The Conference Board of Canada

Microsoft

Canada's AI Economy

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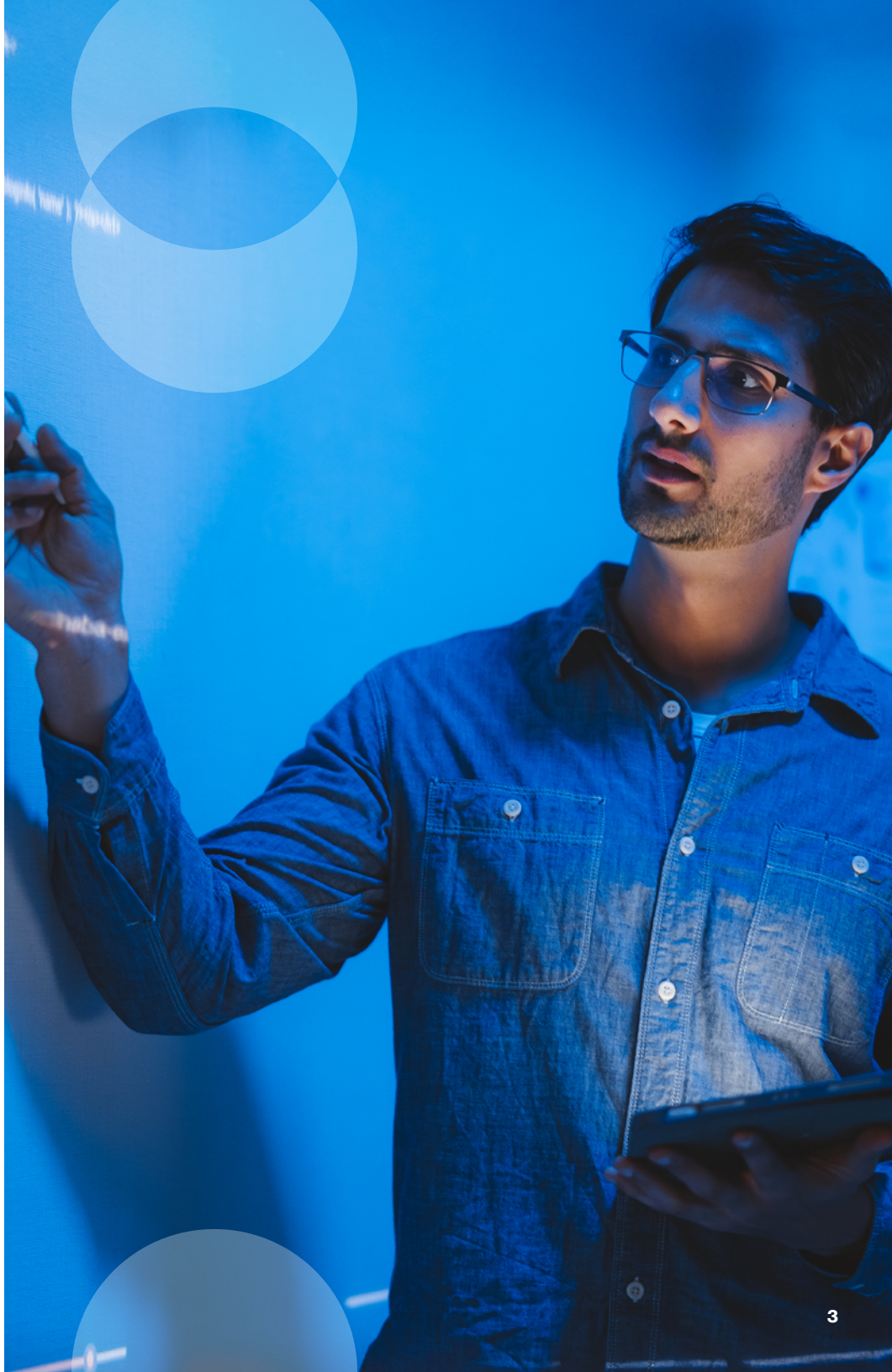
Contents

Key highlights

- Canada leads the G7 in artificial intelligence (AI) talent growth and research output per capita, supported by strong public investment and a globally competitive start-up ecosystem.[1]
- AI integration across sectors is projected to boost labour productivity by 17.1 per cent and generate up to $185 billion in economic value over the next two decades.[2]
- Strategic investments, including a $2.4-billion federal commitment, are strengthening Canada's AI infrastructure, but wider industry participation is needed to scale adoption across sectors.[3]
- Gaps in infrastructure readiness and challenges in retaining top AI talent continue to limit Canada's ability to translate research strength into economic impact at scale.

1 CIFAR, "AICan."
2 Accenture and Microsoft Canada, C*anada's Generative AI Opportunity*.
3 Innovation, Science and Economic Development Canada, "Canadian Sovereign AI Compute Strategy."



Canada's AI economy at a crossroads

There has never been a more important time for action. Canada has an opportunity to become a global leader in AI. It has some of the strongest foundations for AI growth—top-ranked education, cutting-edge research, and a leading position in intellectual property (IP).[4] We are growing AI talent faster than any other G7 country, and our start-up scene is vibrant and expanding.[5] This momentum gives Canada a unique edge. But to turn our current advantage into a lasting economic impact, we need to build better domestic infrastructure, develop AI talent and IP retention strategies, and make business investments in industries in which adoption will lead to greater productivity and competitive advantage.

4 CIFAR, "AICan"; and Collette and others, *Processing Artificial Intelligence.*
5 Prime Minister of Canada, "Securing Canada's AI Advantage."

1 Canada's competitive edge in AI

Productivity gains from AI

Canada's productivity is projected to be driven by AI adoption across all sectors.

- The full integration of AI technologies will improve labour productivity by 17.1 per cent over the next 20 years in Canada.[6]
- AI is expected to generate $185 billion in economic value, comprising $180 billion in labour productivity gains and $5 billion from the creation of innovative AI products and services.[7]

Ecosystem competitiveness

Canada's world-class educational institutions support a vibrant AI ecosystem.

- Canada performs best in education and research and development (R&D) in global AI indices. On a per capita basis, it ranks second among vibrancy index across the G7.[8]

Canada is strong in research and talent development, including high research outputs per capita.

- Canada's research papers published per capita, net migration of workers with AI skills, and most promising start-ups rank in the top three globally.[9] Within AI-related R&D, Canada trails only the United States in foundational models, data sets, and applications.[10]
- Canada has specialized strengths in natural language processing (relative specialization index [RSI]: 1.3), computer vision (RSI: 0.5), knowledge representation (RSI: 0.4), and robotics (RSI: 0.4).[11]

IP leadership

Canada's strength in AI-related intellectual property and research output per capita positions us as a knowledge and innovation leader.

- Canada had 23 AI patent applications per million population in 2020, ranking third behind the United States (37) and Japan (34).[12]
- Canada leads all G7 countries in AI research output per capita.[13]

AI talent pipeline

Canada's abundance of AI talent and a growing AI-capable workforce are built on strong universities and research hubs.

- Canada leads all G7 countries in the growth rate of AI talent.[14]
- Canada's prevalence of workers reporting AI skills was ranked third among G7 nations from 2016 to 2023.[15]
- Canada's AI talent and research are world-leading, backed by some of the most prolific researchers globally.
- Canada has seen substantial growth in its AI labour force in the last five years, with growth of over 30 per cent in 2023.[16]

6 Conference Board of Canada, The, Automation Technologies, Labor Markets, and Productivity (forthcoming).
7 Accenture and Microsoft Canada, *Canada's Generative AI Opportunity*.
8 Stanford's AI Vibrancy Index is a composite measure of economic, regulatory, and sociological indicators, providing a holistic view of AI innovation development to guide policy decisions and strategy. See Stanford HAI, "AI Index."
9 Stanford HAI; and CIFAR, "AICan."
10 Stanford HAI.
11 RSI: 0 indicates the same specialization as the world; RSI: 1 indicates twice as much specialization as the world. See Collette and others, *Processing Artificial Intelligence*.
12 Zhu, "Mapping the Growth of AI in Canada."
13 CIFAR, "AICan."
14 Deloitte Canada, "Canada Leads the World in AI Talent Concentration."
15 OECD.AI, "Live Data – Skills Penetration."
16 Prime Minister of Canada, "Securing Canada's AI Advantage."

Investment and economic integration

Both public and private sectors are increasingly investing in AI.

- The Canadian government allocated $2.4 billion in its 2024 budget to catalyze investment in AI infrastructure and adoption over five years. Business Development Bank of Canada (BDC) Capital is the most active venture capital (VC) investor in the Canadian AI space, participating in 124 venture capital deals that have directed $2.8 billion toward Canadian AI companies over the last 10 years.[17]
- Canada is home to over 1,500 AI start-ups and is the third-largest recipient of global VC investments in 2024 among G7 nations at over US$3 billion, behind only the United States and the United Kingdom.[18] Canada lags only the United States in average investment size per firm globally at an average of US$25 million per firm.[19]
- AI adoption is lower in priority industries than the economic average. Almost 2 per cent of businesses in agriculture and 3 per cent of businesses in manufacturing use AI technologies, compared to 4.5 per cent of all businesses in all industries.[20]

2 Barriers to AI adoption in Canada

Gaps in AI infrastructure

Despite its vibrant ecosystem, Canada ranks poorly in AI infrastructure (e.g., compute resources, data access, deployment platforms).

- Canada ranks sixth among G7 countries in AI infrastructure readiness, last among the G7 countries in supercomputers and computing speed, and second-to-last in internet speed.[21]

Retention of talent

While our talent pool is growing, retaining homegrown AI talent is difficult amid global competition.

- Competition from American employers remains fierce, as higher salaries, larger budgets for AI research, and a strong focus on experimental AI initiatives lure Canadian professionals south of the border.[22]
- Start-ups and scale-ups in Canada require senior and specialized AI professionals but often struggle to compete with compensation offers from larger firms or U.S.-based employers.[23]
- Larger Canadian organizations in AI-adjacent industries (e.g., healthcare, retail, and transportation) report fewer challenges in attracting AI talent but struggle with AI adoption due to C-suite resistance, largely driven by concerns around return on investment and change management.[24]

17 Zhu, "Mapping the Growth of AI in Canada."
18 OECD.AI, "Live Data – VC investments in AI by Country."
19 OECD.AI.
20 Statistics Canada, *Survey of Advanced Technology.*
21 Stanford HAI, "AI Index."
22 Conference Board of Canada, The, *Artificial Intelligence Talent in Canada.*
23 Conference Board of Canada, The.
24 Conference Board of Canada, The.

Commercialization and scaling

Canada faces difficulties in scaling its AI start-ups, which struggle to survive and expand due to limited domestic demand largely caused by intense competition from big tech companies.[25]

- The gap in scaling AI solutions locally may also be attributable to Canadian investors' being slower and more risk-averse than their American counterparts.[26]

Need to improve average AI adoption

Increasing AI adoption can help reverse Canada's projected low productivity growth rate.[27]

- Canada's firm adoption rates are comparable to its peer G7 nations but still lag those of Germany, the United Kingdom, and the United States.[28]
- Canada's industrial adoption of AI trails in key sectors such as healthcare, construction, agriculture, forestry, and mining—sectors that are particularly affected by declining labour productivity growth and could benefit from AI adoption.[29]

3 How Canada shapes the future of AI

Canada can leverage its strengths in research, IP, and talent to become a global AI leader. To reach its true potential, Canadian businesses and policy leaders must actively drive AI adoption and deployment across all industries.

Strengthen AI infrastructure to transition research excellence into economic impact

Canada's $2.4 billion investment[30] in computing capabilities and technological infrastructure is an important commitment. Canada must continue to invest in AI infrastructure and advocate for industry-specific AI adoption to increase access and lower risk to achieve a top ranking among G7 countries. Success will be measured by AI adoption across industries, AI compute per capita, and average venture capital investment in AI by 2030. Businesses can contribute by co-investing in private AI infrastructure, scaling custom AI systems, and ensuring that foundational AI capabilities are translated into competitive business applications.

Develop and retain top talent to sustain AI growth momentum

Post-secondary institutions are generating top AI talent. Expanding internship and work-integrated learning programs—such as those facilitated by Montreal Institute for Learning Algorithms (Mila), the Vector Institute, and the Alberta Machine Intelligence Institute—will help build a sustainable AI talent pipeline with real-world, applied experience. National talent and upskilling programs are a next step

25 Scale AI, "AI at Scale."
26 Conference Board of Canada, The, and MaRS Discovery District, *Risky Business*.
27 Canada Action, "Canada's Economy Ranks Third-Lowest in OECD."
28 Canada Action.
29 Statistics Canada, "Labour Productivity"; and Statistics Canada, Table 27-10-0397-01.
30 Prime Minister of Canada, "Securing Canada's AI Advantage."

in the right direction and the establishment of a national AI talent retention program,[31] building on the $50-million Sectoral Workforce Solutions Program, would help stem AI talent drain.

Businesses can focus on talent growth and retention through two key strategies. First, they can upskill employees whose roles face automation risks from AI advancements. Second, they can establish partnerships with post-secondary institutions to align training programs with their operational needs. Companies can support talent development by creating specialized training for AI professionals in key industries such as agriculture, mining, health care, and manufacturing.

Focus on AI adoption and risk-reduction strategies to drive innovation

Fostering industry-specific AI programs, grants, and tax credits for technology adoption, workforce training, and infrastructure expansion will accelerate adoption in priority industries (i.e., advanced manufacturing, agri-food, clean technologies, digital industries, life sciences, public administration, and resource-based industries). Current examples include the $100-million investment in the AI Assist program from the National Research Council of Canada Industrial Research Assistance Program.

Businesses can drive adoption by piloting AI within operational processes, providing real-world use cases across industries, and promoting cross-disciplinary talent that blends technical and sector-specific expertise.

Build trust through AI governance

Targeted public education campaigns and transparent reporting on AI deployments across public services can supplement existing federal AI governance initiatives and directly address the trust deficit. Some 60 per cent of Canadians still remain skeptical about AI, viewing AI product and services as more harmful than beneficial.[32] A challenging near-term objective would be to share the benefits of AI more inclusively across the economy, demonstrating benefits with more than half of Canadians within the next two years.

Businesses can strengthen public confidence by having C-suite executives and boards actively lead AI trust-building initiatives—through open communication, responsible AI deployment practices, and strong engagement with employees, customers, and the public.

31 This initiative could be modelled as a broader and more advanced version of regional initiatives like the Talent Retention Project 2022 (North Superior Workforce Planning Board).

32 Stanford HAI, *The 2025 AI Index Report*.

Appendix A

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Methodology

This analysis is based on a review of publicly available secondary data sources, including official statistics, industry reports, and economic research published by Government of Canada agencies, the Organisation for Economic Co-operation and Development, Statistics Canada, the Conference Board of Canada, and industry organizations such as CIFAR. Key economic indicators, AI adoption rates, sectoral productivity metrics, and macroeconomic trends were synthesized to assess the current state of Canada's AI ecosystem, identify emerging opportunities related to AI integration, and outline actionable policy recommendations.

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