

The Mitacs logo features the word "Mitacs" in a bold, white, sans-serif font. The letter "i" is lowercase and has a white dot above it. The letters "t", "a", and "c" are lowercase and have a white horizontal bar through their middle. The letters "m", "i", and "s" are lowercase and have a white dot above them. The logo is set against a blue background with abstract, overlapping geometric shapes in various shades of blue.

*Inspiring innovation
Inspirer l'innovation*

Mitacs Pre-Budget Submission to the House of Commons Standing Committee on Finance

August 2016

Summary

Canada is poised to become an innovation leader. Through both the launch of Canada's Innovation Agenda, and the independent review of federal funding for fundamental science, the Government of Canada is positioning our country for success in the knowledge economy.

This success will depend upon skilled and creative entrepreneurs, highly qualified and passionate students, graduates with industry-ready skills, and top talent from around the globe. It will also require robust international linkages between dynamic Canadian businesses and global supply chains.

Mitacs is committed to supporting these efforts with our proven innovation programs.

This year Mitacs submits three recommendations to the House of Commons Standing Committee on Finance to support the Government of Canada's efforts to establish Canada as an innovation leader:

1. Promote talent for growth, making Canada a world-leader in providing experiential learning opportunities for students;
2. Champion the growth of innovative Canadian companies by promoting their integration into high-value global supply chains;
3. Adopt an inclusive and coordinated approach to innovation programs, across disciplines and communities.

Introduction

When it comes to our ability to innovate, there is much for Canadians to be optimistic about. We have some of the finest universities in the world,¹ where researchers produce a disproportionate share of the world's academic papers,² and which have served to make Canada one of the most educated and respected countries in the world.

We also have a wealth of small and medium sized businesses. These SMEs are highly entrepreneurial, are engaged in their communities, and many operate at the forefront of the technologies and trends that are transforming the Canadian economy.

Furthermore, Canada is home to an incredible diversity of cultures. Canadians from all walks of life have proven their abilities to adapt to changing circumstances, develop new ideas, and collaborate to achieve shared benefits.

As the Government of Canada considers how best to support innovation, Mitacs believes that these Canadian strengths provide a solid foundation upon which to build an effective and enduring innovation strategy. However, such a strategy must also respond to the needs of a fast-changing economy.

Many experts feel that we are merely at the beginning of transformational changes to business models and employment patterns.³ To prepare and respond to such changes, we must ensure that we are providing Canadians with the skills and opportunities they will need to be successful. However, it is not always clear what the jobs of the future will look like, nor the skills required for them. A strategic response to such challenges is to increase the number of experiential learning and talent development opportunities for Canadian students. By connecting students across disciplines with businesses and organizations across sectors, Canada's capacity to adapt to a changing economy is strengthened through collaboration.

¹ Times Higher Education. (2015). *World University Rankings 2014-2015*. Retrieved from <https://www.timeshighereducation.co.uk/world-university-rankings/2015/world-ranking#/sort/0/direction/asc>

² Council of Canadian Academies. (2013). *Paradox lost: explaining Canada's research strength and innovation weakness*. Ottawa: Advisory Group, Council of Canadian Academies.

³ World Economic Forum. (2016). *The future of jobs: employment, skills and workforce strategy for the fourth industrial revolution*. Retrieved from http://www3.weforum.org/docs/WEF_FOJ_Executive_Summary_Jobs.pdf

We must also support the efforts of businesses as they seek to grow, by not only connecting them with talented students, but also by helping them access new markets and opportunities. Canada is a trading nation with robust international linkages. To build greater resilience into our economy, attract new investments, and grow innovative businesses, we must connect them with international partners and facilitate their integration into global value chains.

Finally, we must recognize that although Canada's diversity of cultures and ideas represent an important asset, existing innovation programs and initiatives often focus narrowly on specific regions, disciplines or industries. An effective innovation strategy will be one that is inclusive by design, to ensure that Canada's research talent is a resource that is fully utilized.

Through both the development of an Innovation Agenda and the independent review of federal funding for fundamental science, the Government of Canada is taking important steps towards asserting Canada as an international leader in the knowledge economy. To succeed, Canada will need to leverage its strengths, which include outstanding research talent, a wealth of innovative SMEs, and a strong entrepreneurial culture across diverse populations. Mitacs, with its innovation programs, is uniquely positioned to strengthen and deploy these assets.

Mitacs Recommendations:

1. Promote talent for growth, making Canada a world-leader in providing work-integrated learning opportunities for students.

People innovate. Whether it takes the form of a new product, new process, or new markets, the introduction of innovation is done by visionary individuals who see how to do things differently. A successful innovation strategy must therefore start by fostering the talent, skills and opportunities required for potential innovators to thrive.

The need for innovators is intensified as the economy continues to transition from resource extraction and manufacturing towards an innovation-focused, high-value service base. Already, Canada's service economy employs about three quarters of Canadians and accounts for 70.8% of GDP — a 5% increase since 2000.⁴ Manufacturing, on the other hand, has declined as a relative percentage of GDP from nearly 25% in the 1960s⁵ to 10.6% in 2016.⁶ Financial services, environmental services, water-management services, and IT services are all areas where Canada is a world-leader, thanks in part to the innovators who have built world-class firms in these growing sectors.

The trend towards an economy built on innovative services is intensifying as the knowledge economy evolves. We are entering what has been called the "Fourth Industrial Revolution,"⁷ where disruptive technology such as artificial intelligence, robotics and nanotechnology are rapidly transforming the ways we live and work. As a result, the skills Canadians need for career success are also changing, and employers increasingly demand workers with a wide range of skills and functional knowledge.

An effective innovation strategy must therefore respond to these trends by supporting effective education and training of future innovators. Canada must increase the number of work-integrated learning opportunities for students in order to grow talent and skills in the workforce. Employers view such opportunities to be among the most important sources of relevant work experience when they consider candidates for positions.⁸ Such opportunities also benefit employers by providing them with specialized knowledge, skilled talent and fresh perspectives. The World Economic Forum reports that in order to "futureproof" a workforce, "government and businesses will need to profoundly change their

⁴ Global Affairs Canada. (2013). *Canada and Trade in Services*. Retrieved from <http://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/services/canada.aspx?lang=eng>

⁵ Statistics Canada. (2009). *The Canadian manufacturing sector: adapting to challenges*. Retrieved from <http://www.statcan.gc.ca/pub/11f0027m/2009057/part-partie1-eng.htm>

⁶ Statistics Canada. (2016). *Gross domestic product at basic prices, by industry (monthly)*. Retrieved from <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/gdps04a-eng.htm>

⁷ World Economic Forum. (2016). *The future of jobs: employment, skills and workforce strategy for the fourth industrial revolution*. Retrieved from http://www3.weforum.org/docs/WEF_FOJ_Executive_Summary_Jobs.pdf

⁸ Business Council of Canada. (2016). *Developing Canada's future workforce: a survey of large private-sector employers*. Retrieved from <http://thebusinesscouncil.ca/wp-content/uploads/2016/02/Developing-Canadas-Workforce-March.pdf>

approach to education, skills and employment,” and they recommend enhanced collaboration between businesses, governments and education providers in developing 21st century curriculums.⁹

Mitacs is prepared to support this objective, with a plan to foster talent for growth by scaling Mitacs’ programs to deliver 10,000 annual innovation internships across Canada by 2020. This would make Canada an international leader in providing graduate-level work-integrated learning opportunities, supporting roughly 20% of graduate students in Canada. Mitacs also proposes to change eligibility restrictions around the Mitacs *Accelerate* program to allow undergraduate students and students at Canada’s outstanding polytechnics and colleges to participate in peer-reviewed, research-based internships.

2. Champion the growth of innovative Canadian companies by promoting their integration into high-value global supply chains.

Canada is a proud trading nation. Canadian companies have robust linkages within North American value chains, and are gradually diversifying their international linkages.¹⁰ However, research suggests that Canadian firms are not as connected into global value chains as they could be,¹¹ and the pace by which Canadian companies integrate into such chains has fallen in recent years, negatively impacting GDP per capita growth by nearly 0.2 percentage points.¹² In response, Canada must proactively identify mechanisms to grow innovative, high-potential companies, particularly by connecting them to global high-value supply chains.

This recommendation supports the findings of a federally commissioned report on strategies for supporting Canadian start-ups, which recommended increased exposure to international markets as a strategy for growth.¹³ Through Mitacs’ policy research, we also know that business leaders highlight Canada’s start-up environment as an asset in attracting foreign direct investment in innovation and other R&D activities.¹⁴ Connecting start-ups and innovative SMEs to global value chains is a strategic way to promote firm growth and attract international investment.

Mitacs is uniquely positioned to support this recommendation with its extensive innovation network, which includes more than 3,000 Canadian businesses and not-for-profits that access Mitacs programs, in addition to over 25,000 students who have participated in Mitacs workshops, and nearly 3,000 university professors who supervise collaborative internships.

The Mitacs *Converge* program harnesses this network to build strategic research and commercialization partnerships, with a primary focus on integrating Canadian SMEs into globally competitive innovation supply chains. The program facilitates business investment in Canadian R&D by building partnerships between large multinational corporations, Canadian SMEs and Canadian researchers. The resulting research, development and commercialization projects provide economic benefit for all partners.

⁹ World Economic Forum. (2016).

¹⁰ Koldyk, L., Quinn, L.M. & Evans, T. (2015, May 20). Chasing the chain: Canada’s pursuit of global value chains. *Institute for Research on Public Policy*. Retrieved from <http://irpp.org/research-studies/aots6-koldyk-et-al/>

¹¹ Aiello, Rachel. (2014, Dec. 1). Canada’s global innovation standing continues to drop, says World Economic Forum. *The Hill Times*. Retrieved from <http://www.hilltimes.com/news/policy-briefing/2014/12/01/canadas-global-innovation-standing--continues-to-drop-says-world/40438>

¹² Van Assche, Ari. (2015, April 28). Global value chains and the rise of a supply chain mindset. *Institute for Research on Public Policy*. Retrieved from <http://irpp.org/research-studies/aots6-van-assche/>

¹³ Centre for Digital Entrepreneurship and Economic Performance. (2015). *Accelerating Canada’s Start-Up Ecosystem: a review of Canadian business accelerators and business incubators*. Retrieved from <http://deepcentre.com/billiondollarfirms/do-accelerators-and-incubators-make-a-difference>

¹⁴ Higham, S., Walker, V.E., Annan, R. (2016) *Leveraging Canada’s Innovation Ecosystem: opportunities to increase R&D investment in Canada*. Mitacs.



With its reputation as an outward-looking trading nation, and an abundance of innovative SMEs, Canada is presented with a strategic opportunity to grow firms, attract international investment, and strengthen our country's position as an innovation leader.

3. Adopt an inclusive and coordinated approach to innovation programs

As Minister Bains recently said, "Canada needs a bold, coordinated strategy on innovation that delivers results for all Canadians." It is vital that in 2016, our approach to innovation is both an inclusive and coordinated one. A strategy that benefits only certain regions, industries, or disciplines will be insufficient for innovation leadership. Canada's strategy must promote new partnerships and avoid duplication of efforts.

Mitacs supports these objectives by working with national and international partners across disciplines and sectors to improve Canadian productivity and growth. Our expansive network allows Mitacs' innovation internships to be integrated into complimentary initiatives, avoiding duplication and presenting a simplified point of access for participants. Specifically, Mitacs has worked to support this coordination through partnerships with organizations like CIHR, SSHRC, NSERC, Genome Canada, NRC-IRAP and many more federally supported entities supporting Canadian innovation.

Finally, an inclusive and coordinated approach must recognize the continued importance of basic research. Mitacs encourages the federal government to support Canada's granting councils, and to promote basic research at colleges, polytechnics and universities across Canada. Often, basic research leads to new discoveries, and support for untargeted research is important to our innovative future.

Conclusion

Canada has a solid foundation on which to build tomorrow's economic growth and there is much reason to be optimistic. However, amidst enormous change, it is essential that Canada address key challenges that limit our innovative potential. Drawing on over 15 years of program delivery in support of collaborative R&D and economic development, the recommendations above stem from Mitacs' work within Canada's research and innovation community. By supporting skills training and work-integrated education, strengthening the role of Canadian companies in high-value global supply chains, and promoting a coordinated approach to innovation, Canada can move to a position of leadership in global competitiveness rankings.

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