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U15 Pre-Budget 2017 Submission

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Group of Canadian Research Universities

Regroupement des universités de recherche du Canada

Introduction

The U15 Group of Canadian Research Universities would like to thank the House of Commons Standing Committee on Finance for this opportunity to provide input into how Budget 2017 can help Canada's people, communities, and businesses prosper.

In a world where innovative technologies, techniques and businesses created anywhere disrupt markets everywhere, we can ensure a strong economy and a high quality of life by unleashing innovation in all parts of our economy and society. Innovation fuels the creation of new products and services, reduces costs and increases productivity, sustainability and social progress. Innovation not only involves turning a small number of world-changing discoveries into major industries, it also requires a large number of smaller advancements, continuous improvements and the adoption of these changes. This accelerating pace of technological and social change has also made social innovation – using ideas and knowledge to create novel solutions to social problems – critical to our country's long-term success. Novel public policies, initiatives, and other social innovations build on an understanding of our world, our society, our economy and ourselves that the arts, humanities and social sciences create.

As our global competitors increase their investments in innovation, Budget 2017 presents the federal government with a critical opportunity to advance this agenda. There are many ways we can strengthen our innovation ecosystem, but we believe the federal government can make strategic, high-impact investments in three broad areas that will have near-term impacts while creating the conditions for long-term success. These three areas are:

- **Ideas and knowledge.** Innovation creates economic and social value from ideas and knowledge. Although a particular innovation may sometimes occur as the direct result of a single scientific breakthrough, more often, a number of different scientific breakthroughs enable innovation. By expanding the frontiers of knowledge through science and research, we create new opportunities for science-based and science-enabled commercial and social innovation.
- **Talent.** Innovation is a human activity. Ensuring that we develop and retain the best and brightest domestic talent, while attracting and settling the highest-calibre international talent, is central to Canada's ability to be a global leader in innovation.
- **Dynamic regions.** A dynamic, innovation-oriented region is a critical catalyst for talent, ideas and knowledge. Place-based competitive advantages are built on a region's unique combination of people, geography, resources, businesses institutions and history.

To build on Canada's existing strengths and turn our innovation ecosystem into a core competitive advantage for Canada, The U15 recommends that Budget 2017 begin taking concrete actions around these three key components of our innovation ecosystem.

About the U15

The U15 represents 15 of Canada's leading research universities. U15 institutions perform more than 25 percent of all research in Canada and educate more than 500,000 people every year.

Ideas and knowledge

Without new ideas, innovation cannot occur. Innovation is usually either the direct result of, or enabled by, scientific discovery and research. Although many Canadian firms focus on conducting research and development on products and services that are close to market, Canada's ability to make innovation a long-term economic strategy also requires world-leading, discovery-driven research that helps to open new frontiers and create new opportunities (e.g. quantum computing and materials or regenerative medicine). Most of this discovery-driven research is performed in universities. In addition to creating new opportunities, Canada's investments in university research provide an essential training ground for our next generation of highly qualified personnel and build our capacity to engage in social innovation.

Globally competitive funding levels. Historically, Canada has been a leading performer of fundamental research as a result of investments in university research. However, in recent years our international competitors have overtaken us. As a result, between 2006 and 2014 Canadian investments in higher education research and development as a percentage of GDP dropped from third to seventh among OECD countries¹. Falling behind in fundamental research could undermine Canada's Innovation Agenda, because as Ben Bernanke noted "fundamental research is ultimately the source of most innovation, albeit often with long lags."²

Increasing the impact of investments. In addition to funding research and science at globally competitive levels, we should endeavour to increase the impact of our investments by working to ensure our system is optimally structured. The fundamental science review announced in Budget 2016 gives us the opportunity to ensure that our system evolves to meet Canada's future needs. These needs range from simplifying our research funding system, to ensuring that research infrastructure funded by the Canada Foundation for Innovation has adequate stable, predictable funding and from addressing the underfunding of indirect costs to developing a strategic approach to supporting big science. The panel's recommendations on these matters will provide an important input to Budget 2017.

To build on Canada's history as a world-class research country, and to ensure Canada produces the ideas and discoveries that enable innovation, The U15 recommends that Budget 2017:

- Establish a target for investments in fundamental research and science, based on international peer countries (e.g. have a HERD/GDP ratio that is in the top three among OECD countries) and commit to a multi-year plan to achieve that target. These funding increases would help address a number of existing challenges in Canada's research funding system.
- Establish, as a principle, that federal research grants cover the full costs of funded research, including indirect costs, and commit to a multi-year plan to close the indirect cost funding gap.

¹ OECD. [Main Science and Technology Indicators](#).

² Ben Bernanke. [Promoting Research and Development: The Government's Role](#). May 16, 2011

Talent

If Canada is to become one of the most innovative countries in the world, we must develop, attract and retain the most talented individuals in the world. Our world-class universities play a critical role in developing the leaders and highly qualified personnel a highly innovative country requires. Domestically, work-integrated learning for students and expanded life-long learning for those currently in the labour market are some important ways to strengthen our current workforce.

If we are to be a leading innovation nation, we will also need to significantly expand and deepen our talent pool. Improving educational outcomes for Indigenous Canadians is both a moral imperative and a critical component of a comprehensive innovation agenda. The U15 fully supports Universities Canada's efforts on this file. Expanding and deepening our talent pool also requires making strategic immigration reforms that help Canada attract, settle and mobilize top talent from around the world.

Attracting International Students. Attracting international students to Canada and helping them to settle and succeed here after graduation has a number of positive benefits. In addition to the direct economic benefits international students provide, retaining our international graduates helps address the pressures associated with an aging workforce. Policy measures such as enhanced marketing efforts, expanded scholarships, increased off-campus work opportunities and a clear pathway to permanent residency would help make Canada a destination of choice for top international students.

Welcoming Highly Qualified Personnel. Building a truly innovative country also requires that Canada make a concerted effort to attract talented people across all sectors and at all career stages. Recruiting highly qualified personnel (HQP) internationally is difficult, time-consuming and expensive, but it is essential. Importantly, the resulting brain gain also provides significant benefits to Canada. Businesses build and grow teams around these HQP, creating new Canadian jobs and rich professional learning environments. When Canadian universities recruit top faculty members, our students learn new perspectives and ideas from these world-leading teachers and researchers. When the students graduate and are hired at Canadian businesses, that pipeline of knowledge benefits Canadian enterprises. Recruiting HQP for either businesses or universities requires our immigration system to admit talented professionals quickly, on either a permanent or temporary basis. This is an area where Canada needs to make progress.

To capitalize on Canada's reputation as a welcoming country with a great quality of life, and to help equip Canadian employers with top talent, The U15 recommends that Budget 2017:

- Expand Canada's International Education Strategy to increase the promotion of Canada as an attractive destination for top international students to study in. Canada would do this, in part, by building on the recommendations in the Chakma report and increasing its focus on the retention and success of international students post-graduation.

- Develop the policies and invest in the systems necessary for employers, including universities, to bring international talent to Canada, on either a permanent or temporary basis, more quickly and easily than any other OECD country, while maintaining appropriate security measures.

Dynamic Regions

Making innovation a sustainable competitive advantage in the face of robust global competition requires Canada to leverage, strategically, our existing assets and strengths. These assets and strengths – whether the result of our geography, resources, history, culture, institutions or society – create unique opportunities for regions from coast to coast to develop their own competitive advantages and unleash all forms of innovation. Canada’s ability to build regional innovation ecosystems based on unique place-based competitive advantages will be a key determinant of whether our country can become a leading innovation nation.

Building globally competitive clusters. For many regions, the most effective way to capitalize on these regional opportunities is by building innovation clusters. To become a leading innovation nation Canada must make strategic investments in those clusters that are or can realistically become globally competitive. The announcement in Budget 2016 of \$800 million for innovation clusters and networks is an important first step. The federal government now needs to undertake a number of additional, equally critical steps:

- 1) Bring all of the innovation partners within each cluster – businesses, post-secondary institutions, non-profits, and other levels of government – to the table;
- 2) Ensure any investment is flexible enough to target the unique challenges and opportunities that exist within any given globally competitive cluster; and
- 3) Develop key performance indicators, which allow innovation partners within a cluster to make timely decisions and undertake results-based management of these investments.

In addition, program design will need to ensure resources exist to support capacity-building for emerging innovation clusters that have reasonable prospects of becoming globally competitive.

To fuel innovation cluster growth and increase global competitiveness, The U15 recommends that Budget 2017 build on previous innovation cluster commitments by:

- Creating three funding streams that a cluster’s innovation partners (made up of businesses, post-secondary institutions, non-profits, and other levels of government) could jointly apply for:
 - Cluster capacity-building fund. This fund would provide relatively small investments to support operations of a small cluster coordinating office. Applicants would need to demonstrate they are, or have reasonable prospects of becoming a globally competitive innovation cluster and are building on regional strengths.

- Cluster project fund. This fund would make investments in projects that respond to a cluster's unique challenges and opportunities. The cluster's innovation partners would develop proposals, which could take a wide variety of forms (e.g. facility upgrades, international trade missions, training or mentorship programs, work-integrated learning initiatives, etc.) and the proposals would be assessed competitively. All funded projects would need to publish a post-project report on best practices and lessons learned, to help other clusters accelerate their own growth.
- Scientific advancement fund. This fund would invest in specific research areas that innovation partnership councils identify as a major, widely experienced 'next generation' R&D challenge. Proposals would be competitively assessed, would require the cluster's innovation partners to be invested in the project and would require agreement about how project IP would be managed.
- Establishing mechanisms to collect and publish data that can benchmark the performance of globally competitive innovation clusters.

Conclusion

We would like to thank the Finance Committee for giving us the opportunity to discuss how innovation can help strengthen Canada's people, communities and businesses. The U15 looks forward to working collaboratively with other innovation partners to begin making these proposals, the Committee's recommendations and the Innovation Agenda a reality.