



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA

**UBC100**

Submission to the House of Commons  
Standing Committee on Finance



19 February 2016

**The University of British Columbia**

## Introduction

One hundred years ago, 379 students became members of the first class of the newly established University of British Columbia. They found their classes in Vancouver's Fairview district in one stone building on loan from the Vancouver General Hospital and in a series of cheaply built wooden structures—the "Fairview Shacks."

This past September, a century later, UBC welcomed more than 10,000 first year students to its Point Grey and Kelowna campuses and distributed learning centres around the region. They join a student population of almost 60,000 and, in turn, they will graduate into a community of more than 300,000 UBC alumni distributed across communities in BC, Canada and around the world in more than 120 countries. They will count among their peers Nobel laureates, prime ministers, ministers of the crown, Supreme Court justices, rising and established technology luminaries, and executives of multinational corporations.

Now ranked among the top 20 public universities in the world, UBC has come a long way from those shacks; it has become fully enmeshed in the fabric of British Columbia and Canada as an institution that all Canadians can be proud of and whose impact is felt around the world. UBC boasts one of the largest research enterprises in Canada, securing more than \$500 million in research funding from government, individual and corporate sources annually. Our researchers are tackling problems with real-world impact, such as personalized, genomic approaches to cancer diagnosis and treatment, and areas ripe for ground-breaking scientific discoveries, such as the development of new materials constructed atom by atom to utilize powerful quantum mechanical properties.

The Government of Canada has played a pivotal role in the development of UBC as a globally significant institution of higher learning and advanced research. Indeed, successive federal governments have created critical elements that contribute to the Canadian research, development and innovation (RD&I) ecosystem. This ecosystem is underpinned by the Government of Canada's support for the research granting councils, programs such as Canada Research Chairs and Canada Excellence Research Chairs, the recent creation of the Canada First Research Excellence Fund—a strategic investment of \$1.5 billion to position Canada as a global leader in specific fields—and augmented by research infrastructure support through the Canada Foundation for Innovation. These investments are critical to the success of Canada's research universities.

Canadians benefit from a remarkable education system and world-class research infrastructure. Our researchers and innovators have shown that Canada can lead the world in diverse research fields.

As global commodity prices continue to slump and economic recovery remains sluggish, Canada is seeking to secure a solid position in the evolving global economy. And despite important investments, Canada continues to grapple with how to hold its own in an increasingly competitive, and at times predatory, international market.



The university is pleased to again take part in the Standing Committee on Finance’s pre-budget consultations.

This submission argues that to thrive in the global economy—to support Canadians across all income strata and to achieve an environmentally sustainable and economically prosperous society—Canada must invest in research and innovation. While Canada has made a number of important investments and is a world leader in research output and PSE attainment, we lag in many areas when it comes to a highly skilled workforce, productivity, government investment in R&D, and fostering innovation.

To meet this challenge, and mindful of ongoing economic pressures, we encourage government to consider the following recommendations:

1. *Continue to enhance the foundation of RD&I in Canada by supporting the federal granting councils and, in particular, core funding that supports unfettered research*
2. *Create specific funding for university infrastructure; recognizing the broad and long-term socio-economic impact of innovation infrastructure and recognizing the success universities have demonstrated in delivering on the objectives of federal infrastructure programs*
3. *Ensure Canadian universities can compete with global competitors by committing that no institution receive less than 25% in research support funding*
4. *Provide support for undergraduate Canadian students to travel abroad, and provide additional support for undergraduate students in Canada to study in a different province*

## Enhancing Canada’s Research Granting Councils

The research granting councils form the backbone of Canada’s research and innovation ecosystem. The councils fund the full spectrum of research from fundamental discovery to applied and industry-partnered projects. They support the continuing development of research faculty and highly-qualified personnel ranging from established global research stars to promising young graduate students. They support research collaborations with small Canadian companies and major multinational enterprises.

The research granting councils and the discovery research they support are critical to our ability to address some of our most pressing priorities. Discovery research equips us with new ideas, approaches and technologies to support Indigenous Canadians, to tackle and adapt to climate change, to realize clean energy, to innovate in Canada’s natural resources industries, and so much more.

UBC’s Dr. Sarah Otto has devoted her research career to solving the riddles of evolutionary biology. The Canada Research Chair in Theoretical and Experimental Evolution uses mathematical models and experimental and genomic tools to help us better understand how different species evolve and adapt to changing environments — knowledge critical to making sound decisions around conservation and preservation. Her work is supported by NSERC, Canada Foundation for Innovation and the Canada Research Chairs program.



The Government of Canada's investments in the granting councils, as well as in other vital research granting bodies such as the Canada Foundation for Innovation and Genome Canada, have buoyed the Canadian research enterprise, positioning Canadian institutions among the world's best. This is exemplified by the fact that Canada, with just 0.5 per cent of the world's population, produces five per cent of global academic publications.

Unfortunately, support for the granting councils has waned over the past decade, particularly in the area of discovery research. Adjusted for inflation, the granting councils' 2014/15 funding was about \$176 million less than in 2007/08. Without any further increases, the gap is expected to increase to \$210 million by the end of 2015/16. A further challenge is that much of the funding directed to the granting councils over the past decade has been targeted to specific programs or priorities. As such, Canada is experiencing a hollowing out of core discovery research funding.

This hollowing out has made it increasingly difficult for Canadian researchers, including some of the country's best, to secure funding for research that underpins Canadian innovation. While we applaud the government for new programs to retain and recruit talent, the incremental reduction in granting council funding presents a real risk to maintaining Canada's research and innovation talent. With limited funding, those researchers who have established labs with developed networks typically succeed in securing funding, at the cost of young and mid-career researchers active in emerging fields of research. These young and mid-career researchers within the talent pool are mobile, globally connected and integral to the long term sustainability of Canada's research and innovation ecosystem. The potential loss of these talented individuals is real. We urge government to address granting council funding as early as possible.

Canadian GERD to GDP has been steadily dropping from a high in 2004 of 2.01% to 1.62% in 2014. This while, according to OECD, Germany has increased by almost the same rate and is now at 2.85%, the United States at 2.73%, and Australia at 2.95%. The OECD average is 2.36%.

## Recommendation #1

Continue to enhance the foundation of RD&I in Canada by increasing support for the federal granting councils and, in particular, core funding that supports unfettered research

## Knowledge Infrastructure

At the nadir of the global recession, the federal government introduced the Knowledge Infrastructure Program as part of a broader effort to stimulate the Canadian economy. It was a significant initiative to provide the country the infrastructure needed to further advance education, research and innovation and secure Canada's competitive advantage.

As was validated by Treasury Board analysis, the post-secondary sector proved that it could deliver meaningful, impactful infrastructure projects on time and on budget.

While UBC celebrates its centennial in 2015/16, the university is also confronted with aging and out-dated infrastructure. Many facilities at UBC and at universities across Canada have reached a point where they are no longer suitable for world-class research. Even where the newest equipment is



available, many facilities are not capable of housing such equipment. Deteriorating infrastructure means that students are not being educated with the up-to-date and modern facilities that will best prepare them for 21st century workplaces.

Canada has important and ongoing programs dedicated to funding research infrastructure. The Canada Foundation for Innovation, in which the government of Canada made a \$1.33-billion, seven-year investment through Budget 2015, provides funding for research equipment, laboratory upgrades and researcher start-up costs. Despite these important and needed investments, Canada's research universities are struggling to raise funds for new or expanded research and teaching facilities and to address deferred maintenance and seismic upgrades—the latter a particularly acute challenge on Canada's Westcoast.

It is clear the Government of Canada recognizes that sluggish economic recovery requires governments at all levels to not only pursue measures that mitigate the effects in the short term, but to support initiatives that will contribute to long-term economic success. Beyond the ultimate objective of building the facilities needed to conduct leading-edge research and educate the next generation of highly-skilled Canadians, investments in university infrastructure also generate thousands of direct jobs in construction, design and engineering.

## **Recommendation #2**

Create specific funding for university infrastructure, recognizing the broad and long-term socio-economic impact of innovation infrastructure and recognizing the success universities have demonstrated in executing federal infrastructure spending

## **Filling a critical gap**

The Research Support Fund, wisely rebranded from the Indirect Costs of Research Program, supports costs associated with research that is not covered by research grants—the administrative, regulatory and operational scaffolding without which cutting edge research could not take place.

These costs are significant and Canada, while making incremental adjustments, has not effectively addressed this gap. Associated costs of research are estimated at between 40 and 65 per cent of the direct research costs.

In Canada, the current program averages only approximately 20 per cent of direct costs on Tri-Council research grants. Counter-intuitively, the program is punitive to those universities with a successful track record in obtaining research funding; the more research an institution undertakes, the less proportional research support funding an institution secures. For example, institutions like UBC and the University of Toronto secure approximately 18 per cent.

In the United States, federal agency negotiators and university administrators pre-determine an overall percentage of allowed costs to be reimbursed based on documented historical costs and cost analysis studies. Rates vary from institution to institution because construction, maintenance, utilities, and administrative costs vary. US federal government negotiated rates are often above 50 per cent and rise to as high as 63 per cent.



In spite of the positive impact of the program, the Research Support Fund continues to fall short of needed levels. As a result, the universities that conduct the most research have the largest funding shortfalls.

Agreeing to a base floor of support would be an important first step in remedying this gap in the research landscape.

### **Recommendation #3**

**Ensure Canadian universities can compete with global competitors by committing that no institution receives less than 25% in research support funding**

## **Student Mobility**

The friendships and connections students make during their education and early in their careers can have long-lasting and immeasurable impacts. And in an increasingly interwoven world of commerce, politics and culture, young people will benefit from developing a capacity to forge relationships across cultures and within evermore-complex social structures.

For many, the first global experience starts at university or college. For Canadian students this often means meeting others who have come to Canada to benefit from our globally recognized post-secondary institutions. All levels of Canadian government have recognized the value, both social and economic, in attracting international students to our institutions of higher learning. As a result, Canada is emerging as a top international destination for international students. Where we lag, however, is in encouraging our own students to spend meaningful amounts of time embedded in other countries and immersed in other cultures. The latest statistics show that only three per cent of Canadian students spend time studying abroad.

Bolstering the nation's efforts to send Canadian students abroad will bring many benefits. Our students will benefit from both personal and professional growth, and, with our students as ambassadors, Canada will raise its global profile and forge further business and trade connections. In an interconnected and culturally fluid world, Canada cannot afford to stay home and look inward. The future of a globally situated Canada necessitates a globally literate and engaged youth.

With the coming 150<sup>th</sup> celebration of Canada's Confederation there is no better time to launch a national program that supports meaningful academic international exchanges for students.

### **Recommendation #4**

**Provide support for undergraduate Canadian students to travel abroad, and provide additional support for undergraduate students in Canada to study in a different province**

