POLYTECHNICSCANADA

Submission to the Standing Committee on Industry:

Canada's Underlying Productivity Gaps and Capital Outflow

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Recommendations

- Increase the baseline investment in the College and Community Innovation Program to $216 million per year. This program enables Canada's polytechnics and colleges to support research and development (R&D) activity, helping firms develop prototypes, derisk technology adoption and grow in Canada.
- Extend eligibility to all federal research streams focusing on impact-driven partnered research to Canada's polytechnics. After developing robust capacity and specialized expertise over the past 25 years, polytechnics must have equal access to impact-driven federal research funding given substantive evidence that they support and encourage business productivity.
- To reduce intellectual property (IP) leakage, embed IP support in applied research investments to create a seamless pathway from early IP identification to validation and commercialization, better ensuring that discoveries, prototypes and scale-ups are developed in Canada. Alignment with related federal programs would give firms coordinated, end-to-end commercialization support and help turn more Canadian innovations into protected and globally competitive assets.

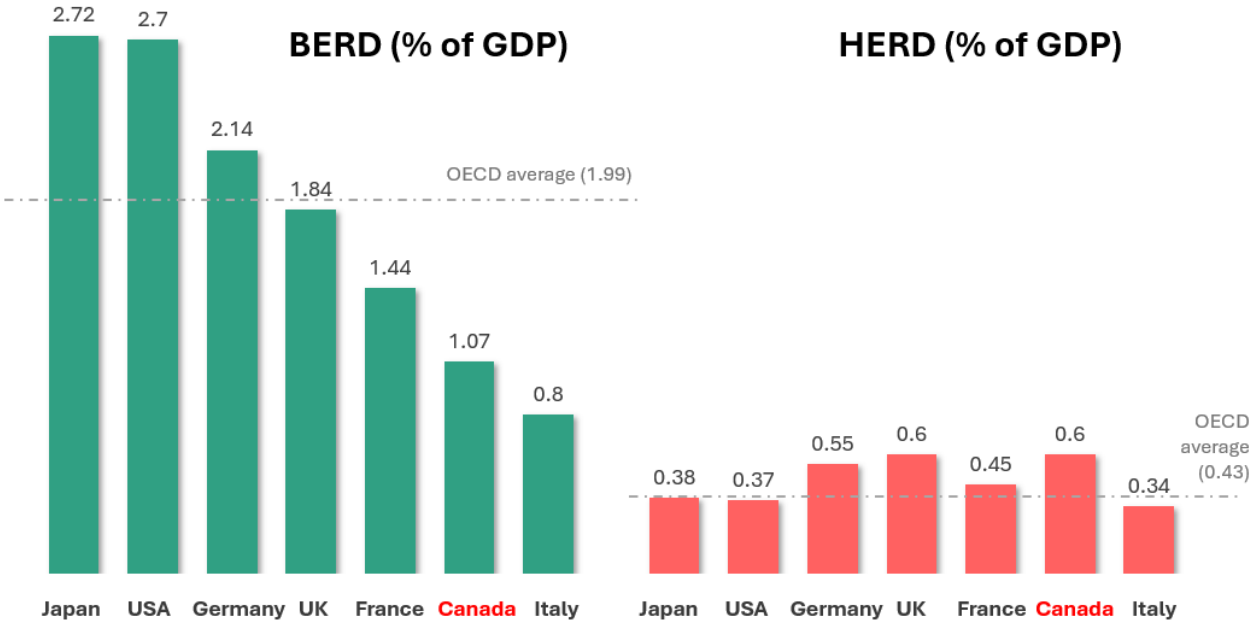
Context

Canada must tackle its persistent innovation, productivity and technology adoption challenges. While the federal government makes considerable investments in academic research, its ability to translate discoveries into economic and social impact is weak. The nature of Canada's research spending has had limited impact on the country's capacity to solve real-world challenges.[1]

Innovation is the foundation of a competitive economy, a source of stronger growth, better jobs and a sustainable tax base. Canada's innovation ecosystem continues to face a structural imbalance between strong research performance and weak commercialization outcomes. The country ranks second among G7 nations in higher-education R&D (HERD) spending yet remains among the lowest in business expenditure on R&D (BERD), at roughly half the OECD average and showing little growth over the past decade.[2] Meanwhile, according to Statistics Canada, 50.5 per cent of businesses grapple with at least one obstacle to innovation.[3]

[1] Global Affairs Canada, *Key facts about Canada's competitiveness for foreign direct investment: January 2025*, Office of the Chief Economist, Government of Canada, ISSN 2819-4950, modified 15 October 2025,
[2] OECD, *Main Science and Technology Indicators (MSTI) — Science, Technology and Innovation*, OECD Data Explorer, accessed 20 November 2025
[3] Obstacles to innovation and measures taken, by industry and enterprise size, Statistics Canada, 2024

R&D Expenditures (Business vs. Higher Education) as a Share of GDP, G7 Countries



Source: OECD, "STI Scoreboard — Science, technology and innovation indicators (2014-2024)"[4]

Despite the longstanding suggestion that academic research funding develops an innovation talent pipeline and supports productivity gains, the economic and societal impacts of these investments are elusive.

At Polytechnics Canada, we attribute this to a funding imbalance that prioritizes investigator-led research at the country's largest universities over other forms of academic research. What the Tri-Councils invest in pragmatic business-identified research is little more than a rounding error at just 2.9 per cent of total academic research funding. Yet, for every $100 in federal research funding, polytechnics attract $72 in private sector co-investment, compared to less than $4 by Canada's biggest research universities.

Industry-aligned Innovation

Recent federal data shows that 97.8 per cent of businesses in Canada are small and a further 1.9 per cent are medium-sized.[5] For most, the barriers to innovation are high. Few have the internal

[4] Available online at https://data-explorer.oecd.org/vis?fs%5b0%5d=Topic%2C0%7CScience%252C%20technology%20and%20innovation%23INT%23&pg=0&fc=Topic&bp=true&snb=35&vw=tb&df%5bds%5d=dsDisseminateFinalDMZ&df%5bid%5d=DSD_MSTI%40DF_MSTI&df%5bag%5d=OECD.STI.STP&df%5bvs%5d=1.3&dq=.A.H%2BB.PT_B1GQ..&pd=2014%2C2024&to%5bTIME_PERIOD%5d=false&isAvailabilityDisabled=false

[5] Innovation, Science and Economic Development Canada, *Key Small Business Statistics 2023*, republished Feb. 2, 2024, ISED

R&D capacity, expertise or capital to develop and test new technologies. Unlike economies anchored by large multinationals, most Canadian businesses are ill-equipped to take on long development cycles or high-stakes R&D. When even modest R&D investments are existential, firms need intermediaries that reduce risk, lower costs, shorten timelines and provide hands-on support.

Polytechnics do just that. Their applied research centres often act as applied R&D arms for small- and mid-sized enterprises (SMEs), prototyping, testing, refining and validating on a timeline and at a scale compatible with operational needs. Polytechnics also help firms navigate the administrative demands of funding programs, further reducing the costs of innovation. Collectively, these services reduce the risk of private sector R&D, encouraging investment and supporting innovation activity.

Studies show that SMEs are more likely to rely on security protocols and non-disclosure agreements than patent protection. The industry-friendly IP model at polytechnics removes barriers such as licensing negotiations, royalty structures and revenue-sharing arrangements that can delay commercialization and increase risk. By retaining IP, firms face fewer hurdles to commercialization and growth.

While polytechnics often provide initial IP support, the government should seek to embed such services into applied research interactions and create pathways to services such as the National Research Council of Canada (NRC) Industrial Research Assistance Program's IP Assist program. NRC can provide longer-horizon advisory services as businesses refine their commercialization strategies, seek investment and navigate scale-up. We envision opportunities for public R&D investments to translate into protected and globally competitive products and services, generating long-term economic value for Canada.

Investments in Polytechnic Applied Research

While polytechnic applied research addresses the barriers to business innovation, solving real-world challenges and applying knowledge to commercial products and solutions, it is under-valued and under-resourced. We believe that because Canada is dominated by SMEs, many of which under-invest in R&D, better on-ramps to innovation are an important part of a broader research strategy.

We recommend the government better leverage the close connections between polytechnics and their industry partners. As R&D enablers, polytechnics help business partners of all sizes boost productivity, strengthen competitiveness and unlock tangible economic impact. This work helps retain businesses in Canada and supports their growth.

For example, in fields like artificial intelligence (AI) where Canada enjoys world-class academic leadership but limited commercial adoption, the failure to exercise the entirety of the research ecosystem is clear. Approximately 88 per cent of AI pilots fail to scale, often due to unclear return

on investment, talent shortages or poor data infrastructure.[6] In the United States – often cited as a productivity benchmark – substantive investments in AI have not yet translated into significant productivity gains. This underscores the need for strategic investments in an enabling infrastructure. Simply, Canadian businesses need structured pathways to adopt and implement new technologies. That is what polytechnic applied research is all about.

In a recent report on the economic impact of applied research, Polytechnics Canada demonstrated that polytechnics generate between $8 and $18 for every dollar invested in partner-driven applied research.[7] Further, because private-sector partners retain IP, they can commercialize without being hostage to shared ownership agreements, leading to increased R&D capacity, higher productivity, job creation, export growth and improved competitiveness. Many partners also gain access to new export markets and are able to attract new investment, reversing the trend of capital outflow seen elsewhere in Canada's research ecosystem.

In short, investing in polytechnic applied research is an investment in business innovation and a proven pathway to stronger productivity, commercialization and economic growth in Canada.

As the Committee considers how best to retain capital in Canada and address productivity gaps, Polytechnics Canada recommends an ongoing financial commitment to the College and Community Innovation Program by bringing the program to a new permanent baseline of $216 million per year. By providing additional funding to the program, the proven capacity of polytechnics and colleges can be harnessed to diffuse knowledge, support technology adoption and reap the benefits of investments in innovation activity.

Meanwhile, it is increasingly clear that polytechnics should be eligible for the broader suite of federal research investments. Given their capacity and specialized expertise, they are well positioned to expand their impact with access to additional federal sources of funding.

Member Success Stories

British Columbia Institute of Technology: Search and Rescue Through AI and RPAS Technology

The British Columbia Institute of Technology (BCIT) is advancing artificial intelligence and Remotely Piloted Aircraft Systems (RPAS) to make search and rescue operations faster, safer and more cost-effective. In partnership with Spexi and InDro Robotics, BCIT researchers are improving real-time object detection using the "You Only Look Once" algorithm.

[6] Schuman, Evan. "88% of AI Pilots Fail to Reach Production — But That's Not All on IT." *CIO*, 25 Mar. 2025
[7] Prism Economics and Analysis, *The Economic Impact of Applied Research at Canada's Polytechnics.* Polytechnics Canada, Aug 2024.

A new frame-skipping algorithm developed through this collaboration increases processing speed while maintaining accuracy, enabling human detection within one second. The RPAS transmits live video and GPS coordinates to rescuers, reducing search times and risks in challenging terrain and weather conditions.

Southern Alberta Institute of Technology: Hybrid Water Desalination for Clean Hydrogen Production

Southern Alberta Institute of Technology (SAIT) is helping make clean hydrogen fuel easier to produce by improving a Hybrid Water Desalination System (HWDS). The project is done in partnership with Arrowhead Abandonments, a First Nations–owned project management and downhole tool company.

Hydrogen production requires extremely pure water. SAIT upgraded an unused desalination unit to clean river, well and brackish water to the very high standard needed for hydrogen electrolyzers. The improved system uses ultrafiltration, reverse osmosis and nanofiltration to remove contaminants and bring dissolved solids to just 1–5 parts per million.

Because the HWDS is portable, it can be deployed in remote and Indigenous communities, as well as industrial sites where clean water is difficult to access. Its modular design makes it easy to transport and scale, helping support cleaner hydrogen production and expanding access to safe water treatment in areas that need it most.

Sheridan College: Clinic of the Future Through Augmented Reality

Sheridan College is helping build the Clinic of the Future by advancing augmented reality (AR) tools that enhance real-time patient monitoring. In partnership with Cloud DX, Sheridan's Centre for Applied AI is developing an AR application using Microsoft's HoloLens, integrating Cloud DX's Vitaliti wearable device to collect and display patient vitals as holograms.

A new Universal Windows Platform app connects Vitaliti to the HoloLens, allowing clinicians to access continuous, hands-free patient data at the bedside. This improves situational awareness, reduces manual steps in clinical workflows and supports faster, more informed decision-making. The project has gained national attention, including coverage on the Discovery Channel's Daily Planet.

About

Polytechnics Canada is the voice of leading research-intensive, publicly supported polytechnics and institutes of technology. We advocate for federal action in areas where polytechnics provide solutions for a more innovative, productive and globally competitive country. Polytechnics Canada members play a critical role in addressing some of the country's greatest challenges. Through their facilities and networks, our members provide meaningful solutions to industry problems and accelerate knowledge transfer.

Cover photo courtesy of Humber Polytechnic's Faculty of Applied Sciences and Technology.