BRIEF SUBMITTED TO THE HOUSE OF COMMONS FINANCE COMMITTEE

DURING ITS PRE-BUDGET CONSULTATIONS

NOVEMBER 7, 2013

AUCC
Association of Universities and Colleges of Canada
Association des universités et collèges du Canada

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CANADA'S UNIVERSITIES: PARTNERS FOR PROSPERITY

The Association of Universities and Colleges of Canada looks forward to appearing before the House of Commons Finance Committee November 7, 2013 to share our budget recommendations for advancing economic growth and prosperity through support for research and innovation at Canada's universities. This brief is an abridged version of AUCC's full submission sent to all Parliamentarians October 16, 2013 and available on our website.

This fall, Canada's universities welcomed the Class of 2017. The skills, knowledge and experiences these students acquire will contribute directly to Canada's economic growth for decades to come. Universities are at the heart of discovery and innovation in Canada, working in partnership to build a better Canada. They help drive prosperity and strengthen communities. Universities help Canadians achieve their aspirations for the future.

Through partnerships with business, non-profit organizations and government, universities leverage their assets and resources to improve the quality of life for Canadians. University education remains the greatest protection against unemployment and a powerful source of innovation.

Budget 2014 is an opportunity to position Canada to scale-up innovation, to advance our competitive position in the global marketplace, and to equip a new generation of young people to achieve their potential.

Sustainable research funding will ensure Canadians benefit from university discovery over the long term. Support for research excellence and global collaboration will ensure an internationally competitive research environment. Funding for research infrastructure will allow Canadians to push the boundaries of knowledge and solve the greatest challenges facing Canada and the world.

Investments in Canada's universities will help young Canadians, fuel innovation and strengthen economic prospects in communities across the country.

As the Board of Trade of Metropolitan Montreal put it recently, "Universities contribute not only to our prosperity, but also improve our quality of life. In that sense, they encourage the creation of high value-added industries and enhance the employability of our labour force."

A university education takes place in a culture of innovation, intellectual rigour and lifelong learning. Universities know that their graduates need to be able to analyze complex data, solve problems, think globally and adapt to rapidly changing workplace demands – and universities are committed to ensuring that graduates have the essential skills they need to succeed in their future careers.

Getting a bachelor's degree remains among the best protections against unemployment in Canada.

The 2010-11 unemployment rate for 25 to 64-year-olds without a university degree in Canada was 6.9 percent. But for those with bachelor's degrees earned in Canada it was just 3.7 percent. In fact, from July 2008 to July 2013, the net increase in new jobs for university graduates was 810,000. At the same time, the available jobs for those who had not completed any postsecondary education dropped by 540,000.

Universities play a critical role in preparing students for employment. In a December 2012 report, CIBC World Markets Inc. developed a list of the top 25 jobs showing signs of skills shortages in Canada. Most of them required university degrees. On that list of in-demand careers were engineers, accountants, investment professionals, social workers and managers in education, social and community services. Not surprisingly, given the growing demands anticipated as baby boomers age, the CIBC report concluded that many positions in traditional health care roles, such as doctors, nurses and dentists, are in high demand, as are pharmacists, dieticians and nutritionists. Mining and science occupations are also facing skills shortages – often for managerial positions.

UNIVERSITÉ DE SHERBROOKE

ADVANCING RESEARCH TO BENEFIT CANADA

Partnering with Canadian universities is widely recognized as key to Canada's economic and social growth. University researchers collaborate on more than $1 billion worth of research with community and non-profit community groups every year, particularly in the health field. Researchers are also keen to link with the private sector, creating ideas and solutions to benefit businesses across the country. In fact, Canada's universities conduct almost $1 billion worth of research in collaboration with the private sector annually, providing the "intellectual raw material" that drives innovation and builds prosperity.

A number of Canadian universities are working with partners in the energy field to speed up innovation. For example, a new technology has been developed by researchers from the University of Calgary together with a team from the University of Newcastle in England to use naturally occurring microbes in oil reservoirs to convert them into natural gas – over a period of months, not the millennia that it would otherwise take. This patented technology is now being tested in the field, and could be speeding up the process of converting heavy oil reservoirs in a few years. The new technology will open up previously unrecoverable energy more quickly and effectively, and create a cleaner fuel as well.

The University of New Brunswick has partnered on several fronts with forestry company J.D. Irving to create new techniques to preserve wildlife habitat, improve pest management, protect fish populations and increase the understanding of forestry's potential to offset climate change. While the forestry company wants to be an effective land steward, there are financial motivations as well. Greg Adams, J. D. Irving's Manager of R&D, Nurseries and Tree Improvement says, "Sustainability is related to operational efficiency and decision-making…Unless you've got a growing forest, and unless you can stay modern and efficient, you won't be able to survive in the global marketplace and keep pace with the international competition. Innovation is essential to our survival and growth."

Accelerating innovation

New ventures are given a boost through innovation accelerators that have been set up at several universities across Canada. Among them are Simon Fraser University's RADIUS (RADical Ideas, Useful to Society), an interdisciplinary social-innovation lab and venture incubator. The initiative brings together students from all faculties across SFU to develop and nurture practical solutions to pressing social problems and provide opportunities for deeper learning.

Similarly, the Digital Media Zone (DMZ) at Ryerson University is an incubator and multi-disciplinary co-working space for entrepreneurs. The DMZ brings together undergraduates, faculty, intellectual property expertise and venture capital to help students to bring their ideas to market. Bionik Labs, a medical engineering research and development corporation with a focus on prosthetics and rehabilitation devices, launched in 2009 by two undergraduate biomedical engineering students, operates out of the DMZ to great success. Today Bionik Labs employs more than 20 people and is working with major hospitals in the U.S. and Canada. It's just one of dozens of innovations DMZ has brought to the Canadian economy.

The Association of University Technology Managers has measured university technology transfer in Canada and the United States since 1991. Their surveys demonstrate a strong record of growth in research results. **From 1991 to 2010, for example, the average number of inventions and discoveries made at Canadian universities has increased by 70 percent.** Patents applied for have grown from 6.4 per responding institution to 24.4, while the average number of patents issued to a Canadian university from the U.S. patent office went from zero to 8.3 a year. At the same time, the average number of licences went from five to 14, while income from licensed IP (adjusted for inflation) has more than doubled.

Successive expert reports have also shown the progress Canada is making in raising its research game. The most recent study by the Council of Canadian Academies on the state of science and technology in Canada found, for example, that Canadian university researchers are punching above their weight when it comes to the full range of disciplines. Even though Canada has less than 0.5 percent of the world's population, we produce nearly five percent of the world's most frequently cited papers.

Just as our mining, agriculture and forest sectors look beyond our borders, so do Canada's universities. And we have earned our place in the global community. Whether it's from innovation in nanotechnology, quantum computing, understanding the human genome or digital media, we have caught the eye of the world. International partnerships in research and innovation are vital to building prosperity in the new knowledge-driven economy. So we must be dogged in harnessing that attention and building on our reputation to take full advantage of emerging opportunities.

More than 40 percent of Canada's full-time faculty earned one degree abroad. Today, not only are we learning from experts from elsewhere, but more faculty members, whether Canadian-educated or not, are internationally engaged. They are a new generation, and their knowledge speaks to the global community in which we live. Their research doesn't stop at the 49th parallel. They are connected with colleagues around the world and they think in global terms. As a result, they are twice as likely to produce jointly authored international work, which makes them among the most collaborative in the world. In fact, top-cited international researchers recognize their Canadian peers as leaders in terms of the originality, impact and rigour in their field of research.

As a nation, Canada is positioning itself as a world leader in research and innovation. That will come, in part, through enhanced partnerships and collaborations with emerging nations and by achieving our ongoing mission of attracting the best and brightest minds from around the world to our universities.

Across the globe, leaders recognize the need to invest in university research in all its stages, from the most fundamental parsing of the human genome to developing a new and improved way to manufacture a consumer product. At its heart, wherever it lies on the continuum of basic to applied, university research is about creativity. In all disciplines – and often across disciplines – researchers at Canadian universities advance knowledge, often working collaboratively and virtually.

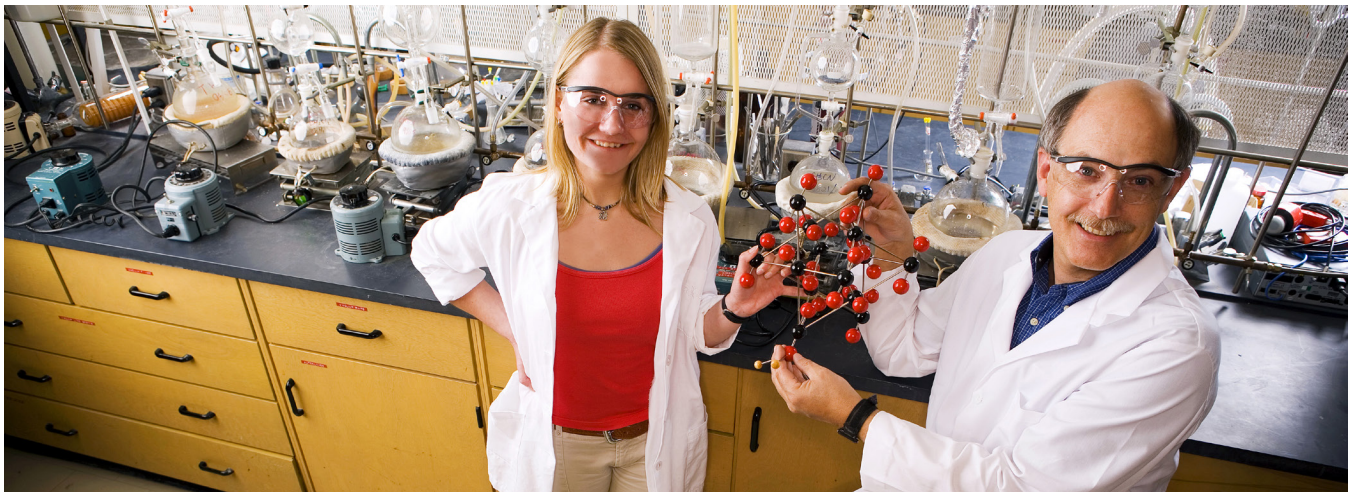
That advance in knowledge has a momentum. It moves well beyond the lab door. In the C.D. Howe Institute's June 2013 commentary *From Curiosity to Wealth Creation: How University Research Can Boost Economic Growth,* university research is described as, "the source of the basic building blocks of many of the core sectors of the economy, in everything from information technology to pharmaceuticals to much more."

As Canada looks to continue creating jobs, strengthening its economy and widening prosperity in the years ahead, research and discovery will be a key strategy. Studies across many OECD countries have shown the strong value of university research on long-term economic growth and productivity.

"Innovation has always been an important driver of growth," Angel Gurría, OECD's secretary-general, said recently. "However, in recent times, its importance has grown significantly. More than ever, we need to reboot our economies with a more intelligent type of growth, driven by new start-ups, by the most innovative small and medium enterprises and banks, and by our need to develop efficient renewable energies and green technologies for a low-carbon era."

Investing in research today will lead to lasting economic benefits in the future. Canada's universities have hired more than 20,000 faculty members in the last decade. These new researchers are in the prime of their careers. At the same time, the number of graduate students at Canadian universities has grown 80 percent since 2000.

The federal government has an opportunity to capitalize on the unprecedented pool of talent on campuses across Canada. Investments in research will enable professors and students to make the groundbreaking research discoveries and acquire the critical skills that will help drive innovation, economic growth and global competitiveness for decades to come.



UNIVERSITY OF LETHBRIDGE

MOVING FORWARD

Canada has a strong record of investing in higher education and research. How do we ensure that research continues to lead to innovation and prosperity?

On behalf of our 97 member universities located in communities across the country, AUCC recommends that Canada:

1. RESOLVE TO MAKE GROWTH IN RESEARCH FUNDING A FUNDAMENTAL PRINCIPLE

Innovation fuels Canada's prosperity. Universities are at the heart of discovery and innovation. To build a more prosperous Canada, the budget should commit to the principle of sustainable, predictable research funding for the federal research granting agencies. They are vital to ensuring Canadians benefit from university research. The research they support is the foundation for innovation including solving problems, improving our quality of life and opening new markets. Sustained, predictable research funding sends a strong signal globally about Canada's ambitions for research leadership.

To drive innovation and prosperity, Canada needs a long-term and consistent research strategy that would see its investments through the granting agencies lead the rate of growth in the economy.

2. COMMIT TO RESEARCH EXCELLENCE AND GLOBAL AMBITIONS

The high quality of Canada's university enterprise – research and teaching – is recognized around the world. Following through on a 2013 Budget announcement, the government should enhance funding either to the indirect costs program, or through a new research excellence fund, to address longstanding barriers to achieving the highest levels of excellence and sustaining a globally competitive research environment in Canada.

3. SUPPORT STATE-OF-THE-ART RESEARCH INFRASTRUCTURE

Sustained predictable and long-term funding for research infrastructure will allow researchers to push the boundaries of knowledge, explore the unknown and generate outcomes recognized around the world. The government of Canada should commit to longer-term sustained and predictable support for state-of-the-art research infrastructure through the Canada Foundation for Innovation.