



The Partnership Group for
Science and Engineering

Le Partenariat en faveur des
sciences et de la technologie

**Written Submission for the Pre-Budget
Consultations in Advance of the Upcoming
Federal Budget**

Presented by:

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August 7, 2020

LIST OF RECOMMENDATIONS

- **Recommendation 1:** That the government ensures the post-COVID economic recovery uses science and engineering approaches to build a more resilient society for all Canadians.
- **Recommendation 2:** That government funding for science and engineering research considers the overall strength of our research infrastructure, ensuring continued support for Canada's Tri-Council funding agencies, Innovation Superclusters, and federal research laboratories.
- **Recommendation 3:** That the government increase investment in post-secondary scholarship, fellowship, and retraining programs to ensure a stable pipeline of talent that enables today's young creative minds to become tomorrow's innovators, scientists, and engineers.

INTRODUCTION

The Partnership Group for Science and Engineering (PAGSE) is an association of 21 professional and scientific organizations. PAGSE seeks to advance research and innovation for the benefit of all Canadians. This submission presents a consensus statement based on consultations with representatives from PAGSE's 50,000+ members throughout the Canadian science and engineering community.

Canadians recognize that our health, prosperity, and safety depend on science, technology, and innovation (STI).¹ Indeed, since the beginning of the COVID-19 pandemic, confidence and trust by Canadians of scientists has never been higher (at 82%), second only to clinicians (87%)². Canadians will trust clinicians, scientists and engineers to provide the evidence needed to help restart the economy and ensure a healthy and resilient future for their communities and families, through research, scientific discoveries, new technologies and innovation. This brief provides recommendations to help **restart the Canadian economy, as it recovers from the COVID-19 pandemic**.

RECOMMENDATION #1: *That the government ensures the post-COVID economic recovery uses science and engineering approaches to build a more resilient society for all Canadians.*

The post-COVID economic recovery period provides a unique opportunity for Canada to build a more resilient society. While Canada's science-based response to the pandemic has been commendable, COVID-19 has still exposed and/or exacerbated weaknesses in our society that should be addressed moving forward to both stimulate the economy and ensure that we are better prepared for the challenges of the future.

For example, from an infrastructure resiliency perspective, the pandemic has created remote working and learning practices that all Canadians could benefit from with stronger and more secure internet access from coast to coast to coast to support innovative ways of communicating.

Research also shows that the impacts of climate change on human health are highly likely to intensify existing health problems, with the worst impacts to be felt by the most vulnerable³. Investing in a recovery that meets Canada's global climate change commitments will improve future health outcomes while generating economic growth within our borders.

Furthermore, COVID-19 has highlighted the disproportionate burdens borne by Black, Indigenous, People of Colour, people with disabilities, family caregivers, and other minoritized members of our communities. It is *critical* that all investments to restart the economy are viewed through a lens of Equity, Diversity, Inclusion and Accessibility, and specifically aimed to ensure that talent already in the system is not lost. Women, minoritized communities and lower socioeconomic groups are more

heavily impacted in the research ecosystem⁴ just as they are in broader society, and we are at risk of losing perspectives and solutions unless we intentionally and aggressively address inequities. This includes national attention to fundamental issues that impact women, such as increased support for families with children to enable women to stay in the workforce.

Given the diversity in this country, Canada has an opportunity to be a leader in inclusion globally while benefiting from being a more resilient society capable of tackling future challenges.

Recommendation #2: *That government funding for science and engineering research considers the overall strength of our research infrastructure, ensuring continued support for Canada's Tri-Council funding agencies, Innovation Superclusters, and federal government research laboratories.*

Recommendations from Canada's Fundamental Science Review⁵ on the importance and value of increased and sustained investment in research were partially acknowledged in the 2017 and 2018 budgets. These investments were just in time to ensure the overall research ecosystem was able to respond quickly to the unexpected pandemic by providing evidence-based recommendations solidly grounded in science.

However, as we face the diverse and myriad on-going challenges in managing and recovering from COVID-19, funding research is one of the most important and highest-yield investments in Canada's competitiveness that our government can make, particularly as a component of restarting the Canadian economy as it recovers from the pandemic.

For example, Canadian research has played important roles in the development of new vaccines in the past. The Ebola vaccine was the result of years of basic research aimed at understanding the unique properties of the virus. Similar approaches to understanding coronaviruses and the broader impacts of the pandemic on human health are underway across the country as a result of short-term funding opportunities through the Tri-Councils.

The efforts to mobilize researchers to address short-term national crises is laudable. One-time commitments to COVID-19-related research through the Tri-Councils are reactive, appropriate public policy for short-term urgent responses. Building on this, we recommend increased long-term investments at a level similar to other G7 countries, across the whole of Canada's research landscape, including continued funding for the Innovation Superclusters and federal research labs. A balanced approach will ensure a vibrant, connected and sustainable research ecosystem to address future challenges.

We were able to respond quickly this year to the call for researchers to step up to the plate, but our ability to generate the new ideas that will improve the well-being

and productivity of Canadians will diminish unless there is a significant and stable investment in research funding across the entirety of the sector.

Recommendation #3: *That the government increases investment in post-secondary scholarship, fellowship, and retraining programs to ensure a stable pipeline of talent that enables today's young creative minds to become tomorrow's innovators, scientists and engineers.*

In addition to the ideas that will shape the post-COVID recovery, the most valuable output from basic research is talent. Talent development through participation in basic research improves our capacity to innovate globally across all sectors, not just in the academic realm. Canadian researchers are training not only the next generation of world-leading researchers but also the skilled workers, innovators, and critical thinkers that Canadian businesses will rely on to maintain productivity and competitiveness as the world adjusts to a new normal.

Canadian businesses need diverse talent with the capacity to understand and ask fundamental questions, with the ability to think broadly, and the curiosity and passion to innovate. The skills that are acquired through basic research equip us to generate new ideas, products, approaches and policies, based on sound evidence, analysis, and decision making. Investing in research is thus also an investment in a training pipeline that will generate jobs and talent to meet the economic and social needs of the future.

Unfortunately, the previous decade-long decline in research funding had a negative impact on the recruitment of trainees into research disciplines.⁶ To help recruit, train, and retain top Canadian and international talent, PAGSE recommends that the government continue to implement the recommendations of Canada's Fundamental Science Review, including the increase to scholarships and fellowships for trainees (R7.1).

PAGSE also recommends that the federal government support the provinces in creating a program of scholarships for specific retraining associated with current challenges, such as climate change.

These investments will nurture the talent that will lead to the ideas and products of the future and ensure the economic recovery is sustainable in the long term.

CONCLUSION

The government faces a unique opportunity to redefine Canadian society as we recover from the COVID-19 pandemic. PAGSE urges the House of Commons Standing Committee on Finance to seize this opportunity by: prioritizing programs that will lead to a more resilient society, continuing to rebuild our science and

engineering research infrastructure, and ensuring systems are in place to build a pipeline of leaders for tomorrow.

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4. 'It's like we're going back 30 years': how the coronavirus is gutting diversity in science (2020), Chris Woolston. <https://www.nature.com/articles/d41586-020-02288-3>
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6. Trudeau government must invest in basic science: Editorial (2017), Toronto Star. <https://www.thestar.com/opinion/editorials/2017/07/03/trudeau-government-must-invest-in-basic-science-editorial.html>