

Introduction

Recognizing the critical link between skills training, research and development (R&D), and innovation, Mitacs' 2015 pre-budget submission to the House of Commons Standing Committee on Finance makes recommendations to increase Canadian productivity and global competitiveness in three parts:

1. Support excellence across the research ecosystem, particularly through ongoing investments in research infrastructure;
2. Promote broad student skills development and cross-sector research collaboration through research internships; and
3. Champion growth of innovative Canadian companies by promoting their integration into global innovation supply chains.

These recommendations align with the Government of Canada's top priority of implementing policies focused on raising Canada's economic potential and creating stable, well-paying jobs¹.

Canada's current position as a modern, competitive economy is threatened by weak performance in R&D essential to support future innovation and economic performance. Canada currently spends only 1.7% of GDP on R&D, 17th among OECD countries, and well behind leading countries like the U.S. (2.9%) and Germany (2.8%). Canadian business continues to underinvest in research and innovation, particularly cutting-edge research and training at Canadian universities: Canadian business accounts for roughly 50% of all R&D spending in Canada, versus 66% for the OECD as a whole. And recent data reveals that the share of higher-education research supported by Canadian businesses has slipped from 9.6% in 2001 to 8.1% last year².

Building on strong fiscal fundamentals and significant advantages in talent and research, including world-leading post-secondary teaching and research, an exceptional entrepreneurial environment for company creation; and a generation of Canadians ready to lead these companies onto the global stage, Budget 2015 is an opportunity to address persistent threats to Canada's economic performance. Targeted investments in R&D, particularly those that strengthen connections across the innovation spectrum, will improve Canada's economic performance, create sustainable high-quality jobs, and result in long-term benefits to Canadians.

It is essential that these investments coordinate and leverage efforts across sectors to: support research excellence across the innovation spectrum, in part by building world-class infrastructure; promote the growth of innovative companies through the research and training strengths of our universities; foster meaningful and productive collaboration between business, academic, and public sectors working in pursuit of common goals; and importantly, expand the skills development of our students and coordinate this with their deployment into high-potential sectors.

Since 1999, Mitacs has built successful, innovative R&D collaborations between Canada's universities and companies. Through its flagship **Accelerate** research internship program, Mitacs has supported more than 7,000 collaborative research projects, boosting R&D at Canadian companies, providing an opportunity for university researchers to apply their research, and supporting significant skills training and experience for our most highly-educated students. Through support by the Government of Canada and all ten provincial governments, *Accelerate* research internships are delivered in partnership with more than 60 Canadian universities and have involved close to 3,000 companies to date who have collectively invested more than \$50 million in R&D with university researchers.

The Government of Canada has made important and valuable investments in previous budgets to advance Canada's research and innovation agenda. Here, we make recommendations designed to build on this sound foundation by expanding investment in successful programs and seeking opportunities to build links across the innovation spectrum. Budget 2015 is an opportunity to plant the seeds for future economic growth, ensuring Canadian firms remain innovative and competitive on a global stage, and ensuring Canada continues to be a world leader in innovation and quality of life.

¹ As referenced in *The Road to Balance: Creating Jobs and Opportunities*, Government of Canada, 2014.

² Statistics Canada Daily, Friday, July 25, 2014: *Spending on research and development in the higher education sector, 2012/2013*

Recommendations

Recommendation 1: Support excellence across the research ecosystem.

First, we recommend continued investment by the Government of Canada in research excellence across the broad research ecosystem. The Government of Canada's 2014 announcement of the Canada First Research Excellence Fund, and continuing investment in the granting councils, are exceptional examples of a commitment to making investments today that ensure Canada continues to produce leading research for generations to come. These investments should be leveraged by continuing support to Canadian researchers, particularly through increased funding for world-class research infrastructure through the Canada Foundation for Innovation (CFI).

Leveraging the strength of Canada's superior researcher community and world-class universities will have profound and long lasting benefits for Canadians. With less than 0.5% of the global population, Canada produces almost 5% of the world's most frequently cited academic papers. University research is critical to the innovation process in many industry sectors and is a key requirement in supporting the growth and global competitiveness of Canadian businesses. Research across the sector is supported by investments in world-class infrastructure as supported by CFI. For example, more than a third of Mitacs' collaborative industry-university research projects involve researchers directly supported by CFI, whose cutting-edge equipment and facilities are being leveraged by Canadian businesses.

Canada's current research successes are something to be proud of, but are at risk as other countries continue to invest heavily in their post-secondary institutions and research agendas. With these increased investments comes an improved ability to attract top global research talent. To date, Canada has benefitted from an influx of exceptional talent, in large part due to its commitment to supporting its research ecosystem and infrastructure. Indeed, a recent Mitacs survey of postdocs in Canada indicated that "research resources and facilities" ranked second highest in overall postdoc satisfaction³. These efforts must be expanded in order to uphold Canada's position as a global research and innovation leader, capable of attracting, training and retaining essential research talent.

Recommendation 2: Promote cross-sector research collaboration.

Second, we recommend a significant expansion of research internships through the **Mitacs-Accelerate** program. Already the world's most productive graduate research internship program, *Accelerate* is poised to serve as Canada's national, cross-sector platform for industry-facing training, growing from 2,500 internships this year to 10,000 internships by 2020.

Accelerate's proactive model for building collaborative research projects has linked industry and universities with unparalleled success. Its cost-sharing model has the highest level of industrial matching of government funding by industry partners of any nationally funded innovation program. As a result, this program stimulates increased business-supported investment in higher-education research which has been in decline in Canada over the past decade. *Accelerate* research internships support increased innovation in several ways, notably:

- Support real and significant industry investment in peer-review university R&D;
- Provide experience-based professional skills development for students and increase deployment of researchers into the private sector;
- Link graduate student research and training directly to receptor need in skills and innovation; and,
- Provide Canadian industry a low-risk entrée into R&D, particularly among small and medium-sized enterprises.

³Mitchell, J.S., Walker, V.E., Annan, R.B., Corkery, T.C., Goel, N., Harvey, L., Kent, D.G., Peters, J., Vilches, S.L. 2013. *The 2013 Canadian Postdoc Survey: Painting a Picture of Canadian Postdoctoral Scholars*. Canadian Association of Postdoctoral Scholars and Mitacs.

Accelerate offers the opportunity to fundamentally change how students are trained in Canadian universities, not by replacing current approaches, but by supplementing them with training and development opportunities. Outcome-tracking demonstrates the impact *Accelerate* internships are having:

- 96% of participants would recommend *Accelerate* to fellow graduate students and postdocs, citing acquisition of professional experience and expanded professional networks as key advantages in increasing employability;
- 97% of host firms increased their interest in collaboration with the academic sector based on their experience;
- 14% of *Accelerate* interns have started their own companies, compared to only 5% of Canadian PhD students;
- 46% of interns working in the private sector were hired by their host firms, and 20% of all internships led to the creation of a new position at the company; and
- 91% of participants remain in Canada following graduation, a 15% increase in retention over background rates.

Expansion of *Accelerate* aligns with key recommendations from a recent report from the House of Commons Standing Committee on Finance on Youth Employment in Canada⁴. Based on testimonials from 38 groups or individual youth employment experts, the Committee recommended that the federal government, in collaboration with the provinces and territories, encourage the private sector to work more closely with post-secondary institutions to ease the transition from school to the workplace, that the federal government encourage youth to explore the benefits of entrepreneurship and innovation, as well as support programs and initiatives that prompt youth to become job-creators, and that they continue to invest in internships. *Accelerate* is ideally situated to deliver on these recommendations.

As Canada moves beyond 10,000 internships, Mitacs will act as a powerful engine for partnership and collaboration between universities and their industry and community partners. The Government of Canada should increase its commitment to support this paradigm-shifting approach to industrial research training in Canada. The results will benefit all Canadians: improved business innovation and productivity; an increased ability for Canadian businesses to compete and win in global markets; and a more competitive Canadian economy that will create stable, well-paying jobs.

Recommendation 3: Champion growth of innovative Canadian companies.

Third, we recommend that the Government of Canada identify mechanisms to proactively support the growth of innovative, high-potential companies, particularly by connecting them to global innovation supply chains. High growth companies account for a disproportionate share of job creation, are more productive, and are a significant factor in the growth of exports over time. A recent U.S. study found that the fastest growing 1% of businesses are responsible for 40% of job creation, while the fastest growing 5% of U.S. firms account for nearly 70% of all net new jobs⁵.

Large multinationals are significant producers and consumers of innovation and they account for a disproportionate share of total R&D spending: they are responsible for fully half of the world's total R&D spending and perform two-thirds of business R&D. U.S.-based multinationals alone undertake more than 15% of their R&D abroad, resulting in roughly \$37 billion in annual R&D spending outside of the U.S., generally in partnership with small companies and universities in partner countries including Canada. They make these investments because they understand that R&D is tightly correlated with the innovation that drives long-term revenue and profit growth.

Increasingly, large multinationals outsource R&D to their suppliers, who are often high-growth small companies at the forefront of their respective fields. This creates the potential for forging virtual innovation supply chains, and there is a significant opportunity for more Canadian companies to join these networks of global commerce. Identifying

⁴House of Commons Standing Committee on Finance Report, *Youth Employment in Canada: Challenges and Potential Solutions*, released June 2014, 41st Parliament, Second session.

⁵Dane Stangler, *High Growth Firms and the Future of the American Economy*, Kauffman Foundation Research Series: Firm Formation and Economic Growth (March 2010). Available from: www.kauffman.org

mechanisms that connect innovative Canadian companies with global markets and customers will leverage existing Canadian strengths: our large number of highly innovative firms, leading research universities and colleges, and a highly skilled population. The outcomes of these connections will impact and benefit all Canadians. They include:

- Access to specialized, cutting-edge research for large multinational corporations;
- Increased training and employment opportunities for highly qualified knowledge workers; and
- Increased R&D and commercialization capacity for Canadian companies, and facilitated access to global markets.

In the long run, these outcomes plant the seed for enhanced productivity and competitiveness of Canadian companies. Indeed, they are critical to Canada's economic success because despite our considerable strengths, foreign direct investment in innovation and other R&D activities too often bypasses Canada.

Conclusion

Working from an exceptionally strong research base in its universities, targeted investments that promote collaborative research and training development with Canadian industry can create significant benefits to Canada. Increasing productivity, particularly in the private sector, is a central determinant of economic growth, the creation of more high quality jobs, and long-term improvements in Canadians' standard of living. Research, development, and innovation are key drivers of productivity; investments in these areas represent long-term investments in Canadian economic growth.

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