

UOIT VISION, PROPOSED MANDATE STATEMENT AND PRIORITY OBJECTIVES

A submission to begin the process of developing strategic mandate agreements (SMAs):

**To: The Honorable Glen Murray
 Ministry of Training, Colleges and Universities**

**From: Tim McTiernan
 President, University of Ontario Institute of Technology**

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PART 1: UOIT PROPOSED MANDATE STATEMENT

The University of Ontario Institute of Technology (UOIT) is at the threshold of its second decade as one of Ontario's most innovative universities. Its story to this point has been one of extraordinary growth and achievement, where the university has realized an enrolment of more than 9,200 students, attracted more than \$10 million in annual research funding, and forged strong relationships with Durham College, Trent University, and its community, industry and government partners. During this time, UOIT successfully established 43 undergraduate and 27 graduate programs in STEM-based and STEM-intensive disciplines – each designed to be technology-enabled, career-focussed and market-oriented, while providing clear pathways for college graduates to complete a university degree. Together, these efforts have positioned UOIT well to join the ranks of Canada's finest universities.

Over the next decade, UOIT is committed to finding new ways to transform and broaden opportunities for learning both inside and outside the classroom, promoting student success, providing greater access through multiple pathways to degree completion, achieving efficiencies, and cultivating innovation and quality in areas of teaching and research. To advance this commitment, the university has identified three priority objectives that will guide its activities over the next three years – priorities that will ultimately provide a roadmap for UOIT's continuing contributions to the new creative economy through the provision of high quality, accessible and sustainable post-secondary education. UOIT's priority objectives are to:

- 1. Implement flexible delivery models, outcomes-based learning strategies and enhanced pathways to support 21st century learning**
- 2. Drive productivity and innovation through strengthened partnerships with Durham College and Trent University**
- 3. Enhance the physical and IT Infrastructure to increase productivity and support a healthy, sustainable 21st century workplace**

Over the past year, UOIT conducted a comprehensive strategic planning exercise that challenged the community to think deeply about the environment for teaching, learning and discovery, and new ways to create interconnections and synergies on campus and in the broader community. The exercise involved extensive consultations with over 400 faculty staff, students, alumni, governors and external partners. Input from another 100 individuals was obtained through an online survey. These consultations led to the articulation of three specific priorities, which are to: 1) prepare graduates for the evolving 21st century; 2) build strength and capacity through research, innovation and partnerships; and 3) be distinguished as a healthy 21st century workplace. Working with the community, the three priorities informed the development of discrete outcomes initiatives that will be undertaken as campus wide projects or by individual units over the next three years. The objectives set out in this Strategic Mandate Agreement build upon the priorities and outcomes of the strategic plan and provide a distinct focus and direction for UOIT's efforts that will ultimately contribute to the broader transformation of the higher education sector.

In the following pages, UOIT has set out an ambitious agenda for the next three years and beyond to build on its demonstrated successes and strengths in new and important ways. This is an agenda that will lead to 1) enhanced student engagement through technology-enriched and practice-integrated teaching and learning, 2) push the boundaries of learning through imaginative uses of technology, 3)

increase access and student mobility through articulations across the college sector, 4) intensify research and innovation through synergies and partnerships, and 5) increase productivity in all of its activities. In each of these areas, UOIT has a proven track record of success, examples of which are provided in the following pages.

To achieve this agenda, UOIT will require considerable investment in its information technology and physical infrastructure. Specifically, UOIT requires at least 40,000 gross square meters of new space to support all forms of learning in small groups, such as incubator, accelerator, and entrepreneurial development space, laboratory space, and problem- and research-based learning space. Unlike traditional university space that is designed to accommodate larger classrooms, specialized laboratories and research space – and is consequently more costly to build – UOIT’s requirement is for space that is flexible, dynamically allocable, requiring relatively low capital outlay per square meter.

At the same time, UOIT will need to enhance its IT infrastructure by building and deploying a “cloud computing” IT delivery model to support advanced undergraduate and graduate learning strategies, including research. Additionally, UOIT’s comprehensive mobile infrastructure will need to be enhanced to support real-time online collaboration. This infrastructure will also employ new virtual and learning technologies to implement emerging pedagogies, including serious gaming, and work integrated learning.

Graduate students are a fundamental part of UOIT’s rich, undergraduate experiential learning environment, and essential to UOIT’s strong problem-focussed graduate-level research partnerships with industry and community organizations. UOIT has faced significant challenges in growing this area within a funding environment that was not designed to take into account the additional requirements of a new research intensive university. Concomitant with its need for new space and IT infrastructure, therefore, UOIT asks that consideration be given to increasing the graduate allocations to UOIT to enable it to fully achieve the priorities of this agreement.

With the technology, space and graduate-allocation enhancements outlined above, UOIT’s success in achieving these outcomes by September 2016 can be measured in the following ways:

1. Enrollment growth to 10,000 FTEs in STEM-based and STEM-intensive programs at both the graduate and undergraduate levels (aiming for 20,000 FTEs by 2030)
2. Increase in the number of international students at UOIT at both the graduate and undergraduate level by 10%
3. Improved measures of student engagement by 5% as reported by the National Survey on Student Engagement.
4. Improved retention by 3%
5. A 10% increase in online offerings in each year
6. Innovative joint programs at the undergraduate, master’s and doctoral levels as specified in Priority Objective #2
7. Increase by 30% in the number of college graduates who are admitted to a UOIT undergraduate or graduate degree program
8. Productivity gains of 15% through shared service arrangements with Durham College and academic collaborations with Trent University

PART 2: UOIT VISION STATEMENT

Vision

With its foundation in technology, the sciences and professional practice, UOIT advances the discovery and application of knowledge that accelerates economic growth, regional development and social innovation, and inspires graduates who will continue to make an impact on the world, as it is and as it will be.

Mission

- *Provide superior undergraduate and graduate programs that are technology-enriched and responsive to the needs of students and the evolving workplace*
- *Conduct research that creates knowledge, solves problems, results in economic and social innovation, and engages students*
- *Facilitate life-long learning that is flexible, inclusive and emphasizes college university transfers*
- *Develop academic and research collaborations with industry and community that stimulate and enhance the region and university at home and abroad*
- *Cultivate a dynamic learning environment for students by promoting social engagement, fostering critical thinking, and integrating experiences inside and outside the classroom*

Today, on the eve of its tenth anniversary, the University of Ontario Institute of Technology has renewed and refreshed its vision and mission statements to reflect its growing role within the academic community, the Region and Province, and internationally. The statements are intended to convey the important contributions UOIT will continue to make over the longer term to the development of graduates who are thinkers, doers and leaders, to the advancement of Ontario's knowledge, financial, manufacturing and energy economies, and to the Ministry's objective of providing access to 70% of Ontario's students to postsecondary education.

In all respects, UOIT has set for itself a vision and mission for the next decade and beyond that is distinctive, forward-looking and consistent with its founding purposes as defined in the UOIT Act. The mandate statement set out in this document builds upon the vision and mission and provides focus and direction for UOIT's activities over the next three years. During this time, UOIT will maintain its focus on the sciences, technology and engineering, while modifying its learning strategies in order to prepare graduates for the evolving 21st century workplace. At the same time, the university will enhance its capacity to develop academic and research partnerships with industry, community and other institutions, at home and abroad, that engage graduate and undergraduate students, create knowledge, solve problems and contribute to Canada's economic and social development. Ultimately, UOIT will be distinguished as a technology-enriched, inclusive and innovative institution where student-centered practices are deployed across a well-planned, forward-looking and accountable university.

PART 3: UOIT'S PRIORITY OBJECTIVES

PRIORITY #1

Implement outcomes-based learning strategies, flexible delivery models and enhanced pathways in all of its programs to support 21st century learning

UOIT will implement highly innovative approaches to learning and student engagement across the entire university curriculum in a way that will:

- ***Significantly enhance student engagement through outcomes-based learning strategies (i.e., through intensified deployment of problem-, case-, project- and team-based learning)***
- ***Intensify opportunities for online learning and develop additional digital learning tools and resources for self-learning, self-assessment and academic support***
- ***Broaden college-university transfer articulations with Durham College, Seneca College and other Ontario colleges***
- ***Expand collaborative program delivery with Trent University***
- ***Intensify the mentoring relationship between graduate and undergraduate students in research, innovation and problem-focused experiential learning***

Consistent with its special mandate to provide market-oriented and career-oriented degree programs, UOIT undertakes as a first priority an ambitious agenda that will prepare graduates with deep disciplinary knowledge and related personal and professional competencies, an ability to use technology in creative ways, and an ability to make meaningful contributions in an increasingly complex technological, global and social world. UOIT is unique in that all of its programs were established using program level learning outcomes as a result of the requirement in its early years to certify their programs through the Postsecondary Education Quality Assessment Board (PEQAB). UOIT therefore is well positioned to move to the next level and extend outcomes-based learning strategies throughout all of its programs, with an emphasis on problem-, case-, project- and team-based learning strategies, while providing flexible opportunities for self-learning through enhanced online offerings. This will represent a significant innovation in Ontario's university sector as no university has so far attempted to transition all of its programs to outcomes-based learning strategies. These strategies have consistently demonstrated superior student learning outcomes wherever they have been implemented.

UOIT's graduates already have a very high employment rate in their field (over 95% in 2011¹). This is attributed to the robust array of opportunities that are embedded within UOIT's programs for students to engage in learning that is technology-enriched, and that integrates practical experience both inside and outside of the classroom. This is also attributed to the considerable emphasis UOIT places on the involvement of undergraduate students in research projects through its robust graduate programs and the mentoring role of graduate students, and its strong partners in industry and community within the region and internationally. Indeed, UOIT is poised to diversify and broaden these opportunities to enhance the ways in which students engage in their education and, in effect, learn how to thrive in a

¹ <http://shared.uoit.ca/shared/departement/oira/documents/UOIT%202011%20Key%20Performance%20Indicators.pdf>

digital world that is constantly evolving. From the university-wide implementation of mobile learning, where students have access to over 260 different “industry standard” software packages, through to the provision of three fully online programs², UOIT’s use of technology both differentiates and enriches the student experience. The university will continue to push the boundaries of thinking and learning through innovative and imaginative uses of technology, new partnerships, expanded graduate and international enrolment, flexible and compressed program delivery models, and supporting student success from acceptance to post graduation.

UOIT also remains committed to its special mission to create access and mobility for college graduates to complete a university degree. To this end, UOIT has worked with the Ontario Council on Articulation and Transfer (ONCAT) to populate its online transfer credit database where students can self-assess their previous academic experience. In addition, credit transfer opportunities have been established for all UOIT degree programs that enable Durham College graduates to transition into an advanced level of study, and similar arrangements have already been made with several college partners in the system. At present, 30% of UOIT’s entering class is comprised of students who have other post-secondary experience. Many of these students have taken advantage of the many credit transfer and pathways opportunities at UOIT; a few have proceeded from diploma through to a PhD. UOIT also has a highly successful collaborative BScN degree program with Durham College and Georgian College. With the intensified implementation of outcomes-based learning strategies, UOIT will significantly enhance its compatibility with all college programs in the province – already uniformly described in terms of outcomes. For instance, UOIT is working on an articulation agreement with Seneca College that will incorporate general transfer criteria for graduates from a range of programs (including, allied health sciences, kinesiology, biology, accounting and biotechnology). Over the next three years, UOIT intends to have articulation agreements with all Ontario colleges.³

To achieve this priority, UOIT will need considerable investment in its information technology and physical infrastructure to support all forms of collaborative learning including small group space for incubators and accelerators labs, immersive active learning, research based and team based learning.

PRIORITY #2

Drive innovation and productivity through strengthened partnerships with Durham College and Trent University

UOIT, in collaboration with Durham College and Trent University, will examine the ways in which the three institutions can continue to work together to leverage resources in Durham Region and Northumberland County and enhance their impact on the creative economy.

With Durham College, UOIT will drive student mobility, access and productivity through:

- ***Expanded opportunities to support continuous learning through integrated professional education at all levels of study, from apprenticeship through to doctoral degrees in areas of complementary strength***

² Bachelor of Education in Adult Education and Digital Technology, Bachelor of Allied Health Sciences, the MEd/MA in Education

³ Seven articulation agreements have been signed with colleges and a further 13 agreements are in progress.

- ***Enhanced support for students through the collaborative development of digital learning tools***
- ***Contracted service arrangements for the provision of “back office” functions from one institution to the other to enhance productivity and reduce overhead***
- ***Expansion of the UOIT-Durham College Library supporting the superior learning strategies in both institutions***
- ***Development of a joint, innovative UOIT-Durham College “Centre for Learning and Innovation in Health Sciences and Community Health”***

With Trent University, UOIT will drive innovation, productivity and synergy through:

- ***Joint academic collaborations to enhance existing programs and develop new programs to facilitate reduced overheads and sharing of course delivery and infrastructure***
- ***Link complementary facilities and learning centres, such as the UOIT-DC Centre for Learning and Innovation in Health Sciences and Community Health and the Trent Institute of Aging and Society, through joint programs, research and community-based service innovation projects***
- ***Selected opportunities to develop flexible, compressed delivery of programs in collaboration with school boards***

UOIT and Durham College together provide a full post-secondary campus environment in a variety of professional streams that supports continuous learning from apprenticeship to PhD, exemplifying the type of college-university barrier-free campus that can succeed in Ontario. As discussed in Priority 1, UOIT has established clear pathways between Durham College diplomas and UOIT degrees and can look toward enhanced opportunities to support seamless pathways across the full education spectrum at the college and university, in such areas as digital media, information technology, and health. In addition, UOIT and Durham together possess significant strengths and expertise in student support and digital learning, having developed such innovative tools as UOIT’s NOOL website, which assists students in math, writing and study skills improvement.⁴ The two institutions will collaborate to examine the conditions that best support student success with a view to expanding their range of digital learning tools that can be tailored to meet the unique needs of students at the college and at the university, including early warning systems for students at risk, self-assessment tools, entrepreneurship and professional development modules, and outcomes portfolios. All such tools would be available to colleges and universities across the system to adapt for their own purposes.

UOIT, in partnership with Durham College, has also achieved significant productivity and efficiency goals through shared real estate, facilities as well as mutual service arrangements for eleven “back office” functions that support the administrative operations of the two institutions that could serve as a model for sharing arrangements that may be undertaken at other institutions. Significant capital efficiencies include a joint IT and telecommunications infrastructure, library, arena, student health and recreational building, sports and recreation facilities, and parking lots. Significant operating efficiencies include a joint Facilities organization, IT operations, Security Services, and Library services. The development of a superior learning environment for students at both institutions is at the core of a Library expansion project. The joint development of a “Centre for Learning and Innovation in Health Sciences and Community Health” also builds on this historic relationship.

⁴ <http://nool.apa.uoit.ca/>

UOIT also has a long-standing and growing partnership with Trent University that builds upon the distinctive and complementary strengths of each institution. UOIT and Trent University are currently pioneering the use of a new technology, AccessGrid, for the delivery of the joint UOIT-Trent Master of Science in Materials Science program that effectively eliminates geographic barriers between the host institutions and increases opportunities for students and faculty to collaborate on research projects.⁵ In addition, with its liberal arts and science focus, Trent University has historically provided a rich array of elective options to UOIT students. Going forward, these and other efforts will be focused in a UOIT-Trent Synergy Project in Oshawa, an innovative new partnership model that will see UOIT and Trent University build on their existing Memorandum of Understanding and collaborate in multiple ways to provide students with an unmatched blend of critical thinking, technical and entrepreneurial skills that can only be achieved through the complementary strengths of these institutions. For example, enrolments in upper level courses of selected programs could be combined to provide students with greater course options. Many other opportunities exist for joint programming and the sharing of resources to provide greater flexibility for students in the region.

UOIT will also drive innovation through its extensive network of partners with business, industry, post-secondary institutions, government and non-governmental agencies that enable faculty, staff and students to engage in multi-disciplinary projects that address important societal and scientific challenges. Examples include Ontario Power Generation (in its tri-partite partnership with Durham College), General Motors, Lakeridge Health, CAMECO, IBM, UNENE, and many others, all of which have translated into significant benefits for students. One such example is UOIT's participation in a university consortium with IBM that is developing a high performance computing infrastructure to better manage and analyse massive data sets.⁶ As well, over 220 agencies and companies provide practical hands-on learning experience for UOIT students, in addition to the numerous hospitals, school boards, clinics and community agencies that provide placements to almost 1,000 undergraduate students in practicum-based programs.

PRIORITY #3

Enhance the physical and technological infrastructure to increase productivity and support a healthy, sustainable 21st century university environment.

UOIT, in collaboration with Durham College and Trent University, will expand its IT infrastructure capacity to support the full integration of TELE (technology-enriched learning environment) and promote innovation in teaching, research and administration, improve access for students, and improve productivity through:

- *A new TELE architecture to support technology enriched learning through synchronous and asynchronous learning systems, open-source digital content and digital learning tools, and library resources*
- *Enhanced digital research capacity, including cloud delivery models, high throughput digital data management and analysis and technical support*

⁵ http://www.trentu.ca/newsevents/newsreleases_071212uoit.php

⁶ <http://hir.uoit.ca/cms/?q=node/24>

- ***Enhanced data management and reporting capabilities to enable sophisticated planning and accountability***
- ***The creation of a new kind of physical space that is dynamically allocable and economical, to support UOIT's ambitious university-wide transition to outcomes-based learning in every program***

UOIT is a leader in its use of information technology in teaching, research and program support. Laptop use is ubiquitous at UOIT and all undergraduate students have access to program-specific software and extensive technical support provided by Durham College, which enable them to conduct research, collaborate in online discussion with faculty and peers, access course materials, lecture notes, library and other digital resources, and submit and receive tests and assignments. All instructors integrate hybrid learning to take advantage of this connected technology through the use of learning management systems and a wide range of digital tools and learning resources. An increasing number of courses at UOIT are being offered online, and three programs have been mounted as fully online offerings. Together, these efforts serve to equip UOIT students with the kinds of creativity and problem solving skills that will be necessary to drive innovation and productivity in the 21st century. By enhancing its learning infrastructure to support widespread use of synchronous and asynchronous learning systems, the development of digital content, digital learning tools, and library resources, in collaboration with Durham College, UOIT can lay the groundwork for innovations in teaching, learning and curriculum delivery that are scalable across the system.

At the same time, information technology is an essential platform at UOIT that permeates and supports research and development and graduate studies, and contributes to positive regional and national economic, social, and cultural transformation. UOIT actively participates in a number of collaborative networks centred on information and communication technology. For instance, UOIT works closely with the Region of Durham and local industry, including Siemens, to coordinate efforts of a large group of faculty members engaged in multi-disciplinary, collaborative research. Informatics is a significant core research field that cuts across the university, from Health Informatics, through Security and Privacy, to Intelligent Automobiles and Vehicular Communication. With Trent as its partner, new synergies can be realized in a variety of areas of complementary strength, such as the allied health professions. To ensure that these research collaborations can be sustained and intensified, UOIT in partnership with Trent, will be investing in its digital research infrastructure, including cloud delivery models, high throughput digital data management and analysis, highly qualified personnel and technical support capacities, to respond to the need for a robust and refreshed approach to digital research capacity, while reducing administrative overhead.

Finally, UOIT has achieved considerable success in growing its enrolment to its current 9,200 students. However, its physical and human capital has lagged significantly behind the rate of growth in enrolment. This has been both a challenge and an opportunity to innovate successfully to serve students at a measurably high productivity level. UOIT's physical infrastructure is substantially below COU standards. UOIT's student/faculty ratio consistently exceeds the system norm by a considerable amount, and its support systems are increasingly stretched with the growth. UOIT has been able to manage these deficits through creative efforts, extensive use of technology, and a culture of "can do." Nevertheless, the agenda the university has set out for itself for the next three years and for the next decade will necessarily require further investment in highly qualified personnel and space commensurate with the additional investments in information technology to support outcomes based learning and inter-institutional academic innovation and administrative collaborations.