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Powering a Postsecondary Pivot

Bold ideas to advance national ambitions in
Defence and Space, AI and Energy



Canada is about to make historic investments to reorient the economy. The scale and focus of these investments should serve as a wakeup call to anyone working in Canadian postsecondary education or relevant provincial ministries—signaling both opportunity and necessity for change.

The upcoming federal budget is expected to allocate billions for nation-building initiatives like modernizing defence and space infrastructure, expanding computing capacity, and developing renewable energy. The potential rewards—sovereignty, growth and competitiveness—are great. As is the risk. We are hedging our bets on talent and innovation.

But as we laid out in our recent report, [Testing Times](#), the postsecondary sector is facing a crisis. Just as Canada is ramping up, colleges and universities are scaling down—closing programs, departments and campuses. Postsecondary institutions across the country need to modernize and re-align their mandates for growth—as outlined in [A Smarter Path](#)—but they lack the financial footing, flexibility and connectivity with industry to do so.

This was the context in which RBC Thought Leadership and our partners at the Business + Higher Education Roundtable convened a summit on *Talent, Technology, and a New Economic Order*. In September, about 60 industry and postsecondary leaders came together at RBC's head offices with a shared interest: ensuring Canada's historic investments yield historic rewards. We focused on three areas of national ambition that depend heavily on postsecondary for talent and innovation:

- **Defence and space capabilities**
- **AI and digital technology**
- **Major energy projects**

The following summarizes the imperatives, opportunities and bold ideas that were discussed.

Defence and Space Capabilities

Today's threats to sovereignty and security are not the ones that Hollywood war films call to mind. They are increasingly complex and defending against them requires economic and digital strength—and not just on earth. National security and prosperity are increasingly dependent on space infrastructure like satellites, which Canadians use for everything from surveillance and environmental monitoring (some key climate change variables are only measurable from space¹) to daily communication and navigation.

But Canada's capabilities in space, and in defence more broadly, are falling behind global competitors. Government procurement contracts—critical for maintaining and advancing capability and innovation—take significantly more time than comparable procurements in other jurisdictions. Our commercialization of space products and services trails other countries. And years of underspending has hurt Canadian defence capacity, with acute personnel shortages spanning the armed forces; trades and technician roles are particularly understaffed, as are engineers, including specialists in naval combat and aerospace.²

- Canada is spending \$9 billion on defence in 2025–2026, including \$2.6 billion for recruitment and retention, and has pledged to raise defence spending to 5% of GDP annually by 2035.
- In addition to building conventional defence capabilities, this is an opportunity for Canada to innovate and advance new technologies for purposes like surveillance and forecasting.

- We can also lean into existing strengths. For example, Canada is already ahead in developing wildfire monitoring capability (microsatellites) that can be used to track fire activity and inform management efforts at home and internationally³. In addition to threatening lives and livelihoods, wildfires can destroy critical infrastructure like communication systems and energy grids and cause political instability — our ability to respond quickly is an important part of a national defence strategy.
- The federal commitment to establish a Bureau of Research Engineering and Advanced Leadership in Innovation and Science (BOREALIS) is an opportunity to invite industry and postsecondary partners to quickly advance dual-use technology (defence and other civilian applications).

Three ideas from the summit that would give Canada an edge in defence and space:

1. Position Canada as NATO's firefighting nation

- Use a portion of new defence spending to grow earth observation capabilities, AI-enabled disaster response and drone technologies for wildfire management.

2. Build BOREALIS to match models like DARPA and ARIA

- Both the Advance Research and Invention Agency (ARIA) in the U.K. and the Defence Advanced Research Projects Agency (DARPA) in the U.S. fund high-risk, high-reward projects, free from political constraints and academic processes.

3. Retrain automotive workers for shipbuilding and space sectors

- Design new competency-based post-secondary programs that let experienced

workers with relevant skills move through programs quickly—saving time and money—on their way to an industry-recognized credential.

AI and Digital Technology

Companies and organizations around the world are adopting AI to achieve productivity gains and become more efficient. Canadians are moving slowly by comparison. Despite being home to a concentration of the world's top AI researchers and foundational AI models, when it comes to AI maturity, about 70% of Canadian companies are “crawling” or “walking,” and few (7%) are “running” — less than half the proportion of runners globally (17%).⁴

Our top talent tends to move abroad, as do their ideas (most AI patents developed in Canada are owned by foreign entities⁵). And Canadians are less confident leveraging AI tools to boost productivity at work than our global peers.⁶

Government commitments and initiatives are opportunities to drive progress.

- Defence funding could help drive postsecondary-industry collaboration on AI research and innovation (to commercialize dual-use AI, for example).
- In the days following the summit, the Minister of Artificial Intelligence and Digital Innovation Evan Solomon announced a new AI Strategy Task Force of Canadian researchers, entrepreneurs and industry partners charged with developing a federal AI Strategy. The strategy will include “actionable insights and recommendations” to drive leadership in areas including

education and skills, as well as commercialization.⁷

Now is the time to invest in home-grown innovation and quickly scale up and retain AI skills to capitalize on our advantage. Here are three ideas from the summit:

1. Buy Canadian technology first

- Canadians—businesses, postsecondary, governments— should be the first customers for our own innovators, rather than wait for U.S. market validation.

2. Allocate more corporate resources for staff training

- Employer-sponsored training in Canada lags international peers⁸—our top 100 companies, based on market cap, should increase corporate training budgets and partner with postsecondary providers to deliver AI upskilling that develops internal capacity for productivity and growth.

3. Teach AI skills across postsecondary disciplines

- Canadian colleges and universities should ensure students, no matter the program, develop AI literacy skills that they can leverage post-graduation.

Major Energy Projects

Canada faces unprecedented energy demand as we expand computing and space infrastructure and pursue industrial growth. Net-zero policies driving a clean-energy transition place additional pressure on electrification and create demand for critical minerals—key to batteries, solar panels, magnets and wind-turbine motors. And oil and gas

will continue to be a critical part of the energy supply mix to help reduce costs for consumers and ensure reliability.

A new Major Projects Office plans to fast-track energy projects to meet rising demands but is up against widespread skills shortages. Older skilled-trades people, for example, are retiring at faster rate than they are being replaced,⁹ and engineering students are not pursuing mining pathways (mining represents just 1% of engineering enrollments¹⁰).

Skills gaps are also an issue. Massive infrastructure projects will only be successful with people who can collaborate and solve problems in real time.

Canada's nation building agenda creates momentum that postsecondary, industry and governments can use to address skills challenges and meet energy demands:

- High-profile projects present an opportunity for postsecondary providers and industry to communicate career opportunities in energy sectors.
- Indigenous populations are growing faster¹¹ than the general population, and are often closer, geographically, to energy projects. Strong partnerships and education strategies that deliver community-based programming can empower community members to take on key roles and fill skills gaps.
- Canada has delivered on major energy projects before—nuclear refurbishments at the Bruce A Nuclear Generating Station in the early 2010s is a great example.

Three ideas from the summit to capitalize on Canada's energy momentum:

1. Backstop training for major projects

- Provincial and federal governments should support human resource strategies and training initiatives, particularly for planned projects that are expected to stall due to a lack of talent.

2. Build an energy skills strategy

- Major players in the energy industry need to dedicate time and resources to inventorying and projecting skills needs, factoring in evolving technology. They should work with postsecondary providers to design training programs that prepare graduates to hit the ground running.

3. Develop skills in partnership with Indigenous communities

- Industry and postsecondary institutions should partner with Indigenous communities to design and offer training programs that prepare Indigenous talent for careers in the energy sector.

"Plans to fast-track energy projects are up against widespread skills shortages"

Enabling Transformation: Bold ideas for change

The path forward will take an urgent and coordinated effort from governments, postsecondary institutions and industry. The world is not standing still. Competitor nations are racing ahead in space exploration and AI adoption, while also investing in skills and infrastructure. Canada has the tools to compete—and lead—but only if we align our systems to meet this moment with urgency and ambition. Summit participants surfaced the following recommendations for governments, postsecondary and industry to take immediate action on.

Federal Government

Leverage the AI strategy for skills: Canada's new AI strategy should have guidance for postsecondary that supports their modernization, e.g., explicit advice that helps institutions efficiently and effectively develop necessary AI skills (including an understanding of risks and when not to leverage AI) among staff and students, across disciplines.

Build Defence and Energy Workforce

Alliances: Canada plans to launch up to five Workforce Alliances “to tackle urgent labour market challenges, drive growth and advance industrial strategies.”¹² These should include alliances in defence and energy.

- Each alliance should bring major employers, unions and postsecondary leaders together to talk supply and demand.
- Alliances should inventory projects and programs already in place; detail current and projected skill gaps, regionally; consider how skills demands will evolve given new technology; identify and engage appropriate program providers to meet skill needs.

Capitalize on global strength in wildfire management: Use a portion of new defence spending to grow earth observation capabilities, AI-enabled disaster response and drone technologies for wildfire management.

Empower the Defence Investment

Agency: This newly announced agency should have the mandate to streamline goals and operational requirements across the Department of National Defence, the Department of Public Works, Public Services and Procurement Canada and other departments, as applicable.

Modernize research and innovation

funding: Funding criteria should focus more on outcomes and less on process.

- Consider a new research and innovation agency, like the Defence Investment Agency, to review and coordinate “tri-agency” funding and other relevant programs—ensuring a balance of funding directed to strategic priorities, and between inquiry—and mission-driven research. Such an agency could lead or support additional changes like:
 - Embracing a model like DARPA with BOREALIS: fund high-risk, high-reward projects, free from political constraints and academic processes.
 - Reforming the Scientific Research & Experimental Development (SR&ED) tax credit (building on reforms made in 2024) to incentivize commercialization.
 - Revamping and expanding national sandboxes,¹³ creating more opportunities for collaborations between industry, military, universities and colleges, focused on rapid prototyping and testing new defence and space capabilities.
 - Ensuring any new funding commitments

are leveraged strategically. For example, at the summit, the federal government shared plans to fund additional research chairs to attract top American academics to Canada. Funding should be tied to strategic priorities and focus on attracting talent with experience driving mission-driven research projects. New chairs should be expected to help build capacity and act as champions for change in Canadian universities.

Backstop training for major projects:

Coordinate with industry and relevant provincial governments to provide immediate financial support for training required to advance major energy projects.

Incentivize talent recruitment and retention:

Offer tax credits for global talent needed to fill urgent skill shortages (i.e. energy project managers), and to retain exceptional Canadian graduates (i.e. in technology fields).

Stabilize annual international student caps:

Outline realistic, stable international student targets that enable appropriate population inflows and longer-term institutional planning.

Prioritize Canadian technology: Commit to using Canadian technology, including AI and space-based technologies, unless no domestic supplier offers an appropriate product or service. Prioritize Canadian technology in all future procurements and seek to be an anchor customer for promising Canadian start-ups.

Provincial Governments

Protect postsecondary systems:

Increase domestic per-student funding (potentially tied to performance criteria or outcomes) in line with inflation. And/

or offer more flexibility for institutions to set tuition, ensuring access is protected with robust government student assistance systems and institutional set-aside programs (that reserve a portion of tuition revenue for financial aid).

Offer strategic direction:

Outline modernized expectations for transferable skill development.¹⁴ Institutions should develop AI literacy skills and collaboration skills, for example, across disciplines.

Backstop training for major projects:

Coordinate with industry and the federal government to provide immediate financial support for training required to advance major energy projects.

Facilitate work-integrated learning partnerships:

Consider replicating the U.K.'s [Knowledge Transfer Partnerships](#), a granting program co-funded by industry partners that pairs recent grads with business or community organizations to solve innovation challenges.

Fund innovative pilot projects: Help institutions break the mold and develop competency-based education programs divorced from seat-time, for example, and ensure policy and qualifications frameworks are set up to scale successes.

Prioritize Canadian technology: Commit to using Canadian technology, including AI, unless no domestic supplier offers an appropriate product or service. And prioritize Canadian technology in all future procurements.

Postsecondary Institutions

Meaningfully engage employers: Explore new models for industry involvement. Build on successes engaging industry,

for example, through university continuing education departments and colleges' program advisory committees (which involve industry and community partners in curricula development).

Ensure all students graduate with transferable skills: Develop work-ready skills like AI literacy, adaptability, entrepreneurship, communication and collaboration in courses, assignments and work-integrated learning experiences.

Expand access to work-integrated learning: Including but not limited to internships and co-ops; practical programs with applied learning opportunities or immersive field trips, like visiting mining sites with industry partners are also great examples of work-integrated learning.

- Create opportunities for students to work together across disciplines—like they will in the workforce—to solve problems.
- Explore opportunities for technology to build experience (i.e. simulators)

Facilitate greater career mobility: Enable workers to navigate a dynamic economy. Consider:

- Multi-disciplinary programs like the University of Calgary's new [energy science program](#), which covers a range of in-demand energy fields.
- Incremental credentialling, for students in programs with low completion rates, like apprenticeships, so they receive recognition for skills gained.
- Competency-based education programs that allow adults with relevant skills

and experience to earn credentials quickly, learning at their own pace.

- Skills-based transcripts that position graduates to articulate their competencies and succeed as employers shift toward skills-based hiring.

Develop community-based programming: Work closely with Indigenous communities and industry to develop tailored training programs. Consider using mobile training units, and remote or hybrid learning formats (where internet connectivity allows).

Offer upskilling and reskilling programs: This should include programs aligned with opportunities in defence and energy sectors, and to support an AI-literate workforce. Programs must meet the needs of learners with competing responsibilities, embracing formats like remote/hybrid, intensive learning, and competency-based education.

Prioritize Canadian technology: All colleges and universities should commit to using Canadian technology, including AI, unless no domestic supplier offers an appropriate product or service.



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Industry

Send executives to participate in federal Workforce Alliances: They should come prepared with long-term project plans and skills projections.

Allocate staff resources to inform program development: Industry representatives with insight into day-to-day and forecasted long-term skill needs should be involved in designing postsecondary programs and work-integrated learning experiences. They should commit to hiring students who complete those programs.

Allocate more corporate resources for staff training: Canada's top 100 companies, by market cap, should commit to a minimum annual training budget of \$500 per employee – roughly double the current estimated industry average.

Innovate with postsecondary partners: Contract researchers at Canadian universities and colleges to overcome issues or improve productivity with new processes and tools. Consider a “relay race” partnership approach, e.g., university ideation, college or polytechnic application, industry deployment.

Reach students in high-schools, colleges and universities: Share

information about rewarding careers in sectors in need of talent, like energy. Host secondary and postsecondary student field trips that provide sightlines into specific industries.

Leverage AI for productivity gains: Integrate AI into core operations, not simply pilot projects and provide access to AI upskilling that develops internal capacity for productivity and growth.

Build mutually beneficial Indigenous partnerships: Engage communities surrounding major project sites to lay the foundation for meaningful employment and community benefits, including working with postsecondary to design and offer tailored training programs.

Hire for skills: move from hiring candidates who have held the same or similar job title previously, toward hiring candidates with skills and experience that align with expectations (or skill families), supporting a more mobile workforce and sending clear signals to training providers about which skills are needed.

Prioritize Canadian technology: Canada's top 100 companies, by market cap, should commit to using Canadian technology including AI and space-based technologies, unless no domestic supplier offers an appropriate product or service.

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Endnotes

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Published by

RBC Thought Leadership

October 2025