6th Americas Competitiveness Exchange on Innovation and Entrepreneurship

Canada, Sept 25 to Oct 1, 2016

Toronto • Kitchener-Waterloo • Hamilton • Niagara
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Dear Leaders of the Americas,

It is with great pleasure that we welcome you to Ontario, Canada’s largest province by population at 13.8 million people. The Americas Competitiveness Exchange is an opportunity to showcase Canada’s science, technology and innovation eco-system. It’s also an opportunity to demonstrate how Canadian businesses, knowledge institutions and government work together to support the people who power our innovation economy.

Canada has world-renowned researchers who are leaders in a number of cutting-edge fields. These fields include quantum computing, clean technology and artificial intelligence. You will have the opportunity during your visit to see first-hand some of fruits of their research.

The Government of Canada’s vision is to position our country as a global centre for innovation – one that is competitive in promoting research, accelerating business growth and propelling entrepreneurs from the commercialization and start-up stages to international success. The Government’s plan to fulfill this vision is called the Inclusive Innovation Agenda. It is focused on six key areas for action:

- Promoting an entrepreneurial and creative society
- Supporting global science excellence
- Building world-leading clusters and partnerships
- Growing companies and accelerating clean growth
- Competing in a digital world
- Improving ease of doing business

Canada’s position as a global leader in science is the result of government support for research excellence at our universities, colleges, hospitals and polytechnical institutes. We are also encouraging industry and academia to form partnerships that transform research into products and services. In addition, we are proud of the important work done by women in science. You will no doubt see that pride reflected at this conference.

You will also learn about the ways in which we support entrepreneurs and small businesses, notably by helping them get their products and services to market faster.

We hope that, over the course of the next six days, as you are introduced to some of the best innovations that Canada has to offer, you will take the opportunity to forge new connections and partnerships. Together, we can identify opportunities to collaborate on a wide range of issues that have the potential to make our countries more prosperous and improve the quality of life of all our citizens.

We look forward to meeting you.

Sincerely,

The Honourable Navdeep Bains, Minister of Innovation, Science and Economic Development
The Honourable Kirsty Duncan, Minister of Science
The Honourable Bardish Chagger, Minister of Small Business and Tourism

www.riacevents.org/ace/canada2016
On behalf of the Government of Ontario, I am delighted to welcome leaders and thinkers of the Americas and the world to the America Competitiveness Exchange (ACE) on Innovation and Entrepreneurship.

Ontario is Canada’s epicentre of innovation. Over the next several days, you’ll have the opportunity to learn, first-hand, about our thriving economic clusters, including life sciences, advanced manufacturing and clean technology. Ontario’s cutting-edge postsecondary institutions, excellent research facilities and competitive tax system — including generous R&D tax incentives — have made this province an ideal place for businesses in the knowledge-based sectors of tomorrow to grow.

As Premier, my top priority is to create more good jobs and grow the economy. That means developing a strong entrepreneurial system that supports innovative thinkers, helping them take their projects from concept to reality to marketplace. While here, you’ll see how the investments we’ve made in people’s talent and skills, innovation, entrepreneurship and commercialization are helping our province succeed in a challenging global environment.

Ontario’s resilience in the face of global disruption and uncertainty comes down to strong fundamentals — our stable markets, our competitive tax system and our highly skilled and trained workforce. To remain competitive, our economic plan is expanding access to highquality college and university education by making average tuition free for tens of thousands of low- and middle-income students. Our plan is also making historic investments in infrastructure such as hospitals, schools, roads, bridges and transit, and building a low-carbon economy driven by innovative, high-growth, export-oriented businesses.

I want to thank the organizers of ACE for creating this opportunity to share Ontario’s innovation successes. By working together, we can create new and exciting innovation partnerships between our jurisdictions and industries — partnerships that will create strong and sustainable prosperity for our future.

Best wishes for a productive and inspiring tour around Ontario!

Kathleen Wynne
Premier of Ontario
On behalf of the Ontario Ministry of Economic Development and Growth, it is my pleasure to welcome you to the 6th Americas Competitiveness Exchange on Innovation and Entrepreneurship. I am proud that our province is hosting such a prestigious event, and I look forward to the opportunity to demonstrate Ontario’s economic strengths.

The prosperity of Ontario, and that of the Americas, depends on innovation. This event brings together business leaders from across the hemisphere to share and build on the ideas that will power the growth of our economies. I encourage you to see all that Ontario has to offer, including our leading industries in sectors such as advanced manufacturing, food and beverage processing and financial services.

We all benefit when our leaders are able to cooperate. I am confident that the networks built over this week will lead to innovative solutions to the challenges that collectively face us.

I look forward to speaking to you on September 26, and I wish you all an informative, productive and enjoyable week.

Sincerely,

Brad Duguid
Minister
On behalf of the Ontario Ministry of Research Innovation and Science, I am pleased to welcome you to the 6th Americas Competitiveness Exchange on Innovation and Entrepreneurship. Both innovation and entrepreneurship are central pillars of our province’s economic plan, and I am greatly pleased to be part of this event.

Ontario is a hub for innovative research and industry, and you will see many fascinating emerging technologies during your time here. Companies and research institutes in Toronto, Kitchener-Waterloo, Hamilton, Niagara and elsewhere in the province are working toward some of the most exciting discoveries in the world. It is our priority to collaborate with these researchers to commercialize their work for global use. I am sure that the connections built over this week will endure and enhance the productivity of everyone involved.

Please accept my best wishes for a constructive and inspiring exchange.

Sincerely,

Reza Moridi
Minister
Dear Friends,

It is with great pleasure that I welcome you to the Sixth Americas Exchange on Innovation and Entrepreneurship (ACE) being held in Canada, a country with a long tradition of embracing the democratic system of government, respect for the rule of law, the promotion and protection of human rights, and of promoting the security and prosperity of its citizens.

Our hemisphere has made great progress in the last decade lifting 80 million people from poverty. We remain, however, the world’s most unequal region. The Sixth Americas Exchange on Innovation and Entrepreneurship being held in the Province of Ontario, will highlight how an Inclusive Innovation Agenda can be a powerful tool to address these challenges and create conditions for transformation of our societies, where opportunities and rights are extended to all citizens.

I believe that we are all part of an integrated system that is built on joint contributions and where solutions can be found through enhanced cooperation. I invite each and every one of you to take advantage of the Inter-American Competitiveness Network (RIAC) and the ACE to promote and facilitate collaboration and partnerships on inclusive competitiveness, innovation and entrepreneurship across the region.

We have an obligation, a responsibility, and a duty to ensure that future generations are architects of their own destiny. All peoples of the Americas, without regard to race, gender, place of birth or sexual orientation, must be empowered through skills, education, resources, technology and connections to aspire to quality jobs and more sustainable models of existence.

I would like to thank Ministers Bains, Duncan and Chagger, the teams from Innovation, Science and Economic Development (ISED) and Global Affairs Canada, and the Province of Ontario, in particular Premier Wynne and Ministers Duguid and Moridi for their leadership in organizing the Sixth ACE. We appreciate the engagement of Canadian leaders and stakeholders and the opportunity to build stronger collaboration with OAS member states around Canada’s globally recognized innovation and entrepreneurship ecosystem.

Luis Almagro
Secretary General
Organization of American States (OAS)
Beginning in the late 1990s, the Government of Canada started making major investments in science and technology (S&T), and has continued doing so. Today, Canada is internationally recognized for research strengths across most areas of scientific pursuit both in terms of quantity and quality of science done.

FEDERAL GOVERNMENT ROLE
The Government of Canada is a key player in Canada's decentralized science, technology and innovation (ST&I) landscape. The Government's role varies from:

- developing ST&I policies;
- providing funding and other support to research and development (R&D) performers, in particular industry and academia;
- funding and administering partnership programs;
- creating and maintaining international bilateral ST&I Agreements;
- performing research in federal laboratories; and
- performing monitoring, data collection and information services.

The federal government's approach to ST&I continues to evolve through the development of an Inclusive Innovation Agenda, a fundamental science review led by an independent panel of distinguished leaders and innovators, a renewed focus on evidence-based decision-making, and the creation of a Chief Science Advisor.

MAIN ST&I ACTORS
The Department of Innovation, Science and Economic Development (ISED) has primary responsibility for ST&I policy at the federal level. ISED's mandate is to help make Canadian industry more productive and competitive in the global economy, thus improving the economic and social well-being of Canadians. Under the leadership of the ISED Minister, the Department is developing an Inclusive Innovation Agenda that will redesign and redefine how the Government supports innovation and growth, in partnership and coordination with multiple stakeholders. Areas of focus for the near future include clean technology, digital infrastructure, cultivating an entrepreneurial and creative society, and encouraging business investment in R&D.

At least 20 departments and agencies perform or fund ST&I activities, including research activities and maintaining internal scientific expertise. In 2015/16, the major federal ST&I activities actors were: Natural Sciences and Engineering Research Council (NSERC) ($1.1 billion); Canadian Institutes of Health Research (CIHR) ($1 billion); National Research Council (NRC) ($870 million); Social Sciences and Humanities Research Council of Canada (SSHRC) ($720 million); Environment and Climate Change Canada ($680 million); Statistics Canada ($630 million); Natural Resources Canada ($560 million); Atomic Energy of Canada Limited ($560 million); Agriculture and Agri-Foods Canada ($475 million); Health Canada ($450 million); and Innovation, Science and Economic Development ($430 million).

Through these departments and agencies, federal investments in S&T contribute directly to a broad range of outcomes toward enhancing the health of Canadians, sustaining the environment, strengthening the economy, assuring national security, and enhancing Canadians quality of life. Together, NSERC, SSHRC and CIHR (the Tri-Council Agencies) fund research and talent at postsecondary institutions with combined budgets of approximately $2.8 billion annually, along with a number of federally-funded arm’s-length organizations, including: the Canada Foundation for Innovation (CFI), which funds advanced research infrastructure; Mitacs, which supports internships in the private sector for graduate students and postdoctoral fellows; and Genome Canada, which provides funding for large-scale genomics research.

ISED also works with six Regional Economic Development Agencies (RDA). These agencies deliver federal programs at the regional and
local levels to enhance innovation, business and community economic development. The RDA for Southern Ontario is the Federal Economic Development Agency for Southern Ontario (FedDev Ontario).

Global Affairs Canada is responsible for negotiating international ST&I Agreements, managing ST&I-related programs, such as the Canadian International Innovation Program and Going Global Innovation. They also provide support to Canadian companies and researchers through the Trade Commissioner Service.

Provincial governments are also active in the ST&I landscape to various degrees, including through research in provincial labs, research and commercialization funding programs and funding for research training. Universities, research centres, and private sector companies (through their R&D centres) are also amongst the many actors active in ST&I in Canada. Other key players within the Canadian innovation ecosystem include venture capital firms, incubators and accelerators.

CANADA’S CURRENT POLICY MIX

Canadian innovation policy has been primarily oriented towards creating the right conditions for businesses to grow and be competitive. In the late 1990s, the federal government began making major investments in ST&I which resulted in the creation of a number of federally-funded arm’s-length organizations such as the CFI in 1997 and Genome Canada in 2000. These investments help to build world-class research capacity and excellence through initiatives targeting talent development (through internships or fellowships), strengthening Canada’s international reputation for research excellence in the higher-education sector (granting councils), and access to world-class research infrastructure. Typically, these measures are designed to support research excellence are competitive based (e.g. peer-reviewed).

In addition to Canada’s 80 public universities, the Canadian college and polytechnic landscape includes over 300 educational institutions of all sizes, located throughout every province and territory. Research funding for colleges focuses on increasing innovation at the community or regional level by enabling colleges to grow their capacity to work with local firms, particularly small and medium-sized enterprises (SMEs).

Canada has also become a powerful magnet for high-quality researchers from abroad – in recent years, experiencing a net positive migration of researchers coming to the country.

Business support to R&D is mostly provided through indirect broad-based financial support. In Canada, the bulk of federal support for business R&D is provided through tax measures, namely the Scientific Research and Experimental Development (SR&ED) Incentive Program. This support is industry, region and firm neutral and the total tax expenditure (including refundable credit classified as transfers) is expected to reach $3.0 billion in 2015). In 2015, the federal government’s direct expenditures on R&D in the business sector reached $851 million.

WHERE CANADA STANDS
3. CANADA’S INCLUSIVE INNOVATION AGENDA

INNOVATION AGENDA

On June 14th the Government of Canada, led by the Minister of Innovation, Science and Economic Development, launched the Inclusive Innovation Agenda with the mission to redesign and redefine how the Government supports innovation and growth in Canada.

The goal of the Inclusive Innovation Agenda is to position Canada as a global centre for innovation where: growth is clean and inclusive; the middle-class prospers with more quality jobs; and more Canadian firms export and become global leaders. It is aimed at ensuring that innovation efforts are driven by collaboration and partnerships. Canada must maximize its research strengths, accelerate the transformation of ideas into new products and services, and attract global talent and investment.

Ten Innovation Leaders, from outside of government, led 28 roundtables across Canada, and engaged with more than 400 key stakeholders on six key Action areas:

- **Entreprenurial and Creative Society** – how to foster a culture of innovation and entrepreneurship;
- **Global Science Excellence** – how to support science and accelerate commercial implementation;
- **World Leading Clusters** – how to promote existing and new dynamic technology/industry clusters of global leadership;
- **Grow Companies and Accelerate Clean Growth** – how to ensure that Canadian start-ups mature into the next generation of high impact global firms and cleantech leaders;
- **Compete in a Digital World** – how to harness digital technologies and adoption to heighten industrial capabilities, products, services, and well-being; and
- **Ease of Doing Business** – how best to adapt marketplace regulations and standards to entice experimentation, partnerships and new business lines and services.

As part of the overall engagement process on the Innovation Agenda, the Government of Canada organized numerous events, led social media campaigns and created a digital platform. The overall goal of this process was to create a national innovation dialogue, and to develop bold ideas to help shape the Inclusive Innovation Agenda.

To mark the conclusion of this process, a panel took place at the Waterloo Innovation Summit on September 15-16, 2016 where Innovation Leaders shared their findings.

KEY PLAYERS

ISED is working closely with the Economic Growth Council established by the Ministry of Finance, as well as many other federal government departments, including provincial and territorial governments to ensure all views are considered.

Through consultations with Canadian stakeholders, several issues were raised, including concerns immigration barriers related to attracting highlight skilled and scientific talent, the need to deepen key economic clusters across the country, and the need to provide better support to small and medium sized enterprises trying to scale-up.

MOVING FORWARD

Budget 2016 made an initial investment of up to $800 million over four years, starting in 2017–18, to support innovation networks and clusters as part of the Government’s innovation agenda.

The findings presented at the Summit in September 2016 will inform the development of the next stage of the innovation agenda, including priority areas, actions and opportunities for partnerships.
Since 2004, the Government of Ontario has been making major investments in Science, Technology and Innovation (ST&I) as an integral part of its economic agenda. Historically, across Canada, Ontario has had the largest expenditure on research and development (R&D). In 2013, 44% of Canadian R&D activity occurred in Ontario. Business Expenditure on Research and Development intensity for 2013 was 1.01% placing it second to Quebec (1.29%).

**MAIN ST&I ACTORS**
The Ministry of Research, Innovation and Science (MRIS), the Ministry of Economic Development and Growth (MEDG), and the Ministry of Advanced Education and Skills Development (MAESD) manage ST&I policies and programs in Ontario. Their combined mandate is to support world-class research, ensure Ontario’s competitiveness in the global economy.

**KEY INNOVATION PROGRAMS IN ONTARIO**
The Province of Ontario supports the development of transformative/disruptive technologies and innovation through the following key initiatives:

**Business Growth Initiative (BGI)**
In Budget 2016, the government committed to making significant investments in innovation and R&D, including the commercialization and adoption of new disruptive technologies as part of its strategy to increase the province’s global competitiveness and create an innovation driven economy. This included a $400 million commitment over 5 years, with the overarching goal of strengthening the province’s global competitiveness.

**Transformational Technology Initiative (TTI)**
TTI represents potential investments to support the development, commercialization and adoption of new transformative technology platforms in Ontario. The TTI model was developed under the Strategic Partnerships Stream (SPS) program as part of the $2.7 billion Jobs for Prosperity Fund (JPF).

For example, Ontario provided $19.4M to JLABS located in Toronto to provide a valuable long-term asset in the form of state-of-the-art lab space for life sciences start-ups, and $22.75M investment in the I3 Project, a partnership between the Ontario Centres of Excellence and IBM Canada.

**Ontario Network of Entrepreneurs (ONE)**
The ONE is a network of regional organizations that deliver programs, services and resources to assist businesses at every stage of their development - from local businesses to globally focused, technology-based firms. It provides entrepreneurs with a single-point of entry to their local and provincial entrepreneurial ecosystems. Some of ONE’s 2014/2015 accomplishments included: assisting in the creation of more than 4,500 new firms, training of over 3,000 highly qualified personnel, assisting SMEs in reaching $820 million in total sales and marketing over 4,200 new products and services.

The **ONE is comprised of the following members:**

- Regional Innovation Centres (RICs) provide support to “innovation-oriented, technology - based” entrepreneurs to help them reach new levels of success and ensure success in the knowledge-based economy. There are 18 RICs across Ontario.

- Campus Linked Accelerators (CLAs) and On-Campus Entrepreneurship Activities (OCEAs) create campus-linked focal points for entrepreneurship at Ontario’s post-secondary institutions to help harness
youth entrepreneurs as a vehicle to transfer knowledge and discovery into economic impact. There are 44 CLAs and OCEAs across Ontario.

- Small Business Enterprise Centres (SBECs) work in partnership with municipal governments to support the start-up and growth of local “main street” businesses. There are 57 Small Business Enterprise Centres across Ontario.

- The Ministry’s Business Advisory Services (BAS) branch is focused on helping existing and aspiring high-growth small- and medium-sized firms grow their businesses both in national and international markets. There are 12 BAS offices across Ontario.

- The MaRS Centre coordinates business acceleration programs, services and funding to the RICs across the province. In addition, MaRS also serves as the RIC for the Toronto area, and provides advisory services in life sciences, cleantech, digital and ICT and social innovation area.

- The Network of Angel Organizations – Ontario (NAO-O) administers the Angel Network Program, which connects high-potential entrepreneurs with angel investors who are able to provide both capital and valuable business experience.

- The Ontario Centre of Excellence (OCE) coordinates industry-academic collaboration programs, services and funding across the province in support of industry driven research. OCE supports industry driven research and helps to translate ideas into new and existing companies and innovative products.

OTHER PROGRAMS

The Province of Ontario supports world-class research through: competitive funding rounds of the Ontario Research Fund and Early Researcher Awards; and, through translational and focused research via direct transfer payment agreements to selected Ontario research institutes such as the Ontario Institute for Cancer Research, the Ontario Brain Institute and the Ontario Institute for Regenerative Medicine.

Additional provincial government programs include: the Ontario Research Fund, Northleaf Venture Catalyst Fund and the GreenFIT Strategy. Through the Green Focus on Innovation and Technology (GreenFIT) Strategy, the Government of Ontario supports clean technology SMEs who have innovative sustainable solutions for the domestic and global marketplace. The Strategy leverages the government’s considerable buying power to adopt and demonstrate new clean technologies.
OVERVIEW
Situated near the shores of Lake Ontario in eastern Canada, the Greater Toronto Area (GTA) is one of the largest and most diverse urban regions in the hemisphere. At the centre of the region is the City of Toronto, the capital of the Province of Ontario. The overall GTA region is comprised of twenty-four municipalities representing over 6.2 million people.

HISTORY
The name Toronto is likely derived from an Iroquois word meaning “place where trees stand in the water”. Toronto was incorporated in 1834 and quickly established itself as a manufacturing and transportation hub owing to its excellent geography and proximity to the US market. The city grew rapidly during the nineteenth and twentieth centuries and became the centre of English Canadian media and culture. Since the Second World War, Toronto has attracted immigrants from all over the world. Today, the GTA is heralded as one of the most multicultural cities in the world and is ranked as the safest large metropolitan area in North America by Places Rated Almanac:

- Over 50% of its population born outside of the country.
- Annually, there are 100,000 immigrants settling in the region.
- Over 140 languages and dialects are spoken, with more than 200 distinct ethnic origins represented.

ECONOMY
Toronto is a Canadian economic powerhouse, and is considered the financial and business capital of Canada. The GTA generated an annual output of $318 billion (2015), 17% of Canada’s gross domestic product. Regional economy grew in 2015 by 3.3%, driven by growth in the finance and business services, manufacturing, transportation and warehouse, and wholesale and retail trade sectors.

CULTURE
Toronto is Canada’s largest media market and headquarters to Canada’s national print and English television networks, publishing industry, and international business press. The city is home to the National Ballet of Canada, the Canadian Opera Company, the Toronto Symphony Orchestra, and dozens of ballet, dance and opera companies, symphony orchestras and theatres. The city is also home to world class museums and art galleries, including the Royal Ontario Museum and the Art Gallery of Ontario.
Toronto is one of the largest tourism destinations in the world, now attracting over 40 million visitors per year and employing nearly 330,000 people. Major attractions include the above noted cultural activities as well as the 553 m (1,815 ft) CN Tower (which held the title as the world’s tallest free-standing structure from 1976 to 2010), the Toronto Zoo, the Hockey Hall of Fame and Ontario Science Centre.

Toronto is host to three major annual international festivals. The Toronto International Film Festival (TIFF) held in early September is considered second only to Cannes in terms of Hollywood profile and attracts over 450,000 attendees. Toronto is one of the top five production centres for film and television in North America, and generated over $1.5 billion in economic investment in 2015. Every summer, Toronto also hosts Toronto Caribbean Carnival which attracts over 1.3 million visitors and generates over $400 million in economic activity. Pride Week, typically held at the end of June, is one of the largest LGBT-gay pride festivals in the world.

Toronto is a major North American sports market and is home to seven professional sports teams, including the Toronto Blue Jays (Major League Baseball), the Toronto Raptors (National Basketball Association), the Toronto Argonauts (Canadian Football League), the Toronto Maple Leafs (National Hockey League), the Toronto Marlies (American Hockey League), the Toronto Rock (National Lacrosse League), and Toronto FC (Major League Soccer).

HIGHER LEARNING

Over 260,000 students are enrolled in Toronto’s eight public universities and colleges and Toronto is home to Canada’s first (University of Toronto, which has over $1.2 billion in annual research funding), third (York University), and tenth (Ryerson University) largest universities in Canada. Overall, the education sector in the GTA employs over 220,000 people and directly contributes $14.4 billion to the economy.

Toronto is home to fourteen of Canada’s top 25 corporate R&D spenders, including BCE, IBM Canada, Cisco Canada, Magna International, and Celestica. Toronto’s start-up ecosystem is the largest in Canada and ranks in the top 20 most active start-up scenes in the world (Compass Global Start-up Ecosystem Ranking, 2015). There are several leading business incubators and accelerators based in the GTA, including:

- MaRS
- Ryerson’s DMZ
- HighLine
- Centre for Social Innovation
- OneEleven.

BUSINESS SECTORS

Toronto’s diverse economy has helped it to support a variety of sectors ranging from real estate to finance to wholesale and retail trade.

Financial Services

Toronto is Canada’s financial capital, and considered the second largest financial hub in North America. Toronto is home to Canada’s five major banks, the vast majority of foreign banks operating in Canada, and the Toronto Stock Exchange (TSX) – the world’s principal exchange for mining, oil and gas and a leader in cleantech listings. Toronto Stock Exchange is the third largest equity exchange in North America, seventh largest in the world with a market capitalization of $1.6 trillion. The sector employs 343,000 people.
Information Communications Technology (ICT)

Toronto is home to Canada’s largest ICT cluster and, with over 15,000 firms, is the third largest in North America. Its strengths are a result of its comparative advantages in the area of business services and software development. The area is known for its innovative practices in area of FinTech, with more than 150 FinTech firms located in Toronto. The GTA is also leading within Canada in the area big data analytics. Taken together, the sector annually generates over $75 billion in revenues and attracts $300 million in investment.

Life Sciences

Toronto is at the heart of the life sciences cluster that runs along the corridor of Ontario-Quebec. It is the second largest life sciences cluster in North America focused on life sciences discovery and commercialization. Overall, there are 800 life science companies, employing over 50,000 people, with medical research investments exceeding $1 billion annually. Nearly 50 global pharmaceutical and biotechnology companies are headquartered in the Toronto region, including Amgen, AstraZeneca, GlaxoSmithKline, Roche and Teva. The Toronto/Ontario biotech cluster alone is the largest in Canada with 163 companies.

Clean Technology

Toronto’s clean tech sector is the most diverse in North America, with clusters in renewable energy, green buildings, smart grids, electric vehicles, water and waste technologies, and biotechnologies. There are over 1,700 companies and 36,000 people working in the sector. The sector accounts for $50 billion in annual revenues.

Advanced Manufacturing

The Toronto region is the centre of advanced manufacturing in Canada, with strengths in automotive, food and beverage, aerospace, pharmaceutical and plastics manufacturing. The sector employs roughly 300,000 employees.
OVERVIEW
Located in south western Ontario roughly 100 kilometres west of Toronto, the Kitchener-Waterloo region is home to seven municipalities, three of which are urban municipalities (Cambridge, Kitchener and Waterloo) and a regional government. The Kitchener-Waterloo region is Canada's 10th largest metropolitan area. The region is home to 575,000 people, and as one of Canada's fastest growing communities, is forecasted to reach 742,000 people by 2031.

HISTORY
The three communities were settled in the early 19th century (Waterloo was named for the Battle of Waterloo) primarily by immigrants from Mennonite families who migrated from Pennsylvania, and significant German settlement. The region grew rapidly as a manufacturing and agricultural centre following the arrival of the railway in 1856. The region remained a manufacturing centre until the establishment of Wilfrid Laurier University in 1910, and University of Waterloo in 1957. The region today has become an advanced research powerhouse and continues to be a leading ICT, automotive, and advanced manufacturing hub.

ECONOMY
The region is one of Canada's most economically diverse, with a long focus on exporting and accessing global markets. In 2015, the region's overall economic output totalled $26.4 billion, accounting for 4.2% of Ontario's total output and 1.7% of Canada's GDP. The region remains one of Canada's most manufacturing intensive economies, employing roughly 18% of the labour force in 2014. The region is also home to over 1,000 technology firms including Canada's largest software, hardware, e-learning and satellite companies. The region has become an entrepreneurial hub with over 600 active start-ups.

HIGHER LEARNING
The region is served by a network of education and research institutions. There are over 65,000 post-secondary students, including 24,000 co-operative education students attending the region's two universities and college. The University of Waterloo is home to the most significant concentration of mathematical and computer science talent globally, and operates the largest post-secondary co-operative program in the world. Wilfrid Laurier University has the largest business degree co-op program in Canada. Conestoga College Institute of Technology is ranked amongst the top Ontario Colleges and has a highly regarded School of Engineering and IT and the Institute of Food Processing Technology.

The region, sometimes referred to as “Quantum Valley”, is also home to world renowned research centres, including the Perimeter Institute for Theoretical Physics, Institute for Quantum Computing, Waterloo Institute for Nanotechnology, Waterloo Institute for Sustainable Energy, Waterloo Centre for Automotive Research, Centre for Bioengineering & Biotechnology, Centre for Cold Regions & Water Science and Centre for International Governance Innovation.
BUSINESS SECTORS
The Waterloo Region is a globally recognized advanced technology cluster while also having one of the highest concentrations of manufacturing activity among Canada’s metropolitan areas. The region is home to one of Canada’s largest insurance industry clusters. The leading economic sectors are: automotive, ICT, advanced manufacturing and business services.

Information Communications Technology
- Considered Canada’s Technology Triangle, and the “Quantum Valley”.
- Over 1,000 technology firms, employing over 30,000 people, including Canada’s largest software, hardware, e-learning and satellite companies.
- The cluster is cross-sectoral and is especially oriented to connected and autonomous vehicles, advanced manufacturing, quantum and nanotechnology and business and financial services sectors.

Advanced Manufacturing
- Manufacturing remains a cornerstone of the region, employing 18% of the population.
- The regional economy has shifted towards advanced manufacturing, technological innovation and world-class research institutions, supporting sector strengths in ICT, and quantum and nanotechnology.
- The sector generates roughly $9 billion in annual GDP in the region.

Incubation and Acceleration
The Waterloo region is home to some of Canada’s best and most internationally recognized incubators and accelerators, including:
- **Velocity** – established by University of Waterloo, Velocity operates a 6,000 square foot “garage” of free workspace for a peer community of up to 120 software start-ups.
- **Communitech** – the Communitech Hub is 50,000+ square feet of incubation space that has fostered nearly 1,000 tech companies since its creation in 1997.
- **Accelerator Centre** – focuses on scale-up through a four step program to build successful firms over the long-term through: Market Validation and Product Ideation; Prototyping and Organizational

CULTURE
The Kitchener-Waterloo Region is home to a number of cultural activities and events. Venues include the Homer Watson House & Gallery, Kitchener-Waterloo Art Gallery, and THEMUSEUM, an interactive space for children and youth that features permanent art and science exhibits and interactive spaces. An important highlight is the Waterloo Region Museum, which is the largest community museum in Ontario. It tells the story of the Waterloo Region and features local and travelling exhibits. The region is also home to the annual Kitchener Blues Festival, the Kitchener-Waterloo Multicultural Festival, and the KOI Music Festival.

Owing to its deep German heritage, Kitchener-Waterloo is also home to Oktoberfest, the largest Bavarian beer festival outside of Germany. The annual October event attracts over 750,000 people.

HIGHLIGHTS
Population: 575,000 (4th largest census metropolitan area in Ontario and 10th largest city in Canada).
- **GDP growth forecast**: $26.4 billion in GDP in 2015.
- **Canada’s Technology Triangle**: a globally recognized advanced technology cluster, with over 30,000 employees of 1,000+ tech firms.
- **Fast growing**: expected to reach 742,000 (40%+) people by 2031.
OVERVIEW
Hamilton is located in Southern Ontario on the western end of the Niagara Peninsula and wraps around the westernmost part of Lake Ontario. Hamilton is the third largest metropolitan area in Ontario, after Toronto and Ottawa, with a population of 721,000. Over 20% of the population is foreign born, the third highest proportion in Canada.

The Hamilton region sits in the middle of the most densely populated stretch of economic activity in Canada. It is roughly the midway point between Toronto and New York State.

HISTORY
Founded shortly after the War of 1812, Hamilton grew moderately until the establishment of Stelco (1910) and Dofasco (1912) steel mills, making Hamilton the centre of Canada's steel industry. The city rapidly diversified into other heavy and light industrial enterprises, which formed the mainstay of Hamilton's economy well into the 1980s. The city began to diversify its economy when McMaster University relocated to Hamilton from Toronto in 1927. Today Hamilton is ranked as Canada's most diversified economy.

ECONOMY
Hamilton's GDP was $27.8 billion in 2015, with growth centred on the region's manufacturing sector and non-residential construction activities. Hamilton employed 385,000 workers in 2015, and in the same year recorded the lowest unemployment rate in the province of Ontario and the eighth lowest in the country. The Hamilton economy has performed strongly over the past five years, with over $1 billion in building permits issued annually, making it one of Canada's strongest economic centres.

CULTURE
Situated on the protected Niagara escarpment at the western end of Lake Ontario, Hamilton has a strong outdoor recreation focus. The city hosts the professional league Hamilton Tiger-Cats of the Canadian Football League and the Canadian Football Hall of Fame. The city also hosts the Canadian Warplane Heritage Museum, Her Majesty's Canadian Ship (HMCS) Haida National Historic Site (a World War 2 warship, Dundurn Castle (the residence of a Prime Minister of Upper Canada), and the Royal Botanical Gardens.

In terms of fine art, the Art Gallery of Hamilton is Ontario's third largest public art gallery. The gallery has over 9,000 works in its permanent collection that focus on three areas: 19th century European, Historical Canadian and Contemporary Canadian. The McMaster Museum of Art, founded in 1967, houses and exhibits the university's art collection of more than 7,000 objects, including historical, modern and contemporary art, the Levy Collection of Impressionist and Post-Impressionist paintings, and a collection of over 300 German Expressionist prints.

HIGHER LEARNING
Hamilton is home to several globally recognized educational and research institutes, including: McMaster University ranks in the top 3 most research-intensive (number of research dollars per faculty member) universities in Canada. McMaster has over 30,000 undergraduate and graduate students and 7,500 faculty and staff. The university
is home to Canada's first human embryonic stem cell library and hosts Canada Research Chairs and Centres of Excellence, representing the third highest number of Chairs in Ontario, and ninth highest in Canada. McMaster University engages across all six of its faculties and works closely with local industry, hospitals and research institutes.

**Mohawk College** is the largest trainer of apprentices in Ontario, with 10,000 full-time, 3,000 apprenticeship, and 300 international students, as well as 5,000 adult learners and 42,000 continuing education registrants.

Other post-secondary institutes in Hamilton include Redeemer University College, Brock University's Hamilton Campus, and Collège Boréal.

**BUSINESS SECTORS**

**Advanced Manufacturing**

Industrial manufacturing within Hamilton contributes $12 billion to the local economy and 4% of Ontario’s GDP. More than 85,000 people are employed in this sector, contributing roughly $5.6 billion annually to the local economy through salaries and wages. Steel production and processing, heavy and general manufacturing, storage and warehousing represent the major industrial clusters. In 2009, McMaster University opened the McMaster Innovation Park (MIP), which hosts:

- CANMET Materials Technology Laboratory
- McMaster Automotive Research Centre
- Fraunhofer Project Centre for Biomedical Engineering & Advanced Manufacturing (BEAM)
- Xerox Centre for Engineering Entrepreneurship and Innovation

**Agri-Business & Food Processing**

Hamilton is centrally located within one of the three largest food and beverage processing districts in North America. Hamilton’s agricultural sector generates $900 million per year for the local economy, and the food processing sector is one of the fastest growing in Ontario. Industry activities include food and beverage processing, warehousing and distribution, retailing and food service.

Hamilton is becoming a centre for food and beverage processing and distribution for both domestic and foreign firms. For example, GrupoBimbo recently invested $1.83 billion to acquire Canada Bread.

**Life Sciences**

In addition to McMaster University’s extensive life sciences research and programs, Hamilton Health Sciences (HHS) employs nearly 11,000 people and is comprised of six separate hospitals and a cancer centre. It was recently selected by GE Healthcare to be the first site in the world to receive new prototype technologies for use in a molecular breast imaging research program.

IBM and HHS have also recently announced their plans to establish a new centre in downtown Hamilton that focuses on healthcare innovation. The centre – with both a physical and virtual collaboration space – will give healthcare providers, researchers, innovators and entrepreneurs advanced technology tools and expertise to improve healthcare outcomes.

**St. Joseph’s Healthcare** academic and research healthcare organization is home to the Firestone Institute for Respiratory Health and the high-tech Brain-Body institute.

**The Synapse Consortium** - a network of world class research institutions and life science related business organizations.

**Information, Communications & Technology (ICT)**

Hamilton’s digital and ICT sector is largely concentrated in Healthcare IT. However, it is also attracting many small and medium enterprises focused on digital media, gaming and entertainment. Given the growing ICT sector in Hamilton, “Software Hamilton” was formed in 2011 to provide a network for software developers looking for strategic business resources and services.

**HIGHLIGHTS**

Population: 721,000, 9th largest census metropolitan area in Canada.

- **GDP growth forecast:** $27.8 billion in real GDP in 2015 (4.5% of Ontario’s economic output; 1.7% of national GDP).
- **A Transforming Economy:** with strengths in advanced manufacturing, agri-business, clean technology, ICT, and life sciences.
- **An International Destination:** nearly one-quarter of Hamilton’s general population were born outside of Canada.
OVERVIEW
The Niagara region is located on the isthmus separating Lakes Ontario and Erie, with the western boundary being the Niagara River marking the international border between Canada and the United States. The region comprises the Regional Municipality of Niagara with its 12 urban and rural local area municipalities. Taken together, the population of the Niagara region is 449,098 (2015 StatsCan estimate), with 132,000 living in the City of St. Catharines. The region is the fifth largest metropolitan area in Ontario and ranks thirteenth nationally. Niagara is home to 200 different ethnic origins, and 16% of the population was born outside of Canada.

HISTORY
Much of the Niagara region was first settled by loyalists fleeing the American Revolution. Following the construction of the first Welland Ship Canal in the 1830s, the region rapidly developed as a manufacturing and industrial centre, with the City of St. Catharines at its centre.

Today the region remains an important industrial centre, but tourism, focused around Niagara Falls and Niagara-on-the-Lake and its surrounding vineyards, is an important source of economic growth.

ECONOMY
In 2015 the St. Catharines-Niagara region GDP was $14.2 billion. A rebound in the manufacturing sector and improvements in construction, and wholesale and retail trade helped to boost its economy. Employment in the region is largely concentrated in the following sectors: trade; health and social assistance; accommodation and food; and manufacturing.

In April 2016, Niagara region was designated a Foreign Trade Zone Point by the Government of Canada. Ten per cent of firms in Niagara are exporting abroad and the intent is to grow this number by means of lead generation, trade missions and international marketing of the region as a launch point for international trade.

CULTURE
The region is known for iconic Niagara Falls and is a top global tourist destination, receiving over 12 million visitors annually. The region generates 40% of Ontario’s tourism traffic and accounts for 75% of the country’s grape growing activity. The internationally renowned Shaw Festival, originally conceived to further the works of George Bernard Shaw and his contemporaries, is held annually from April to October in Niagara-on-the-Lake. Other attractions include Fort George, the heritage business district, and Niagara’s world famous wineries. The City of St. Catharines is home to the state-of-the-art FirstOntario Performing Arts Centre, Canada’s oldest and longest footpath The Bruce Trail, and the world famous Welland Canal.

HIGHER EDUCATION
The Niagara region is home to two globally recognized educational institutions known for their research and innovative practices:

Brock University – home to BioLinc, a
business incubation facility and advanced bio-manufacturing centre. The university has over 18,700 undergraduate and graduate students and 1,500 staff. Brock has 12 Canada Research Chairs.

Niagara College is an applied arts and technology college with 9,000 students (500 international) spread over four campuses in Welland, Niagara-on-the-Lake, Niagara Falls, and Ta’if, Saudi Arabia. The College is known for its leading-edge, hands-on learning institutes, such as the Canadian Food & Wine Institute Innovation Centre, Agriculture & Environment Innovation Centre and Walker Manufacturing Innovation Centre.

Other Facilities
Vineland Research and Innovation Centre is a world-class research centre dedicated to horticultural science and innovation in the areas of applied genomics, consumer insights, and horticultural production systems. The Generator-at-One is a state-of-the-art interactive media facility, designed to provide core business services and support for research and commercial media projects.

BUSINESS SECTORS
Advanced Manufacturing
Traditionally, the sector was focused on automotive parts, but has recently been shifting towards advanced technology manufacturing in the areas of advanced robotics, 3-D modeling, automation, the application of advanced materials and control systems, as well as in areas of metal fabrication, food and beverage production, aerospace, viticulture and horticulture. In 2015, the sector employed over 18,000 people in approximately 1,800 firms (68% operating in multiple sectors simultaneously), with many integrated into global aerospace and automotive supply chains.

Agri-food
Much of Niagara’s agriculture sector is related to the grape and wine industry, tender fruit (this is Ontario’s largest and most important fruit-growing area) and development and innovative use of greenhouse technologies. Niagara’s greenhouse industry is also a technology cluster in its own right, with greenhouse designs and exports shipped all over the world. Niagara is also home to a number of strong food processors, including Post Foods Canada, Parmalat Foods Inc., and Food Roll Sales. Agri-food, beverages & tobacco comprise over 20% of total manufacturing activities in the region, and innovation among these is supported by Niagara College’s Canadian Food & Wine Institute.

5. PROFILES OF REGIONS AND CITIES

HIGHLIGHTS
- **Population:** 449,098 (Region) in 2015, while St. Catharines-Niagara CMA ranks as Canada’s 13th largest census metropolitan area.
- **GDP:** $14.2 billion in real GDP in 2015.
- **Sector:** manufacturing remains the backbone of Niagara’s economy, as well as tourism.
- **Niagara Falls** is a global destination with an established tourism infrastructure.
6. SECTOR BRIEFS

ADVANCED MANUFACTURING

Advanced manufacturing transforms traditional manufacturing through the convergence of technologies in fields as diverse as information technology (e.g. digitization, data analytics), the internet of things (e.g. sensors), new and advanced materials (e.g. nanotechnology), robotics and automation, and additive manufacturing (e.g. 3D printing of prototypes, with significant time and cost savings).

Advanced manufacturing innovations are working to dramatically improve productivity, safety, and environmental impacts of manufacturing operations.

CANADIAN STRENGTHS

Canada has a strong manufacturing sector that accounts for over 10% of national GDP and employs over 1.7 million people. In 2015, the sector generated $610 billion of sales. In addition, manufacturing accounts for nearly half of Canadian business expenditures on research and development—the largest share of any single sector—and two-thirds of Canada’s merchandise exports, totalling $325 billion in 2015.

Canada’s manufacturing sector is primarily concentrated in Ontario and Quebec. Canada’s advanced manufacturing strengths are in the areas of clean-tech and clean energy, big data and machine learning, advanced robotics, quantum computing, biotechnology and life sciences.

ONTARIO OVERVIEW

Ontario’s manufacturing sector is the largest in Canada, representing 13% of Ontario’s GDP and 11% of Ontario’s employment. The manufacturing sector accounted for $303.5 billion revenues in Ontario (46% of Canada’s total) in 2014.

Ontario’s advanced materials and manufacturing industry is clustered in Southern Ontario. In addition to well established clusters in automotive, aerospace, food processing, chemicals and clean technologies, Ontario has significant capacity in fabricated metals, machinery and equipment industries, automation, packaging and building and infrastructure materials. The region’s strong science research base, educated workforce and model of business-academia collaboration have helped to support the growth of innovation in this sector.

Additive manufacturing

There are approximately 35 businesses involved in additive manufacturing (in which an object is built, layer by layer, directly from 3D model data) in Southern Ontario, typically servicing the automotive, aerospace and life sciences industries in North America markets.

Nanotechnology (nanotech)

Ontario leads R&D and production in Canada,
with Toronto being the most advanced nanotech cluster in the country. Most of the development is taking place in post-secondary institutions and by small and medium-sized enterprises.

**Advanced Materials (AM)**
Manufacturing, life sciences and clean tech firms are driving demand for advanced materials, which are materials enhanced at the molecular and atomic level to provide superior performance and characteristics to components and products across a range of industries. Development and production in Southern Ontario is largely concentrated in Toronto, with smaller clusters emerging in Kitchener-Waterloo and other municipalities. Ontario businesses are comprised of small number of subsidiaries of multinational firms and numerous SMEs.

**Robotics and Automation**
There are two clusters for robotics development in Southern Ontario, in the Waterloo Technology Triangle and in Toronto, with notable increases in R&D Activity.

### GOVERNMENT SUPPORT
#### Government of Canada
The federal government provides funding to support the advanced manufacturing sector through various programs, including the [Advanced Manufacturing Fund](#), the [Automotive Supplier Innovation Program](#), and the [Strategic Aerospace and Defence Initiative](#).
The information and communications technologies (ICT) sector is highly innovative and includes a significant research and development (R&D) footprint, with a core of ‘innovative firms’ (i.e., inventors, designers, builders) that are critical to the sector. There are four main sub-sectors: Software & Computer Services; Manufacturing; Wholesaling; and Communication Services. The ICT sector includes a wide range of technology-based and enabling industries such as cloud computing; big data analytics; video games; the internet of things; 5G; quantum computing; blockchain; artificial intelligence and more.

**CANADIAN STRENGTHS**

The ICT sector is a direct driver of economic growth. The Canadian ICT sector consists of almost 37,500 firms that employ nearly 584,900 workers and generate annual sales of $172 billion. Accounting for 4.4% of Canada’s GDP, the ICT sector is growing at a faster rate than the rest of the Canadian economy. The ICT sector is characterized by high skilled, high paying jobs, with employees earning 49% more than the average Canadian worker. The sector is also the leading R&D performing sector, with almost 30% of all Canadian private sector expenditures on R&D. Five of the ten largest R&D performers in Canada are ICT firms (BlackBerry, IBM Canada, BCE, Rogers and Ericsson Canada).

**ONTARIO OVERVIEW**

There are over 20,000 ICT firms in Ontario that make a significant contribution to Ontario’s economy. The industry accounted for 5.2% of Ontario’s GDP in 2015 ($32 billion). The ICT industry accounts for approximately 3.9% of total employment in the province; Ontario accounts for close to 50% of national ICT employment, with more than 280,000 people in 2015.

Ontario’s ICT industry has particular capacity in technologies related to telecommunications equipment and networks including: wireless devices and equipment, wired network equipment, and communications software technologies. The industry also has significant expertise in enterprise software (e.g. data management, mining and analysis and business intelligence), instruments, sensors and imaging technologies.

**The Greater Toronto Area (GTA)**

The GTA is by far the largest ICT cluster accounting for 30% of national ICT sector employment. The GTA has long included firms that provide leading-edge software and services specifically for financial services. As the second largest financial capital in North America, the move towards supplying FinTech solutions is a natural progression for the cluster. There are now more than 150 FinTech firms.

The GTA is also a national leader in big data analytics. IBM has located its centre of excellence in big data analytics in Ontario (with locations in GTA and Ottawa). The GTA is also widely recognized as a leader in the development of artificial intelligence (AI).

**Kitchener-Waterloo (K-W)**

The Kitchener-Waterloo (K-W) region is a global leader in many pioneering technologies, from research in quantum computing, to wireless technologies (e.g. BlackBerry) and software publishing (e.g., OpenText). Innovations originating at the University of Waterloo have been linked to hundreds of start-up companies.
in the region, some of which have become global technology leaders.

From 2010 to 2015, more than 1,800 technology start-ups were formed in K-W, raising $650 million in investment. K-W is also known as the “Quantum Valley” based on the strength of institutions such as the Perimeter Institute for Theoretical Physics, Institute for Quantum Computing, and Quantum Valley Investment.

**INDUSTRY SUPPORT**

Ontario is home to many incubators and accelerators, as well as world class research institutes that support Ontario firms advance their research and innovations.

**Greater Toronto Area (GTA):**

MaRS Discovery District brings together educators, researchers, social scientists, entrepreneurs and business experts in areas of medical research and other technologies. Creative Destruction Lab, launched at the University of Toronto’s Rotman School of Business is one of the world’s fastest-growing venture labs focusing on Machine Learning and Artificial Intelligence. Interactive Ontario is an industry trade organization focused on the interactive digital content industry.

**Kitchener-Waterloo Region (K-W):**

Perimeter Institute for Theoretical Physics, Institute for Quantum Computing, and Quantum Valley Investments focus on developing and commercializing quantum technologies. Communitech supports and fosters K-W tech companies at all stages of growth and development—from start-ups to rapidly-growing mid-sized companies and large global players.
Clean technology is being developed and adopted across many industrial sectors and by firms of all sizes in Canada. It appears in products, processes, services and other solutions undertaken by businesses in sectors as diverse as oil and gas, chemicals, aerospace, water and wastewater, software, construction, information and communications technology, automotive, environmental services, materials, and electricity generation.

Clean technology innovation can help countries to address climate change concerns and commitments as well as support economic growth. Many companies and industries are making clean technology and sustainability part of their fundamental business strategy. Industrial producers see clean tech as a means to improving productivity and cost competitiveness through more efficient use of inputs, enabling them to grow and seize new market opportunities.

**ONTARIO OVERVIEW**

Ontario is home to a large and fast growing clean technology footprint that has grown by one-third since 2009. Energy infrastructure and smart grid capabilities are core strengths in the province, reflecting Ontario’s recent investments in renewable energy and intermittent generation management/energy storage. Ontario is the first jurisdiction in North America to fully eliminate coal generation as a source of electricity — the single largest climate change initiative in North America.

Ontario’s renewable energy sector grew significantly in the last decade. There are over 1,000 wind turbines, 12 large scale solar farms — including Canada’s largest (Haldimand County/Samsung Grand Renewable Energy Park) — and more than 14,000 small-scale solar projects connected to the grid. Among North American jurisdictions, Ontario ranks second, behind only California, in total installed solar photovoltaic capacity.

Ontario also has noted strengths in water and wastewater treatment, supported by the province’s Water Opportunities Act (2010). Two leading water and wastewater treatment technologies — UV purification and membrane filtration — were developed in Ontario. Water technology clusters are evolving around the Greater Toronto Area, southwestern Ontario, and Ottawa, in close proximity to the province’s water research organizations.

**INNOVATION AND RESEARCH INSTITUTIONS**

Key organizations in Ontario which support the growth of the clean technology sector include but is not limited to MaRS Cleantech, Ontario
Centres of Excellence OCE (via programming such as TargetGHG), GreenCentre Canada, BLOOM, Centre for Research and Innovation in the Bioeconomy (CRIBE), Bioindustrial Innovation Canada (BIC), CleanTech North, and the Ontario Clean Technology Alliance.

In the water sector, WaterTap (the Water Technology Acceleration Project) supports Ontario’s water technology companies through direct assistance programming (such as sales and talent development support), facilitating connections to global markets and conducting research, policy work and advocacy. The Southern Ontario Water Consortium (SOWC) integrates all elements of water management into a single platform (watersheds, data integration, wastewater, ecotoxicology, drinking water and sensors).

GOVERNMENT POLICY AND SUPPORT
Building upon the momentum of COP21 in Paris in 2015, the First Ministers of Canada agreed through the Vancouver Declaration to develop a pan-Canadian framework for clean growth and climate change. Canada has also joined the Mission Innovation global partnership, aimed at doubling government investment in clean energy innovation over five years.

The Government of Ontario is implementing a Five Year Climate Change Action Plan 2016-2020, that builds on Ontario’s Climate Change Strategy, which sets GHG reduction targets and will introduce new programming to support the clean technology sector.
The life sciences sector is an important contributor to Canada’s innovation economy, engaging in creating the medical innovations that will improve health-care delivery and patient care in Canada and abroad.

The Canadian industry spans the research, development and manufacturing continuum. Industry players include small and medium-sized companies developing diagnostics, biopharmaceuticals, pharmaceuticals and medical devices, as well as global companies with research, development and manufacturing operations in Canada, serving both domestic and international markets. Contract service providers in Canada provide industry support for research and development, clinical trials and manufacturing. Canada’s world-class health research institutions and research networks are integral partners in research and knowledge translation.

CANADIAN STRENGTHS
The life sciences sector is composed of pharmaceutical and medical device companies and accounts for over $6.8 billion in GDP, $9.8 billion in exports, $1.8 billion in research and development (R&D). The sector employs over 80,000 Canadians in 830 firms. The Canadian life sciences sector is primarily composed of small and medium-sized enterprises (SMEs), many of which are at the R&D stage. There are also a large number of Canadian operations of foreign multi-national enterprises focused on sales in Canada, and many have important investments in both R&D and manufacturing. A significant portion of the sector has ties with the health research and academic communities. Important sub-sectors of the life sciences industry in Canada include pharmaceuticals and medical devices; notably, medical devices continue to increase in complexity and functionality with the inclusion of multiple technologies – such as advanced materials, microelectronics, biotechnology, and software and informatics - into a given product. There are also significant academic-industry partnerships in the health sciences sector.

Canada is globally recognized as one of the leaders in stem cell and regenerative medicine (SCRM) research. In this field, researchers are studying how stem cells (which can grow into different types of cells in the body) could be used to replace, repair, reprogram or renew diseased cells. This approach has the potential to enable development of new tissues or organs to replace diseased or damaged ones.

Canada is also a leader in neurology, with Canadian neuroscience researchers amongst the top published authors of academic papers, as well as in oncology research, with 3.4% of the world’s total oncology publications and 50% more citations than the global average. The Canadian academic community works collaboratively across disciplines, and most Canadian academic health research centres are co-located with tertiary health centres, which provides better opportunities to apply research in a practical setting (clinical research).

ONTARIO OVERVIEW
Utilizing a broader definition of the sector that also includes agricultural feedstock and chemicals, and research, testing and medical laboratories, Ontario ranks sixth in North America by the number of life sciences establishments and by employment, and contributes to approximately 50% of Canada’s life sciences economic activity with $38.3 billion in industry revenues in 2012. Drug and pharmaceutical manufacturing produce
the largest revenues (60%), followed by medical devices and equipment (26%). The sector employs an estimated 82,737 people at 1,900 companies, 99% of which are SME’s, with roughly 80% focused on research, testing, medical laboratories and medical devices and equipment. Eight of the ten largest pharmaceutical companies in the world and sixteen of the top twenty-five global medical device companies operate in the Greater Toronto Area, including Pfizer, Baxter, Siemens, Johnson & Johnson, Sanofi, GlaxoSmithKline, GE Healthcare and Medtronic.

Ontario’s strongest life sciences clusters are anchored in Toronto, in an area known as the Discovery District (with 37 research institutes and nine teaching hospitals), and in Hamilton, with six hospitals, six specialized healthcare facilities, and the Centre for Surgical Innovation (for novel medical robotic innovations). There are 24 research hospitals across Ontario.

GOVERNMENT SUPPORT
In addition to supporting a favourable business environment whereby the total business costs are the lowest in the G7, both the federal and Ontario governments have a number of programs that help Canadian life sciences SMEs particularly in the areas of financing for small firms, investing in research, commercializing research, encouraging investment attraction, and intellectual property.
AGRI-FOOD SECTOR

Canada’s agriculture sector contributes over $100 billion to the GDP annually (6.6% of GDP in 2014). The proportion of total land used for agricultural purposes in Canada, however, is relatively small, at about 64.8 million hectares, or 7% of Canada’s total land area.

The agriculture and agri-food sectors, including field crops, livestock and poultry, horticulture, dairy, seafood, and food and beverage processing, employ over 2.3 million people, or about one in every eight Canadians. In fact, food and beverage processing subsector is the second largest of all manufacturing industries in Canada, accounting for $105.5 billion (17%) of the manufacturing sector’s total shipments in 2014 and 2% of Canada’s GDP. This subsector employs 246,000 Canadians, and is the largest manufacturing employer in Canada.

Canada is the world’s fifth-largest exporter of agriculture and agri-food products after the European Union, the United States, Brazil and China, respectively. Canadian export sales grew to $61.9 billion in 2015, bringing Canada’s share of total world agriculture and agri-food exports to approximately 3.6%.

INNOVATION IN THE AGRI-FOOD SECTOR

The Canadian agriculture and agri-food system is a modern, complex, integrated and competitive supply chain that constantly adapts to changing consumer demands, technological advances, and globalization.

Farmers demonstrate innovation in areas such as new crop varieties and livestock breeds; or processes and practices such as soil management methods, fertilizer application methods, precision farming, and marketing methods. About half of Canadian farms (48%) adopted at least one type of new or significantly improved product, process or practice between 2011 and 2013.

ONTARIO OVERVIEW

The agri-food sector contributed 5.9% of Ontario’s GDP in 2015. Food and beverage manufacturing is a leading sub-sector in the province’s manufacturing industry - Ontario has the largest food and beverage processing sector in Canada and the third largest in North America ($38.5 billion in 2015, or 15% of total manufacturing sales). Ontario is home to almost 3,000 food and beverage processing businesses and employed approximately 95,000 people in 2015.

Food and beverage processing has a diversity of sub-sectors. In Ontario, the largest of these sub-sectors in 2015 (measured as a percentage of total provincial food and beverage manufacturing GDP – with the exception of wineries and distilleries) are meat product manufacturing (19.1%), bakeries and tortilla manufacturing (13.6%), other food manufacturing (13.4%) and breweries (13.1%).

In addition, Ontario has grown to become Canada’s largest wine region, providing more than 7,000 direct jobs at over 200 different wineries in Niagara, Prince Edward County, the Lake Erie north shore, and other regions. The Niagara wine industry contributes more than $3.3 billion to the Ontario economy.

Exports by Ontario’s food and beverage processing industry amounted to $14.1 billion in 2015, an increase of 12.9% since 2014. The sector has seen continual export growth, averaging 8% over the past five years. The United States is the province’s leading destination for food and
beverage manufacturing exports, accounting for 74% of total agri-food exports in 2015. Ontario’s food exports to markets other than the United States represent 25.7% of total exports in 2015. Top export markets include China (including Hong Kong), Japan, United Kingdom and the Netherlands.

**KEY GOVERNMENT AND INDUSTRY DEVELOPMENTS**

*Growing Forward 2 (GF2)* is a five-year (2013-2018), $3 billion dollar investment by federal, provincial and territorial (FPT) governments, and is the foundation for government agricultural programs and services. GF2 programs focus on innovation, competitiveness and market development.

In addition, Ontario is supporting the Premier’s [Agri-Food Challenge](#) of doubling the sectors annual growth rate and creating 120,000 jobs by 2020.
The financial services sector employs over 790,000 Canadians and accounted for 7% of Canada’s GDP in 2015 (Conference Board of Canada). The strong link between the financial services and IT sectors has led to the emergence of a sector called financial technology (FinTech).

It is important to note that FinTech is not a new phenomenon. The financial sector has always been an adopter of new technologies to enhance service delivery, such as ATM machines and Interac. What is new is the wave of innovative start-ups leveraging technologies to compete with established financial service institutions. FinTech companies, startups and established ICT companies, are offering product and service solutions that enhance consumer experience and/or lower costs. FinTech firms are also attracting investment capital, evidenced by the growth of clusters in Canada’s four financial centres: Toronto, Montréal, Calgary and Vancouver.

Canada is home to over 200 FinTech companies and the sector has attracted more than $1 billion in investments since 2010. Canada was the fourth largest global recipient of FinTech venture capital (VC), attracting US$117 million, in 2015, and receiving the fourth highest number of FinTech VC deals globally. Canada’s FinTech sector has already seen $47 million in venture capital investments in the first quarter of 2016.

**INNOVATION IN THE FINTECH SECTOR**

FinTech companies are transforming financial services, specifically applications related to: lending; payments; investment advisory services, or ‘robo-advisers,’ which offer tailored investment solutions to better meet investor needs; crowdfunding; and the adoption and usage of digital currencies, such as, ‘bitcoin’. The distributed ledger system ‘blockchain’ could significantly disrupt financial services sector by underpinning a more efficient financial architecture that provides enhanced security and rates at which transactions are completed (e.g. settlement and clearing, cross-border transfers).

Developments in the FinTech sector have pushed established financial service firms to innovate. For example, the Bank of Montreal developed a digital portfolio management system (SmartFolio) to compete with both traditional players and robo-advisers. Scotiabank and CIBC recently partnered with online loan providers to speed up small business loan applications and processing, giving Scotiabank customers access to loans of up to $100,000 in as little as seven minutes. RBC and MasterCard are working with Toronto-based Bionym for its Nymi wristband, which allows purchases to be charged to a credit card using a heartbeat identifier.

Canada’s big banks are also partnering with key stakeholders with mandates to strengthen Ontario’s innovation and entrepreneurial capacities, to innovate and explore FinTech related opportunities. For example TD Bank has partnered with Communitech, BMO has launched “The Next Big Idea in FinTech” program with Ryerson University’s Digital Media Zone, and CIBC has partnered with MaRS to create a corporate innovation hub.
ONTARIO OVERVIEW

Toronto is the business and financial capital of Canada and home to Canada's five largest banks. The city is consistently ranked as a top ten global financial centre.

With 75% of Canada's FinTech companies based in Toronto, the city boasts the most mature FinTech cluster in Canada, and the Toronto-Waterloo FinTech Corridor makes up part of the second largest IT cluster in North America.

Sectoral strengths are in the areas of crowd funding, institutional platforms (increasing the efficiencies of service and product delivery for financial institutions), cloud-based invoice billing and accounting, loans and credit offerings through peer-to-peer lending platforms, digital currency (cryptocurrencies), investment management, cybersecurity, and insurance tech.

KEY GOVERNMENT AND INDUSTRY DEVELOPMENTS

FinTech has been identified as one of the areas of strategic importance in the Government of Canada’s Innovation Agenda and the Government of Ontario committed to promoting the creation of an Ontario FinTech cluster of companies in its 2016 Budget.

A number of governmental agencies are promoting innovation and growth in the FinTech sector, such as the Federal Economic Development Agency for Southern Ontario which provides key funding to FinTech companies in the region. Canada’s Competition Bureau recently launched a market study to determine whether there is a need for regulatory reform relating to the FinTech sector and Canada’s central bank has even been studying and experimenting with digital currencies, though this is still in the early stages.
Mr. Acosta is the Undersecretary of the Federal and Sectorial Articulation at the National Ministry of Production in Argentina. Previously, he was Minister of Industry, Trade, Mining and Science for the Province of Córdoba and the Director of the Institute for Economic Investigations at the Córdoba Stock Exchange. Mr. Acosta serves as faculty professor at the Catholic University of Córdoba and the National University of Córdoba. He has a degree in economics from the National University of Córdoba.

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Priscila dos Santos

Public Policy Manager

priscila.santos@mdic.gov.br

Brazil

Dr. dos Santos is a Policy Specialist and Public Manager at the Ministry of Industry, Foreign Trade and Services in Brazil. She holds an influential role in several high-level federal councils related to biosafety, genetic resources and nanotechnology. Dr. dos Santos has a Bachelor of Science in biology and a Master of Science and Doctor of Philosophy in molecular genetics and evolution from Instituto de Biociências/Universidade de São Paulo.

Carlos Ladrix Oses

Director of Strategic Programs

carlos.ladrix@corfo.cl

Chile

Mr. Ladrix is the Director of Strategic Programs at the National Development Agency in Chile (CORFO) at the Ministry of Economy. He has been Director of the Technology Transfer Office at the Universidad Adolfo Ibáñez as well as the president of companies in areas such as mining training and distance learning education. Mr. Ladrix has a Bachelor of Science in civil engineering, a Master in Innovation and Technology Management from the University of Queensland and a Master in Business Management from the Universidad de Chile.
Fernando José Estupiñan  
**Deputy Secretary**  
festupinan@desarrolloeconomico.gov.co  

**Colombia**

Mr. Estupiñan is the Deputy Secretary for Economic Development of Bogotá. Previously, he was Deputy Director on Industrial and Trade policy in Colombia at the National Department of Planning. He has also been a professor at the National University of Colombia, a consultant on policy, innovation, entrepreneurship and tourism, and an advisor to the Presidency of the Republic of Colombia. He has a Master in Economic Science from The National University of Colombia and a Master of Science in economics from Warwick University.

Ximena Duque  
**Director, Competitive Businesses**  
empresascompetitivas@fedesoft.org  

**Colombia**

Ms. Duque is the Director of Competitive Businesses at Fedesoft, the biggest association for Colombia’s IT industry, with more than 450 member companies. Ms. Duque works on high impact projects, such as the design, implementation, management and sustainability of the first public-private alliance to monitor Colombia’s IT industry. Ms. Duque has a Bachelor of Arts in economics and international business and a master’s degree in international affairs.
Santiago Acosta Maya
Managing Director for Development and Innovation
santiago.acosta@epm.com.co

Colombia

Mr. Acosta Maya is the Managing Director for Development and Innovation at Empresas Públicas de Medellín (EPM), one of Colombia’s largest companies. He is also a member of the board of directors of RutaN, the Medellin innovation ecosystem organization, and of Interactuar, an economic development and social entrepreneurship organization. Mr. Acosta has a Master of Arts in industrial design and Master of Science in technology and innovation management.

Jorge Alberto Hernandez
Director of Innovandes
empresascompetitivas@fedesoft.org

Colombia

Mr. Hernandez is the Director of Innovandes, the Center of Innovation of the Universidad de Los Andes, as well as a professor. He has also been a trainer on innovation and business models strategies through Propais, a state company. Mr. Hernandez has a Bachelor of Architecture from the Universidad Piloto de Colombia and an Executive Master of Business Administration from the Universidad de Los Andes.
Ms. Daza is the Director of Business Development at the Barranquilla Chamber of Commerce, where she leads three programs focused on high growth entrepreneurship, international markets and business development services for clusters. She was also Director of Cooperation and Agreements at Proexport Colombia, Director of Corporate Tourism at Proexport Miami and General Manager of iNNpulsa Mipyme, a fund to foster innovation in SMEs and entrepreneurs. She has a Bachelor of Science in communications.

Mr. Jiménez Silva is the Director of the Agency for Entrepreneurship Management and an Innovation Management Professor at the University of Costa Rica (UCR). Previously, he was Director of UCR Technology Transfer and Licensing Office. Mr. Jiménez Silva graduated from the University of Costa Rica as a food engineer and has a Master of Business Administration from the Technology Institute of Costa Rica.
Roselyn V. Paul

Minister of Commerce, Enterprise and Small Business Development

ministercommerce@dominica.gov.dm

Dominica

The Honourable Roselyn Paul is Minister of Commerce, Enterprise and Small Business Development for Dominica. Previously, she was Acting Director for the Bureau of Gender Affairs as well as Manager of the Waitukubuli National Trail. Minister Paul has a Master of Science in rural development, diplomas in social work and gender and development, and advanced certificates in business management development, teacher education and climate change.

Tomas Domingo Guzmán

Director, Innovation and Productive Development

tguzman@economia.gov.do

Dominican Republic

Mr. Guzmán is the Director of Innovation at the Ministry of Economy, Planning and Development of the Dominican Republic. He has published widely in a major Dominican journal (Listin Diario) on technological reform, modernization of the Dominican State and economic recovery. Mr. Guzmán has Masters’ degrees in public administration and accounting tax, and has completed a degree in computer systems engineering.
Mauricio A. Villavicencio  
**Advisor**  
mvillavicenciog@gmail.com

Ecuador

Mr. Villavicencio is an Advisor to the Minister of Education of Ecuador and the National Institute of Educational Evaluation on the evaluation of international education projects, students and teachers. He was Director General of Administration at the National Polytechnic School and Undersecretary of the Ministry of Social Inclusion. He has also given lectures in economics and management at the Polytechnic University Salesian. Mr. Villavicencio has a Bachelor of Arts in administration and economics and a Master of Business Administration in finance.

Sheyla Carmen Rivera  
**Chief Executive Officer**  
sheyla.rivera@yacaretech.com

Ecuador

Ms. Rivera is the Founder and the CEO of Yacaré Technology. She is also a developer of prototypes for the company, which she designs, constructs, tests and implements. Before Yacaré, Ms. Rivera worked for Kruger, undertaking projects for the biggest supermarket chain in Ecuador (Supermaxi). Ms. Rivera is a systems engineer by training and has a graduate degree in management and a diploma in Java.
Khesha Mary Mitchell
Vice President of Business Development
kmitchell@grenadaidc.com
Grenada

Ms. Mitchell is the Vice President of Business Development at the Grenada Industrial Development Corporation. She is the Director of the project on increasing the value added of the nutmeg sector in Grenada and the Chairman of the committee on craft standards. She holds a Bachelor in Business Administration from St George’s University in Grenada and a Master in Business Administration from the University of Wales.

Fernando López
President, Chamber of Industry of Guatemala
presidencial@aila.la
Guatemala

Mr. López is the President of Guatemala’s Chamber of Industry. He is also President of the Latin American Industrial Association (AILA) and Director of the national association of industrial, agricultural and commercial chambers. Mr. López is also an entrepreneur and founding partner and director of several companies in the plastics sector. Mr. Lopez is a trustee and MBA professor at the Universidad Francisco Marroquíin. He was also Dean of the Chemical Industrial Engineering program of Universidad Rafael Landivar. He has a degree from Universidad Rafael Landivar.
Desiree Tejada

Dean of Engineering and Architecture

dtejada@unitec.edu

Honduras

Dr. Tejada is the Dean of Engineering and Architecture at the Universidad Tecnológica Centroamericana, where she administers eight academic programs. Previously, she was a professor at Tec de Monterrey in Mexico. Dr. Tejada earned a Bachelor of Science in industrial and systems engineering, a Master of Science in engineering management and a Doctor of Philosophy in industrial and systems engineering.

Delaine Patricia Morgan

Manager, Export and Market Development

dmorgan@jamprocorp.com

Jamaica

Ms. Morgan is the Senior Manager at Jamaica’s National Investment and Export Promotion Agency, where she was recently assigned to create and manage a business information services department. She previously held executive and managerial positions in the organisation. Ms. Morgan has a Bachelor of Arts in history and economics and a Master’s degree in international business.
Michelle Ann Chong

President of the Jamaica Exporters Association
michellechong@honey-bun.com

Jamaica

Ms. Chong is the President of the Jamaica Exporters Association (JEA). She is cofounder and Chief Executive Officer of Honey Bun Ltd., the fastest growing wholesale bakery in Jamaica which exports to Canada, the UK, Caribbean and USA. The pastry and snack bakery was publicly listed on the Jamaica Junior Stock Exchange in 2011. Ms. Chong also sits on the Board of Directors of Trade and Investment Jamaica. She received a degree in psychology from York University in Toronto.

Lilia Arechavala

Chief Operating Officer
liliana.reyes@inadem.gob.mx

Mexico

Ms. Arechavala is the Chief Operating Officer of the Mexico-United States Foundation for Science (FUMEC). She launched the first six international accelerators of the TechBA Program. She also coordinated a program supported by CONACYT to develop 32 state innovation agendas and 3 regional agendas. Ms. Arechavala has a Bachelor’s degree in pedagogy from the National Autonomous University of Mexico and a Master in Educational Administration from McGill University.
Sara Rocio Abarca Lopez
Deputy Director of Planning
sara.abarca@impi.gob.mx

Ms. Abarca Lopez is Deputy Director of Planning at the **Mexican Institute of Industrial Property**, which administers the industrial property system at the national level. She currently participates in the Inter-Sectorial Committee on Innovation. Ms. Abarca Lopez has a Bachelor in Business Administration from the Monterrey Institute of Technology and a Master of Business Administration from the Technological Institute of Tlalnepantla in Mexico.

Miguel Angel Sanabria
Vice President
sanabria@kaelsoft.com

Mr. Sanabria is the Vice President of Smart Regionalization in MxTi at the **National Council of Software Clusters**, leading cross strategy between the information technology industry and the automotive industry in the region Bajío in Mexico. Mr. Sanabria is also an ex-president, founder and partner of Aguascalientes iT Cluster and holds a seat on the executive committee.
Miguel Angel Esbrí

Executive Secretary, Competitiveness and Logistic

mesbr@presidencia.gob.pa

Panama

Mr. Esbrí is the Executive Secretary to the Secretariat of Economic Affairs and Competitiveness. He has been advisor to the Vice President and Chancellor of the Ministry of Foreign Affairs and was a professor of roman law at the Universidad Católica Santa María La Antigua. Mr. Esbrí has a Bachelor of Law from the University of Valencia and Murcia, a Master of Business Administration from the University Francisco de Vitoria, a Master of International Business from Universitat Internacional de Catalunya and a Doctor of Philosophy in civil and international law from Universitat Jaume I.

Leticia Romero

General Director, ICT in Education and Digital Inclusion

lromero@senatics.gov.py

Paraguay

Ms. Romero is the Head of ICT in Education and Digital Inclusion of the National Secretariat for Information and Communication Technologies. She is the founder of GirlsCode, Ceibaljam and RAP Ceibal, three non-profit organizations that aim to reduce the gender gap in science, technology and innovation. She has a Bachelor of Science in computer engineering and a Master of Science in information technology and communication management.
Karin Ursula Fassbender

Deputy Director of Innovation and Technology Transfer
kfassbender@concytec.gob.pe

Ms. Fassbender is the Deputy Director of Innovation and Technology Transfer at the National Council of Science, Technology and Technological Innovation of Peru (CONICYT). She has also worked in distribution for a leading multinational corporation in the field of mass consumer products and development of investment and construction projects in Germany.

Renato Alonso Poire

General Director, ICT in Education and Digital Inclusion
rpoire@mef.gob.pe

Mr. Poire is the Leader of the Internationalization Chapter at the National Competitiveness Council of Peru, where he is responsible for ensuring compliance with the goals of the Competitiveness Agenda of Peru 2014-2018. He has a Bachelor of Science in business administration at the Universidad del Pacífico, with graduate studies in international economic relations at the American University.
Gale Tracy Rigobert  
Minister of Education, Innovation, Gender Relations and Sustainable Development  
eduminister@education.gov.lc

Saint Lucia  
The Honourable Gale Rigobert was appointed Minister for Education, Innovation, Gender Relations and Sustainable Development in June 2016. Minister Rigobert made history in 2014 by becoming the youngest and the first female Leader of the Opposition in parliament in Saint Lucia. She has been an Ambassador for Peace with the Universal Peace Federation since 2013.

Jerome Kennedy  
Minister of Education, Science and Technology  
LorettaMaycock@bahama.gov.bs

The Bahamas  
The Honourable Jerome K. Fitzgerald was appointed Minister of Education, Science and Technology of the Commonwealth of The Bahamas in 2012. He previously served as a Senator, Deputy Chairman and Council Member of the Board of Directors of The College of The Bahamas. Minister Fitzgerald played a key role in the establishment of The Bahamas national high school diploma and he currently serves as the Chairman of Commonwealth Education Ministers.
Carla Mc Knight

Incubator Manager
cmcknight@ibis.tt

Trinidad and Tobago

Ms. Mc Knight manages Trinidad and Tobago’s National Integrated Business Incubator System, where she is responsible for pre-incubation and overall management of the incubator programme. Ms. Mc Knight holds a Bachelor of Arts in business management and a Master of Business Administration.

Timothy Edward Kelley

President and Chief Executive Officer
tim@ivedc.com

United States of America

Mr. Kelley is the President and Chief Executive Officer of the Imperial Valley Economic Development Corporation. Mr. Kelley is also Vice President of International Trade and Investment of Team California and Vice President of the U.S. Department of Commerce San Diego-Imperial District Export Council. He serves on several boards of directors in the region related to economic development and clean technology.
Paul Jadin
President and Chief Executive Officer
pjadin@madisonregion.org

United States of America

Mr. Jadin is the President and Chief Executive Officer of Madison Region Economic Partnership. Previously, he served as Wisconsin’s Secretary of Commerce and President of the Wisconsin Economic Development Corporation. He was also mayor of the City of Green Bay. Mr. Jadin earned a Bachelor of Arts in political science from Northwestern University and a Master of Science in public administration from Florida State University.

Michael P. Gay
Senior Vice President of Economic Development
michaelg@madisonregion.org

United States of America

Mr. Gay is Senior Vice President for Economic Development for the Madison Region Economic Partnership. Previously, he was the Director of the Center for New Ventures at the University of Wisconsin Platteville. Mr. Gay has a Bachelor of Science in public and environmental administration from the University of Wisconsin Green Bay and a Master of Science in urban and regional planning from the University of Wisconsin Madison.
Victor Garza

Director of Existing Business, Talent and Entrepreneurship

victorg@greatersanmarcostx.com

United States of America

Mr. Garza is the Director of Existing Business, Talent and Entrepreneurship at the Greater San Marcos Partnership. Previously, Mr. Garza was the Executive Director of the Refugio County Community Development Foundation and a policy fellow with the National Sustainable Agriculture Coalition. Mr. Garza has Bachelors’ degrees in political science and criminal justice from the University of Texas at San Antonio and a Juris Doctorate from Syracuse University.

Renee Kelly

Director of Economic Development Initiatives

rwkelly@maine.edu

United States of America

Ms. Kelly is the Director of Economic Development initiatives for the University of Maine. Previously, Ms. Kelly developed training products for Manpower of Connecticut, worked for a financial services start-up company in California and served as an aide to then U.S. Representative Olympia J. Snowe. She has a Bachelor of Arts from Smith College and a Master of Arts from the University of Maine.
Kevin O’Shea

Vice President
kevino@azcommerce.com

United States of America

Mr. O’Shea is the Vice President of International Trade at the Arizona Commerce Authority. He has practiced law at a large international firm, focusing on business immigration and advice for multinational companies in the automotive, banking, computer and semiconductor sectors. He has also worked in commercial law reform in the developing world. Mr. O’Shea has an undergraduate degree in cultural anthropology from Brown University and a law degree from the University of California Berkeley.

Lesley Varghese

Mayor’s Chief of Staff
lesley.varghese@austintexas.gov

United States of America

Ms. Varghese is Chief of Staff to the Mayor of Austin, Texas. She is also of counsel to Jung Ko, PLLC and the former Executive Director and General Counsel of the Asian American Resource Center. Ms. Varghese attended the University of Texas on a National Merit Scholarship and completed her law degree at American University.
Ms. Volpe is the Manager of the Tallahassee-Leon County Office of Economic Vitality. Previously, she was Senior Marketing Director at the Central Florida Development Council, External Affairs Coordinator at Florida State University and Director of Programs and Communications at the Leon County Research and Development Authority. Ms. Volpe holds a Bachelor of Arts in political science and a Master of Arts in public administration.

Ms. Palacio is the Economic Development Coordinator at the Office of Economic Development for the Orange County Government in Orlando, Florida, where she grows strategic relationships with companies and economic development organizations. Ms. Palacio has an undergraduate degree in international studies from the University of South Florida and Master of Public Administration from the University of Central Florida.
Joe Krier

Councilman

United States of America

Councilman Joe Krier currently represents San Antonio District 9 to which he was appointed by City Council to fill the District 9 vacancy in November 2013 and was later elected to the District 9 position in May of 2014. Krier was the Founding Chairman and Board member of Texans for Safe Reliable Transportation and served as Chairman of the San Antonio Mobility Coalition (SAMCo). Krier is a graduate of UT-Austin, where he received his undergraduate and law degrees.

Skadi Tirpak

Economic Development Manager

United States of America

Ms. Tirpak is the Economic Development Manager at the City of San Antonio, Texas. Previously, she worked in economic affairs at the British Consulate-General in New York City and the Netherlands Consulate-General in Sydney, Australia. Ms. Tirpak completed a Bachelor of Science with honours and a Master of Science degree in the United Kingdom.
Carmen Sánchez Balcarce
Manager, Promotion of Entrepreneurship

Ms. Sánchez Balcarce is the Manager for the Promotion of Entrepreneurship at the National Directory of Handicrafts and Small and Medium Size Enterprises of the Ministry of Industry, Energy and MINING of Uruguay. She was also technical coordinator of a project to support the Uruguayan Entrepreneurship Activity, part of the United Nations Industrial Development Organization. Ms. Sánchez Balcarce has a degree in economics from the University of the Republic of Uruguay.

Ole Janssen
Director of Innovation and Technology Policy

Mr. Janssen is the Director of Innovation and Technology Policy at the Federal Ministry for Economic Affairs and Energy in Germany. He was also Director of the Office of the Minister and Policy Planning and Director of General Economic Policy. Previously, he was Director at the State Chancellery of Lower Saxony and Academic Assistant for the economics chair at Greifswald University. Mr. Janssen graduated in economics from Hannover University and completed his doctorate degree on currency board systems.
Keonyeong Jeong  
**Deputy Director**

Mr. Jeong is the Deputy Director of the Ministry of Science, ICT and Future Planning of the Republic of Korea. At the Presidential Transition Committee in 2013, he participated in designing new government organizations and the national agenda for the new government. He currently attends graduate school at Columbia University’s School of International and Public Affairs.

Chang Kyung Kim  
**Former Acting President of the National Research Foundation**

Dr. Kim was until recently Acting President of the National Research Foundation of the Republic of Korea. Previously, Dr. Kim was the Vice Minister for Science, Technology and Higher Education and the President’s Science and Technology Advisor. He is a distinguished professor of material engineering at Hanyang University. Dr. Kim has a Bachelor of Science and Master of Science in material science and engineering from Seoul National University and a doctoral degree in material engineering from Massachusetts Institute of Technology.
Sunhak Cho  
Counselor for Science, Technology and Innovation  
Republic of Korea

Mr. Cho is the Counselor for Science, Technology and Innovation at the Korean Embassy in the U.S. He recently established Korea Innovation Centers in Washington D.C. and in Silicon Valley. He has engineering degrees from Korea Advanced Institute of Science and Technology and the University of California Berkeley and a Master of Public Administration from Harvard University.

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Israel Shamay  
Executive Director of Strategic Initiatives and Head of the Americas Operations  
Israel

Mr. Shamay is the Executive Director of Strategic Initiatives and Head of the Americas Operations of the Israel Innovation Authority. He also advises the Chief Scientist and the board of governors of the US-Israel BIRD foundation, Canada-Israel Industrial R&D Foundation and US-Israel Science and Technology Foundation. Mr. Shamay has a Master of Business Administration from Tel-Aviv University and a Bachelor of Science from the Technion in Haifa, Faculty of Information Systems Engineering.
Nissan Amdur

Counselor for Political Affairs and Trade Officer

Israel

Mr. Amdur is the Minister-Counselor for Political Affairs and Trade Officer at the Israeli Embassy in Toronto. Previously, he served three years as Deputy Chief of Mission at the Embassy of Israel in Cairo, four years in charge of Public Affairs and Interfaith Relations in Moscow, and two years holding the portfolio of Middle Eastern Affairs in Ankara.
6th ACE SPEAKER CONTACT INFO

**SUNDAY, SEPTEMBER 25**

1. **6th ACE Welcome Reception** at Mercatto Restaurant

   Mamdouh Shoukri, President and Vice-Chancellor of York University
   
   president@yorku.ca

**MONDAY, SEPTEMBER 26**

1. **Opening Ceremony** at the MaRS Discovery District

   Ilse Treurnicht, CEO of MaRS Discovery District
   
   iltreurnicht@marsdd.com

   Meric Gertler, President of the University of Toronto
   
   Meric.gertler@utoronto.ca

2. **Bus ride to Lakeview Water Treatment Facility**

   Brenda Lucas, Executive Director of the Southern Ontario Water Consortium
   
   brenda@sowc.ca
3. Tour of Lakeview Water Treatment Facility

Jennifer Lanthier, Project Manager of the Water Treatment Capital for the Region of Peel
jennifer.lanthier@peelregion.ca

4. Working Lunch: Presentations from water technology companies at Lakeview Water Treatment Facility

Josh Chong, Communications Strategist at WaterTAP
josh.chong@watertapontario.com

Fabian Papa, Consulting Engineer at Hydratech
f.papa@hydratek.com

Mike Stadnyckyj, Director of Marketing and Communications at Echologics
MStadnyckyj@echologics.com

Ted Mao, VP of Research at Trojan Technologies
tmao@trojanuv.com

5. Life Sciences Program: Welcome and Scene-Setting Remarks at JLABS @ Toronto

Rebecca Yu, Head of JLABS @ Toronto
ryu6@its.jnj.com
6. University of Toronto and Affiliated Hospitals: Research Collaboration Models at JLABS @ Toronto

Vivek Goel, VP of Research and Innovation at the University of Toronto
vp.research@utoronto.ca

Lillian Siu, Director of the Phase I Program at the Princess Margaret Cancer Centre, and Professor at the Faculty of Medicine at the University of Toronto
lillian.siu@uhn.ca

Peter St. George-Hyslop, Director of the Tanz Centre for Research in Neurodegenerative Diseases, and Professor at the Faculty of Medicine at the University of Toronto
p.hyslop@utoronto.ca

Peter Zandstra, Executive Director of Medicine by Design at the Institute for Biomaterials & Biomedical Engineering, and Professor at the Faculty of Applied Science & Engineering at the University of Toronto
peter.zandstra@utoronto.ca

7. Panel on Commercialization of Science Innovations at JLABS @ Toronto

Rafi Hofstein, President and CEO of MaRS Innovation
Rhofstein@marsinnovation.com

William Charnetski, Chief Health Innovation Strategist for the Government of Ontario
william.charnetski@ontario.ca

Jennifer Moody, VP of Commercialization at the Centre for Commercialization of Regenerative Medicine
jennifer.moody@ccrm.ca

Linda Maxwell, Founding and Managing Director of the Biomedical Zone at Ryerson University
linda.maxwell@ryerson.ca
8. Medical Devices Demos at JLABS @ Toronto

Cynthia Goh, Academic Director of the Banting & Best Centre for Innovation & Entrepreneurship at the University of Toronto
cgoh@chem.utoronto.ca

Tom Waddell, CEO of XOR—Labs Toronto Inc
tom.waddell@xorlabstoronto.com

Jan Andrysek, Chief Technology Officer of Legworks
JAndrysek@hollandbloorview.ca

Josh Richmond, Director of Engineering at Synaptive Medical Inc.
josh.richmond@synaptivemedical.com

Arjun Mali, Co-founder and Chief Financial Officer at iMerciv Inc.
arjunmali@imerciv.com

Bin Liu, Co-founder and CEO at iMerciv Inc.
binliu261@gmail.com

Rebecca Yu, Head of JLABS @ Toronto
ryu6@its.jnj.com
TUESDAY, SEPTEMBER 27

1. Welcome Remarks at the Rotman School of Management

Tiff Macklem, Professor and Dean of the Rotman School of Management at the University of Toronto
macklem@rotman.utoronto.ca

2. Panel on Women in Science and Entrepreneurship at the Rotman School of Management

Sarah Kaplan, Director of the Institute for Gender and the Economy at the Rotman School of Management at the University of Toronto
Sarah.Kaplan@Rotman.Uttono.Ca

Genviève Tanguay, VP of Emerging Technologies- National Infrastructure and Future Technologies at the National Research Council
genevieve.tanguay@nrc-cnrc.gc.ca

Cristina Amon, Dean of the Faculty of Applied Science & Engineering at the University of Toronto
cristina.amon@utoronto.ca

3. Scene setting remarks on AI, big data, robotics at the Rotman School of Management

Richard Zemel, Professor at the Department of Computer Science at the Faculty of Arts & Science at the University of Toronto
richard.zemel@utoronto.ca
4. Panel on Artificial Intelligence, Big Data and Robotics at the Rotman School of Management

Richard Zemel, Professor, Department of Computer Science
richard.zemel@utoronto.ca

Elissa Strome, Executive Director of the Southern Ontario Smart Computing Innovation Platform
elissa.strome@utoronto.ca

Goldie Nejat, Director of the Institute for Robotics & Mechatronics, Canada Research Chair in Robots for Society, and Associate Professor at the Faculty of Applied Science & Engineering at the University of Toronto
nejat@mie.utoronto.ca

Raquel Urtasun, Canada Research Chair in Machine Learning and Computer Vision, and Associate Professor at the Department of Computer Science at the University of Toronto
urtasun@cs.toronto.edu

5. Robotics Demos at the Rotman School of Management

Goldie Nejat, Canada Research Chair in Robots for Society, University of Toronto
nejat@mie.utoronto.ca

6. Robotics Demos at the University of Toronto

Hugh Liu, Director of the Centre for Aerial Robotics Research & Education, and Professor at the University of Toronto Institute for Aerospace Studies
hugh.liu@utoronto.ca

Tim Barfoot, Professor at the University of Toronto Institute for Aerospace Studies
tim.barfoot@utoronto.ca
7. Panel on Fintech at the Bank of Montreal

**Kevin Lynch**, Vice Chair of the BMO Financial Group and former Clerk of the Privy Council Office
Joanne.Malm@bmo.com

**Cameron Fowler**, Group Head, Canadian Personal and Commercial Banking, BMO Group
Cameron.Fowler@bmo.com

**Vuk Magdelinic**, Chief Executive Officer, Overbond
vuk.magdelinic@overbond.com

**Pauline Shum-Nolan**, President and Co-Founder, PW Portfolio Analytic and Professor of Finance, York University
pshum@schulich.yorku.ca

**Mike Katchen**, Founder and CEO, Wealthsimple
mike@wealthsimple.com

**Tiff Macklem**, Professor and Dean of the Rotman School of Management at the University of Toronto
macklem@rotman.utoronto.ca

8. Overview of Canada’s Digital Media Sector at the Ryerson University Student Learning Centre

**Abdullah Snobar**, Executive Director of the Ryerson Digital Media Zone
asnobar@ryerson.ca
9. Ontario Network of Entrepreneurs (ONE) and Peer-to-Peer Meetings
Launch Zone, Ryerson University Student Learning Centre

**Cynthia Goh**, Director, Impact Centre, University of Toronto
cgoh@imc.utoronto.ca

**Jeremy Laurin**, President & CEO, ventureLAB
jlaurin@venturelab.ca

**Chris Plunkett**, Director of External Relations, Communitech
chris.plunkett@communitech.ca

**Earl Mille**, Director, Global Initiatives, MaRS
emiller@marsdd.com

**John MacRitchie**, Senior Director Ryerson University
jmacritchie@ryerson.ca

**Brian MacDonald**, Senior Business Advisor Ministry of Economic Development and Growth/Ministry of Research, Innovation and Science
Brian.MacDonald1@ontario.ca

**Kevin Boon**, Client Services Manager, Innovation Guelph
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**Karen Dubéau**, Director of Partner Engagement, ventureLAB
kdubéau@venturelab.ca

**Amie Sergas**, Director, MaRS
asergas@marsdd.com

**Catherine Lee**, Senior Policy Advisor Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
Catherine.k.lee@ontario.ca

**Leon Williams**, Manager (Central Region) Ministry of Economic Development and Growth/Ministry of Research, Innovation and Science
Leon.Williams@ontario.ca

**Claudia Krywiak**, Vice President Ontario Centres of Excellence
Claudia.krywiak@oce-ontario.org

**Kristel Manes**, Director, Innovation Guelph
kristel.manes@innovationguelph.ca

**Roger Pan**, Senior Policy Advisor Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
Roger.Pan@ontario.ca

**Cassandra Baccardax**, Senior Advisor Brampton Economic Development
cassandra.baccardax@brampton.ca

**Karen Greve Young**, Vice President MaRS
kgreveyoung@marsdd.com

**Rob Schock**, Senior Business Advisor Ministry of Economic Development and Growth/Ministry of Research, Innovation and Science
Rob.Schock@ontario.ca

**Peter McFadzean**, Manager Partnerships Ontario Centres of Excellence
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Nav Kaur, Business Development Manager Ontario Centres of Excellence
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Preet Jaswal, Senior Policy Advisor Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
Preet.Jaswal@ontario.ca

Lyn Doering, Manager, Entrepreneurship Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
lyn.doering@ontario.ca

Rebecca Tran, Business Development Manager Ontario Centres of Excellence
Rebecca.tran@oce-ontario.org

Carrie Burd, Director, Entrepreneurship, Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
Carrie.Burd@ontario.ca

Bill Mantel, Assistant Deputy Minister Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
Bill.Mantel@ontario.ca

Tiffany Mah, Manager Ministry of Research, Innovation and Science/Ministry of Economic Development and Growth
tiffany.mah@ontario.ca
WEDNESDAY, SEPTEMBER 28

1. Welcome to Waterloo at the University of Waterloo
   Feridun Hamdullahpur, President and Vice-Chancellor of the University of Waterloo
   president@uwaterloo.ca
   Sandra Banks, Vice President of University Relations at the University of Waterloo
   vpuniversityrelations@uwaterloo.ca

2. STEM Education at the University of Waterloo
   Raouf Boutaba, Associate Dean of the Faculty of Mathematics at the University of Waterloo
   rboutaba@uwaterloo.ca
   Pearl Sullivan, Dean of the Faculty of Engineering at the University of Waterloo
   engdean@uwaterloo.ca
   Bob Lemieux, Dean of the Faculty of Science at the University of Waterloo
   lweber@uwaterloo.ca

3. Presentation on Co-op Education Program at the University of Waterloo
   Peggy Jarvie, Executive Director of Co-operative Education and Career Action at the University of Waterloo
   pjarvie@uwaterloo.ca
4. Presentation on the Accelerator Centre and Velocity Garage at the University of Waterloo

Joani Gerber, Vice-President of Client Experience and Partner Relations at the Accelerator Centre
jgerber@acceleratorcentre.com

Jay Shah, Director of Velocity at the University of Waterloo
jay.shah@uwaterloo.ca

5. Summary and wrap-up, University of Waterloo, Sedra Student Design Centre, E5, 2nd floor

Sandra Banks, Vice President, University Relations, University of Waterloo
vpuniversityrelations@uwaterloo.ca

6. Welcome and Communitech Overview at Communitech

Iain Klugman, CEO of Communitech
iain@communitech.ca

7. Panel: From Start-up to Global in the Waterloo Region Innovation Ecosystem at Communitech

Nancy Horsman, President, FedDev Ontario
chantale.pharand3@canada.ca

Adam Howatson, Chief Marketing Officer at Open Text
ahowatso@opentext.com

www.riacevents.org/ace/canada2016
8. Panel on Role of Government in the Waterloo Region innovation eco-system at Communitech

Avvey Peters, Vice-President of External Relations at Communitech and Managing Director of the Canadian Digital Media Network
Avvey.Peters@communitech.ca

Iain Klugman, CEO of Communitech
iain@communitech.ca

9. Tour of Research Advancement Centre 2

David Cory, Professor of Chemistry at the Institute for Quantum Computing at the University of Waterloo and Canada Excellence Research Chair in Quantum Information
dcory@uwaterloo.ca
1. Welcome and Overview of the Perimeter Institute at the Perimeter Institute

John Matlock, Director of External Relations and Public Affairs at the Perimeter Institute
jmatlock@perimeterinstitute.ca

Michael Duschenes, Managing Director and Chief Operating Officer at the Perimeter Institute
mduschenes@perimeterinstitute.ca

2. Presentation on the Quantum Valley Eco-System at the Perimeter Institute

Mike Lazaridis, Co-Founder of Quantum Valley Investments and BlackBerry

3. Panel on the Quantum Valley Eco-System at the Perimeter Institute

Neil Turok, Director of the Perimeter Institute
acastell@perimeterinstitute.ca

Robert Crow, Executive in Residence with the Institute for Quantum Computing at the University of Waterloo
robert.crow@uwaterloo.ca

Micheál J. Kelly, Dean of the Lazaridis School of Business and Economics at Wilfrid Laurier University
mikelly@wlu.ca

Mike Lazaridis, Co-Founder of Quantum Valley Investments and BlackBerry
4. Welcome and Introductions at the McMaster Automotive Resource Centre

Patrick Deane, President of McMaster University
presdent@mcmaster.ca

Nick Markettos, Assistant VP of Research Partnerships, McMaster University
markett@mcmaster.ca

5. Advanced Manufacturing Tours at the McMaster Automotive Resource Centre

Rob Baker, Vice-President of Research at McMaster University
vprsrch@mcmaster.ca

Connie Barry, Operations Manager of the Centre for Automotive Materials and Corrosion at McMaster University
cbarry@mcmaster.ca

Saeid Habibi, Professor of Mechanical Engineering, Senior Industrial Research Chair in Hybrid Technologies sponsored by NSERC and Ford Canada, and Director of the Centre for Mechatronics and Hybrid Technology at McMaster University
habibi@mcmaster.ca

Joey Kish, Associate Professor of Materials Science & Engineering at McMaster University
kishjr@mcmaster.ca

Joseph McDermid, Associate Professor of Mechanical Engineering and NSERC/Stelco Industrial Research Chair in Steel Product Application at McMaster University
mcdermid@mcmaster.ca

Mark Lawford, Professor of Computing Software and Associate Director of the McMaster Centre for Software Certification
lawford@mcmaster.ca
6. Advanced Manufacturing Tours at CanmetMATERIALS

Philippe Dauphin, Director General, CanmetMATERIALS
philippe.dauphin@canada.ca

7. Panel on the Manufacturing Industry in Transition, at McMaster University

Sean Donnelly, President and CEO of ArcelorMittal Dofasco
sean.donnelly@arcelormittal.com

John Tomescu, President of FibraCast
john@fibracast.com

Hussam Haroun, CEO of Cinnos
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Lucy Casacia, VP of Cities and Infrastructure Project at Siemens Canada
john@fibracast.com

8. Life Sciences Presentations and Tours, Atrium Building, McMaster Innovation Park

Robert Pelton, Canada Research Chair in Interfacial Technologies, and Professor of Chemical Engineering at McMaster University
sean.donnelly@arcelormittal.com

Heather Sheardown, Canada Research Chair in Ophthalmic Biomaterials and Drug Delivery Systems and Professor of Chemical Engineering at McMaster University
sheardow@mcmaster.ca
Hertzel C. Gerstein, Professor of Medicine and Epidemiology & Biostatistics, and Deputy Director of the Population Health Research Institute at McMaster University
Gerstein@mcmaster.ca

Sonia Anand, Canada Research Chair in Ethnic Diversity and Cardiovascular Disease, Associate Director of the Population Health Research Institute and Professor of Medicine at McMaster University
anands@mcmaster.ca

Stephen Collins, Professor of Medicine, Director of the Farncombe Family Digestive Health Research Institute and Associate Dean of Research at the Faculty of Health Sciences at McMaster University
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Alan Wassyng, Associate Professor of Computing and Software, Director of the McMaster Centre for Software Certification, and Acting Director of the Software Quality Research Laboratory at McMaster University
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Lori Burrows, Professor of Biochemistry & Biomedical Sciences at McMaster University
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Alan Wassyng, Associate Professor of Computing and Software, Director of the McMaster Centre for Software Certification, and Acting Director of the Software Quality Research Laboratory at McMaster University
wassyn@mcmaster.ca

Lori Burrows, Professor of Biochemistry & Biomedical Sciences at McMaster University
burrows@mcmaster.ca
1. Welcome and Overview of Vineland Research and Innovation Centre at Vineland Research and Innovation Centre

Jim Brandle, CEO of Vineland Research and Innovation Centre
jim.brandle@vinelandresearch.com

2. Tour of Vineland Research and Innovation Centre

Amy Bowen, Research Program Leader of Consumer Insights at the Vineland Research and Innovation Centre
amy.bowen@vinelandresearch.com

James Toivonen, Lead Grower of the Greenhouse at the Vineland Research and Innovation Centre
james.toivonen@vinelandresearch.com

Daryl Somers, Research Director of Applied Genomics at the Vineland Research and Innovation Centre
daryl.somers@vinelandresearch.com

Gideon Avigad, Research Program Leader of Robotics & Automation at the Vineland Research and Innovation Centre
gideon.avigad@vinelandresearch.com

3. Welcome to Niagara College

Dan Patterson, President of Niagara College
dpatterson@niagaracollege.ca
4. Panel on Agri-Food Innovation at Niagara College

**Craig Youdale**, Dean of the Canadian Food and Wine Institute and Manager of the Junior Culinary Team Canada at Niagara College
cyoudale@niagaracollege.ca

**Debbie Inglis**, Director of Brock University’s Cool Climate and Oenology and Viticulture Institute
dinglis@brocku.ca

**Jim Brandle**, CEO of Vineland Research and Innovation Centre
jim.brandle@vinelandresearch.com

**Norm Beal**, CEO of Food and Beverage Ontario, and President of Peninsula Ridge Estates Winery
nbeal@foodandbeverageontario.ca

**Marc Nantel**, Assistant Vice President of Research and Innovation at Niagara College
mnantel@niagaracollege.ca

**Craig Youdale**, Dean of the Canadian Food and Wine Institute and Manager of the Junior Culinary Team Canada at Niagara College
cyoudale@niagaracollege.ca

**Debbie Inglis**, Director of Brock University’s Cool Climate and Oenology and Viticulture Institute
dinglis@brocku.ca

**Jim Brandle**, CEO of Vineland Research and Innovation Centre
jim.brandle@vinelandresearch.com

**Norm Beal**, CEO of Food and Beverage Ontario, and President of Peninsula Ridge Estates Winery
nbeal@foodandbeverageontario.ca

**Marc Nantel**, Assistant Vice President of Research and Innovation at Niagara College
mnantel@niagaracollege.ca

5. Working Lunch prepared by the Junior Canadian Culinary Olympic team, Benchmark Restaurant

**Dan Patterson**, President, Niagara College
dpatterson@niagaracollege.ca

**Ken Knox**, Chair of the Science, Technology and Innovation Council
Kenneth.knox@canada.ca
6. Tour of Winery and Tasting at Southbrook Vineyards, Southbrook Vineyards

Bill Redelmeier, Owner, Southbrook Vineyards
Bill@southbrook.com

MUNICIPAL PARTNERS

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