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University of Manitoba: Growing Our Economy

FRONT AND CENTRE

THE CAMPAIGN FOR THE UNIVERSITY OF MANITOBA



UNIVERSITY
OF MANITOBA

INTRODUCTION

The University of Manitoba welcomes the opportunity to provide recommendations to the Department of Finance's 2016 pre-budget consultation.

At the University of Manitoba, our strength comes from our place and our people. Our graduate students and faculty are making discoveries that expand the economy and improve lives around the world. New learning experiences are giving our students the tools they need to take their place as leaders in their chosen fields.

We are at the front and centre of a strong, stable city and province. The University of Manitoba generates approximately \$1.5 billion of economic activity within Winnipeg alone.

Our recommendations for Budget 2016 build on previous federal investments, which provided crucial funding for research, postgraduate education, Indigenous student support, and infrastructure.

To address the themes outlined in the Committee's request for submissions – namely, economic growth, infrastructure, and supporting the middle class and the vulnerable – we advise the Government of Canada to invest in four areas:

- Research and innovation, including support for graduate students and postdoctoral fellows;
- Indigenous achievement, particularly funding for Indigenous post-secondary students, Indigenous post-secondary support programs, and K-12 support on reserves;
- Critical infrastructure, including research infrastructure; and
- Learning through experience, e.g. co-op placements, employer incentives.

We sincerely hope the Department of Finance finds these responses useful in developing policies for the next federal budget.

RESEARCH AND INNOVATION

Post-secondary research is critical to economic growth, productivity, global competitiveness, and innovation. Canada's universities carried out more than \$12 billion in research and development in 2014, accounting for 40 per cent of total Canadian research and development.

We are a proud participant; in 2013-14, the University of Manitoba received \$77.8 million in sponsored research income from federal sources. This funding is instrumental in driving discovery.

Moreover, our universities conduct close to \$1 billion in research for business annually; since 2000, the amount of university research performed in collaboration with business has nearly doubled.

The University of Manitoba is part of this growing trend. In 2014-15, our Technology Transfer Office (TTO) helped obtain more than \$2.5 million for collaborative research involving 25 companies, most of whom have never conducted collaborative research with a university.

The University of Manitoba launched the Transformational Partnerships Program (TPP) in January 2013 in consultation with the business community, and has virtually done away with lengthy negotiations over potential royalty payments and control of intellectual property.

The U of M now assigns the IP management to private-sector partners, giving them full control of the technology so they can incorporate it into their product or service or even sub-license it. Partners share royalties only when they generate revenues from IP. The TPP approach will have a profound impact on the ability of businesses to bring their ideas, products, and services to market, thus driving the economy and creating jobs.

The model has already opened the door for new and exciting opportunities to work with industry. An early example is Winnipeg startup Exigence Technologies, which is working to commercialize an anti-microbial compound that renders fabrics and other materials impervious to bacteria; this could benefit the health-care sector.

The TPP program has been instrumental in facilitating university-industry collaborations and although still in its infancy, has made great gains.

Graduate student support

In universities across Canada, including ours, graduate students play an essential role in research and innovation, typically carrying out key research projects with, or under the guidance of, established professors.

Between 2004 and 2010, employers' demand in Canada for graduate degrees rose 33 per cent, more than the demand for other educational training. The success of our nation's economy, therefore, depends heavily upon the availability of highly educated, skilled, and analytical thinkers produced by Canadian universities.

Vanier Canada Graduate Scholar Kathryn Marcynuk, a PhD student in electrical and computer engineering at the University of Manitoba, is figuring out how to separate the numerous background noises picked up during an electrocardiogram (ECG) of a mother and her fetus. The interfering signals make it difficult to record a fetal ECG reliably, and can lead to unnecessary medical interventions. Ms. Marcynuk's discoveries will greatly improve patient care and maternal health, and make health care more efficient.

Enhanced funding of prestigious federal scholarships will allow students like Ms. Marcynuk to conduct profound, life-changing research.

The University of Manitoba recommends:

- Providing sustainable, predictable funding for research and innovation through federal granting agencies—enabling universities to continue conducting trailblazing research that will drive the Canadian economy and create jobs; and
- Enhancing the support for graduate students and postdoctoral fellows through the Vanier Canada Graduate Scholarship program and the Banting Postdoctoral Fellowships, and providing investments that will assist these leaders early in their research careers.

INDIGENOUS ACHIEVEMENT

Canada's Indigenous population is young and rapidly growing, with about 650,000 individuals under the age of 25. Manitoba's demographics reflect the Canadian average, with a large, fast-growing group of First Nations, Métis, and Inuit youth. By 2026, Indigenous peoples will comprise nearly 19 per cent of Manitoba's population.

Developing an educated Indigenous workforce is vital to improved health, social wellbeing, and economic prosperity nationwide. Much work lies ahead, since only 9.8 per cent of Indigenous individuals aged 25 to 64 have a university degree, compared to 26.5 per cent of non-Indigenous people.

As a result, Indigenous people on average earn less, occupy fewer managerial and professional positions, and are more likely to be unemployed, compared to their non-Indigenous peers.

Advancing Indigenous achievement is a strategic priority for the University of Manitoba. We strongly believe education is the solution to bridging the gap between Indigenous and non-Indigenous peoples.

This year, more than 350 Indigenous students graduated from our university. However, Indigenous students still represent only 7.9 per cent (1,997) of our undergraduates and 4.2 per cent (158) of our graduate enrolment.

The primary challenge for many Indigenous students is inadequate finances. We are pleased that the federal government has lifted the two per cent funding cap on federal funding for education to First Nations communities, which includes the Post-Secondary Support Program. We also welcome the government's promise to provide additional money for long-awaited education reforms to be led by First Nations communities.

To retain more students, we are providing additional bursaries, scholarships, and grants as well as mentoring and peer support programs such as PACT (Promoting Aboriginal Community Together) and undergraduate research awards, but more needs to be done.

Recognizing that academic success begins well before university, we work with schools to promote post-secondary education to Indigenous children and youth.

For example, our award-winning Rec and Read program provides after-school physical activity, nutrition, and education to Indigenous elementary school children once a week.

Our WISE Kid-Netic Energy program gives hands-on science workshops in schools, runs extracurricular clubs, and hosts summer camps focusing on science, technology, engineering, and mathematics. Each year, the program reaches 22,000 disadvantaged youth across Manitoba, including those in northern and farming communities and on First Nations reserves.

The University of Manitoba recommends:

- Providing sustained growth in student financial assistance through initiatives such as the Post-Secondary Support Program to enhance educational opportunities and academic success for Indigenous students;
- Allocating funding to increase and/or supplement Indigenous support programs at post-secondary institutions;
- Increasing investment and support at the K-12 level on reserve to help Indigenous youth complete high school and continue on to post-secondary education; and
- Creating new graduate scholarships for Indigenous students.

INFRASTRUCTURE

Developing infrastructure in and around universities creates prosperous, vibrant, and secure communities. By constructing critical infrastructure such as roads and public transit, as well as spaces where ideas can flourish, the new Building Canada Fund will stimulate the Canadian economy.

The federal government's 2009 *Knowledge Infrastructure Program (KIP)* earmarked \$2 billion in economic stimulus funding for universities. The University of Manitoba received \$32 million and almost tripled its return on investment after raising an additional \$52 million from other sources, for a total of \$84 million.

The Building Canada Fund will add to the success of *KIP*, creating university campuses that engage the wider community in sport, active living, and that support business through research.

Research and better health outcomes

The KIP-funded lab for our Regenerative Medicine Program helped the University attract and retain researchers from across Canada specializing in stem cell research and technologies. This group made a major breakthrough in explaining how a certain mutated gene causes amyotrophic lateral sclerosis (ALS); further study is underway on treatments to slow the disease's progress.

Active living and sport

The University of Manitoba is an important recreational and cultural hub in Winnipeg, housing several sport facilities for use by the University and close to 200 community groups. Nearly 3,000 members of the general

community use our new Active Living Centre, and more than 15,000 children and youth participate annually in our Mini U programs.

The 2015 FIFA Women's World Cup took place in our stadium, and the University will be a site for the 2017 Canada Summer Games. Having these facilities on our campus solidifies our reputation as a community builder.

Science and business

The University of Manitoba has become a world leader in Arctic systems science, with a new centre of excellence, thanks to the federal government's \$7-million investment in the Canada Excellence Research Chair (CERC) in Arctic Geomicrobiology and Climate Change in 2010. This funding enabled the Centre for Earth Observation Science (CEOS) to transform its sea ice research group into one of the world's most comprehensive and innovative Arctic climate change institutions, located in the Clayton H. Riddell Faculty of Environment, Earth, and Resources.

Following additional investments in new laboratories, faculty, and students, CEOS grew from 17 researchers to more than 100 staff members and created the Sea-Ice Environmental Research Facility (SERF), the first of its kind in Canada. Researchers here grow and fabricate sea ice in controlled conditions to understand how sea ice forms in polar regions.

The CERC also played a role in securing more than \$12 million—the University's largest single Canada Foundation for Innovation award ever—for the Churchill Marine Observatory (CMO). This multidisciplinary research facility, in Churchill, MB, will position Canada as a global leader in the detection, impact, and mitigation of oil spills in sea ice. The CMO will increase economic opportunities in the Arctic for private companies, while ensuring environmental sustainability.

The University of Manitoba recommends:

- Continuing to provide predictable, multi-year funding for infrastructure programs like the Building Canada Fund—with a dedicated fund for post-secondary institutions—and the Canada Foundation for Innovation, in order to attract and retain top talent, drive research and innovation, and strengthen communities.

LEARNING THROUGH EXPERIENCE

Co-op placements and other opportunities to learn through work-integrated learning are highly effective in preparing students for the workforce. Four out of five employers who took part in a Léger Marketing study say co-op and internship students add value as a source of new talent and as future employees. Indeed, 97 per cent of co-op students in our I.H. Asper School of Business find work within three months of graduating.

Demand for these opportunities is growing: enrolment in co-op programs at Canadian universities has jumped by 25 per cent in recent years. Fifty-nine universities now offer more than 1,000 co-op programs.

At the University of Manitoba, we had over 1,000 co-op students in 2014-15 up from 743 in 2012-13. However, this represents only 3.3 per cent of our total enrolment. Increasing the number of co-op placements can be difficult, as employers say the main barriers are the cost of an up-front salary and inadequate time for supervision and mentorship.

The University of Manitoba recommends:

- Investing in employer incentives such as vouchers and tax credits to create more paid co-op placements and internships for students in large companies, small-to-medium sized enterprises, and not-for-profit organizations.