



## **COLLEGES AND INSTITUTES: ADVANCED SKILLS AND APPLIED RESEARCH**

Submission by the



**Association of Canadian  
Community Colleges**

**to the House of Commons Standing  
Committee on Finance  
Pre-Budget Consultations 2009**

August 2009

## EXECUTIVE SUMMARY

### Innovation Matters

Integrated with the industrial and technical drivers of the economy, Canada's colleges, institutes, polytechnics and cégeps<sup>1</sup> offer the advanced skills of faculty and staff to support the private sector's need for applied research, product and process innovation, commercialization and technology transfer.

Federal investments in research over the past decade were overwhelmingly directed to pure or discovery research, with little support to applied research tied to commercialization. This reality is increasingly cited as a barrier to a strong culture of innovation and to the diffusion of new technologies in Canada. It should come as no surprise that even as Canada invests increasing sums in discovery research, our productivity gap grows.

Investments in pure or discovery research may contribute to the economy in the long-term. However, in Canada's relentless support for the exploration of the extreme limits of knowledge, we have dropped the ball on the "here and now." The practical side of business processes and continuous improvement, the very root of productivity, has been neglected.

For more than a decade, the Association of Canadian Community Colleges (ACCC) has advocated the creation of innovation and technology transfer centres at colleges across Canada. Some have been established with excellent results. Quebec, for example, has created more than forty, one at each of its Cégeps, each specializing in a particular technology relevant to the local industrial base.

Unfortunately, the Government of Canada has not adequately recognized the contribution of such centres to innovation, economic growth and productivity. It has provided little support to create new centres or to enhance those already established. The College and Community Innovation Program (CCIP), administered by the Natural Sciences and Engineering Research Council (NSERC) is the sole federal mechanism designed to contribute to college-industry partnerships in applied research. While appreciated, \$48 million over five years through the CCIP pales in comparison to total federal research expenditures estimated at \$2.9 billion per year. In no way does it unleash the full potential of colleges and small and medium-sized enterprises (SMEs) to join forces to secure Canada's economic future. SMEs need the expertise of their college partners. Canada needs strong and innovative SMEs.

It is time for Canada to review its enormous investment in research from the perspective of the SME community. SMEs are at the heart of Canada's competitiveness and productivity, as well as the principal source of job creation. Colleges are at the heart of SME success and regional economic development.

Moreover, as future employers and employees, Canada's college students, under the leadership of college faculty, should be given an opportunity to participate robustly in innovation and research tied to the needs of the private sector. This is key to the college mandate to incubate a balance between creative and practical talent and to train highly qualified people with the innovative instincts and advanced skills needed to grow productivity.

**Recommendation: Increase federal research and development funding by five percent, dedicating the additional amount to innovation, applied research, product development, technology transfer and commercialization projects of colleges with their private sector partners.**

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<sup>1</sup> This document will hereinafter refer to colleges, institutes, university colleges, polytechnics and cégeps as colleges.

## Canada's Crisis in Advanced Skills

In July 2009, US President Barack Obama's Council of Economic Advisors released a report entitled *Preparing the Workers of Today for the Jobs of Tomorrow*. The Report emphasizes that the fastest growth among occupations will be those that require a college education. President Obama announced a multibillion-dollar proposal to assist US community colleges to accommodate an influx of students during the recession and to produce five million more graduates by 2020. Support is expected to include interest-free loans and grants for facilities and funds earmarked for curriculum development.

The findings of the US report are consistent with the analysis of the Canadian Federation for Independent Business, which reported that on a ratio of six to one, college/institute graduates are required over university graduates to fill shortages in advanced skills. In Canada, the Employers' Coalition for Advanced Skills, embracing business associations concerned with the short supply of human capital to support their industries, has similarly raised the spectre of the anticipated economic recovery stumbling because of Canada's short supply of human capital, and the critical shortage of people with employment-ready advanced skills. As, well, many employers are anxious to hire graduates with international experience. Sadly, Canada lags behind other Organisation for Economic Co-operation and Development (OECD) countries in promoting and investing in international student mobility.

Before the recession, long waitlists of qualified applicants characterized Canada's system of 150 colleges and institutes. Untold thousands of Canadians could not gain access to the advanced skills that would ensure them employment. Waitlists are even longer now as the unemployed flock to colleges for retraining for entry into new careers. Applications for fall 2009 have increased dramatically with some colleges reporting a surge of over 22 percent. Many other institutions have announced increases in the 15-20 percent range.

Stimulus investments and the Knowledge Infrastructure Program (KIP) will make a difference, but KIP funding has a short time horizon and is therefore focused significantly on deferred maintenance rather than the creation of expanded capacity. Despite its merits, KIP will not ensure capacity growth to levels adequate to meet the requirements of employers. Colleges across the country have over 150 infrastructure and equipment projects approaching the ready-to-go stage. Expanding access to advanced skills by expanding college capacity is a necessary step to a sustainable economic future for rural, remote and urban Canada.

**Recommendation: Establish a college infrastructure and equipment fund adequate to secure the supply of advanced skills requirements of the economy. Over the period 2010-2014 invest \$500 million annually on a cost-shared basis with provinces and territories.**

## First Nations and Inuit Post-Secondary Support

The Indian and Northern Affairs Canada Post-Secondary Student Support Program for Status Indians and Inuit Students was capped at an annual growth rate of two percent in 1996. According to the Assembly of First Nations, over 10,000 eligible students are awaiting funding.

**Recommendation: Increase funding for the Indian and Northern Affairs Canada Post-Secondary Student Support Program to reflect the increasing number of Status Indians and Inuit learners requiring financial support to enter post-secondary education.**





## The Association of Canadian Community Colleges

The Association of Canadian Community Colleges (ACCC) is the national and international voice of Canada's 150 colleges, institutes, university colleges, polytechnics and cégeps.<sup>2</sup> With campuses in 1,000 urban, rural and remote communities, 1.5 million learners, and 60,000 educators, these institutions draw students equally from all socio-economic quarters, and supply graduates with the advanced skills essential to Canada's economic growth and productivity. The vast majority of college graduates find employment in their chosen field within six months. Increasingly, university graduates enroll in colleges to acquire employment-ready education.

Colleges are the advanced skills educators of choice. Aligned with the needs of employers, and operating on the leading edge of skills identification, economic trends, and market shifts, colleges solicit continuous business and industry input into curriculum development through Program Advisory Committees. Colleges encourage business formation and sustainability by growing the local talent pool, by re-skilling displaced employees, by offering customized education, and by providing applied research and development support to local businesses. They are key to immigrant credentialing and integration, and the access of the disadvantaged to post-secondary education.

## Innovation Matters

Federal investments in research over the past decade were overwhelmingly directed to pure or discovery research, with little support to applied research tied to commercialization. This reality is increasingly cited as a barrier to a strong culture of innovation and to the diffusion of new technologies in Canada.

The Science, Technology and Innovation Council report *State of the Nation 2008: Canada's Science, Technology and Innovation System* issued in May 2009 stated, "Innovation matters. In a globalized world, creating and retaining jobs for Canadians and improving our living standards will increasingly be linked to our ability to innovate." In its broad definition of innovation, the report notes that innovation includes "the invention of new products, processes, services and systems, as well as their application, adaptation and diffusion in the economy and society." This is precisely what colleges and their business partners do together.

Investments in pure or discovery research may contribute to the economy in the long-term. However, in Canada's relentless support for the exploration of the extreme limits of knowledge, we have dropped the ball on the "here and now." The practical side of business processes and continuous improvement, the very root of productivity, has been neglected.

Integral to the industrial and technical drivers of the economy, Canada's colleges are key contributors to the country's innovation system. These institutions embody the largest concentration of expertise on the application of technology to product development. The match between the advanced skills of college faculty and students and commercialization-stage research is proven and dynamic.

Small and medium-sized enterprises (SMEs) are by far the largest contributors to Canada's employment growth. These companies regularly turn to local colleges for product and process innovation, research and development.

Colleges are the natural mechanism supporting innovation in Canada's SMEs. With 150 institutions and 1,000 campuses, no other institutional infrastructure has the same breadth and impact or the same rural, remote and urban scope. Colleges are mandated to support economic development and deliver programs that meet the economic needs of their regions. They conduct, and engage students in applied research and development that enable businesses to improve, develop new or improved products, processes and services, thereby advancing commercialization, technology transfer and productivity.

It is time for Canada to review its enormous investment in research from the perspective of the SME community. Canada must balance its investments more equitably between discovery research and college-industry partnerships in applied research. It is no surprise that even as Canada invests increasing sums in discovery research, our productivity gap grows.

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Moreover, as future employers and employees, Canada's college students under faculty leadership should be given an opportunity to participate robustly in innovation and applied research. This is key to the mandate of colleges to incubate a balance between creative and practical talent, and to train highly qualified people with the advanced skills and innovative instincts who will close Canada's productivity gap.

For more than a decade, ACCC has advocated the creation of innovation and technology transfer centres at colleges across Canada. In 2007 we proposed the creation of a federal program of \$586 million over five years to establish additional centres and to enhance those already in place. The federal government responded with the \$48 million five year College and Community Innovation Program (CCIP). CCIP administered through Natural Sciences and Engineering Research Council (NSERC) is the sole investment in college-industry partnerships. While appreciated, the small scale of the CCIP program, compared to total federal research expenditures estimated at \$2.9 billion per year, in no way unleashes the full potential of colleges and SMEs to join forces to secure Canada's economic future. SMEs need the expertise of their college partners. Canada needs strong and innovative SMEs.

While Western Economic Diversification, the Atlantic Canada Opportunities Agency, FedNor and the Economic Development Agency for the Regions of Quebec, for example, have invested in innovation, entrepreneurship and community economic development, their roles and coverage do not specifically target college-industry partnerships. In addition to federal granting councils, these organizations are well positioned to support enhanced investment in college-industry applied research to enhance productivity and economic diversification.

### **Canada's Crisis in Advanced Skills**

Canadian society is transforming in response to the forces of globalization, the demands of the knowledge/information economy, and the challenges of demographic change. Employers require advanced skills that are more sophisticated than those expected even two years ago. With natural population growth falling below the replacement rate, future economic success will depend on an employment market that maximizes the skill levels of all Canadians.

US President Barack Obama's Council of Economic Advisors released, in July 2009, a report entitled *Preparing the Workers of Today for the Jobs of Tomorrow*. The Report emphasizes that the fastest growth among occupations will be those that require a college education. President Obama announced a multibillion-dollar proposal to assist US community colleges to accommodate an influx of students during the recession and to produce five million more graduates by 2020. Support is expected to include interest-free loans and grants for facilities and funds earmarked for curriculum development.

The key to economic and social development lies in the knowledge and skill base of human capital. Notwithstanding the economic downturn, Canada continues to suffer from an acute shortage of advanced skills. While the crisis is tempered in the short-term, it will hit the Canadian economy with a vengeance and will constrain the anticipated recovery. Slower economic growth, lost opportunity, and compromised productivity are the consequences. At the same time, Canada is competing with other nations in a global economy and that globalization has increased the intensity for employers to seek out graduates with international experience. Regrettably, Canada lags behind other Organisation for Economic Co-operation and Development (OECD) countries in promoting and investing in international student mobility.

Before the recession, long wait lists of qualified college applicants impeded thousands from acquiring the advanced skills needed to secure employment. Wait lists are even longer now as the newly unemployed flock to colleges to re-skill. Applications for fall 2009 have increased dramatically with some colleges reporting a surge of over 22 percent. Many other institutions have announced increases in the 15-20 percent range. The limited capacity of colleges remains an unfortunate reality.

The Employers' Coalition for Advanced Skills raised the spectre of an economic recovery stumbling because of a critical shortage in advanced skills that had already limited the growth of many industries.

ACCC recommended that federal infrastructure policy be enhanced as part of the stimulus package to include college expansion and renewal. Colleges had countless infrastructure needs fully designed and sitting on the shelf; projects that are critical to maintaining and expanding capacity.

Stimulus investments and the Knowledge Infrastructure Program (KIP) will make a difference, but KIP funding has a short horizon. Many projects are therefore focused on deferred maintenance rather than the creation of expanded capacity. Despite its merits, KIP will not ensure capacity growth to levels adequate to meet the requirements of employers. Colleges across the country have over 150 infrastructure and equipment projects approaching the ready-to-go stage. Expanding access to advanced skills by building college capacity is a necessary step to ensuring a sustainable rural and urban skills infrastructure.

Relentless action on the part of the Government of Canada, in concert with the provinces and territories, is required to preclude a deepening of the advanced skills crisis.

### **First Nations and Inuit Post-Secondary Support**

Education is a prerequisite not only for competitiveness and prosperity, but also for entry of the disadvantaged to the economic mainstream. Nowhere is this more critical than in programs that enable Aboriginal Peoples to access and succeed in post-secondary education.

The Indian and Northern Affairs Canada Post-Secondary Student Support Program has capped increases at two percent annually since 1996. According to a study commissioned by the Assembly of First Nations, 10,589 eligible students who successfully completed high school were unable to access support for post-secondary education between 2001 and 2006. Each year, approximately 3,000 additional students are denied access.

The short-sightedness of the funding limits is difficult to understand. These are the youth and adults who have succeeded in acquiring their secondary pre-requisites, who are ready to acquire the advanced skills needed for employment, and be role models for others. Instead they languish and de-skill as they wait, and their lack of access to post-secondary education discourages others from following in their footsteps.

An opportunity to enhance First Nations and Inuit economic independence has been squandered in favour of continued dependence.

Colleges have enormous success in attracting, nurturing, and graduating Aboriginal learners. With adequate resources they could do much more. Demographic realities demand that every individual with the capacity to contribute must have access to advanced skills and, subsequently, employment.

### **Opportunities for Federal Engagement**

The pan-Canadian dimensions of the crisis in advanced skills and applied research constitute a compelling case for federal investment.

#### **Applied Research, Product Development and Commercialization**

Increase federal research funding by five percent, dedicating the additional amount to innovation, applied research, product development, technology transfer and commercialization projects of colleges with their private sector partners.

#### **Infrastructure**

Establish a college infrastructure and equipment fund adequate to secure the supply of advanced skills requirements of the economy. Over the period 2010-2014 invest \$500 million annually on a cost-shared basis with provinces and territories.

#### **First Nations and Inuit Learners**

Increase funding for the Indian and Northern Affairs Canada Post-Secondary Student Support Program to reflect the increasing number of Status Indians and Inuit learners requiring financial support to enter post-secondary education.