

INVESTING IN INNOVATION

COLLABORATING FOR PROSPERITY



AN ECONOMIC POWERHOUSE



Ontario is Canada's economic engine, the nation's financial and manufacturing centre, generating almost 40% of the country's GDP¹. One of North America's top 10 economies by size², Ontario's GDP of more than \$578 billion is larger than that of Switzerland, Belgium, Greece, Sweden or Austria, to name a few³.

In 2009, Ontario's international exports were \$147.7 billion, accounting for 41% of Canada's exports⁴. Ontario's economy is tightly connected to global markets and has forged strong trade partnerships with Europe and Asia: total trade with leading European countries has grown to \$30 billion annually and to almost \$40 billion with Asia's leading countries⁵.

Ontario's business taxes are competitive: the combined federal-provincial corporate income tax rate of 34.12% for manufacturers is more than three percentage points below the U.S. average – and by 2012, it will be almost 10 percentage points lower⁶. According to KPMG's 2010 Competitive Alternatives study of international business costs, Canada's business costs are the most competitive of the G7 countries⁷.

63% of our population of 13 million has at least one post-secondary degree or certificate, more than double the average of OECD nations⁸. A network of 20 universities and 24 colleges trains students in every field, from the skilled trades to the most advanced areas of science, engineering and business, ensuring that our talent pool keeps growing.

ONTARIO QUICK FACTS:

- Ontario's GDP of more than \$578 billion is larger than that of many Organization for Economic Co-operation and Development (OECD) countries⁹.
- More than \$13.9 billion of research and development (R&D) takes place every year in Ontario¹⁰.
- R&D tax incentives are among the most generous in the world: a \$100 R&D expenditure can be reduced to less than \$56 – or less than \$37 for small businesses¹¹.
- Total international trade by Ontario companies tops \$1 billion per day¹².

COMMITMENT TO INNOVATION

“Countries and places that invest in innovation will be home to the most rewarding jobs, the strongest economies and the best quality of life. Ontarians’ ability to combine creativity and innovation is helping to provide good local jobs and putting the province on the global stage.”

– The Honourable Dalton McGuinty, Premier of Ontario

ONTARIO INNOVATION AGENDA

Supported by close to \$3 billion in spending, Ontario is investing significantly in innovation to ensure that ours is a winning economy in the 21st century. By building on our strengths and seizing opportunities we are ensuring Ontario’s continued economic and social prosperity.

Bright Ontarians are inventing our future. They are discovering cleaner ways to generate power, novel ways to treat disease, and revolutionary new technologies for sharing information and creating virtual communities.

Ontario is investing in an aggressive innovation agenda that builds on the strengths of Ontario’s creative environment, diverse culture, highly skilled workforce, world-class education system and internationally-recognized research community. The Ontario Innovation Agenda focuses on leveraging the province’s existing strengths, identifying key opportunities, and creating and cultivating the type of ecosystem necessary to not only drive innovation, but to ensure that it thrives through the commercialization pipeline. It speaks with a voice that is committed and collaborative. It delivers a practical vision for continuous innovation, recognizing it as the only real pathway to sustainability in today’s global economy.

ONTARIO MINISTRY OF RESEARCH AND INNOVATION

The Ontario Ministry of Research and Innovation (MRI) was created in 2005 to act as a catalyst for innovation in Ontario. The ministry’s mandate focuses on strengthening Ontario as a leading, innovation-based economy and society where innovative thinkers can flourish and innovative ideas are rewarded. From research hospitals to universities, entrepreneurs to venture capitalists, businesses to government agencies, it supports the best ideas in Ontario and builds relationships between all the participants in Ontario’s innovation ecosystem. These relationships will allow us to leverage Ontario’s greatest resources: its people and their ideas.

THE ONTARIO ADVANTAGE:

- World leading R&D cost reductions through tax incentives
- Highly educated and skilled workforce
- Research powerhouse supported by significant infrastructure investment
- Easy access to a massive North American supply chain and market
- Global scientific research connections and collaborations



A HISTORY OF INNOVATION



1858

First oil well in Canada drilled in Lambton County, Ontario



1874

Torontonians Henry Woodward and Matthew Evans patent the lightbulb (patent sold to Thomas Edison in 1875)



1922

Frederick Banting and Charles Best isolate insulin at the University of Toronto



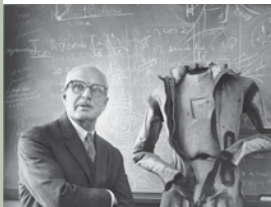
1930

Doctors at Toronto's SickKids Hospital develop the baby cereal Pablum



1938

University of Toronto post-graduate students James Hillier and Albert Prebus develop the first high resolution electron microscope



1938

Dr. Wilbur Franks of Toronto's Banting and Best Institute develops the first anti-gravity suit used by pilots in air operations



1949

John A. ("Jack") Hopps pioneers an early version of the pacemaker at the University of Toronto's Banting Institute



1960

The first workable computerized geographical information system (GIS) is developed by Dr. Roger Tomlinson



1961

James Till and Ernest McCulloch of Toronto publish their theory proving the existence of stem cells, paving the way for future research



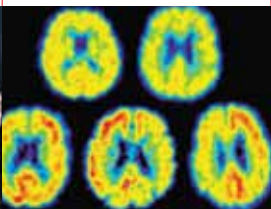
1970

Toronto-based IMAX Corporation debuts its first giant screen film at Ontario Place's Cinesphere in Toronto



1982

Dr. Harold Jennings of the Ottawa-based National Research Council patents the meningitis C vaccine



1995

First Alzheimer's gene identified by a University of Toronto team led by Peter St George-Hyslop



1999

The wireless BlackBerry® device is developed by Mike Laziridis of Research In Motion® in Waterloo



2003

The world's first remote robotic surgery service is established in Hamilton



2009

At Toronto's Mount Sinai Hospital, Andras Nagy heads a team that develops a safe way to grow stem cells from a patient's own skin

KEY ECONOMIC DRIVERS

“Ontario is a world-class research centre, with a global reputation for scientific and commercialization excellence in clean technology, including water. The Water Opportunities Act and WaterTAP will bind these elements of expertise together to solidify our position as a world-leading centre for water innovation.”

– The Honourable Glen Murray, Minister of Research and Innovation

CLEANTECH

Ontario is leading the way in Canada’s response to climate change. Ontario’s *Green Energy Act* is the key element of the provincial government’s environmental strategy. The Act will help address climate change and the environment by facilitating the development of a sustainable-energy economy. This forward-thinking legislation is supported by other initiatives, including the Feed-in Tariff (FIT) Program, which provides a comprehensive guaranteed pricing structure for renewable energy production. By taking the lead in addressing climate change, Ontario is also building the infrastructure to grow and develop a green economy.

Ontario’s background and related strengths are in the following traditional and emerging areas of environmental technology:

- Water and wastewater treatment: technologies for drinking water purification and the removal of pollutants from wastewater;
- Air pollution control: technologies for the removal of gaseous and particulate pollutants from air;
- Waste management: technologies for the collection, disposal and treatment of wastes;
- Climate change: technologies for renewable energy generation (e.g., biomass, wind, solar, energy from waste) and energy management; and
- Environmental monitoring systems: technologies for monitoring environmental conditions and industrial compliance.

For additional information, please visit www.ontario.ca/mri-publications to download full versions of the *Cleantech* and *Water Asset Maps*.



Trojan Technologies (based in London, Ontario) designs and develops advanced ultraviolet light disinfection systems for municipal wastewater, municipal drinking water, commercial and residential drinking water, environmental contaminant treatment, and industrial applications.

ONTARIO'S WATER SECTOR AT A GLANCE:

- >\$5 billion in water-related revenues
- > 800 companies employing >22,000 people
- >750 water and wastewater facilities
- >100 water-related research institutes
- Recently passed the *Water Opportunities and Water Conservation Act* which will encourage the promotion of, and investment in, innovative water technologies.

LIFE SCIENCES AND ADVANCED HEALTH TECHNOLOGIES

Oncology

Ontario is home to an outstanding academic community comprised of approximately 650 cancer scientists actively conducting research in more than 20 types of cancer at 16 universities, 5 independent research centres, 22 hospitals and 37 affiliated research institutions/cancer centres.



The Ontario Government's dedication to cancer research was underscored by the creation of the Ontario Institute for Cancer Research

(OICR) in 2005. With a commitment of \$357 million for its first five years, OICR's mandate is to facilitate translational research among all cancer-related centres in Ontario by serving as the bridge between existing centres and promoting the translation of their discoveries into innovations impacting the cancer burden.

The established presence of internationally renowned experts in clinical trials, stem cells, genomics, imaging and oncolytic viruses signals not only the calibre of local research, but also the presence of a critical mass of networks and state-of-the-art technologies that facilitate research.

For additional information, please visit www.ontario.ca/mri-publications to download a full version of the Oncology Asset Map.

Dr. Ahmed Mamai of the Ontario Institute for Cancer Research (OICR) places a test sample in a mass spectrometer to analyze the composition of a compound.





Regenerative Medicine

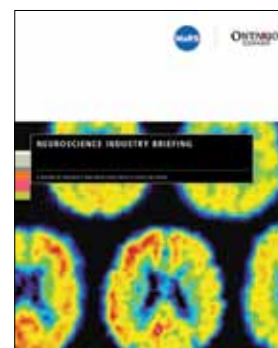
Undoubtedly, Ontario is on the vanguard of stem cell biology. Dr. Andras Nagy of Mount Sinai Hospital in Toronto, for example, recently discovered a technique to create pluripotent stem cells without the use of viral vectors (*Nature*, April 9, 2009), which has been hailed as a monumental step forward in the field of new stem-cell-based therapies. Another seminal study (*Nature*, April 23, 2008), by Dr. Gordon Keller of Toronto's University Health Network (UHN), identified for the first time a cardiovascular progenitor cell that could give rise to the three main cardiac cell types.

Such research leadership spans not only across a cluster of major Ontario institutions – including Toronto's Hospital for Sick Children, Hamilton's McMaster University and the Ottawa Hospital Research Institute – but also across disciplines that will move this field into the future, from genomics and bioinformatics, tissue engineering and biomaterials to functional imaging and clinical trials development. As well, government-led investments in critical infrastructure – such as The Hospital for Sick Children's cell bank and Canada's first facility for human-induced pluripotent stem (iPS) cells – offer a significant advantage to Ontario's research community.

Ontario has more than 95 principal investigators working in stem cell research laboratories, which corresponds to a market size of more than \$10 million in research supplies and consumables.

For additional information, please visit www.ontario.ca/mri-publications to download a full version of the Regenerative Medicine Asset Map.

Research Technician Lifang Li and Scientist Dr. Jeff Dilworth examine proteins expressed by stem cells at the Sprott Centre for Stem Cell Research at The Ottawa Hospital.



Neuroscience

Most industrialized countries of the world are facing aging populations as the baby boomer generation, born between 1946 and 1964, starts to turn 65 in 2011. This dramatic demographic shift has the world's health-care systems beginning to brace for the associated rise in healthcare costs and social impacts as they face increasing rates of age-related neurological diseases such as Alzheimer's.

In recent years, the majority of Canadian neuroscience publications have come from Ontario, and much of the nation's neuroscience research funding has been awarded to Ontario researchers and institutions. With more than 500 senior neuroscientists in Ontario alone, several significant discoveries in the last 20 years – including the discovery of the Alzheimer's disease gene by a team of researchers led by the University of Toronto's Dr. Peter St George-Hyslop – have positioned the province among leading global players in the field.

Ontario's Baycrest Research Centre for Aging and the Brain is internationally renowned for its excellence in aging brain research, clinical interventions and treatments, and cognitive rehabilitation therapies. The Ontario government recently announced \$15 million in start-up funding over three years for the new Ontario Brain Institute (OBI). The institute will serve as a hub for scientists from across the province to collaborate on solutions for neurological disorders such as Alzheimer's, autism, schizophrenia and depression.

For additional information, please visit www.ontario.ca/mri-publications to download a full version of the Neuroscience Industry Briefing.

Cognitive scientist Cheryl Grady and MRI physicist Simon Graham collaborate on a brain function study in the fMRI lab at Baycrest.



DIGITAL MEDIA/INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

With more than 16,000 firms and revenues of greater than \$75 billion annually, Ontario has one of North America's largest concentrations of ICT leaders. It includes home-grown high performers, including Celestica, Mitel Networks, Research In Motion (RIM), and global giants such as Accenture, Alcatel-Lucent, AMD, Cisco Systems, Ericsson, HP, IBM, McAfee, Microsoft, Oracle and Siemens. Supporting this is a broad base of sub-suppliers – from packaging companies to legal advisors – that understand ICT industry needs.

Ontario has more than 950 interactive digital media firms that generate about \$1 billion in revenue each year. Our digital games sector alone is growing at a rate of 30% a year and includes premier games developers and publishers like Capcom, Tecmo Koei and Ubisoft, as well as domestic companies such as Artech Studios, Digital Extremes, Magmic Games and Silicon Knights. Their growth is fuelled by a big talent pool that's replenished every year with thousands of enthusiastic university and college graduates from programs in interactive digital media, fine art, music, computer science and programming

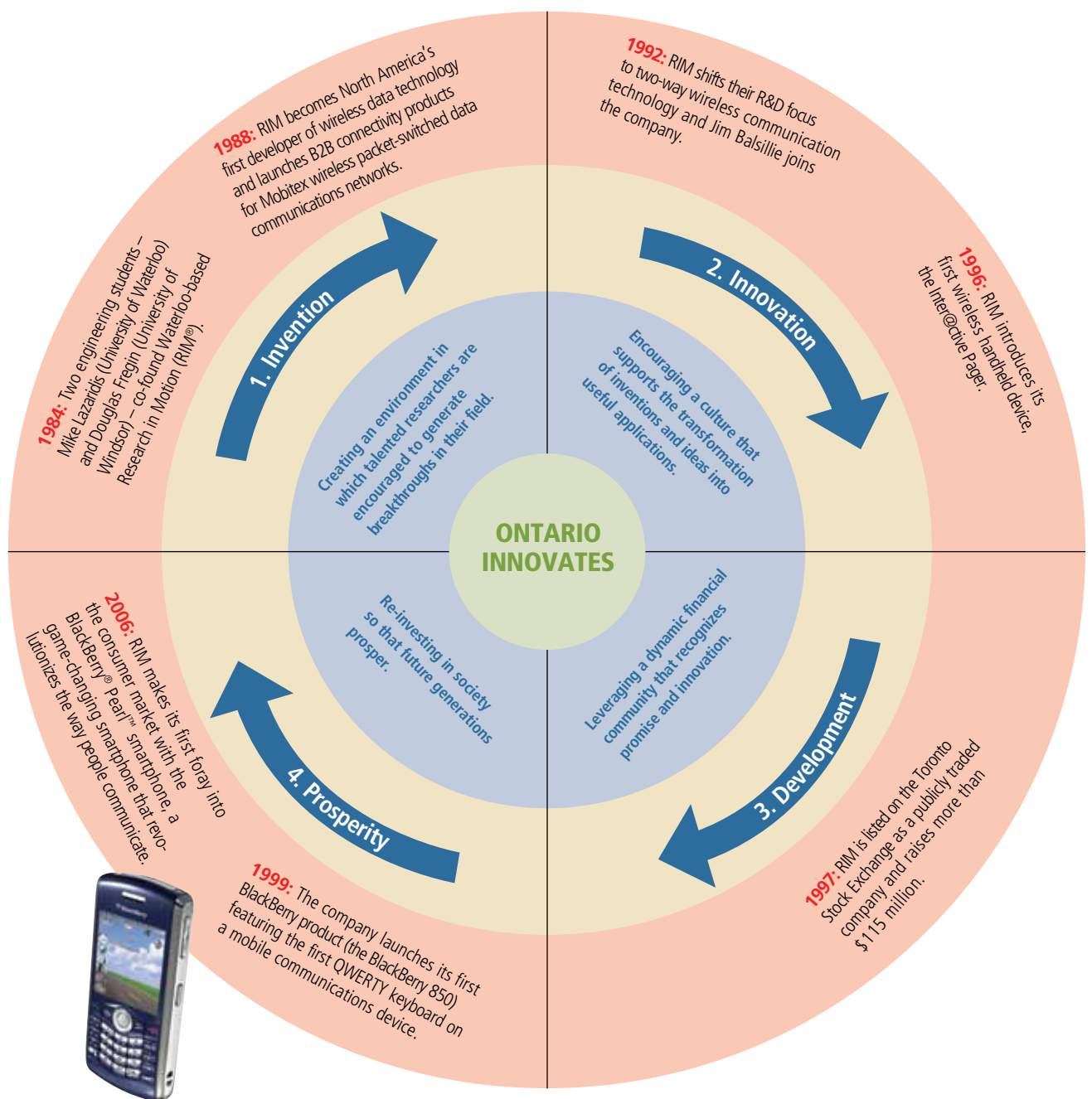


Resembling sunglasses, Kanata, Ontario-based eSight Corporation is about to launch evSpex™, which combines advancements in digital video capture technology with proprietary image processing algorithms to help people challenged with low vision.

CREATING PROSPERITY: THE BLACKBERRY STORY

Ontario encourages the sustainable growth of an innovation-based economy by fostering an ecosystem that drives knowledge creation, cutting edge science and research, international collaboration and competitiveness and productivity. Ontario is committed to providing the products and services that assist researchers, entrepreneurs and companies to transform concepts into innovative products that generate prosperity for all.

Waterloo, Ontario-based Research in Motion's success is an example of a home-grown invention that has profoundly affected the way people interact, do business, and even innovate around the globe.



BUILDING OUR FUTURE THROUGH INNOVATION

Ontario has much to offer, including a diversified economy, a business environment that encourages innovation, an internationally-recognized research community, a multicultural, highly-skilled and well-educated workforce, an abundance of natural resources and an advantageous geographic location. Our plan focuses on global market opportunities where Ontario excels, and can compete globally and win. These opportunities are the focus of investments, policies and programs to stimulate innovation and attract investment.

The Ontario Innovation Agenda is being renewed to build on its strengths. By harnessing existing strengths, bringing government investments and programs in line with strategic innovation goals, and leveraging international partnerships, we will ensure that knowledge and skills translate quickly and efficiently into economic growth and prosperity for all.



CONTACT US

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ENDNOTES

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