



**UNIVERSITY OF CALGARY**

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## **SUBMISSION TO THE HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE**

Prepared for:

**HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE**

## Summary of Recommendations

- 1) Support the upskilling of the Canadian workforce through expansion of the Canada Training Credit and provide direct support for universities to develop micro-credentials in response to evolving labour market needs.
- 2) Ensure a strong recovery, increase productivity and competitiveness by setting a research and development (R&D) spending target of 2% of GDP by 2026 including R&D expenditures by business, non-profit, government, and higher-education. The government in support of this target should make targeted investments in research capacity by:
  - a) Tripling the number of Canada Graduate Scholarships for master's students and doubling the number for PhD students. Increase the value of these scholarships by 25%.
  - b) Increasing federal funding to the Tri-Council Agencies by 30% over the next 4 years.
  - c) Providing funding for the development of innovation hubs that strengthen ties between universities and local industries, and enhanced innovation and commercialization.
  - d) Investing in quantum computing to ensure Canadian leadership.
- 3) Create a \$2 billion Green Campus Infrastructure and Innovation Fund to enable universities to enhance campus energy efficiency through facilities upgrades and support the growth of Canadian clean technology innovations.

## Introduction

The University of Calgary thanks the Standing Committee on Finance for the opportunity to provide input into Budget 2021 as the Canadian economy recovers from the COVID-19 pandemic. UCalgary thanks the federal government for the support it has provided to post-secondary institutions and students in addressing the challenges created by COVID-19. Federal support has helped mitigate the pandemic's impact on universities, students, and Canada's research community.

UCalgary is one of Canada's leading research universities. We are a driver of economic growth and diversification in Alberta and beyond. We have built a unique entrepreneurial culture that infuses our teaching and research activities. We integrate entrepreneurial thinking throughout our students' experience, giving them the ability to think creatively, work collaboratively, embrace diverse viewpoints, and contribute to a more prosperous and sustainable Canada. The Hunter Hub for Entrepreneurial Thinking fosters entrepreneurship across campus and has reached over 50,000 people through its programs. Innovate Calgary is our technology commercialization arm, filing 19 patents and spinning off 19 new companies last year. Home to 40 start-ups, our Life Sciences Innovation Hub (LSIH) provides accessible wet lab space and supports. Creative Destructive Lab—Rockies, brings together new companies with private sector mentors and funding, raising over \$38.2 million in venture capital, while our new \$10 million UCEED program provides pre-seed and seed funding of up to \$300,000 to new child health related enterprises. UCalgary's Innovation Ecosystem is operating at great capacity, driving innovation and economic growth, with significant private sector funding and community support.

COVID-19 has created unprecedented challenges for universities. UCalgary has seen cost increases from the move to online learning and shuttering and restarting research facilities, while experiencing significant reductions in revenue in areas such as tuition and ancillary services. At the same time, we have stepped up. Over 65 COVID-related research projects are underway at UCalgary. LSIH, together with UCalgary researchers and Exergy Solutions developed an open source emergency ventilator that was approved by Health Canada—over 200 have been donated to Alberta Health Services; our medical students and academic physicians have volunteered as contract tracers; and, our pre-service teachers have volunteered to provide free tutoring to K-12 students, assisting more than 400 students.

As we move forward, research universities like UCalgary are advancing research that will lead to globally competitive new enterprises and increased economic growth, and are playing an invaluable role in ensuring Canadians have the skills that will make them more resilient in the face of future challenges.

## A More Resilient, Innovative Workforce

Due to COVID-19, millions of Canadians have lost their jobs or experienced a reduction in hours worked. Job losses disproportionately impacted women, young people, and those with low levels of educational attainment. Compounding the immediate crisis, in the coming years, the labour market will be reshaped by technological changes, including automation. It is estimated that at least 3 in 10 Canadians is in a job at risk of automation, with low skilled workers at the greatest risk.<sup>1</sup> We must use the current economic crisis as an opportunity to increase the skill level, adaptability, and resilience of Canada's labour force.

UCalgary is expanding micro-credentials and stackable certificates in response to evolving labour market demand. Micro-credentials allow for responsive and rapid skills development and demonstrating competency in specific skills and knowledge. Continuing Education's new Digital Marketing Certificate is made up of five 20-hour courses. The Haskayne School of Business offers an eight-week micro-credential in partnership with the Young Pipelines Association and Beaver Drilling Canada. Our Stackable Certificate leading to a Master of Nursing allows students to earn two certificates through blended online courses part-time, and on the completion of the certificates the option to enroll to earn their Master of Nursing.

The Government of Canada can support the "retooling" of the labour force by expanding the Canada Training Credit and direct support to universities for the creation of micro-credentials and stackable certificates developed in response to labour market needs.

**Recommendation 1:** Support an upskilling of the Canadian workforce through expansion of the Canada Training Credit and provide direct support for universities to develop micro-credentials in response to evolving labour market needs.

## A Stronger Recovery and Foundation for Robust Economic Growth

It is widely acknowledged that R&D spending as a percentage of GDP (research intensity) is a leading indicator for a country's long-term economic competitiveness. In the wake of COVID-19 R&D spending by businesses and non-profits is likely to fall, further imperiling Canada's research intensity, which has markedly declined since 2000 and now ranks 20th in the OECD. Peer competitors are increasing their research intensity, including plans by the UK to reach 2.4% of GDP in 5 years.

Canada should set a national goal for research intensity of 2% of GDP and convene universities, businesses, non-profits and governments to develop policy and plans to support the 2% goal. The government should make targeted investments in research capacity to support reaching the 2% goal.

**Recommendation 2:** Ensure a strong recovery, increase productivity and competitiveness by setting a research and development (R&D) spending target 2% of GDP by 2026, including R&D expenditures by business, non-profit, government, and higher-education. The government should make targeted investments in research capacity in support of this target.

A graduate degree gives an individual cutting-edge skills and knowledge, which they use to enhance the productivity and innovation capacity of Canadian organizations or start their own innovative businesses.

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<sup>1</sup> Wyonch, *Risk and Readiness: The Impact of Automation on Provincial Labour Markets*, C.D. Howe Institute, 2018.

Individuals with a graduate degree have stronger employment outcomes, greater resilience in economic downturns, and less susceptibility to automation. Canada lags peer countries on both innovation performance and number of graduate degrees—ranking 26<sup>th</sup> in the OECD for the proportion of the population with master’s degrees or a PhD.

COVID-19 has hit the employment prospects of new graduates and young Canadians particularly hard. Many may use these circumstances as an opportunity to pursue graduate education, as happened following the 2008 recession, but affordability may be a challenge. The government can support the attainment of graduate education by increasing the number of Canada Graduate Scholarships. Expanding the number of Canadians with a graduate degree—with a focus on equity, diversity, and inclusion—will create a more resilient and innovative labour force.

Recommendation 2 A: Triple the number of Canada Graduate Scholarships for master’s students and double the number for PhD students. Increase the value of these scholarships by 25%.

It is imperative that we both address immediate challenges created by COVID-19 and increase our long-term innovation capacity. Fundamental research fuels private sector research, long-term transformative innovations and economic growth.

Recommendation 2 B: Increase federal funding to the Tri-Council Agencies by 30% over the next 4 years, as part of a broader goal of raising R&D expenditures to 2% of GDP.

University-led initiatives to bring together industry and academia have a successful track record in commercializing research, creating innovative new businesses, and generating rewarding jobs. For example, start-up companies at UCalgary’s LSI Hub now employ 134 people—all rewarding, highly-skilled positions. Willow Biosciences, co-founded by an UCalgary professor and past tenant of LSI Hub, recently partnered with a drug development and manufacturing firm to conduct larger scale pilot production and is listed on the TSX. The LSI Hub model has drawn interest from governments around the world, including the US Department of Energy, seeking to increase commercialization of research.

The creation of university-based innovation hubs could build on existing initiatives, such as LSI Hub, to strengthen ties between academia and industry. Hubs would convene stakeholders across key sectors to share knowledge, form partnerships, and incubate promising start-ups. Funding for relevant fundamental research, as well as for research mobilization and pre-revenue company development, could enhance already successful programs such as the Western Diversification Program. Hubs would be developed by PSE institutions and local industry and would demonstrate complementarity with existing initiatives.

Recommendation 2 C: Provide funding for the development of innovation hubs that strengthen ties between universities and local industries, and enhance innovation and commercialization.

UCalgary’s Institute for Quantum Science and Technology is a multidisciplinary group of researchers conducting leading research in the key theoretical and experimental topics of quantum science and technology. Together with University of British Columbia, University of Waterloo, and Université de Sherbrooke, UCalgary has submitted to government a proposal for significant targeted investments in quantum computing. The proposal supports the growth of university expertise today grow into micro-clusters of industry-government-academia collaboration over the next decade, and then into

economic powerhouses. Investments in quantum computing today should be compared to early investments in Artificial Intelligence and genetic research, which cemented current Canadian leadership in these areas. Government support for this initiative will secure leadership in this important and emerging area of research.

Recommendation 2 D: Invest in quantum computing to ensure Canadian leadership.

## Infrastructure for Productivity and Climate

Much of the infrastructure on university campuses consists of older buildings requiring energy efficiency upgrades. Completing these upgrades —which enjoy support from over 80% of students and parents of students<sup>2</sup>—would create short-term employment benefits and long-term benefits by reducing Canada’s environmental footprint. For example, UCalgary’s MacKimmie redevelopment transformed a 1960s tower into a Canada Green Building Council Net Zero Carbon Facility, reducing energy usage by over 90% while enabling local workers to develop cutting edge expertise in green building techniques.

A Green Campus Infrastructure and Innovation Fund would increase the efficiency of university campuses while creating opportunity for upskilling amongst workers. The \$2 billion fund would be complemented by an Innovation Accelerator supplement, which would encourage institutions to be lead customers for new products or services developed by Canadian clean-tech SMEs. This would help Canadian clean tech innovators establish market credibility with potential investors and customers. The supplement could encourage the involvement of students in the implementation of innovations, giving students significant hands-on experience.

Recommendation: Create a \$2 billion Green Campus Infrastructure and Innovation Fund to enable universities to enhance campus energy efficiency through facilities upgrades and support the growth of Canadian clean technology innovations.

## Conclusion

The recommendations in this document will allow Canada to emerge stronger and more resilient from the economic crisis created by COVID-19. By creating supports and incentives for workers to upskill and making targeted investments to enhance our innovation capacity we can create a better future for all. UCalgary endorses the recommendations made in the submissions by the U15 and Universities Canada. UCalgary thanks the Committee for the opportunity to provide recommendations for Budget 2021.

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<sup>2</sup> Abacus Data, *Canadian Opinions | COVID-19 & University*, commissioned by Universities Canada, 2020