

2018 PRE-BUDGET SUBMISSION

University of Toronto's 2018 Pre-Budget Submission to
the House of Commons Standing Committee on Finance



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TORONTO



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1 | INTRODUCTION

Canada's universities play a critical role in helping our nation adapt and prosper in today's shifting global environment. Changing international relations, uncertain trade regulations, rapid technological developments, and growing income inequality are creating conditions of heightened economic instability and a pressing need for inclusive innovation. Quite rightly, the government's stated challenge, and its focus for Budget 2018, is to increase the productivity of Canadians and Canadian businesses to enhance growth and prosperity for all.

The University of Toronto is an essential partner in addressing this challenge in three key ways.

First, as Canada's leading research university, we create knowledge that enhances productivity, drives economic growth, and supports the development of innovation clusters. This ranges from R&D work that addresses specific challenges facing companies, to discovery-driven research producing breakthrough technologies such as machine learning, with the power to transform the economy. Our research and teaching excellence ranks us first in Canada, and among the top 10 public universities in the world.¹

Second, with 88,000 full-time students at three campuses across the Greater Toronto Area, UofT is graduating students with the knowledge and competencies to make meaningful contributions to Canada's workforce, and to adapt in the evolving global economy.

Third, in an age of closing borders, UofT encourages the international mobility of talent, seeks to extend the boundaries of knowledge, and provides answers to some of the world's most important questions.

UofT recommends that the government continue to support universities' ability to deliver these benefits by:

- **Implementing the 'Naylor Panel' recommendations to strengthen the foundations of Canadian research;**
- **Continuing strategic investments in innovation 'marketplaces' to enable Canada's companies to grow into industry leaders;**
- **Supporting efforts to ensure inclusive growth and talent development to benefit all Canadians.**



UofT engineering students test drive their solar-powered-car.

¹ *Times Higher Education 2016-17 World University Rankings*

2 | RESEARCH FUNDING & SCIENTIFIC EXCELLENCE

SCIENCE REVIEW RECOMMENDATIONS

UofT warmly welcomed the release of the advisory panel's report on Canada's Fundamental Science Review, launched by The Honourable Kirsty Duncan, Minister of Science. In commissioning the first review of Canada's federal research system in four decades, the government demonstrated its commitment to strengthening Canada's fundamental science ecosystem and research enterprise.

We strongly concur with the panel's position that research solves the big challenges of our time, underpins the education of an innovative workforce, and fuels economic prosperity and innovation. Our current status as an international leader in research has been built on the foundation of a robust national funding system. Maintaining and improving this foundation so that our scientific community remains at the forefront of international scholarship is critical to our national prosperity and well-being. The panel provided a sound, holistic, evidence-based framework for achieving this goal.

We trust the government has duly considered the evidence and recognizes the tremendous opportunities for Canada's economic, social and cultural growth if it makes research funding a priority.

UofT urges the government to adopt the full suite of recommendations in the Naylor Report.

INVESTING IN DISCOVERY RESEARCH

More specifically, UofT endorses the report's call to provide greater direct investment in the Granting Councils to strengthen our research foundation and support the next generation of researchers. Investment in fundamental research (as defined by the Panel) has declined while priority-driven research has increased in recent years. Yet, it is essential that researchers themselves identify the questions that hold promise of breakthroughs to meet the many challenges facing us as a society. By enhancing support to the Councils, we can advance scientific leadership and connect research with the needs of Canadian industry and society.

INSTITUTIONAL COSTS OF RESEARCH

UofT strongly endorses the Naylor Report recommendation to increase support for the institutional costs of research through the Research Support Fund. The RSF helps offset the facilities and administration costs associated with hosting research on our campuses, but it falls far below the full costs of supporting this research. While the actual costs for UofT are over 50%, the federal government currently reimburses UofT at the rate of 17.9%, and at an average rate of 21.6% across all institutions. Accordingly, universities must support the full costs of research by diverting tuition revenues from the classroom. Increasing RSF funding would both enhance our students' learning experiences and enable us to augment support for commercializing research results.

COORDINATION ACROSS THE GRANTING COUNCILS

UofT supports the recommendation to establish a coordinating body to improve the effectiveness, efficiency, and accountability of the Granting Councils, maximizing investments in Canada's research enterprise.

Coordination is needed to ensure a life-cycle approach to funding program design, improving prospects for researchers at all career stages. Likewise, a coordinated and proactive effort by the Councils to develop flexible and responsive international programs would better enable our researchers to address the world's pressing challenges by collaborating more readily with international colleagues.



Ministers Kirsty Duncan and Chrystia Freeland join 24 UofT scholars who received Canada Research Chairs in December 2016.

RESEARCH INFRASTRUCTURE

We concur with the Naylor Report's view that cutting-edge infrastructure is a fundamental pillar of an efficient research ecosystem, and that the Canada Foundation for Innovation requires stable, annual funding. Canada has achieved many of its research breakthroughs and produced a generation of international research leaders thanks to the research facilities funded through CFI. However, throughout its history, CFI's funding has been variable and uncertain, making it a challenge for universities to plan for renewal, build new capacity, meet continuous maintenance and upgrade needs, and retain potentially mobile faculty.

RESEARCH ADVANCING BREAKTHROUGH THERAPIES

Breakthrough cancer research at UofT's Mississauga campus led by Dr Patrick Gunning has developed considerable momentum. Leveraging \$5.9 million in funds from CFI and the Ontario Research Fund with a \$7 million donation by the Orlando Corporation, UTM recently launched a Centre for Medicinal Chemistry. This Centre will serve as a research hub of Canadian scientists dedicated to developing innovative approaches in the fight against cancer, and positions Mississauga as an international leader in life sciences innovation.

UofT recommends that the government:

- **Increase the cumulative base funding for research** through the four agencies and related entities from \$3.5 billion to \$4.8 billion annually to allow Canadian research to remain internationally competitive;
- **Expand investment in the full costs of university research through the RSF**, bringing the minimum reimbursement rate up to 40% for all institutions receiving more than \$7 million per year of eligible funding;
- **Establish a coordinating body across the Granting Councils** to ensure effective programming;
- **Regularize its support for CFI** through support for research infrastructure (\$300 million) and its operation and maintenance (\$235 million) with a total allocation of \$535 million annually.

3 | INNOVATIVE ECONOMIES & INCREASED COMPETITIVENESS

UofT's research enterprise anchors several globally significant innovation clusters in the Toronto area, creating significant economic impacts in the region and beyond.

The University cultivates this relationship by fostering commercialization and entrepreneurship activities among its students and faculty. In 2015-16 alone, our nine entrepreneurial hubs assisted over 200 student-led start-up teams and held approximately 300 entrepreneurial events that attracted over 26,000 youth attendees. Moreover, between 2013 and 2015, our researchers disclosed over 1,200 inventions and UofT filed almost 400 patents on their behalf. UofT companies have secured more than \$500 million in investments.

In parallel, UofT researchers act as magnets for innovation-driven companies, further driving regional cluster dynamics. For example, thanks to the continued support for curiosity-driven research by NSERC and CIFAR, UofT has been a world leader in the field of artificial intelligence and machine learning since the 1980s. With recent combined commitments from the federal and provincial governments supporting AI excellence, an additional \$95 million from the private sector was leveraged to establish the Vector Institute.

The Vector Institute further advances research and is developing a local business environment conducive to commercialization activity. Its tremendous momentum is becoming self-sustaining as more researchers, entrepreneurs and firms are relocating to Toronto's AI innovation cluster. Just last month, ROSS Intelligence, a UofT start-up that moved to Silicon Valley in its early days, returned to Toronto with the launch of ROSS North, an AI-focused R&D lab.

TORONTO'S LIFE SCIENCES SUPERCLUSTER

With \$114 million in support from CFREF, UofT established Medicine by Design to harness the outstanding medical, engineering and computational expertise that has been developed over 30 years on campus and at our affiliated hospitals through investments from CIHR, NSERC, and various health charities.

This initiative undertakes transformative research in regenerative medicine and is attracting companies from around the world, like J Labs@Toronto. Most recently, BlueRock Therapeutics, a stem cell therapy start-up commercializing the research of Dr Gordon Keller (UofT/University Health Network) attracted US\$225 million in Series A funding from Bayer and Versant Ventures, leveraging Toronto's unique concentration of life science research and commercialization activity – now one of the largest in the world – confirming Toronto's transition into a global biomedical innovation hub.

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Entrepreneurial hubs

90

New start-up companies

400

Patents filed by UofT on behalf of faculty

\$500M

Secured by UofT companies in investments

GLOBAL LEADERSHIP IN URBAN RESEARCH AND TEACHING

Cities are the world's economic engines, but also focal points of inequality. At UofT, over 220 scholars study cities from a wide range of perspectives. In the coming year, we will bring these faculty together to tackle our most pressing urban challenges by creating the world's leading centre for evidence-based research, education and engagement, dedicated to helping urban regions become places where all citizens thrive. As a large, three-campus university in a vibrant, multicultural, diverse metropolis, the GTA is an outstanding laboratory in which to create the world's first "School of Cities."

UofT recommends the government continue to invest in Canada's competitiveness by supporting researchers and entrepreneurs to scale innovation 'marketplaces' or clusters and help companies grow into industry leaders.



Dr Raquel Urtasun, UofT Associate Professor in Computer Science and co-founder of the Vector Institute, discusses her research with federal, provincial and municipal government officials at the Vector Institute launch, March 2017.

4 | INCLUSIVE GROWTH & TALENT DEVELOPMENT

UofT strongly endorse the view that equity, diversity and inclusion are sources of competitive advantage for Canada's universities and our society. Below, we highlight recent initiatives and commitments to educating diverse, globally-minded talent to fuel Canada's future competitiveness

EQUITY AND DIVERSITY

UofT has a long-standing commitment to equity and diversity in the recruitment and retention of our faculty. UofT currently exceeds national Canada Research Chair targets with 92 (37%) female CRCs, and 36 (15%) visible minority chair holders. The CRC program's Equity, Diversity and Inclusion Action Plan is a significant part of our ongoing efforts and will further enhance our ability to attract and retain exceptional and diverse research talent.



Dr Milica Radisic, CRC in Functional Cardiovascular Tissue Engineering

TRUTH AND RECONCILIATION

With receipt of the *Weecheetowin* Report of the University's Truth and Reconciliation Committee in January, UofT acknowledges its responsibility and embraces the opportunity to engage with Indigenous communities and, together, lead the process of reconciliation. We are working to implement the report's 34 calls to action by appointing a Director of Indigenous Initiatives, hiring more Indigenous faculty and staff, and recruiting more Indigenous students.

HONOURING INDIGENOUS PEOPLE, HISTORY AND EXPERIENCE

UofT Scarborough has helped lead the University's efforts in integrating Indigenous voices into the curriculum. UTSC is exploring ways to strengthen its relationship with Indigenous communities and incorporate previously excluded knowledge and alternative forms of teaching. UTSC is also planning to create a dedicated space on its campus for Indigenous faculty, students and the community.



Dr Suzanne Stewart, CRC in Aboriginal Homelessness & Life Transitions

EXPERIENTIAL AND WORK-INTEGRATED LEARNING

UofT is taking great strides to provide all students with the hands-on experiences that will allow them to excel in a rapidly changing environment. We believe that providing more experiential, work-integrated, and community-engaged learning opportunities will enhance students' learning experiences and employability, and support societal needs. Our leadership on this issue is aligned with the federal Expert Panel on Youth Employment's recent calls for more work-integrated learning opportunities.

INTERNATIONAL CONNECTIONS

UofT has an extensive and strong network of global connections. Our students come from 168 countries, roughly 50% of our faculty are hired from outside Canada, and our 562,000 alumni live in more than 190 countries around the world.

Furthering our global reputation, in Canada's sesquicentennial year, UofT launched the Lester B. Pearson International Scholarship for 150 undergraduate international students to study on full scholarship. As an illustrious alumnus of UofT, Pearson raised Canada's profile in the international community. This scholarship established in his honour powerfully signifies our intention to support Canada's global commitment to openness and multilateralism in the service of the common good.



Four of the inaugural cohort of UofT Lester B. Pearson International Scholars.

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