



*Inspiring innovation
Inspirer l'innovation*

**Submission to the Standing Committee on
Industry, Science and Technology:
Canadian Response to the Covid-19 Pandemic**

May 2020



Executive Summary

Rebuilding Canada's innovation ecosystem

Canada is currently working to rebuild after an unprecedented economic decline due to the COVID-19 pandemic. Millions of Canadians have lost their jobs, and businesses across the country are struggling to remain viable. Meanwhile, there is still much we don't know about the public health risks that remain. The challenges facing Canadians are dire. Fortunately, we have several important factors working in our favour. Governments across Canada have acted swiftly to put in place public safety measures and rapidly deliver financial support to help Canadians meet their immediate needs. These measures provide us with important stability from which to begin restarting our economy.

The following is an assessment of key challenges facing Canada through the economic recovery and recommendations for how they can be addressed. In particular, we are concerned about the risk to Canada's productivity and innovation. This crisis threatens to undo important investments Canadians have made in recent years into improving our innovation performance, which risks increasing the productivity gap between Canada and peer nations. Our recommendations are informed by Mitacs's 20 years of experience driving innovation and supporting Canadian economic development, with a focus on building bridges between researchers and businesses, work integrated skills development, and cross-sector networks.

A recovery focused on productivity

Considering the significant hurdles facing employers and workers in the months ahead, major public-policy interventions will no doubt be required to encourage rapid, effective, and safe economic growth. The programs that will be launched to support Canada's economic recovery will need to focus on two overriding objectives: that vulnerable elements of our economy are protected, and that the economy that emerges from this crisis is the one best able to support stable prosperity into the medium term.

Considering these objectives, there is an urgent need to safeguard and advance Canada's innovation ecosystem. Canada's network of innovative, research-intensive enterprises are simultaneously vulnerable to economic shocks and indispensable to future prosperity. Many of the firms best positioned to lead Canada's economic recovery are small today. They have made significant investments in intellectual property and in developing highly qualified personnel (HQP), but many are either pre-market or new entrants. The longer the market for their innovative products remains closed, the greater the risk that we will lose the vital investments made into new ideas and talented people.

This is a severe risk, as losing our innovation potential would endanger Canadian productivity, competitiveness, and prosperity. This submission describes some of the key challenges policy makers will need to address to ensure that a strong innovation system emerges through the upcoming recovery. The following are our key findings and recommendations:



Key findings

- Ensuring the survival of Canada's most innovative companies will help ensure that Canada's economy emerging from the recovery will be productive and competitive.
- Canada will rely on small and medium-sized enterprises to support its economic recovery and particularly on innovative businesses poised for rapid growth.
- New PSE graduates face significant obstacles launching their careers during economic downturns, which can have prolonged negative impacts both for individuals and for Canadian productivity.

Recommendations

1. Public programs designed to support Canada's economic recovery should focus on enhancing Canada's productivity, to help ensure Canada's long-term competitiveness and prosperity.
2. In particular, the Government of Canada should support access to R&D talent for highly innovative companies, recognizing that a) many of these companies are highly vulnerable in the current downturn, and b) that their success has significant potential to accelerate Canada's overall economic recovery.
3. The Government of Canada should support SMEs with the potential for high growth, specifically those that are pursuing innovation-related activities such as R&D.
4. Extend emergency supports for deploying HQP into the economy through innovation internships, recognizing that these internships have significant potential to help graduates launch their careers in their chosen fields and avoid the long-term negative effects of entering the job market during a recession.

About Mitacs

Mitacs is a national, not-for-profit organization that has delivered innovation internships for PSE students and postgraduates throughout Canada and internationally for 20 years. Working with over 110 PSE institutions, thousands of companies and not-for-profits, the federal government, and 10 provincial governments, Mitacs builds collaborations that boost industrial and social innovation in Canada.



Rebuilding Canada's innovation ecosystem

Ensuring the survival of Canada's most innovative companies

As the Canadian economy emerges from the current unprecedented shutdown, ensuring high levels of productivity will be crucial. High-productivity companies will be best positioned to ramp up business activities quickly, invest in the safety protocols necessary to ensure public health, and set the foundation for future economic growth in the medium term. As multiple studies have noted previously, productivity arises when physical, intellectual, and human capital are combined with efficiency-boosting innovation.

Challenges facing the innovation ecosystem

Canada's innovation landscape includes many of the fastest-growing companies in the country, but it has been hit hard by the downturn. Many of these companies are still in their early stages, and still not profitable or self-sustaining without outside capital providers. Reports from the sector show that there is widespread anxiety over the ability of these firms to survive the downturn.¹ Should these firms fail to survive this unique period of instability, Canada's overall economic recovery would be significantly damaged.

A recovery plan focused on improving Canada's overall productivity should include provisions to ensure the survival of firms that have invested most in developing intellectual and human capital. By supporting Canadian innovators, the Government of Canada can help ensure that stimulus activities are setting a foundation for future productivity, in ways that traditional infrastructure-focused spending are not able to accomplish.²

Preserving vital human capital

Canada's highly qualified personnel will play a vital role in supporting the economic recovery. A study following the 2009 recession found that the companies best able to recover and grow prioritized the retention of human capital.³ Instead of layoffs, they relied on process improvements to cut the necessary costs to endure the downturn. They therefore

MITACS'S COVID-19 RESPONSE

In response to COVID-19, Mitacs has quickly mobilized its team and platform to effectively offer support and expertise where needed. This includes introducing a number of time-limited initiatives that boost R&D and student opportunities in response to the crisis. Each of these initiatives directly addresses a key public-policy issue where Mitacs is well-placed to make an impact, including by ensuring our programming remains accessible to SMEs who are experiencing economic hardship, or by offering research awards to students who are faced with an extremely unfavorable job market.

- A call for projects focused specifically on research related to COVID-19 and the virus.
- A reduced financial requirement for SME's to take part in Mitacs programming from 50% of project cost to 25%.
- An expedited review process to get projects up and running as quickly as possible.
- A Research Training Award to offer employment opportunities to students looking to carry out research projects and build research skills.
- A COVID-19 call for Mitacs Canadian Science Policy Fellows to bring PhD level expertise and scientific evidence into the policy-making process for all levels of government.
- A Business Strategy Award to allow business students to work with companies to develop strategies to cope with the new economic realities of a post-COVID world.
- A COVID-19 Industrial Postdoctoral Fellowship Call – one-year collaborative research projects between universities and industry or not-for-profit partners that demonstrate a strong benefit to Canada in battling COVID-19 and addressing its aftermath.

¹ See, for instance, Silcoff, S.; Krashinsky Robertson, S. (May 1, 2020). ["Survival of the unicorns: As the economy skidded, so did startups. Now they need new ideas, and fast."](#) *The Globe and Mail*.

² See for instance Cross, P. (2020). ["Infrastructure programs rarely stimulate growth."](#) Macdonald Laurier Institute.

³ Gulati, R.; Nohria, N.; Wohlgezogen, F. (2010). ["Roaring Out of Recession."](#) Harvard Business Review.

avoided the significant costs others encountered in recruiting, hiring, and training new employees. The study shows that a multifaceted business strategy focused on talent development, R&D, and marketing is the best approach to emerging from a recession (and particularly a brief one). The Canadian companies that are able to accomplish such planning will have the best chance of leading the economic recovery.

The challenge for Canadian governments is finding ways to support these companies to the extent that they can retain and continue to develop their talent. If able to maintain their intellectual capacity during the downturn, these companies will be able to react quickly to new opportunities as the global economy returns to normal. Without that capacity, we risk losing those opportunities to competitors, delaying the development of the high-productivity enterprises on which Canada's future economic prosperity relies.

Addressing the elevated risks faced by Canada's SMEs

Among the most vulnerable businesses in Canada during the downturn will be small and medium-sized enterprises (SMEs), which form the vast majority of businesses in Canada and employ the majority of working Canadians. Their success will be key to Canada's ability to reverse the downturn. In particular, Canada will rely on those SMEs that are poised for rapid growth and job creation.

Challenges facing SMEs

SMEs in Canada today face a daunting scenario that combines severe logistics challenge (including complete operational shutdowns) and disappearing markets for their products. Additionally, they lack the abilities larger firms have to manage long-term disruptions in their cash flow, including access to emergency financing.

Through surveys, the Canadian Federation of Independent Business found that more than half of SMEs are entirely or partially shut down, one third have seen revenues decline by 75 percent or more, and more than half have begun laying off staff.⁴ Recognizing their vulnerability and their economic importance, the Government of Canada has correctly responded with significant financial support. These supports, and the speed at which they were provided, help to ensure that SMEs across Canada will be ready to move quickly when the recovery begins.

Supporting high-growth SMEs

An economic recovery strategy focuses on improving Canada's productivity and competitiveness should prioritize support for SMEs with high growth potential. Enabling more innovative SMEs to achieve fast growth would help Canada address longstanding weaknesses in productivity and competitiveness relative to peer countries.

A recent OECD study found that GDP per hour worked in Canadian SMEs was only 47 percent that of large firms in 2008, compared with 67 percent in the United States.⁵ It was estimated that bringing the productivity of SMEs relative to large firms up to the level of the United States would increase aggregate Canadian labour productivity by 11 percent. Achieving this would require scaling up Canadian SMEs, making them more efficient, and increasing business entry and exit rates.

Achieving this kind of growth will require more SMEs to embrace innovation, including the development of highly qualified personnel and undertaking R&D activities. As recommended by the OECD, governments can boost the

⁴ Canadian Federation of Independent Business (March 2020). [Your Business and COVID-19 Survey - Part Two](#). (N=11,283)

⁵ OECD (2017), [SME and Entrepreneurship Policy in Canada](#)



rate at which exceptional firms form and grow by implementing policies that foster the training of employees and managers, improve access to financing, and promote internationalization.⁶

Reducing the negative impacts faced by students and new graduates

The Government of Canada has correctly identified post-secondary students as a vulnerable group during the pandemic and has delivered important financial assistance to help them meet their immediate needs. While returning students will face continuing challenges as they seek to complete their studies remotely or in restricted classroom conditions, the challenges facing graduating students will arguably have a greater impact on Canada's economic recovery. These graduates will be seeking to launch their careers in a highly competitive labour market, and they will do so without the benefit of years of experience and developed professional networks. However, these graduates are holders of significant human capital and have the potential to make great contributions to Canada economic recovery if given the support to accomplish their school-to-work transition in these uniquely challenging times.

Long-term consequences to graduating in a recession

Launching a career in a time of high unemployment often means making significant sacrifices, including accepting more part-time work, low-paid work, and work that does not align with one's training. Each of these choices has negative consequences for the individual, but they also diminish the potential returns to all Canadians from the public investments made in that graduate's human capital.

Furthermore, graduating in a recession has been found to have consequences that last beyond the initial school-to-work transition. Research shows that, relative to their peers, students graduating during a recession suffer reduced wage growth, delayed career progression, and reduced opportunities to apply their skills.⁷ The loss of earnings has been found to last for a decade, based on evidence from past recessions, representing a significant loss in personal lifetime earnings and in national productivity.⁸

Launching careers through work-integrated learning

Some of the key challenges new graduates face in launching their careers are a lack of non-academic work experience, industry knowledge, and professional networks. These difficulties can be daunting in a healthy economy and much more so in a recession. Failure to overcome these challenges might mean delays in entering the labour force or beginning a career in a job not suited to one's training. These outcomes harm Canada's overall productivity as our human capital is not employed in its most productive function.

Fortunately, these challenges can be mitigated through short-term work placements during an individual's studies or shortly after graduation. Mitacs has delivered work-integrated learning opportunities for 20 years, with a focus on ensuring that highly trained students are able to contribute their talents meaningfully to R&D activities across the country. We have seen that these experiences help students launch careers in their fields, with up to a quarter of employers who participate in Mitacs's flagship Accelerate program⁹ reporting that they hire their interns.¹⁰ Results are even stronger in the Mitacs Elevate program, which combines a longer-term internship

⁶ OECD (2010), [High-Growth Enterprises: What Governments Can do to Make a Difference](#)

⁷ Agopsowicz, A. (2019). ["The Recession Roadblock: The Long-term Career Consequences of Graduating into a Downturn."](#) RBC Economics.

⁸ Oreopoulos, P.; von Wachter, T.; Heisz, A. (January 2012). ["The Short- and Long-Term Career Effects of Graduating in a Recession."](#) *American Economic Journal: Applied Economics*.

⁹ In Accelerate a student participates in a peer-reviewed R&D-related project under the supervision of both an industry and an academic supervisor over a minimum period of four months.

¹⁰ 13 percent of respondents said they have hired the intern and another 13 percent say they plan to hire the intern in the near future (Accelerate partner data exit surveys, April 2017 to August 2019, N=871).

with R&D management training. More than 40 percent of Elevate employer partners report hiring at least one former fellow, with more than a quarter of those hiring more than one.¹¹

Overall, students who participate in Mitacs programs feel the experiences are helping them launch their careers.¹² Furthermore, we see that work-integrated learning experiences affect the career planning of the students who participate. As they gain more experience in non-academic work, they are better equipped to make decisions concerning their future career paths.¹³

Work-integrated learning opportunities also have the potential to provide both students and employers with additional flexibility and reduced risk as they navigate challenging economic conditions. For students, a temporary work placement may create an opportunity to start a career aligned with their field of study, while they build skills needed in the workplace. For employers, the ability to hire highly qualified students for temporary placements can help them control costs during the worst of the recession, enabling them to maintain crucial operations such as productivity-enhancing R&D and to lower the risks associated with hiring new staff. This flexibility is particularly valuable for SMEs, which make up about 80 percent of the employer partners that participate in Mitacs programs.

Recommendations

To address the productivity challenges described in this submission, we recommend the following:

1. Public programs designed to support Canada's economic recovery should focus on enhancing Canada's productivity, to help ensure Canada's long-term competitiveness and prosperity.
2. In particular, the Government of Canada should support access to R&D talent for highly innovative companies, recognizing that a) many of these companies are highly vulnerable in the current downturn, and b) that their success has significant potential to accelerate Canada's overall economic recovery.
3. The Government of Canada should support SMEs with the potential for high growth, specifically those that are pursuing innovation-related activities such as R&D.
4. Extend emergency supports for deploying HQP into the economy through innovation internships, recognizing that these internships have significant potential to help graduates launch their careers in their chosen fields and avoid the long-term negative effects of entering the job market during a recession.

¹¹ 44 percent of respondents said they hired their fellow; 30 percent of those hired more than one fellow. (Elevate Partner Longitudinal survey, 2018, N=50).

¹² 87 percent of respondents either agreed or strongly agreed with the statement "your career prospects have improved." (Accelerate Intern Exit Surveys, April 2017 to April 2019, N=1,258).

¹³ For instance, 43 percent of Elevate Fellows report changing their career goals since beginning or completing their fellowship. (2018 Elevate Fellow Longitudinal Survey, N=86).



The Mitacs approach

Mitacs is committed to assisting the Government of Canada achieve its productivity and innovation goals. Over its 20-year history, Mitacs has grown to be one of the largest providers of work-integrated learning in Canada, with a unique focus on strengthening private sector R&D and international research connections. Working with over 6,000 partner countries, 72 universities, and 46 colleges and polytechnics, Mitacs is uniquely placed to deliver R&D talent where it is most needed by Canadian companies.

The following are brief descriptions of the Mitacs approach to addressing issues raised in this submission:

Work-integrated learning

Mitacs is unique among work-integrated learning providers in Canada, employing a team of business development specialists across the country to work directly with employers, students and scholars to ensure that each internship is focused on a well-defined project that: a) meets the R&D needs of the company; b) meaningfully advances knowledge in the field; and c) contributes significantly to the skill development of the student. Mitacs is able to deliver consistent quality by utilizing a national network of business development specialists who connect employers with researchers able to tackle their R&D challenges, peer reviewers who help ensure that internships are driven by research excellence, and academic supervisors who help enable knowledge transfer between the PSE system and the private sector.

R&D and innovation

Mitacs's team of business development specialists connects businesses with appropriate partners in academia. They serve as trusted advisors to companies (from SMEs to MNEs), helping them solve key challenges, develop new partnerships, and drive innovative solutions. This ability to establish and grow strong connections provides a valuable platform to enable effective knowledge transfer between the PSE system and the private sector.

International engagement

Mitacs builds strong linkages between Canada and partners around the world to help build our country's innovation capacity by successfully leveraging global networks, attracting and retaining top talent, and contributing to global knowledge production. Mitacs helps to brand Canada as a destination of choice for academic research and graduate education by enabling international and domestic undergraduate and graduate students to take part in international research collaboration experiences.

