National Quantum Strategy

Under the National Quantum Strategy Commercialization Pillar, the Advanced Manufacturing Cluster (NGen) and the Digital Technology Cluster, are supporting the commercialization and adoption of quantum technologies, including: quantum sensors, quantum networks and quantum computing.

CEO – Jayson Myers

Jayson Myers is the CEO of NGen, helping to accelerate advanced manufacturing and technology to drive digital transformation. Jayson is an award-winning business economist specializing in industrial and technological change and is widely recognized as an influential policy advocate in Canada. Jayson has more than 25 years of experience building alliances, and previously served as the President and CEO of Canadian Manufacturers and Exporters, Canada's largest industry and trade association.

Learn More

Program Resources

- Canada's Advanced Manufacturing Cluster
- Success stories
  - A light touch for a heavy industry
  - An ally, partner and supporter in reconciliation
  - Digital manufacturing at scale –at last
  - From industry to ecosystem
  - Meeting a do-or-die challenge
  - Moving closer to sustainable manufacturing
  - People of today, products of tomorrow
  - Second skin for all
  - Sound IP management from start to finish
  - The answer is crickets
  - The right fifty percent

Cluster Resources

- Next Generation Manufacturing Canada website
- News releases
- 2022-2023 Annual report
- Success stories

Connect to Next Generation Manufacturing Canada

- Events
  - Hannover Messe 2025
- Newsletter (see bottom of the page)

Contact: info@ngen.ca

3.3. AI-Powered Supply Chains Cluster, Scale AI

Overview

The AI-Powered Supply Chains Cluster (Scale) is leveraging AI technologies to improve supply chains and establish Canada as a global hub for AI. Scale is helping cement Canada's foothold in the AI industry by addressing the urgent need to drive workforce growth, starting with building awareness of careers in AI and prioritizing training and upskilling, and extending all the way to filling the industry demand for leading-edge AI

research. Scale AI has launched a number of workforce and talent development programs, including 29,000 training courses offered. This includes training tailored to executives, training specific to logistics and supply chain analytics, an introduction to Power BI and coding languages, and more. For more information, see here.

This holistic approach to ecosystem building through workforce development programs has helped youth, professionals, and businesses develop artificial and digital intelligence skills for the current and future workforce in AI. Scale AI's efforts are not only helping to prepare future talent to generate and use AI technologies, but ultimately, are playing a key role in establishing the Canadian AI ecosystem – critical in a time of global competition – and paving the way for Canadian businesses to adopt and use Canadian-made AI solutions.

Since its inception, Scale AI has created a new Canadian AI innovation ecosystem with organizations collaborating and investing in the AI supply chain, generating economic and environmental benefits.

Program Streams

- Industry-led projects – Drive the adaptation and adoption of AI-powered solutions across sectors. Develop, commercialize and productize AI-powered products and services applied to advanced supply chains management.
- Acceleration – Support start-ups and SMEs by providing access to different programs and supports and actively match them to commercial partners and investors across Canada or abroad.
- Workforce Development – Support customized and upskilling training programs to bolster the level of AI/digital literacy.
- Ecosystem showcase and global presence – Establish Canada as a global hub for AI dedicated to business productivity and intelligent supply chains.

Pan-Canadian Artificial Intelligence Strategy (PCAIS)

In support of the Pan-Canadian AI Strategy (PCAIS), the Scale AI Cluster is supplementing its existing investments in intelligent supply chain by launching the AI for healthcare initiative. The initiative promotes collaboration between hospitals and AI product and solutions providers across the country to innovate further and accelerate the deployment of AI in the Canadian healthcare network to improve operations, logistics and resource allocation.

CEO – Julien Bilot

Julien Billot is the CEO of Scale AI. He is also an adjunct professor of HEC Montreal and the Montreal lead for two transformational programs aiming to launch and grow startups in Artificial Intelligence, leveraging the Montreal tech and business ecosystems – NextAI and the Creative DestructionLab (CDL). He has extensive experience in the marketing, media and mobile industries, with a track record of successfully executing print-to-digital business transformations.

Learn More

Program Resources

- AI-Powered Supply Chains Cluster
- Success stories
  - A driving force is making industries greener
  - Artificial intelligence is the future of homecare
  - Digital twin is a supply chain win
  - Increasing AI knowledge among workers and students
  - IP in action
  - Making Canadian ports smarter
  - Steeling Canada's aluminum competitiveness
  - Tangible impacts; tangible success

To heal the adoption Achilles heel

Cluster Resources

- Scale AI
- News releases
- 2022-2023 Annual report
- Success stories
- AI at Scale report

Connect to Scale AI

- Events
  - ALL IN Event 2024

Newsletter

Contact: info@scaleai.ca

3.4. Ocean Cluster, Canada's Ocean Supercluster

Overview

Canada is inextricably linked to its three oceans, and the opportunities they have long represented. The Ocean Cluster is delivering on these opportunities by driving the growth of Canada's ocean economy, delivering cross-sectoral solutions, building a strong global ocean brand, connecting ocean communities and strengthening Canada's diverse ocean workforce.

The Ocean Cluster is advancing Canada as a global ocean leader – expanding their national and international presence and highlighting Canada's capabilities to solve some of the world's biggest ocean challenges. Building on this momentum, the Cluster will continue bringing together companies of all sizes, academia, investors, regional innovation hubs, and governments to work together to grow Canada's ocean economy to $220 billion CAD by 2035, which is 5X the growth potential in ocean in Canada. This will, by necessity, result in commercial products, processes, and services that solve ocean challenges while also creating game-changing economic return.

Since its inception, the Ocean Cluster has been a catalyst and convenor in growing and accelerating Canada's ocean economy in a digital, sustainable, and inclusive way. With a pan-Canadian community of over 600 members and around the world, the Cluster is changing the way ocean business is done.

Program Streams

- Scaled Ocean Energy – Greening Canada's economy by accelerating Canada's renewable ocean energy industries.
- Sustainable Seafood – Increasing the provision and security of sustainable food from ocean-based sources.
- Future of Ocean Transportation – Driving marine decarbonization by transforming vessel efficiency, autonomy, and powering.
- Ocean Climate Solutions – Accelerating the delivery of innovations that mitigate climate change.
- AI Ocean Program – Encouraging new investment into ocean AI solutions and accelerating the adoption of AI by Canadian ocean companies.
- Ecosystem Development – Supporting the scale-up of companies and commercialization of innovative products and building a larger and more diverse ocean workforce.

Pan-Canadian Artificial Intelligence Strategy (PCAIS)

In support of the Pan-Canadian AI Strategy (PCAIS), the Ocean Cluster is investing in AI to incent Canadian companies to advance future ocean AI commercialization opportunities and to help de-risk data-specific activities and develop the capacity to successfully commercialize AI.

CEO – Kendra MacDonald

Kendra MacDonald is the CEO of the Ocean Supercluster, where she is helping to accelerate innovation in Canada's ocean economy. Her leadership in building the cluster from ground up has been recognized, where she was named one of the Atlantic Canada's Top 50 CEOs by Atlantic Business Magazine for three years, along with being named one of Canada's top sustainability leaders in 2022 for theClean50 awards. Prior to leading the cluster, Kendra was a Partner in Deloitte's Risk Advisory practice and the Chief Audit Executive of Deloitte Global.

Learn More

Program Resources

- Ocean Cluster
- Success stories
  - A bridge to the future
  - A map of the watery part of the world
  - Blazing pathways to career success
  - Building a cleaner world with ocean opportunity
  - Carbon-free seas

Cluster Resources

- Canada's Ocean Supercluster
- News releases
- 2022-2023 Annual report
- Ambition 2035

Connect to Canada's Ocean Supercluster

- Events
- Newsletter

Contact: contact@oceansupercluster.ca

3.5. Protein Industries Cluster, Protein Industries Canada

Overview

The Protein Industries Cluster accelerates the growth of Canada's ingredient manufacturing and food processing sector by increasing the value of key Canadian crops – such as canola and pulses – and serving markets for plant-based ingredients and food. The cluster supports the scale-up and commercialization of Canadian companies, contributing to economic reconciliation, reducing GHG emissions related to agriculture and food processing and building out an integrated and resilient value chain increasing food security for Canadians and millions of people around the world.

Protein Industries Canada has helped to fuel a variety of partnerships that range from crop breeders and technology developers to ingredient processors and food manufacturers – allowing innovation to happen quicker and more efficiently. The cluster embraces working together to accelerate the industry and develop a self-sustaining ecosystem, to help Canada reach the sector's goal of achieving a $25-billion ingredients, food and bio-products market by 2035 that can lead to more jobs, food options and innovation.

Canada is already seeing the tangible results of Protein Industries Canada projects to date. The cluster projects have helped supply farmers with new crop and technology options, put new food choices on grocery store shelves, and contribute to making the sector more sustainable, all while addressing some of the most pressing challenges facing humanity: food security and climate change.

Program Streams

- Genetics – Germplasm development with an aim to improve processing efficiency, quality, sensory characteristics and the development of novel ingredients.
- Crops – Technologies to measure and improve on-farm sustainability and information flow along the value chain.
- Ingredients – The development, scaling and optimization of plant-based ingredients.

Products – The conversion of Canadian-made ingredients and co-products into consumption-ready goods.

Pan-Canadian Artificial Intelligence Strategy (PCAIS)

In support of the Pan-Canadian AI Strategy (PCAIS), the Protein Industries Cluster is helping Canadian businesses use AI across the entire agriculture and food value chain: from seed genetics to on-farm production through to ingredient manufacturing, food processing and logistics.

Interim CEO – Frank Hart

As interim CEO, Frank Hart will focus on the future of the organization and securing Canada's value-added processing ecosystem. Frank has previously served as a board member for the cluster, including as Chair from 2018-2023. Prior to leading the cluster, Frank previously held leadership positions at a range of organizations, including Greystone Managed Investments Inc., EDS Canada, and Crown Investment Corporation of Saskatchewan.

Learn More

Program Resources

- Canada's Protein Industries Cluster
- Success stories
  - A plate changing advance
  - A strategic approach to IP
  - Benefit every Canadian
  - Boundless versatility and endless opportunity of a plant-based protein supplement
  - Changing the way the world sprays
  - Diverse opportunities for a diverse workforce
  - Ecosystem insight to build effective and relevant workforce solutions
  - Grown and value added in Canada
  - Hitting the sweet spot
  - On the road to $25 billion
  - Putting farming at the forefront of new technologies

Cluster Resources

- Protein Industries Canada website
- News releases
- 2022-2023 Annual report
- Success stories
- Road to 25 billion

Connect to Protein Industries Canada

- Events
- Newsletter

Contact: communications@proteinsupercluster.ca

III. Invest in Canada

Source: Invest in Canada

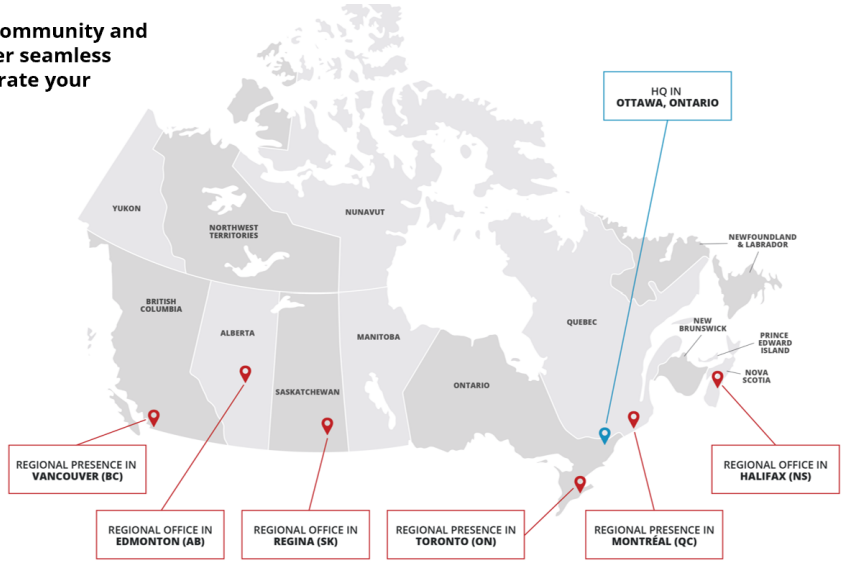
1. Invest in Canada

Invest in Canada: Bringing industry, community and government partners together to offer seamless services that make it easier to accelerate your expansion in Canada.

KEY FACTS:

- Established as a Departmental Corporation in March 2018
- Private sector board of directors with a range of expertise

invest in CANADA | investir au CANADA

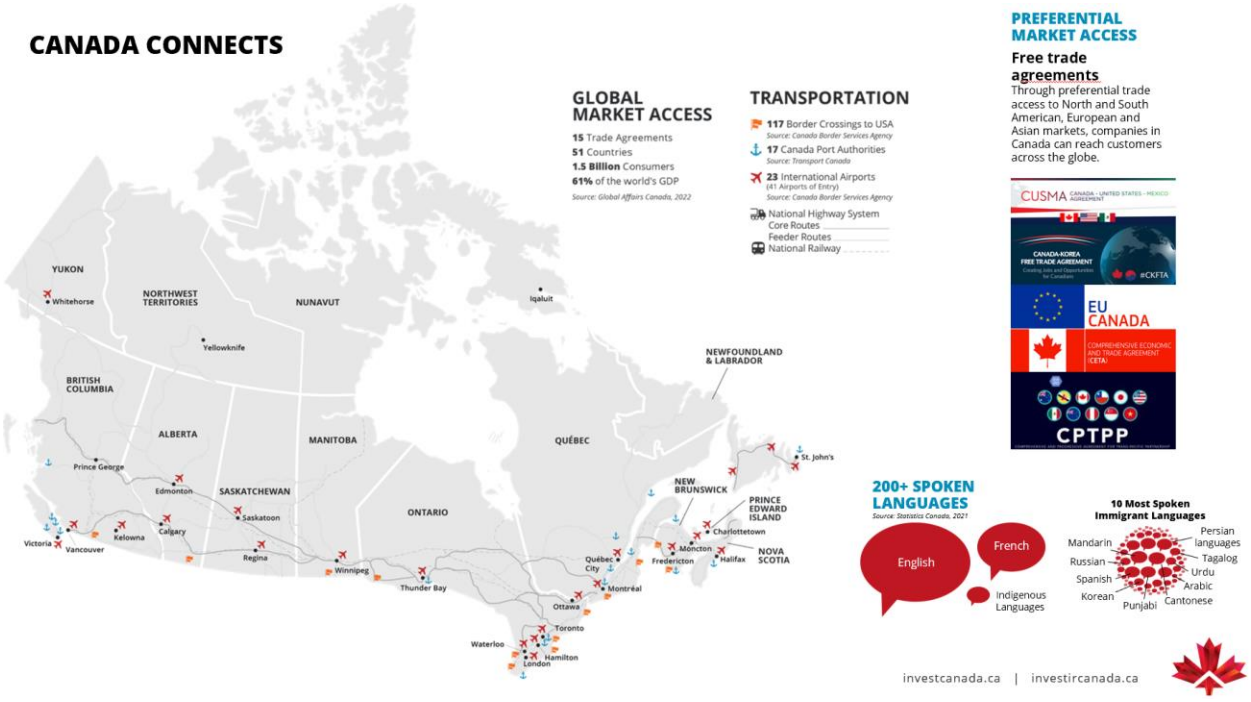


How we Help Companies

- **INVESTMENT ANALYSIS**
  - Single window for all services related to investments in Canada
  - Coordinated approach between federal, provincial and municipal partners to support your analysis and site selection process
  - Data and information to support the development of your business case on this project
  - Strategic market intelligence on your specific industry
  - Planning, coordinating and executing site visits and key meetings across Canada
- **ROADMAP**
  - Guidance and advice on doing business in Canada and navigating the regulatory environment
  - Advice and insights on applicable government funding programs and step-by-step counseling on the application process
  - Identification of potential tax, R&D credits and other incentives to support your investment
- **INTRODUCTIONS**
  - Introductions to Federal, Provincial and Municipal government organizations that can help you access local investment opportunities, networks and programs

- Introductions to key contacts in the private sector, academia and government
- Strategic industry events and international activities
- Referrals to investment support professionals, such as lawyers, accounting firms, and private-sector industry associations

2. Why Canada



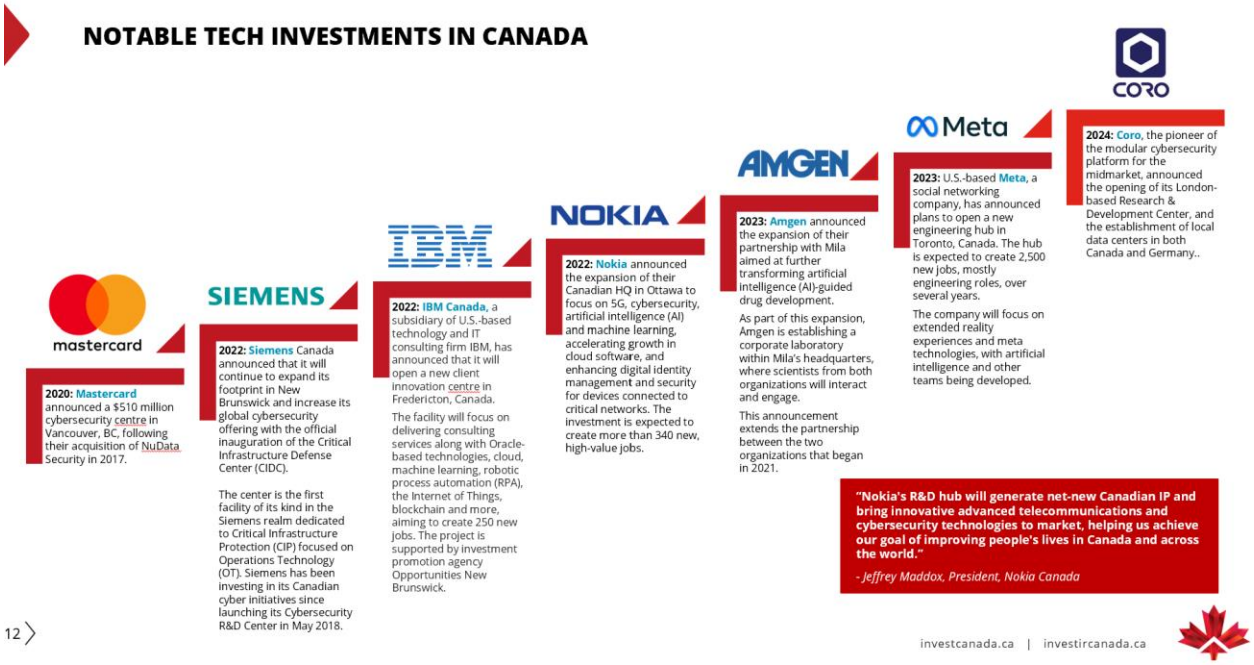
- **Global Market Access**
  - Canada's free trade regime provides access to 1.5 billion consumers and 61% of the world's GDP.
  - *Source: Global Affairs Canada, 2022*
- **Trade Infrastructure**
  - Canada maintains 17 port authorities, 23 international airports and 117 border crossings with the U.S. It also has a national highway and railway network.
- **Focus on Innovation**
  - Canada's tech-oriented Global Innovation Clusters are working to support leading, innovative companies across the country.
- **200+ Spoken Languages**
  - In addition to English and French, other key languages include Mandarin, Punjabi, Cantonese, Arabic and Spanish.
  - *Source: Statistics Canada, 2021*

- **STEM Talent**
  - Canada produced 137,000 STEM graduates in 2020 (34,844 in Ontario) and that talent is 10% to 30% more cost competitive than in the US.
  - *Source: Statistics Canada 2022*
- **Sound Banking System**
  - Canada is home to the top six safest banks in North America. These same six banks are ranked among the top 35 in the Top 50 World's Safest Banks.
  - *Source: Global Finance, 2023*
- **Access to Global Talent**
  - Canada has open and progressive immigration policies, with targets to attract 500,000 highly skilled immigrants per year.
  - *Source: IRCC 2023*
- **Commitment to Clean Energy**
  - Canada ranks 14th globally on the 2023 Green Future Index.
  - *Source: The Green Future Index, 2023*

3. Tech Talent in Canada

- Canada's tech workforce has grown much faster than the U.S. in recent years, with a 15.7% growth rate since 2020, versus 11.4% for the U.S. Toronto added the second-most tech jobs among North American cities from 2017-2022 at 63,800, followed by Montréal at 51,500 jobs. All four markets with the highest tech job growth rate between 2017 and 2022 are in Canada: Vancouver (69%), Calgary (61%), Waterloo Region (52%) and Edmonton (45%).
- CBRE's 2023 Tech Talent report highlighted both large (classified as over 50,000 workers) and small tech markets in Canada and included three Canadian cities in its list of "North America's Next 25 Markets":
  - Large markets: Toronto, Montréal, Vancouver, Ottawa, Calgary
  - Small markets: Québec City, Edmonton, Waterloo Region
  - "Next 25" markets: Halifax, London (Ontario), Winnipeg
- Canada is the most educated country in the OECD: 62% of Canadian adults have a post-secondary degree
- 150,000 Tech jobs have been added across Canada since 2020, a growth rate of nearly 16%
  - Sources: Education data: https://data.oecd.org/eduatt/adult-education-level.htm#indicator-chart
  - Tech talent data: CBRE Scoring Tech Talent 2023 (most updated version)

https://www.cbre.com/insights/books/scoring-tech-talent-2023/which-are-the-top-ranked-tech-talent-markets



4. Artificial Intelligence in Canada

Home to many of the world's brightest minds in the field of artificial intelligence, Canada continues to attract global talent and capital. That's why global companies are choosing to locate in AI centres throughout Canada to get access to the deepest and highest quality pool of AI talent.

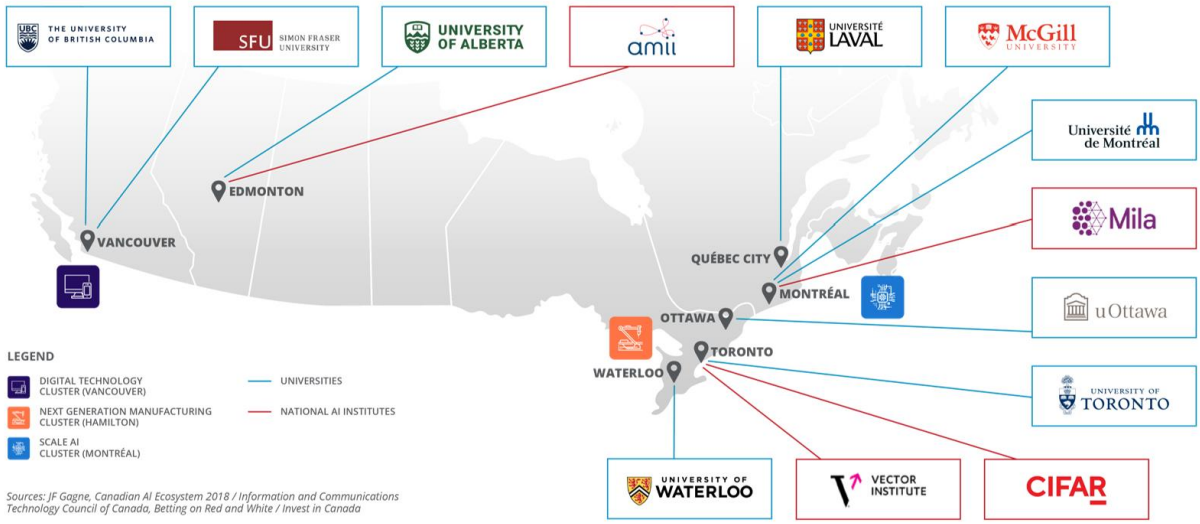
Canada features **three AI institutes in partnership with CIFAR**: Alberta Machine Intelligence Institute (Amii), Mila and the Vector Institute in Toronto, all headed by leaders in AI.

Notable announcements

May 2023 – Cohere raised $270 million of Series C venture funding in a deal led by Inovia Capital on June 8, 2023, putting the company's pre-money valuation at $1.75 billion. Alphabet, Nvidia and nine other investors also participated in the round.

November 2023 – Microsoft has announced plans to open a new data centre in Donnacona, Canada. This is part of a $500m investment plan in which it will expand its hyperscale cloud computing and artificial intelligence innovation infrastructure in Quebec up to 2025, increasing the size of Microsoft's cloud infrastructure footprint by 750% across Canada.

KEY AI HUBS IN CANADA



Key Industrial Verticals for AI in Canada

- Healthcare

- In Canadian healthcare, not only is cost mitigation a priority, but increasingly are meeting the needs of the aging population and long-term care and a shift to preventative medicine along with personalized digital health platforms.
- The healthcare vertical in Canada accounts for over 20% of all AI-powered firms, capturing over $700 million in total VC funding.

Examples of Canadian companies:

BenchSci (Toronto, ON) uses machine learning to help scientists find and purchase antibodies for their experiments, saving time and money.

Imagia (Montréal, QC) pairs the latest advances in oncology with machine learning to provide oncology professionals with the insights needed to inform targeted treatment decisions.

- Financial Services
  - Product and service innovation, operating model redesign, data sharing and specialization across the changing financial services landscape all drive from AI's ability to refine service delivery in Canada.
  - In Canada, financial services accounts for over 17% of AI firms, second to healthcare, raising $545 million in VC funding.

Examples of Canadian companies:

Borrowell (Toronto, ON) operates an online lending platform intended to offer personal loans and free credit scores.

Clearco (Toronto, ON) is a developer of an online financial platform designed to provide growth capital to e-commerce and B2B companies to grow.

- Government Operations
  - Government operations is the third-most targeted industry by AI firms in Canada. Representing 10% of all AI firms, the opportunity to integrate with public services and procurement remains a priority for Canada.
  - This category includes startups working on smart city planning, surveillance, urban space design, disaster management, policy prediction outcomes, water utility management, in addition to government operations specific needs such as networks and technology infrastructure and IT modernization.

Examples of Canadian companies:

NuEnergy.ai (Ottawa, ON) is an AI management software and professional services firm that helps build guardrails for organizations that develop or deploy AI to mitigate risk and maintain trust.

UrbanLogic (Surrey, BC) is a cloud-based application with an urban data analytics platform intended to make city planning faster, cheaper and more accurate for public officials.

- Advanced Manufacturing
    - The significance of manufacturing in Canada's AI ecosystem is clear, as the category raised over $400 million in funding and consists of 7% of all AI firms in the nation.
    - AI applications are contributing to the advancements of 3D printing, including the connection to IoT, sensors and robotics, demand forecast accuracies, self-learning and monitoring, making manufacturing processes more predictable and controllable, reducing costs and delays and defects.

Examples of Canadian companies:

Eigen Innovation (Fredericton, NB) is a developer of AI-based IoT software designed to help industrial manufacturers optimize their production operation.

Interaptix (Toronto, ON) is a company intended to fundamentally revolutionize how people interact with the world and one another with augmented reality tools to increase productivity and safety.

- Auto Tech
    - Canada is home to five global OEMS and over 700 parts suppliers.
    - AI enables the automotive and mobility sector to build autonomous vehicles, perception software, fleet management solutions, deep learning for HD map generation, predictive vehicle maintenance, driver monitoring systems and AV simulation software.

Examples of Canadian companies:

Blackberry QNX (Ottawa, ON) leverages AI and ML for autonomous vehicles and long-term transportation research, including the use of 5G networks.

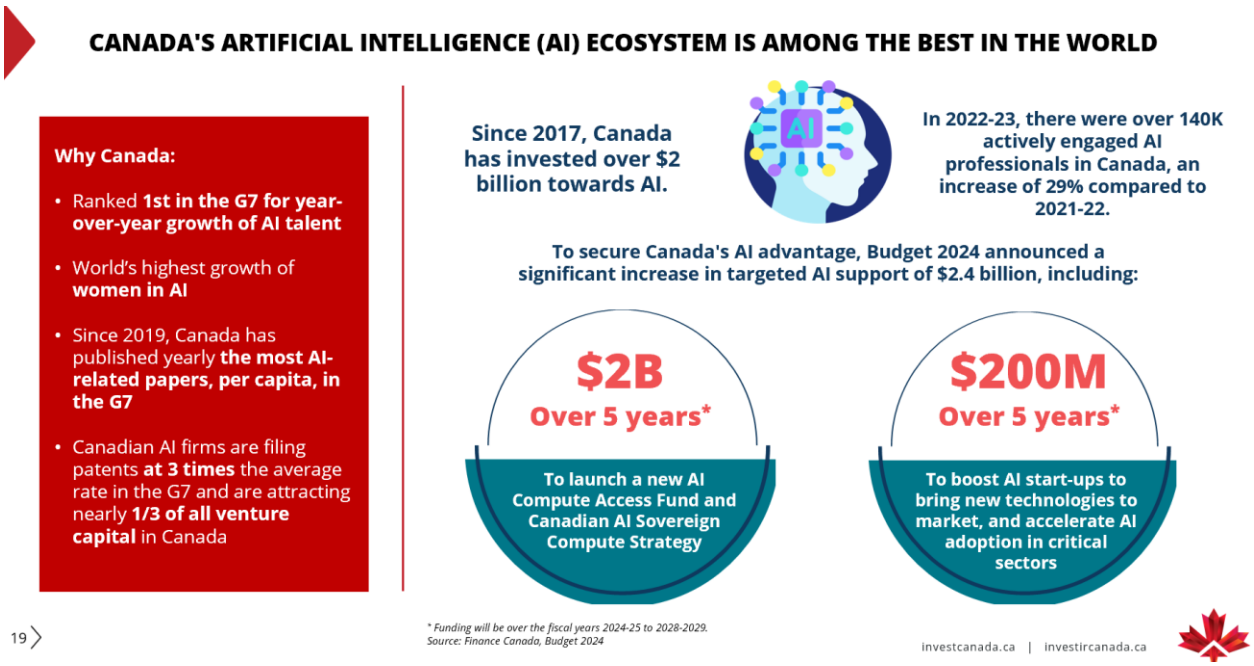
LeddarTech (Québec City, QC) is a leader in environmental sensing solutions for autonomous vehicles and advanced driver assistance systems.

- Cybersecurity
    - Companies utilizing AI in the cyber technology space are using machine learning to monitor activity on systems and networks in real-time, identify patterns and anomalies from internal and external data streams, speed up detection, free up resources, enable faster remediation and generally help improve continuous cyber resilience.

Examples of Canadian companies:

eSentire (Waterloo, ON) is a Managed Detection and Response (MDR) service provider, keeping organizations safe from constantly evolving cyber-attacks that technology alone cannot prevent.

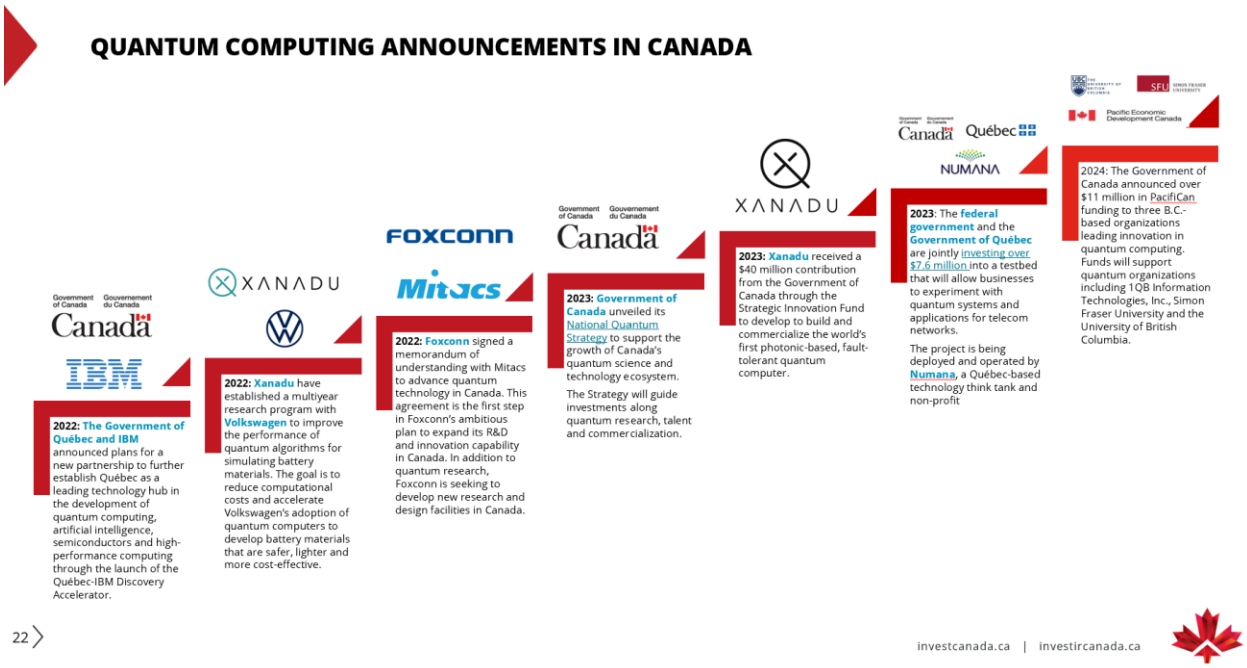
Copperhead Security (Toronto, ON) is an information security firm created to protect mobile data and devices.



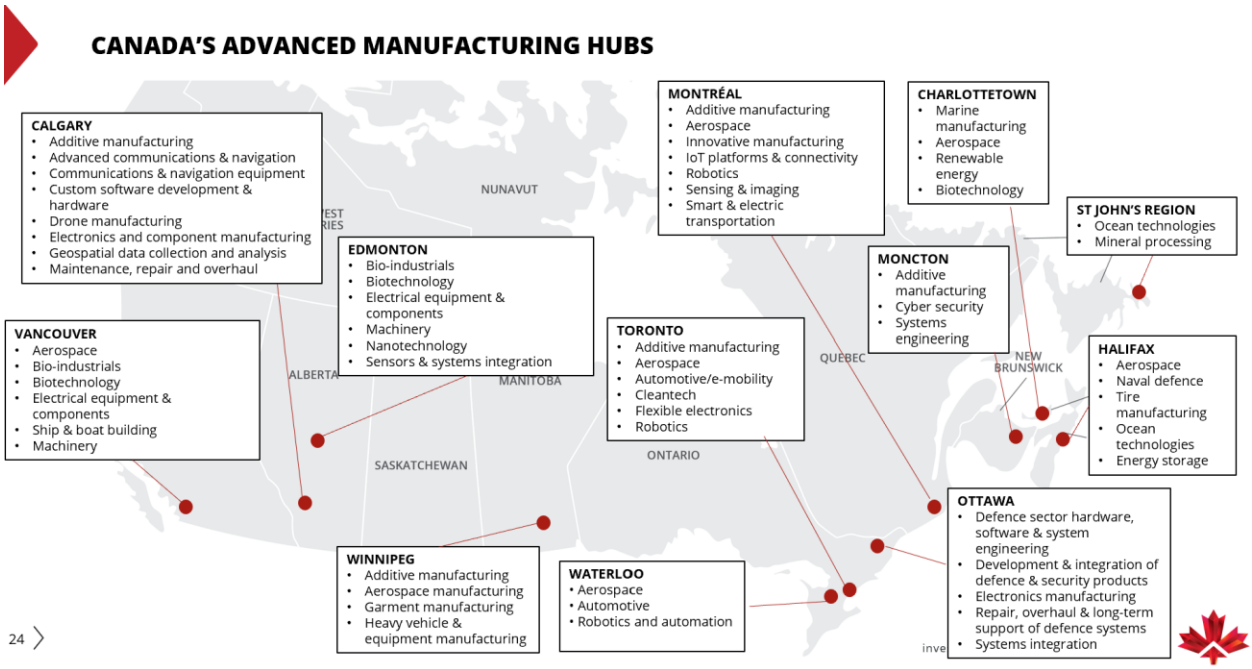
5. Quantum Computing in Canada

- Canada has taken a leadership position through investments in quantum science over many decades, including more than $1 billion between 2012 and 2022. Canada is also home to 23 quantum computing startups, second only to the U.S. (59), according to McKinsey & Co. (2021).
- In October 2020, a consortium of Canada's leading quantum technology companies launched the Quantum Industry Canada (QIC), an industry association with a mission to ensure that Canadian quantum innovation and talent is translated into Canadian business success and economic prosperity.
- In January 2023, the Government of Canada unveiled its National Quantum Strategy (NQS) to foster research, talent and commercialization.
- **Key research institutes include:**
    - Waterloo's Quantum Valley – Seven key research facilities/incubators that support the development of quantum computing (includes University of Waterloo's Institute for Quantum Computing)
    - University of Toronto's Centre for Quantum Information and Quantum Control

- Université de Sherbrooke's EPIQ and Institut Quantique
- University of British Columbia's Quantum Computing Cluster
- Simon Fraser University's Quantum Algorithms Institute
- University of Calgary's The Institute for Quantum Science and Technology



Advanced Manufacturing



6. Advanced Manufacturing and AI

- The Canadian advanced manufacturing sector, which includes the fields of robotics, 3D printing and ICT technologies benefits from one of the most stimulating R&D regulatory environments in the world and a readily available wealth of talent. Canada is a global leader in system integration, AI, sensors, machine vision and automation. This vast ecosystem allows businesses operating here to seamlessly integrate robotics into manufacturing solutions that are shaping the Industry 4.0 vision.
- Canada is the first country in the G20 to offer a tariff-free zone for industrial manufacturers, allowing investors to import advanced machinery and equipment from their parent companies free of import duties. Together with Canada's straight-line depreciation method, this means foreign investors can quickly write off their capital investments.
- Thriving sub-sectors include:
    - **Additive manufacturing:** Canada ranks among the top 10 countries leading 3D printing development.
    - **Automation and advanced robotics:** Thanks to a robust innovation environment, strong government support, and a world-leading education system, Canada ranks 5th on The Economist's Automation Readiness Index.
    - **Automotive:** The world's first self-driving forklift was designed in Canada to reduce material handling costs, increase process throughput and improve plant safety with the ability to react to changes on the factory floor in real time.
    - **Healthcare:** North America's first "fully digital" hospital, the Humber River Hospital in Toronto, uses robots for patient care.

- **Notable Announcements**
    - April 2024 - IBM (U.S.) is investing C$187m in semiconductor packaging capacity and research and development operations in Bromont, Canada. The expansion will focus on assembly, testing and packaging capabilities for semiconductor modules to be used across a range of applications including telecommunications, high performance computing, automotive, aerospace and defence, computer networks, and generative artificial intelligence.
    - February 2020 - Lauak Canada (France) plans to expand its factory, add industry 4.0 equipment, create new jobs, and establish a centre of excellence for research and development and process improvement. In support of the project, Lauak Canada has been

granted CA$3m for equipment from the Canadian government. The facility will help the firm expand in North America

7. Clean Technology Manufacturing Investment Tax Credit

- While the Clean Technology Investment Tax Credit, first announced in Budget 2022, will provide support to Canadian companies adopting clean technologies, the Clean Technology Manufacturing Investment Tax Credit will provide support to Canadian companies that are manufacturing or processing clean technologies and their precursors.
- Budget 2023 proposed a refundable tax credit equal to 30% of the cost of investments in new machinery and equipment used to manufacture or process key clean technologies, and extract, process or recycle key critical minerals, including:
    - extraction, processing, or recycling of critical minerals essential for clean technology supply chains, specifically: lithium, cobalt, nickel, graphite, copper, and rare earth elements
    - manufacturing of renewable or nuclear energy equipment
    - processing or recycling of nuclear fuels and heavy water
    - manufacturing of grid-scale electrical energy storage equipment
    - manufacturing of zero-emission vehicles
    - manufacturing or processing of certain upstream components and materials for the above activities, such as cathode materials and batteries used in electric vehicles
- The credit will apply to property that is acquired and becomes available for use on or after January 1, 2024, and will no longer be in effect after 2034, subject to a phase-out starting in 2032.

8. Global Skills Strategy

- The Global Skills Strategy (GSS) is a federal program introduced to allow employers to attract top global talent by speeding up application processing times, providing work permit exemptions and offering dedicated channels for support.
- The priority processing of work permits for employers to hire highly-skilled global talent makes Canada an attractive destination for companies to grow.
- The program offers a Dedicated Service Channel (DSC) to employers who make a significant investment in Canada.
- For Global Skills Strategy eligibility, the employer must meet certain criteria:

    - **High value investments**: large scale investments made by foreign or multinational companies in Canada
    - **High potential/high growth companies**: companies with proven market acceptance and a capacity for accelerated growth that will significantly impact the Canadian economy
    - **Innovative companies**: companies with a focus on innovation and willingness to scale-up and grow that are operating in Canada

9. Scientific Research & Experimental Development (SR&ED)

- In Canada, research and development (R&D) tax credits are offered by both federal and provincial governments. The Scientific Research and Experimental Development (SR&ED) program is a federal tax incentive program to encourage Canadian businesses of all sizes and in all sectors to conduct R&D in Canada.
- **The SR&ED program provides two tax incentives:**
    - a deduction to reduce income for tax purposes
    - an investment tax credit
- **Eligible SR&ED include:** experimental development, applied research, basic research and certain types of work in support of this research (including engineering, design, operations research, mathematical analysis, computer programming, data collection, testing and psychological research)
- **Eligible expenses include:** wages and salaries of employees directly engaged in SR&ED work, overhead expenditures, contract expenditures, materials and third-party payments where the performer retrains the rights to the SR&ED
- A Canadian subsidiary performing SR&ED work in Canada for itself or on a contractual basis for the foreign-owned parent, can deduct eligible expenditures and claim the 15% non-refundable tax credit on these to reduce taxes payable.
- A non-refundable tax credit can be used to reduce federal taxes payable in the current year, in the previous three years, and/or in the next 20 years. There are no ceilings on SR&ED expenditures for companies claiming the tax credit.
- The provincial tax credit is calculated first, and the federal Investment Tax Credit (ITC) is calculated on the remainder of the claim.

COMBINED FEDERAL & PROVINCIAL TERRITORIAL SR&ED TAX CREDITS

Provinces	Provincial credit rate	Provincial refund	Foreign-controlled corporations (FCC)	
			Federal credit rate	Combined credit rate[1]
Alberta[2]	N/A	N/A	15%	15%
British Columbia	10%	No	15%	23.5%
Manitoba	15%	Yes	15%	27.75%
New Brunswick	15%	Yes	15%	27.75%
Newfoundland and Labrador	15%	Yes	15%	27.75%
Nova Scotia	15%	Yes	15%	27.75%
Ontario[3]	8.0% + 3.5%	Yes/No	15%	24.80%/18%
Prince Edward Island	N/A	N/A	15%	15%
Québec	14%	Yes	15%	26.9%
Saskatchewan	10%	No	15%	23.5%
Nunavut	N/A	N/A	15%	15%
NWT	N/A	N/A	15%	15%
Yukon	15%	Yes	15%	27.75%

[1] In calculating the combined credit, the federal tax credit base is reduced by the provincial tax credit receivable. The provincial tax credit is calculated first, and the federal Investment Tax Credit (ITC) is calculated on the remainder of the claim.

2 Alberta's SR&ED replaced by the Innovation Employment Grant which supports small and medium-sized businesses that invest in research and development (R&D) with a grant worth up to 20% of qualifying expenditures.

[3] The Ontario Innovation Tax Credit (OITC) of 8.0% is refundable and is available to all corporations, irrespective of ownership. The maximum tax credit under OITC is $300,000; this tax credit is gradually reduced when a firm's federal taxable income of the prior tax year exceeds $500,000, and is eliminated at $800,000. Ontario also has the Ontario business-research institute tax credit (OBRITC), a 20% refundable credit on qualified expenditures incurred under eligible contracts with eligible research institutes, and the ORDTC. The Ontario Research and development Tax Credit (ORDTC) of 3.5% is a non-refundable; in calculating ORDTC, eligible expenditures will be reduced in respect to government assistance, including the OITC, received. The ORDTC is pro-rata and without eligibility limitations.

10. Mitacs

- **Mitacs** powers research and development by **connecting industry with the best post-secondary institutions to solve business challenges** — in Canada and internationally.
- For 20 years, Mitacs has funded cutting-edge research, created job opportunities for graduate students and helped companies reach their business goals, achieving results that have bolstered the Canadian economy.
- Through the **Mitacs Accelerate program**, companies can solve their business challenges with research expertise, matching funds and one-to-one support. Graduate students and postdoctoral fellows from over 50 universities can apply their specialized expertise to help business take on research challenges. Internships start at four months and can scale up based on business needs. Each four-month internship project receives $7,500 in direct funding from Mitacs, with companies matching the organization's contribution.
- The **Mitacs Elevate program** is a fellowship program for companies looking to develop an in-house R&D team. Funding through Mitacs covers 50% of a fellowship, valued at $60,000 per fellow each year. Each fellowship grant is for a two-year term.

IV. NGen: Key Investment Opportunities

Source: Global Innovation Clusters, Innovation, Science and Economic Development Canada, Government of Canada

1. Artificial Intelligence

The Government of Canada's Pan Canadian AI Strategy in 2022 aims to position Canada as a world leader in AI, enhance the competitiveness of Canadian business through the adoption of AI, and enable Canadians to benefit from growth in the digital economy. The second phase of the strategy was launched in 2022. Canada's Global Innovation Clusters were allocated $125 million to help promote the adoption and commercialization of AI in key industries. The 2024 federal budget also provides $2.4 billion to accelerate job growth in Canada's AI sector and support the development and application of AI by Canadian businesses.

Next Generation Manufacturing Canada (NGen) leads Canada's Global Innovation Cluster for Advanced Manufacturing. NGen occupies a unique vantage point to assess trends in AI adoption in manufacturing. Key applications in advanced manufacturing include stand-alone AI solutions as well as AI embedded in technologies like robotics, automation, and vision systems. Currently, interest focuses on:

- Robotics and automation
- Quality control
- Production optimization
- Process optimization
- Predictive maintenance
- Supply chain optimization
- Personalized health care
- Intelligence/Data analysis
- Advanced computing solutions.

2. Quantum

Canada's National Quantum Strategy was launched in 2023. Backed by an investment of $360 million from the Canadian government, it aims to amplify Canada's significant strength in quantum research; grow Canadian quantum-

ready technologies, companies and talent; and solidify global leadership in quantum science and its commercialization. As part of the Strategy, NGen and Canada's Digital Cluster were allocated $14 million to enhance the development, adoption, and commercialization of quantum technologies by Canadian business.

NGen has focused largely on:

- Quantum solutions for manufacturing, including materials characterization, large-scale AI applications in systems optimization/automation, GPS/remote sensing, and cybersecurity, and
- Manufacturing solutions for quantum, including Quantum devices/component manufacturing, Quantum processors, Photonics related to quantum chips, Quantum device metrology.

3. Other Digital Technologies related to Advanced Manufacturing

Other digital technologies that NGen sees are being prioritized by Canadian manufacturers are:

- Advanced networks
- Cybersecurity solutions
- Advanced computing

Commercialization opportunities in these fields include both supply of services and partnerships and investment in the development and scale-up of digital capabilities.

4. Advanced Manufacturing

Like manufacturers around the world, Canadian companies are investing in the development, acquisition, scale-up, and commercialization of advanced production and materials technologies, such as:

- EV value chain – especially new cathode/battery technologies, recycling technologies. (Canada has been designated as the country with the most comprehensive, reliable, green, and secure EV battery value chain. Canada's EV value chain is in the first stages of development. However, it is anchored

by more than $46 billion in EV battery investments that have been announced over the past four years.)

- Advanced materials – especially nano-materials, sustainable materials
- Biomanufacturing – therapeutics and bio-materials
- Photonics and lasers
- Smart Robotics/Co-bots
- Sustainable aerospace
- Advanced semiconductors
- Vision systems, digital twins, immersive technologies