



Demand-driven Solutions for Made-in-Canada Innovation and Talent:

Submission to the House of Commons Standing Committee on Finance Pre-budget Consultations

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EXECUTIVE SUMMARY

Polytechnics Canada's recommendations for the 2015 Federal Budget concentrate on two themes from the current consultation:

- Increasing the competitiveness of Canadian businesses through research, development, innovation and commercialization; and
- Maximizing the number and types of jobs for Canadians.

Our recommendations are grouped into three policy areas where continued federal action and leadership can make a difference:

- business innovation;
- labour market information, and
- apprenticeship.

We present 10 practical ideas that are demand-driven and focused on outcomes. While we have costed these recommendations based on reallocating existing federal funding, some will require new funding. These skills and innovation challenges have accumulated over several decades, and while long-term, stable funding is necessary for meaningful change, Polytechnics Canada believes that the 2015 Federal Budget can enable targeted and immediate improvements in both innovation performance and employment outcomes.

Polytechnics Canada welcomes the opportunity to provide ideas to the Finance Committee's pre-budget consultation. We propose a range of practical, demand-driven solutions focused on outcomes. Our ideas are designed to address two clear and persistent threats to the Canadian economy – the poor record of commercializing Canadian invention and the nation's skills challenges, be they skills mismatches or regional and sectoral skills shortages. These are two areas where polytechnic applied education can make a difference – by improving firm-level innovation outcomes and by helping to train made-in-Canada talent for high-demand occupations.

Polytechnics Canada is an alliance of Canada's 11 research-intensive, publicly-funded colleges and polytechnics. Polytechnics Canada itself does not administer any government grants or contributions. Our recommendations are targeted to benefit Canadians: students, employers, training institutions, and government.

Polytechnic education is demand-driven and industry-responsive – our post-secondary programs (Bachelor's degrees, advanced diplomas and certificates), along with our applied research projects are designed in collaboration with, and in response to, employer/industry

demand. This is the nature of applied learning. Demand for apprentices also drives our delivery of trades training. Today's economy does not reward people for merely what they know, but also for what they can *do*. Learning by doing is at the heart of polytechnic education.

A common theme in our submission is the need for the Federal Government to target its investments in areas where there is a demonstrated demand for action. Some indicators of demand that underpin our recommendations are the numbers of:

- industry-driven collaborative applied research proposals that cannot be funded due to limited funds for polytechnic or college applied research;
- employers unable to solve their talent needs due to skills mismatch or lack of information about the availability of qualified workers;
- qualified applicants our members have to turn away from education and training programs, generating wait-lists for high demand programs;
- certified journeypersons exiting their professions due to age;
- business owners in the skilled trades with no succession-planning prospects in place.

Industry Innovation is the Priority in Research, Development, Commercialization and Innovation

Canada must do better at turning scientific discoveries into new technologies that are commercialized and manufactured here at home. Industry-driven applied research plays a crucial role in helping small- and medium-sized enterprises (SMEs) bring innovations to market. Last year alone, Polytechnics Canada's eleven members engaged 11,927 of our undergraduate-level students in 1,774 projects, providing 1789 firms with access to much-needed skills and facilities to provide rapid development of products and services. Polytechnics and colleges, in large measure thanks to federal support for our industry innovation activity, have become important enablers in the innovation ecosystem, contributing to growing the bottom line of thousands of Canadian SMEs.

Much of this applied research activity resulted from the NSERC-administered College and Community Innovation Program (CCIP) with its suite of targeted programs that enable collaborative applied research with local companies, particularly SMEs, in a broad range of industrial sectors.

CCIP has funded over 700 projects since 2009, such as a recent three year College-University Idea to Innovation grant to Conestoga College in Kitchener, to develop a portable device to detect the gold grade of mineral samples at mines and mineral exploration sites. The college will collaborate with researchers at Laurentian University, as well as industrial partners Barrick Gold Corporation and Kendall Technology.

Despite this progress, there is insufficient capacity to meet the demands of Canadian companies. For example, for the last round of the Innovation Enhancement grant competition within CCIP, only 8 of 46 applications could be funded, meaning that 38 research collaborations with industry partners were put on hold indefinitely.

Through this government's support, CCIP has grown from a pilot program in 2004 to a permanent program of \$50 million per year. NSERC's total budget currently stands at \$1.1 billion, predominantly funding individual academic researchers. We believe that a larger allocation than 5% of NSERC's budget for CCIP will yield positive results by helping more firms to bring innovations to market.

Further, polytechnics and colleges are not supported for their indirect costs of research the way that Canada's university sector has been since the creation of the Indirect Costs of Research Program in 2003. The CCIP, the competitive peer-reviewed program mentioned above, is not eligible for the Indirect Costs of Research Program, with no obvious policy rationale for this exclusion. As the government concludes its review of this Program, Polytechnics Canada continues to call for the inclusion of CCIP. If Canada's colleges and polytechnics were equitably funded for their indirect research costs, particularly those generated by delivering successful federally-funded research projects, then these institutions would have stable, predictable funding to build their research and industry liaison capacity. In turn, this would increase industry-driven research projects, generating additional opportunities for college undergraduate students to gain innovation skills, making them attractive hires for these firms.

Finally, more can be done to link procurement to innovation within the existing spending on federal intra-mural R&D. Canada needs an approach such as the USA's Small Business Innovation Research program, one that links government's demand for innovative products and services with made-in-Canada solutions. Such a program would complement the existing Build in Canada Innovation Program, fostering demand-driven innovation by challenging the best and brightest Canadians to solve government-identified problems. We foresee interdisciplinary teams of experts from academia, industry, as well as polytechnic-educated technicians, technologists and skilled tradespeople being engaged in these R&D projects.

Three recommendations for industry innovation improvement are:

For firms: Increase the NSERC-administered College and Community Innovation Program (CCIP) by \$12 million per year.

For polytechnics and colleges: Re-design the Indirect Costs of Research Program to focus on outcomes and benefits to Canadians and increase the program's budget by \$20 million to include the CCIP.

For government: Create a Small Business Innovation Research program using existing expenditures on federal intra-mural R&D.

Maximizing the Number and Types of Jobs for Canadians through Action on Labour Market Intelligence and Information

Canada needs timely, objective, consistent and comparable labour market information (LMI), without which matching Canadian-made talent with jobs is hampered.

The consensus that this is a serious market failure is resounding, as the various “skills” reports and dialogues of 2014 have shown. The national consensus on LMI needs action now with federal leadership and funding. Indeed, the Finance Committee recommended action on national LMI in its June 2014 Youth Unemployment report.

The lack of readily accessible high quality LMI perpetuates the current skills mismatches and exacerbates the unacceptably high rates of youth unemployment and underemployment. More must be done to connect the supply of made-in-Canada talent to employer demand.

While the July meeting of the Forum of Labour Market Ministers with the federal government was encouraging, more can be done to:

- disseminate the existing provincial post-secondary data at a national level;
- improve study and career choice by Canadian learners;
- publicize the earning power of recent post-secondary graduates and trades qualifiers;
- highlight the variety of pathways and transitions being made by Canada's learning population; and
- address the wait-lists for high-demand training programs, especially in apprenticeships.

Building on recent commitments to launch new surveys on wage rates and job vacancies, the federal government should create an independent, arms-length labour market intelligence agency. As a national public good, this agency should be federal, mandated to work in collaboration with the provinces. The agency's mandate would be to collect, aggregate, and publicize demand and supply-side data to provide a comprehensive national picture of labour market conditions in Canada. Providing clear signals on career choice to Canadian learners would help to reverse the current sub-optimal outcomes in matching employer needs with the supply of skills. The agency would work with, and provide resources to, willing higher education institutions to put their data (on students, graduates and training outcomes) to work at a national level.

Australia, Germany and the UK have national agencies focused on current and emerging skills and workforce needs and trends. If these competitors can make these investments and meet their OECD reporting obligations, why can't Canada?

Three specific actions would demonstrate immediate federal leadership on LMI:

For Canadians: Create an independent national Labour Market Intelligence Agency, costing \$13 million.

For students: Develop and disseminate a national skills in demand list, or national priority list of specialized occupations, costing \$1 million.

For employers: Pilot a program through the new Labour Market Intelligence Agency to capture real time supply-side data through a Labour Market Information Liaison program, costing \$9 million.

Maximizing the Number and Types of Jobs through Action on Apprenticeship

Canada urgently needs to value the talents of our home-grown trades professionals. Yet, only 19% of skilled trades employers sponsor apprentices. Since less than 50% of the currently registered apprentices are likely to complete their training, the major threat to trades jobs is the lack of certified journeypeople to populate these high demand professions and mentor the next generation of apprentices.

At Canada's leading trades training institutions, including Polytechnics Canada's members, wait-lists are growing for high demand programs for occupations such as heavy duty equipment mechanics, crane operators, steam/pipe fitters and welders. The highly technical nature of these programs means that they require certified instructors, specialized equipment, and small class sizes. For example, last year NAIT in Edmonton, received over 1,000 applications for its 90 seats in power engineering. Similarly, SIAST in Saskatchewan is limited to training only 96 electrician apprentices per year. The maximum capacity of their wait-list is 356 qualified apprentices, which is also full year over year.

As Canada focuses on the need to grow entrepreneurship, certified trades professionals should be included in government initiatives to support new entrepreneurs. Expanding the Blue Seal program, currently available only in Alberta and Saskatchewan, across Canada would send an encouraging signal to the next generation of tradespeople. A Blue Seal Certificate shows that tradespeople both meet their profession's high industry standards, but also have knowledge and drive to succeed in business.

We fully recognize that since 2006 this government has taken an active lead in supporting individual apprentices, and we look forward to the positive impact of the new Canada Apprentice Loan. Yet, since the Canadian model of apprenticeship training constitutes a four-way partnership between apprentice, employer, training institution and government, more can be done to strengthen the apprenticeship "system."

Four targeted recommendations for each of the partners in the apprenticeship system with the common goal of increasing completion rates and growing the number of certified journeypeople are:

For government: Create a National Registered Apprentice Number to track key indicators on apprentice registrations, pathways and progress by using the \$8 million earmarked for the 2017 version of the National Apprenticeship Survey.

For employers: Offer a \$4,000 tax credit for those employers of record who sponsor a Red Seal apprentice through to certification.

For Red Seal journey persons: Promote the adoption of the Blue Seal Certification to provide business foundational training and entrepreneurship support by providing \$1 million to the Red Seal Secretariat and the Canadian Council of Directors of Apprenticeship.

For training institutions: Create a \$25 million High Demand Training Capacity Fund to increase their yearly intake of apprentices in the high demand professions.

In conclusion, we look forward to presenting more details and evidence to support our recommendations at the fall hearings of the Finance Committee.