

OCE

Ontario Centres of Excellence

WHERE GREAT IDEAS COME TO GROW



Where Next Happens

ANNUAL REPORT | 2008-2009 | WWW.OCE-ONTARIO.ORG

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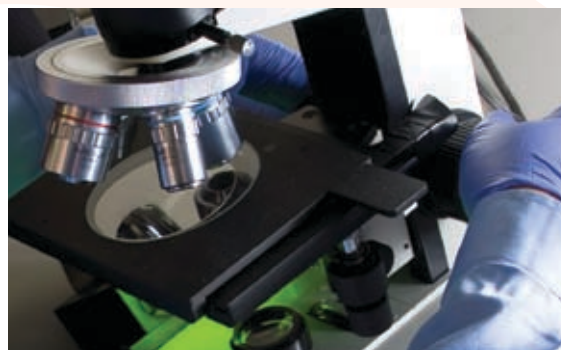
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ONTARIO CENTRES OF EXCELLENCE (OCE) IS A NON-PROFIT CORPORATION ESTABLISHED IN 1987 BY THE PROVINCE OF ONTARIO. OUR PROGRAMS PROMOTE COMMERCIAL INNOVATION IN SUPPORT OF HIGH VALUE JOBS, HEALTHY COMMUNITIES, A CLEAN ENVIRONMENT AND ECONOMIC PROSPERITY WITHIN ONTARIO AND THE REST OF CANADA. OCE ANALYZES AND ASSESSES NEW EMERGING TECHNOLOGIES AS WELL AS MARKET NEEDS AND OPPORTUNITIES WITHIN THE ECONOMY'S MOST IMPORTANT SECTORS. THESE INCLUDE ENERGY, HEALTH, ENVIRONMENT, MANUFACTURING, COMMUNICATIONS AND INFORMATION TECHNOLOGY

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Ontario Centres of Excellence

ON THE COVER: Innovation requires its own support ecosystem to help great ideas take root and flourish.



This year marks the 5th anniversary of the creation of Ontario Centres of Excellence Inc. (OCE) — a non-profit corporation formed from the amalgamation of our four existing Centres of Excellence for Communications and Information Technology, Earth and Environmental Technologies, Materials and Manufacturing, and Photonics under one roof. The Centres have since expanded to include the Energy sector and more recently, our federally funded Centre for Commercialization of Research (CCR).

The goal of the merger was for OCE to play a larger role in delivering the province's innovation and competitiveness agenda. Five years later, it's clear we made the right decision. Innovation always matters, but this year with the economic challenges we faced, it proved essential.

Recognizing the importance of innovation, the Ontario Government under the leadership of the Honourable John Wilkinson, Minister of Research and Innovation (MRI) laid out a vision for Ontario in its Innovation Agenda, entitled "Seizing Global Opportunities."

The Agenda's vision proposes to create a culture of innovation that fuels the creativity of people and successfully markets their ideas to the world. Above all, the agenda was designed to ensure that innovation related programs and activities extract value and create measurable benefits.

As part of the Innovation Agenda, Minister Wilkinson announced in June the creation of the new Ontario Network of Excellence. Within this new Network, OCE will play a key role working with the Ministry, Ontario's universities and colleges and other stakeholders to build an integrated, world-class and client-focused platform, providing greater access to programs, resources and expertise.

OCE is eager to take on this new challenge by bringing to the table our collaborative network of industry and academic partners located across the province, nationally and internationally and our well established track record.

Our thanks to Minister Wilkinson for his guidance over the past year, our newly appointed Minister, the Honourable John Milloy and his Ontario Government colleagues for their continued support and confidence and the numerous contributions made by our many partners.

OCE's achievements would not be possible without the exceptional counsel and guidance of our Board of Directors, and the efforts of our staff and management team. I would also like to thank Mark Romoff, our President and CEO. Mark recently announced he will be stepping down. His guidance, leadership and unwavering commitment to OCE has laid the foundation for this organization to embrace exciting new programs and initiatives.

Finally, on behalf of all of us at Ontario Centres of Excellence Inc., I would like to recognize and applaud the researchers, students, entrepreneurs and companies we have had the privilege of working with over the past year. While we often speak of the importance of partnerships and collaboration in driving innovation, with this annual report we demonstrate just what happens when industry and academia are encouraged to come together. From the groundbreaking LCD manufacturing technology that emerged from WDI's work with the University of Toronto, to high-tech eyewear developed by eSight for the millions afflicted with vision impairments, to the next-generation of innovators such as Houssein Ayach.

Together, they represent the faces behind the exciting innovations that are driving our future and making for a better future for all Ontarians. Indeed, this year's annual report is a celebration of your brilliant ideas, entrepreneurial spirit and innovative thinking. You are the future of this province and you are the reason Ontario is the place *Where Next Happens*.

A handwritten signature in black ink, appearing to read "DMcFadden".

David McFadden, Chair, Board of Directors



Five years ago, I was honoured to be appointed as the first Ontario Centres of Excellence Inc. President and CEO. At the time, it was a unique opportunity to help meld the province's four Centres of Excellence into an organization with a value greater than the sum of its parts.

Now with six Centres of Excellence, OCE has continued to evolve and adapt as it further aligns with the Ontario government's research and innovation strategic plan. By fostering partnerships and collaborations that are driving industry research and empowering companies to compete globally, OCE contributes to a culture of innovation that puts Ontario at the forefront.

This past year we delivered on our commitment to be on the leading edge of innovation. OCE invested \$29.3 million in 635 projects and leveraged \$44.7 million from industry partners in further investments – a 24 per cent increase in leverage from a year ago. OCE connected 4,500 researchers and students with 752 companies, reflecting a 16 per cent increase over the previous year.

When it comes to forging critical connections within the innovation ecosystem, there's no better starting place than our annual Discovery conference. Last year's event, the largest in its history with nearly 2,300 attendees, welcomed new partners such as Greening Greater Toronto and Zerofootprint. A novel feature that led to handshakes and contracts was the International Café, featuring 50 Canadian trade commissioners from 24 countries. Discovery has become Canada's premier innovation event, the place where industry, academia and the investment community not only connect, it's where they get down to business.

At OCE, we realize moving ideas to the marketplace requires finding new partners across the innovation continuum. Our partnership with Ontario Municipal Employees Retirement System (OMERS) to expand the opportunities for early-stage companies to grow offers enormous promise. OMERS' leadership understands that tomorrow's success stories demand strategies and targeted investment today.

Our Centre for Commercialization of Research was created in partnership with the federal government last year. We recruited strong leadership for the new Centre and have established precedent-setting partnerships to advance the innovation yardstick. Notably, the new Accelerator Centre of Excellence (ACE), a collaboration between OCE, the University of Waterloo and the Accelerator Centre, is an innovative approach to the commercialization of university-based discoveries that is already demonstrating strong returns.

The Investment Accelerator Fund (IAF) provides much needed seed funding and entrepreneurial services to early-stage companies. Over the past year we have made 19 IAF awards to 19 outstanding companies – a remarkable accomplishment.

Several OCE-supported companies are gaining international attention, Waterloo's Aeryon Labs receiving a TieQuest Business Venture Competition Award, Spongellab Interactive recognized by the U.S. National Science Foundation, and BumpTop being featured in the Wall Street Journal are just a few examples.

Determined to maintain a vibrant talent pipeline, OCE has also been tremendously successful in supporting Ontario's students. Thanks to programs like Connections and First Job we help foster the next generation of innovators and entrepreneurs. Our Connections program alone engaged more than 1,500 students to work with industry across the province to address their immediate challenges to bottom line growth.

I'm immensely proud of what Ontario Centres of Excellence has accomplished together with its partners during my tenure. With the foundation laid, OCE is well-positioned for success over the next five years that will dwarf the accomplishments of the past five.

Mark Romoff, President and CEO

OCE at a GLANCE

WHO WE ARE

- Non-profit corporation established in 1987 by the Province of Ontario to advance the province's economic prosperity and global competitiveness through innovation
- Experienced team of more than 40 Business Development Managers from diverse backgrounds – research, academia, industry and finance
- Province-wide footprint – offices in Toronto, Mississauga, Waterloo, Ottawa, Kingston, Markham, London
- Key partners: industry, universities, colleges, research hospitals and institutes, investors, entrepreneurs and governments
- Strongly networked with ongoing provincial, national and global partnerships

HOW WE DO IT

For the past 22 years our business development teams have been bringing the key players together to capitalize on research opportunities and match researchers with investors, industrial partners and entrepreneurs.

Our business development teams, which work out of six Centres of Excellence, have a unique combination of scientific, academic and entrepreneurial expertise. Combining the province's research labs and industry shop floors, they are constantly on the search for the “next big thing.”

OCE's six Centres of Excellence are:

- Communications and Information Technology
- Earth and Environmental Technologies
- Energy
- Materials and Manufacturing
- Photonics
- Commercialization of Research

Together, the Centres cover key areas of convergence, including advanced health, clean technology, digital media, and the green economy.

Our business development teams are equipped with a diverse set of tools to make innovation happen through our three major program areas: Talent, Research and Commercialization.

WHAT WE DO

- Support the early-stage development of ideas by bridging the gaps in knowledge, expertise and financial support that separates innovations from the marketplace
- Analyze and assess new emerging technologies, as well as market needs and opportunities within the economy's most important sectors
- Drive economic wealth and job growth in Ontario through the development and successful commercialization of new technologies and innovations
- Foster the training and development of future innovators, entrepreneurs and business leaders to enable Ontario companies to succeed in the knowledge-based global economy
- Work with our partners to facilitate and champion a culture of innovation that supports the province's innovation agenda

HOW WE'RE FUNDED

ANNUAL FUNDING FOR 2008-09

- \$34.3 million annual OCE core funding from the Ministry of Research and Innovation

ONGOING FUNDING AGREEMENTS

- \$27.5 million from the Ministry of Research and Innovation to deliver Investment Accelerator Fund
- \$15 million awarded from the Networks of Centres of Excellence CECR Program for the Centre for Commercialization of Research
- \$15 million from the Ministry of Research and Innovation to deliver “Transformative Energy” projects
- \$4 million from the Ministry of Energy to support Atikokan Bio-energy Research Centre
- \$1.2 million from the Ministry of Research and Innovation to administer the Ontario Internship Program
- \$1 million partnership with the Ontario Power Authority for the Technology Development Fund

DELIVERING RESULTS IN 2008-2009

\$29.3 MILLION INVESTED IN **635** RESEARCH,
COMMERCIALIZATION AND TALENT PROJECTS
LEVERAGED \$44.7 MILLION INVESTMENT FROM INDUSTRY PARTNERS

OVER **4,500** RESEARCHERS, STUDENTS
AND PRIVATE SECTOR EMPLOYEES ENHANCED
THEIR KNOWLEDGE, TRAINING OR SKILLS
THROUGH OCE SUPPORT

ENGAGED **713** RESEARCHERS AND
CO-INVESTIGATORS

INVOLVED **38** COLLEGES, UNIVERSITIES,
RESEARCH HOSPITALS IN OCE PROJECTS

CONNECTED RESEARCHERS WITH **752**
COMPANIES

MOVED **1,491** INDIVIDUALS FROM OCE-
FUNDED PROJECTS TO POSITIONS WITHIN
INDUSTRY, GOVERNMENT AND ACADEMIA

LAUNCHED **22** START-UP COMPANIES,
BRINGING THE TOTAL NUMBER OF ACTIVE OCE
START-UP COMPANIES TO **121**

THESE START-UP COMPANIES ATTRACTED
CAPITAL INVESTMENT LAST YEAR TOTALLING
\$65.5 MILLION

13 PATENTS GRANTED WITH SUPPORT
FROM OCE

121 PATENT APPLICATIONS SUBMITTED WITH
SUPPORT FROM OCE

37 NEW TECHNOLOGY LICENCES ESTABLISHED,
WITH A TOTAL OF **135** ACTIVE LICENCES

OF THE
635 ACTIVE OCE PROJECTS



196 MATERIALS AND MANUFACTURING

66 LIFE SCIENCES

20 AGRICULTURE

162 COMMUNICATION & INFORMATION TECHNOLOGY

64 ENERGY TECHNOLOGIES

127 ENVIRONMENTAL TECHNOLOGIES

the PURSUIT of PARTNERSHIPS

To successfully navigate the innovation ecosystem, it's essential that researchers, businesses, investors and government come together. Partnership and collaboration with other organizations creates fresh opportunities to leverage expertise towards engaging with new technologies, channels and frontiers.



ONTARIO GOVERNMENT STAKEHOLDERS

Funded primarily by the Ministry of Research and Innovation and with a mandate to generate economic prosperity, Ontario Centres of Excellence (OCE), engages with a number of Ministries to fulfill its mandate, including: Energy and Infrastructure, Environment, Natural Resources, Agriculture, Food and Rural Affairs, Northern Development, Mines and Forestry, Economic Development and Trade, Transportation, Training, Colleges and Universities, and Small Business and Consumer Services. OCE also works closely within Ontario Network of Excellence in supporting the province's Innovation Agenda.

OUR STRATEGIC PARTNER NETWORK

OCE recognizes that developing partnerships is critical if innovators are to compete successfully in the ever-growing, knowledge-based global economy. For this reason, we are continually strengthening relationships and partnerships with academic and research organizations, industry alliances, agencies and associations in the province, across Canada and around the world.

In addition to the universities and colleges we work with throughout the province, here are some of the other organizations we collaborate with:

- Accelerator Centre for Commercialization Excellence (ACE)
- Advanced Design and Manufacturing Institute (ADMI)
- Canada Israel Industrial Research and Development Foundation (CIIRDF)
- Canada's Venture Capital & Private Equity Association (CVCA)
- Canadian Advanced Technology Alliance (CATA)
- Canadian Foundation for the International Space University (CFISU)
- Canadian Space Agency (CSA)
- Canadian Water Network (CWN)
- Centre for Business, Entrepreneurship and Technology (CBET)
- Centre of Excellence for Research in Adaptive Systems (CERAS)
- Centres of Excellence for Commercialization and Research (CECR)
- CMC Microsystems

Canada



IQC Institute for Quantum Computing



let's talk science
inspiring discovery



Ontario Genomics Institute



PARTEQ
innovations

precarn
Intelligent Systems. Thinking Technology.



TOMATOSPHERE

zerofootprint



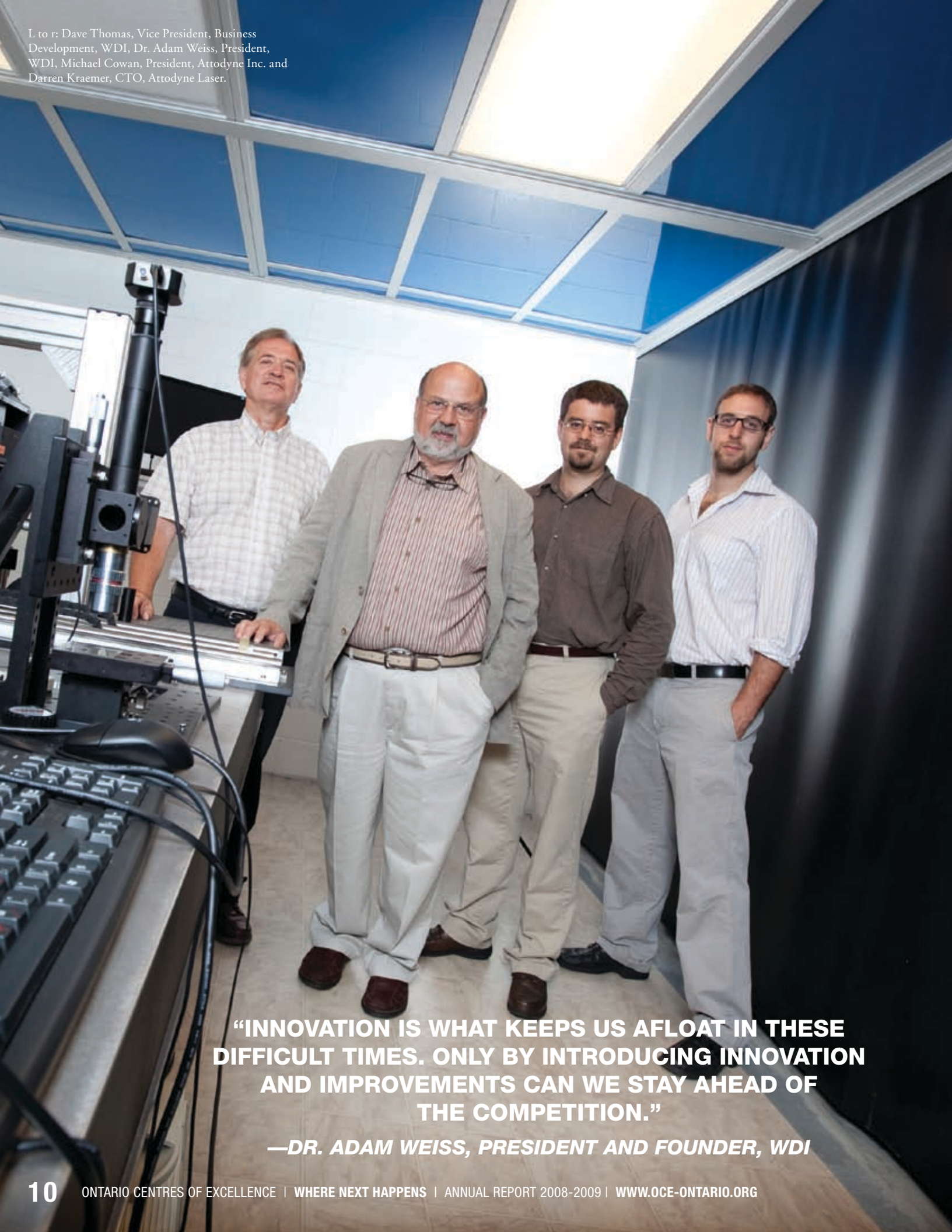
- Foreign Affairs and International Trade Canada (DFAIT)
- Geomatics for Informed Decisions (GEOIDE)
- Golden Horseshoe BioSciences Network
- Greening Greater Toronto
- Health Technology Exchange (HTX)
- Hydro One
- IBM Canada
- Let's Talk Science
- Institute for Quantum Computing (IQC)
- International Science and Technology Partnerships Canada (ISTP)
- MaRS
- National Angel Capital Organization (NACO)
- Networks of Centres of Excellence
- National Research Council's Industrial Research Assistance Program (IRAP)
- Natural Sciences and Engineering Research Council of Canada (NSERC)
- Ontario Genomics Institute (OGI)
- Ontario Municipal Employees Retirement System (OMERS)
- Ontario Power Authority (OPA)
- Ottawa Centre for Research and Innovation (OCRI)
- PARTEQ Innovations (Queen's University)
- PRECARN
- Sustainable Development Technology Canada (SDTC)
- The Xerox Centre for Engineering Entrepreneurship and Innovation (XCEEi)
- Tomatosphere
- Toronto Region Research Alliance (TRRA)
- York Biotech
- Zerofootprint

OCE-SUPPORTED COMPANIES RECOGNIZED

A number of OCE-supported companies were recognized with national and international awards this past year. Congratulations to the following technology leaders:

- **Aeryon Labs Inc.** – 2008 TieQuest Business Venture Competition winner
- **IPeak Networks Inc., Menova Energy Inc.** – 2008 OCRI Award finalists
- **EION Inc.** – Deloitte Technology Fast 50 wireless companies in North America
- **SpongELab Interactive** – first prize in the Interactive Media category from the Science and National Science Foundation's 2008 International Visualization Challenge, and a 2009 World Summit Award. This award is backed by the United Nations and engages 170 countries.

L to r: Dave Thomas, Vice President, Business Development, WDI, Dr. Adam Weiss, President, WDI, Michael Cowan, President, Attodyne Inc. and Darren Kraemer, CTO, Attodyne Laser.



“INNOVATION IS WHAT KEEPS US AFLOAT IN THESE DIFFICULT TIMES. ONLY BY INTRODUCING INNOVATION AND IMPROVEMENTS CAN WE STAY AHEAD OF THE COMPETITION.”

—DR. ADAM WEISS, PRESIDENT AND FOUNDER, WDI

CONNECTING the PLAYERS

BUSINESS AND ACADEMIA DON'T NATURALLY CROSS PATHS IN THE INNOVATION ECOSYSTEM. OCE'S ROLE IS TO MAKE THE CRITICAL CONNECTIONS THAT ARE ESSENTIAL TO GROW SCIENTIFIC DISCOVERIES INTO COMMERCIAL SUCCESSES

At Ontario Centres of Excellence (OCE) we measure our achievements through the successes of our clients. Despite challenging economic times, it's their stories of success that demonstrate how Ontario remains one of the best places in the world for innovators to get down to business.

By forming new partnerships and relationships between academia, industry, the investment community and government, we're helping Ontario's best and brightest come together in new ways that are making the province a magnet for innovation.

Our business development team helps drive technologies into the marketplace and smooth the transition of talent from academic settings to the world of business. They help accelerate innovation by identifying specific industry challenges and connecting them with the right academic researchers who are on the verge of developing the "next big thing."

Meet four research teams that experienced first-hand the tremendous results achieved when the right connections are made within Ontario's innovation ecosystem.



Dan Ussyshkin, (right), an Industrial Designer with Monteco Ltd., consults with Antonio Liberatore, Optomem's Director of Business. Start-up Optomem is the culmination of a partnership between Monteco Ltd. and the University of Toronto that Ontario Centres of Excellence initiated. See story on page 14.

WDI WISE DEVICE INC. GRABS GLOBAL ATTENTION WITH DISPLAY TECHNOLOGY

**OCE fuses targeted research with
industry need for LCD screens**

WDI Wise Device Inc.'s money-saving potential in the production of liquid crystal displays (LCD) has captured the attention of major electronics manufacturers like Samsung, LG and Sharp. WDI's solutions speed up the inspection and repair of LCD screens during the production process.

LCD screens used in televisions are manufactured from large plates of glass that can sometimes have hundreds of microscopic defects or imperfections. Each of these imperfections must be found and repaired for a television to be produced successfully. WDI's optical technology can find imperfections far more quickly than traditional

methods. The result: manufacturers can expect lower operating costs and a 25 per cent improvement in productivity.

For consumers, it means better value for liquid crystal computer monitors and televisions. For WDI and the University of Toronto (U of T), it means sales that have topped \$5 million and a customer list that includes a who's who of Asian manufacturers. In recognition of its success, WDI was awarded the 2009 Ontario Centres of Excellence Mind to Market Award.

The breakthrough laser and optics technologies were brought together by matching WDI's expertise in defining the industry needs and markets with targeted research conducted at U of T's Institute for Optical Sciences. Additional research was provided by U of T's spinoff laser company, Attodyne Inc., also an OCE-supported company.

**"WITHOUT OCE SUPPORT, THIS
WOULD NOT HAVE BECOME
A COMMERCIALLY-VIABLE
TECHNOLOGY."**

**—DR. SHUJIE LIN, SENIOR SCIENTIST,
INSTITUTE FOR OPTICAL SCIENCES,
UNIVERSITY OF TORONTO**

Surrounded by their families, friends and colleagues, Dr. Adam Weiss, President, WDI, (left) and Dr. Shujie Lin, Senior Scientist, Institute for Optical Sciences, University of Toronto, accept the 2009 OCE Mind to Market Award in recognition of their successful collaboration. Pictured behind Dr. Weiss is David McFadden, OCE Chair of the Board, and to his left, Michael Nobrega, President and CEO, Ontario Municipal Employees Retirement System. Far right, Mark Romoff, President and CEO, OCE.



**"WDI REPRESENTS THE NEW FACE OF ONTARIO TECHNOLOGY COMPANIES: BUILT ON IDEAS,
PARTNERSHIPS AND A SOLID STRATEGY TO COMPETE GLOBALLY."**

—MARK WIRTH, OCE, BUSINESS DEVELOPMENT MANAGER

TECHNOLOGY TO POWER NEXT-GENERATION LASER DISPLAYS

OCE backs company's drive to commercialization

C2C Link Corporation is a McMaster University start-up that makes optical crystal chips that efficiently convert laser light from one colour to another. The company's patent-pending DEEP Technology is the only known method for producing commercially viable green and blue optical chips. These chips will become the driving engine behind laser-based displays – the next generation in high-quality displays that are brighter, lighter, bigger, more reliable, have twice the colour gamut and use less power. And, unbelievably, are less expensive.

C2C Link has worked with OCE from the beginning through its Centre of Excellence for Photonics and its Centre for Commercialization of Research. Most recently, C2C Link secured seed funding through the Investment Accelerator Fund, a collaborative program

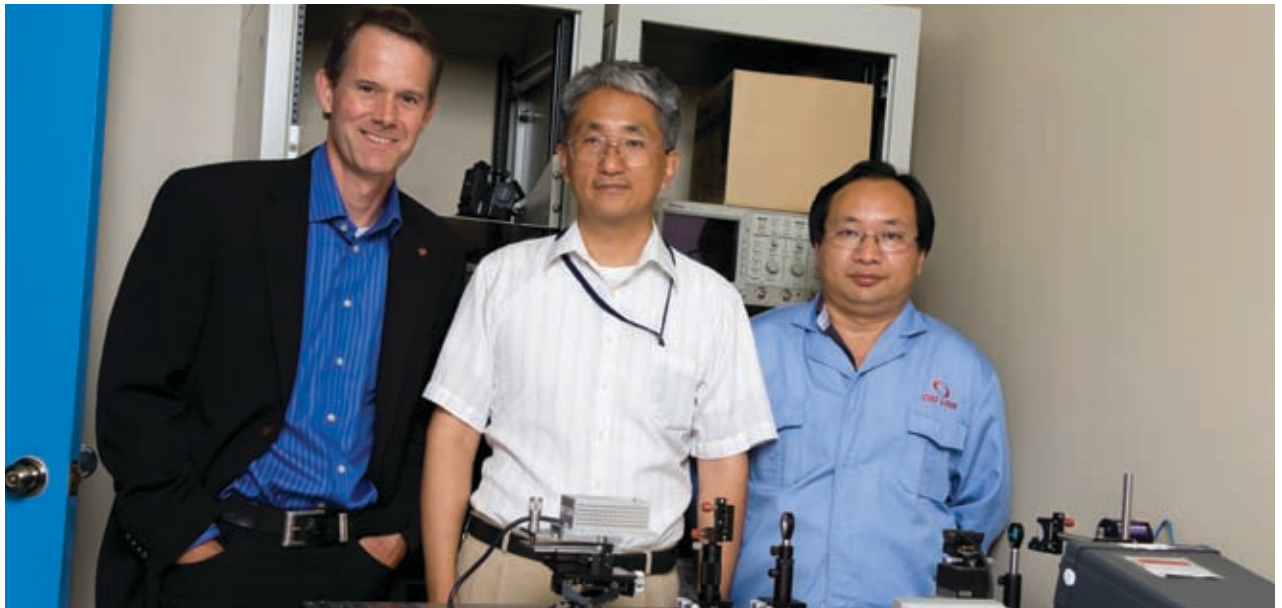
delivered in partnership by OCE with MaRS. OCE also introduced C2C Link to strategic industry partners, while funding initiatives to build the pitch decks, and business and operational plans that have driven the technology and company forward. The future is bright for C2C Link as television original equipment manufacturers, such as Mitsubishi, are betting on laser TV as the next technological platform, investing significantly in product development and supply-chain management for the launch of laser TV.

On the horizon, C2C Link's technology has the potential to allow micro-laser projectors to be incorporated into smart phones. Imagine projecting your PowerPoint presentation, images and movies onto a wall from your cell phone, all in high definition. C2C Link plans on keeping its technology in Canada while importing the base chips from Asia – a reversal of the traditional flow of goods from Asia to Canada.

“WITHOUT OCE’S EARLY SEED FUNDING AND BUSINESS DEVELOPMENT ASSISTANCE, IT WOULD HAVE BEEN IMPOSSIBLE TO REACH THIS STAGE OF DEVELOPMENT SO QUICKLY.”

**—CHANG-QING XU,
C2C LINK PRESIDENT/CTO AND
PROFESSOR, DEPARTMENT
OF ENGINEERING PHYSICS,
MCMASTER UNIVERSITY**

L to r: Marc Castel, Director, Commercialization, OCE Centre for Commercialization of Research, Chang-qing Xu, President/CTO, C2C Link and Professor, Department of Engineering Physics, McMaster University, and Wanguo Liang, Director, C2C Link.



“OCE STAFF IMAGINE WHAT FUTURE TECHNOLOGY AND COMPANIES WILL LOOK LIKE. WE BELIEVE IN TECHNOLOGIES LIKE C2C LINK AND STICK WITH THEM.”

—MARC CASTEL, OCE, DIRECTOR OF COMMERCIALIZATION

“IT WASN’T MERELY THE FINANCING SUPPORT THAT OCE PROVIDED THAT BENEFITED THIS PROJECT. IT WAS THE NETWORKING THEY ESTABLISHED THAT PUT THIS MARRIAGE TOGETHER.”

—SCOTT MONTEITH, PRESIDENT AND CEO, MONTECO LTD.



Scott Monteith with Optomem's sensor.



L to r: Balinder Rai, Business Development Manager, OCE, Michael Muchemu, student, University of Toronto, Antonio Liberatore, Director of Business Development, Optomem and Dr. Carlos Fernandes, researcher, University of Toronto.

“SINCE THIS TECHNOLOGY IS SO DISRUPTIVE, IT INVOLVES DIFFERENT DISCIPLINES TO PERFECT IT. BEING ABLE TO LEVERAGE U OF T’S VAST RESOURCES WAS CRITICAL TO OUR SUCCESS.”

—ANTONIO LIBERATORE,
DIRECTOR OF BUSINESS DEVELOPMENT,
OPTOMEM

THE SIZE OF A POSTAGE STAMP. THE POWER OF A LABORATORY

**Optomem's complex gas-sensing
technology demands collaboration**

Maintaining indoor air quality is essential to everyone's health, but many of the most deadly gases have no odour and give no warning, making accurate air-quality monitoring problematic. Historically, complex gas analysis required large, expensive laboratory equipment to analyze air samples off-site. Toronto-based Optomem Sensors Inc. is developing a revolutionary air-quality sensor that puts the power of the laboratory in a microchip and provides instant comprehensive feedback on air quality.

In the future, the chips could even be modified to fit into a cell phone or home thermostat to allow air monitoring wherever you are. Optomem is the culmination of a

partnership between Monteco Ltd. and the University of Toronto (U of T), specifically Dr. Harry Ruda and Dr. Carlos Fernandes who co-created the new technology. Having funded the early proof-of-principle research, OCE's Centre of Excellence for Earth and Environmental Technologies reviewed the technology's commercial potential with the U of T research team and helped identify Monteco as the ideal partner to license and commercialize this technology worldwide.

Optomem now expects the technology will be market-ready by the fall of 2009, with its first application being the detection of benzene, a highly hazardous chemical found at oil and gas refineries, distribution centres and gas stations. Scott Monteith, President and CEO of Monteco Ltd., is confident that Optomem will become a world leader in the gas sensor industry, a market worth hundreds of millions of dollars.

SAVING LIVES IN THE ICU

Therapeutic Monitoring Systems catapults forward with OCE's business-planning guide

Patient health monitoring in intensive care units (ICU) is often a life or death challenge. Despite best efforts, once critical illness, such as severe infection leading to shock and organ failure, is established, the risk of death remains high. The present monitoring and laboratory technology used is often inadequate to diagnose critical illness early, or to assess its severity. Frequently, an infection is detected after it is well established, and current clinical practices cannot predict which patients may deteriorate.

Therapeutic Monitoring Systems Inc. (TMS) is developing software that provides clinical decision support to the physicians treating critically ill

patients. Continuous, Individualized Multi-organ Variability Analysis (CIMVA) software collects vital-signs data from patient monitoring equipment, employing sophisticated mathematical methods to uncover clinically valuable information.

This software has the potential to identify problems and infections 24 hours earlier than current medical equipment, easily the difference between saving and losing a patient in the ICU. OCE, through its Market Readiness Fund, has been helping TMS founder Dr. Andrew Seely, a thoracic surgeon at The Ottawa Hospital, to develop an effective business plan, find potential investment opportunities and advance the core CIMVA software technology. CIMVA software is being readied for regulatory approval by the U.S. Food and Drug Administration, and first sales are planned for 2010.

“OCE HAS ENGAGED TMS WITH PRIVATE INVESTORS, WHICH CREATED SOME REAL MOMENTUM AROUND THE COMPANY.”

**—HINDAL MIRZA,
OCE BUSINESS DEVELOPMENT
MANAGER**

L to r: Rajeev Yadav, graduate student at Concordia University, Dr. Andrew Seely, Founder and Chairman, Therapeutic Monitoring Systems, Geoffrey Green and Hany Geris, both graduate students at Carleton University.



“OCE’S EARLY FINANCIAL SUPPORT ALLOWED US TO HIRE PERSONNEL AND REFINE OUR SOFTWARE. OUR CONNECTION WITH OCE ALSO ENHANCED OUR CREDIBILITY WITH PRIVATE INVESTORS AND OTHER GOVERNMENT ORGANIZATIONS.”

—DR. ANDREW SEELY, FOUNDER, THERAPEUTIC MONITORING SYSTEMS

L to r: Mark Hoddenbagh, Director, Applied Research and Innovation, Algonquin College, Rodney Schnarr (former Connections student and Ontario Internship Program award winner), Design Engineer, HousAll Systems, Faheem Khan (Connections student), Design Engineer, HousAll Systems, Ryan Halpenny, Connections student and David Thibodeau, P.Eng Professor/Coordinator, Mechanical Engineering Technology, Algonquin College.



**“IT WASN’T JUST A MATTER OF BUILDING
SOMETHING. IT REQUIRED MARKETING,
RESEARCH AND FINDING OUT WHAT PEOPLE
ACTUALLY WANT. TYING THAT ALL TOGETHER,
WE CREATED A MARKETABLE PRODUCT.”**

**—RODNEY SCHNARR, HOUSALL DESIGN ENGINEER
AND FORMER CONNECTIONS STUDENT**

CULTIVATING

a talent for

INNOVATION

OCE TALENT PROGRAMS

ONTARIO CENTRES OF EXCELLENCE'S TALENT PROGRAM FOSTERS THE NEXT GENERATION OF INNOVATORS AND ENTREPRENEURS. WHETHER PROVIDING OPPORTUNITIES FOR STUDENTS TO LEARN ON THE JOB, WIDENING THE INTERNATIONAL HORIZONS OF GIFTED YOUNG RESEARCHERS, OR HELPING TO SHARPEN BUSINESS SKILLS, OCE INFORMS, ENCOURAGES AND INSPIRES

OCE Connections

OCE's Connections program gives undergraduates in their final year of study the opportunity to undertake commercially relevant research in the private sector. Connections serves as a platform to support collaboration between academia and industry, while giving students an opportunity to gain real-world experience. Industry partners benefit from these talented young researchers and often hire them after the project's successful completion.

International Scholarships

International Scholarships provide student researchers with the opportunity to work in cutting-edge facilities with leaders in their field. During a semester abroad, students gain experience, to complement their Canadian education and bring new ideas back to Ontario. Local prosperity is impossible without global perspective.

First Job

First Job smoothes the transition from academic study to industry. Through the First Job initiative, talented graduates acquire real-world experience, while employers benefit from enthusiastic researchers. By providing a grant for 50 to 80 per cent of the recruit's salary for one year, OCE connects Ontario's brightest minds with the companies that need innovative thinking to be globally competitive.

Value-Added Personnel

Value-Added Personnel (VAP) is a training initiative that helps student researchers develop fundamental business skills to complement their technical expertise. Created in consultation with industry, VAP is a series of short courses designed to prepare students for successful employment. Topics include project management, business etiquette and networking.

The Professional Outreach Awards

The Professional Outreach Awards are presented to graduate-level students and post-doctoral fellows who wish to develop their professional skills by participating in conferences, trade shows and business competitions. Students present their research at international events, broadening their professional networks and bring Canadian innovation to a wider audience.



**THIS PAST YEAR,
CONNECTIONS
ENGAGED 1,500
STUDENTS FROM
20 UNIVERSITIES
AND COLLEGES
ACROSS ONTARIO
IN MORE THAN
310 INDUSTRY
PROJECTS**

L to r: Philippa King, Business Development Manager, OCE, Miles Kennedy, Chairman, Founder and Chief Technical Officer, HousAll Systems, Kent MacDonald, Vice President, Academic, Algonquin College and David Thibodeau, P.Eng Professor/Coordinator, Mechanical Engineering Technology, Algonquin College.

DESIGNING A BETTER SHELTER

Students improve temporary shelter structures

As part of OCE's Connections program, four Algonquin College Mechanical Engineering Technology students joined HousAll Systems Corporation — a new start-up specializing in long-term temporary structures for commercial, residential, military, and, most importantly, emergency applications. The company had successfully created its signature 12-foot-wide model, but wanted to create a larger 16-foot-wide model. They needed engineering support.

Through Connections, HousAll leveraged the knowledge and experience of Rodney Schnarr, Faheem Khan, Mazen Badawi and Ryan Halpenny, all of whom helped design the larger model. The units manufactured from their work will be field tested by Save the Children as classrooms for children in Haiti. HousAll also solidified its personnel structure, hiring two of the students for full-time positions.

**“CONNECTIONS GIVES
STUDENTS A REAL-LIFE
LEARNING EXPERIENCE.
FOR COMPANIES LIKE
OURS, IT PROVIDES US WITH
YOUNG MINDS AND FRESH
IDEAS THAT ADD ENERGY
TO OUR TEAM.”**

*—MILES KENNEDY, FOUNDER,
HOUSALL SYSTEMS*



Houssein Ayach, far right, turned a First Job internship with Ottawa's Telewatch Operational Surveillance into a full-time position as a senior analyst. He's pictured with Dr. Pascal Blais, the firm's R&D Director and a former First Job applicant with OCE.

"FIRST JOB ALLOWED ME TO GET THE REAL-WORLD WORK EXPERIENCE I NEEDED TO ENHANCE MY CURRENT SOFTWARE DEVELOPMENT SKILLS AS WELL AS ALLOW ME TO BECOME A BETTER PROBLEM SOLVER."

**—HOUSSEIN AYACH,
SENIOR ANALYST, TELEWATCH**

HOUSSEIN AYACH

First Job, infinite possibility

Houssein Ayach earned a Masters in Telecommunication Engineering at the University of Ottawa, with a specialization in image processing. That made him a perfect fit for a First Job internship with Visual Cortek, an OCE and University of Ottawa spin-off that develops intelligent video surveillance and security systems.

Recently purchased by Telewatch Operational Surveillance, Visual Cortek is presently working on Virtual Guard, a video surveillance system that assists users in defining and recording meaningful events. The system also alerts users and summarizes events for easy review.

As part of his First Job assignment, Ayach helped develop software components for Virtual Guard, as well as the system's web-based user interface. Ayach's performance during his internship netted him the full-time position of senior analyst with Visual Cortek. He continues to work on Virtual Guard at Telewatch, along with other technology development projects.



Athena D'Amato has her career in focus after an OCE First Job internship with LimeStyle Productions led to a leadership role with spin-off company Angle Media Group. D'Amato also took advantage of OCE's International Scholarships program to attend the European Summer School for Advanced Management (ESSAM) in Aarhus, Denmark.

ATHENA D'AMATO

From intern to integral

Athena D'Amato is an entrepreneur at heart. D'Amato took an internship at feature film house LimeStyle Productions and turned it into a leadership role with a new venture, Angle Media. While a Master's of Business Entrepreneurship and Technology student at the University of Waterloo, D'Amato was supported through OCE's Talent Entrepreneurship Development program. Afterwards, she received a First Job Ontario Internship Program Award to work with LimeStyle.

During the internship, she conducted research and analysis for strategic business planning, marketing and recruiting. Now with Angle Media, D'Amato focuses on visual communications, corporate marketing and Web 3.0 video applications. Some of her company's work was recently on display in the Student Video competition at OCE's Discovery 2009 conference.

**"THIS PROGRAM PLACES
TALENTED GRADUATES IN R&D
ROLES WITH FIRMS THAT HAVE
LIMITED RESEARCH BUDGETS.
AND ABOUT 75 PER CENT
OF FIRST JOB PARTICIPANTS
CONTINUE WITH THE COMPANY
AS FULL-TIME, PERMANENT
EMPLOYEES."**

**—MARC NANTEL, OCE DIRECTOR,
BUSINESS DEVELOPMENT**



Roxy Hamilton, Business Development Manager, OCE, and Beau Standish, Co-Founder, Anepson Inc., at the company's research laboratory in Toronto's Princess Margaret Hospital.

"OCE'S VALUE-ADDED PERSONNEL PROGRAM IS AN EXCELLENT WAY TO DEVELOP NETWORKS WITH OTHER ENTREPRENEURS, AND IT HAS PROVIDED ME WITH THE FOUNDATION TO DEVELOP A SUCCESSFUL BUSINESS."

—BEAU STANDISH, CO-FOUNDER, ANEPSION INC.

LUC CHARRON/ BEAU STANDISH

Sharp medical minds launch venture

Beau Standish and Luc Charron are two impressive academics who are not resting on their university laurels. Each has taken advantage of the learning opportunities available in OCE's Value-Added Personnel Program (VAP). Standish holds a PhD in Medical Biophysics from the University of Toronto, where he was a Terry Fox Foundation scholar with the Canadian Cancer Society, while Charron is a PhD candidate at the Princess Margaret Hospital in Medical Biophysics. Charron currently works on developing lab-on-a-chip technologies and holds a U.S.-filed patent. With Networks of Centres of Excellence (NCE) appointments at the Canadian Institute of Photonics Innovation (CIPI), Charron knows what it takes to commercialize innovative ideas.

Equipped with new business skills such as project management, strategic planning and intellectual property, developed through VAP, the duo founded Anepson Inc., a company focused on helping emerging photonic and biophotonic technologies reach the marketplace.

POSITIVELY DISRUPTIVE

RESEARCH INITIATIVES

Our research programs work in a continuum to support a range of research from student problem-solving to long-term collaborative research partnerships.

OCE's **Interact** initiative is a short-term program with long-lasting results. This program facilitates collaborative research partnerships between industry and Ontario universities, colleges and research hospitals. Funded by matching contributions from OCE and industry partners, the Interact initiative produces technologies that address specific sector challenges while developing student talent and forging strong relationships between academia and industry.

Proof of Concept is an initiative that supports feasibility studies that test an idea, mitigating the risk of further research investments. This short-term collaboration is a first step to advance research projects and commercialization opportunities.

Research and development of disruptive technologies that have the potential to create new markets and start-up companies are supported through the **Champions of Innovation** initiative. With OCE's financial contribution and in-kind contributions from industry groups, this program facilitates the radical innovation that keeps Ontario at the forefront of technological advancement.

The **Collaborative Research** initiative fosters innovative research partnerships between Ontario's industry and academia. These long-term collaborations, lasting from two to three years, develop commercially viable technologies while providing training opportunities for students, post-doctoral fellows and other highly qualified personnel.

OCE'S RESEARCH PROGRAMS ARE DESIGNED TO TAP INTO ONTARIO'S HOTHOUSE OF INNOVATION — UNIVERSITIES, COLLEGES AND RESEARCH HOSPITALS — ALLOWING INNOVATIVE IDEAS TO GROW INTO DISRUPTIVE TECHNOLOGIES THAT WILL UNLEASH NEW MARKETS

**LAST YEAR OCE WORKED WITH
713 RESEARCHERS IN 38 UNIVERSITIES,
COLLEGES AND HOSPITALS ACROSS
THE PROVINCE**



Left: Dr. Paul Jessop, Chair, Department of Engineering Physics, McMaster University. Right: Work rolls await a roll change at ArcelorMittal Dofasco's hot strip mill 7 stand finishing mill in Hamilton.

MONITORING INDUSTRIAL EQUIPMENT IN A HARSH ENVIRONMENT

Research may create a new class of sensors

Working with researchers at McMaster University and with ArcelorMittal Dofasco, OCE is supporting the research of optical-fibre-based temperature and vibration sensors to monitor equipment for reliable and cost-effective operation within the steel industry. One of the major outcomes of the research is the ability to provide cost-effective monitoring of large equipment in an extremely hostile environment.

ArcelorMittal Dofasco invests heavily in monitoring large rolling mill equipment so that equipment failures can be predicted and downtime minimized through the use of planned maintenance. Working closely with OCE for more than two years, including two international workshops, the company decided to replace conventional electric sensors with fibre optic alternatives.

The advantages of fibre optic-based sensors are many – low transmission loss, small weight and size, chemically passive nature, freedom from electromagnetic interference, high safety and reliability. OCE helped the industry players bring their challenge to McMaster University and engage the team of researchers there, headed by Professor Paul Jessop, Chair, Department of Engineering Physics. The collaboration resulted in prototypes of sensors being created and their successful trials in the harsh Dofasco environment.

In the near future, photonic sensors have the potential to be used with self-powered wireless technology to create a completely new class of sensors for harsh applications. Interestingly, fibre-based temperature and vibration sensors are not a new idea, but a 21st-century refinement of known measurement technology. This new sensor builds on the ability of early mechanical versions, with the added benefits of ruggedness and fibre technology.

“THE RESEARCHERS AT MCMASTER FOUND AN INGENUOUS WAY TO APPLY CURRENT TECHNOLOGY TO IMPROVE THE RESOLUTION AND RELIABILITY OF OUR VIBRATION AND TEMPERATURE SENSORS. NEITHER PARTY, THOUGH, IS IN THE BUSINESS OF COMMERCIALIZING INDUSTRIAL SENSORS AND THE PROJECT WOULD HAVE STALLED WITHOUT OCE’S SUPPORT.”

—CAMERON MITCHELL,
BUSINESS UNIT MANAGER,
ARCELORMITTAL DOFASCO

THE RETHINK

A collaborative effort develops a new take on rainwater collection



L to r: Khosrow Farahbakhsh, Professor, University of Guelph, and Jamie Doran, Business Development Manager, OCE, at the opening of an underground rainwater reservoir.

Re-Source H2O went back to the drawing board to rethink rainwater. The result is a new approach that addresses several technical issues for wide-scale usage of rainwater harvest systems, including cold-weather performance, flow control and total water capacity, all major concerns for Ontario applications.

The company had its beginnings in a collaborative research study through partners OCE, The City of Guelph, the University of Guelph School of Engineering, Reid's Heritage Group, Evolve Builders Group Inc. and Canada

Mortgage and Housing Corporation. The project examined the feasibility of modernized rainwater systems in urban centres, homes and institutions, and looked, too, at the economic and regulatory barriers that hinder implementing wide-scale rainwater harvesting.

From this research, Re-Source H2O was launched. Professor Khosrow Farahbakhsh of the University of Guelph developed Re-Source H2O's original concept, which it was later adapted. While collecting rainwater is not new, a rainwater harvesting system designed for Ontario consumers that adheres to building codes, and is safe and practical for day-to-day use is a new approach worth exploring.

"THIS IS AN EXAMPLE OF THE INNOVATIVE PROJECTS OUR RESEARCH PROGRAMS TARGET. IN THIS CASE, RE-SOURCE H2O NEEDED FURTHER R&D FUNDING, AND WE WERE ABLE TO STEP IN AND HELP."

—JAMIE DORAN, OCE, BUSINESS DEVELOPMENT MANAGER

THE COMPLEXITY OF SIMPLICITY

Morgan Solar's optical technology simplifies solar panels

Morgan Solar is a company working to perfect an optical technology that will make solar panels significantly less expensive. The technology traps and directs sunlight for solar panels in a single component, while current designs require complex and expensive mirrors, optical components and chemicals. Morgan Solar's technology,

called the Light-Guide Solar Optic (LSO), was supported by OCE through collaborative research in partnership with the University of Ottawa.

A number of pilot projects conducted in 2009 have been testing this technology in the field. The company expects commercial production to begin in 2010. In addition to research support, Morgan Solar has also taken part in OCE's First Job program, hiring Dr. Stefan Myrskog, a PhD graduate in the field of experimental atomic and optical physics.



L to r: Stefan Myrskog (OCE First Job), Chief Scientist, Morgan Solar, John-Paul Morgan, Chief Technology Officer, Morgan Solar, Jenni Myllynen, Business Development Manager, OCE and Nicolas Morgan, Director of Business Development, Morgan Solar.

"YOU CAN'T DESIGN A DEVICE. YOU DESIGN A PROCESS. AT ONE POINT THERE IS A WIDGET THAT YOU SELL, BUT YOU HAVE TO DESIGN EVERY PART THAT LEADS UP TO THAT. YOU HAVE TO KNOW WHERE IT'S GOING TO GO OR YOU END UP BEING HIT BY HIDDEN POINTS OF FAILURE."

—NICOLAS MORGAN, DIRECTOR OF BUSINESS DEVELOPMENT, MORGAN SOLAR

NEXT GENERATION WEB SEARCH TECHNIQUES

Idée is on the crest of the image and video web wave

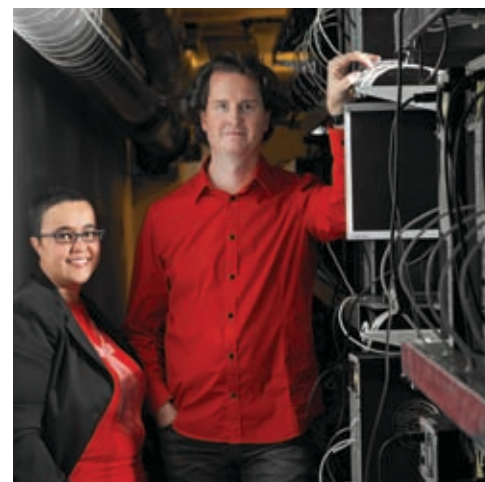
Idée Inc. develops advanced image identification and visual search software similar to Google search, but with images instead of text. Idée's software creates a digital fingerprint for each image and compares it with images scanned from publications and downloaded from the web. The service provides clients with reports of where their images and videos have been used, allowing photo wire agencies, stock photography firms, and entertainment and media companies to recover lost revenues by identifying billable image uses or infringements.

To date, searches have focused on text-based information, but image and

video have become the key drivers of growth of the internet and new media applications.

Last year, Idée launched TinEye.com, a public image search engine where anyone can submit an image and see where it has appeared on the Internet. So far, TinEye has indexed more than 1.1 billion images from the web.

OCE provided funding for a Collaborative Research project to help Idée. For Dr. Sven Dickinson, the principal investigator with the Computer Science Department of the University of Toronto, the ongoing relationship with Idée provides a direct connection to industry challenges. The interaction creates an added dimension to the research direction of his team and invaluable exposure to real-world problems for his graduate students.

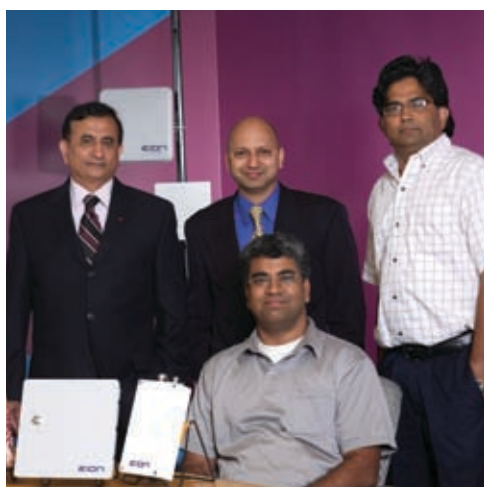


Leila Boujnane, Co-Founder and CEO, Idée Inc. and Paul Bloore, Co-Founder and Chief Technology Officer, Idée Inc.

“AS A SMALL COMPANY, WE CAN’T SUSTAIN A RESEARCH GROUP AND ARE OFTEN UNAWARE OF CUTTING-EDGE TOOLS THAT CAN MAKE OUR PRODUCTS MORE COMPETITIVE. THE RESEARCH LEVERAGE THAT OUR OCE-FUNDED COLLABORATION PROVIDES IS INVALUABLE IN KEEPING ABREAST OF THE LATEST DEVELOPMENTS.”

—LEILA BOUJNANE, FOUNDER AND CEO, IDÉE INC.

WIRELESS WITHOUT BORDERS EION connects communities



L to r: Hindal Mirza and Bharat Rudra, Business Development Managers, OCE, Dr. Anand Srinivasan (sitting), Vice President and GM, EION Inc. and Dr. Kalai Kalaichelvan, President and CEO, EION Inc.

EION Inc. has made a significant global impact on making rural communities digital by providing voice, video and data communication to emerging markets. To date, it has deployed more than 25,000 broadband wireless links in Africa, India, Latin America, the Middle East and North America.

“It is very difficult for smaller companies like us to find the right technology research partners. We would never have been able to tap into them if OCE had not directed us,” says Anand Srinivasan, Vice President, EION Inc.

The company’s rapid growth, along with its vision for the future of wireless technologies has catapulted it to the

2008 list of Deloitte Technology Fast 50 wireless companies in North America.

Many of EION’s clients have unique demands for their communications equipment. The oil and gas industry uses EION’s products for its offshore facilities that are often exposed to extreme conditions. Similarly, the Canadian Coast Guard uses EION’s wireless network on its ships to give personnel more frequent and consistent access to the Internet and the federal government’s intranet while at sea.

Since 2003, EION has invested millions in research and development, and research partnerships with Algonquin College, Carleton University, Queen’s University and University of Waterloo. Out of its R&D collaborations, more than 45 MSc and PhD degrees were granted to participating students.

L to r: John Fielding, Director, Business Development, OCE, Nirmal Sohi, Hardware Developer, eSight, Dr. Rejean Munger, Chief Scientist, eSight, and Senior Scientist, Vision, Ottawa Hospital Research Institute, Rob Hilkes, President, eSight and Marc Perron, Software Developer, eSight.



“AS A START-UP TECHNOLOGY COMPANY THAT IS DESIGNING SUCH AN ADVANCED PRODUCT, WE HAD TO RELY HEAVILY ON BRINGING IN OUTSIDE EXPERTISE. OCE HAS BEEN INSTRUMENTAL IN FINDING AND FOSTERING THOSE RELATIONSHIPS.”

**—ROB HILKES, PRESIDENT,
ESIGHT CORPORATION**

DRIVING

ideas to MARKET

WITH A MISSION TO HELP BRING IDEAS TO MARKET, OCE'S COMMERCIALIZATION PROGRAMS SPEED UP THE TIME FROM RESEARCH TO MARKET. THE RESULT – PIONEERING START-UP COMPANIES POISED TO DRIVE ONTARIO'S INNOVATION AGENDA INTO THE FUTURE

“CCR ENABLES OCE TO FURTHER ITS COMMERCIALIZATION CAPACITY IN TERMS OF THE BREADTH OF THE SUPPORT AVAILABLE AND ITS EXTENSION FURTHER DOWNSTREAM INTO THE COMPANY'S GROWTH PHASE.”

—DR. MARIO THOMAS, CCR, MANAGING DIRECTOR

BRIDGING THE GAP

OCE's Commercialization programs address the “innovation gap” between valuable research results and new, marketable products and services that drive economic growth. They consist of four initiatives: Market Readiness, Martin Walmsley Fellowship for Technological Entrepreneurship, the Investment Accelerator Fund, and this year's launch of the new Centre for Commercialization of Research, which provides a new focal point for OCE's commercialization efforts.

The **Market Readiness** program supports the development of commercial applications for technology created within Ontario's universities, colleges and research hospitals. OCE contributes up to \$250,000 towards a range of activities, including prototype development and market assessment. With help from OCE's Market Readiness program, research groups advance to the next stage of commercialization – the transfer to new or existing companies.

Awarded annually, the **Martin Walmsley Fellowship for Technological Entrepreneurship** supports an academic innovator who is working to transfer technology developed with help from OCE into a new innovative business venture. Amid an exceptional field, two co-winners were selected in 2008: Ameer Taha, Co-Founder of Certo Labs Inc. (see story page 29), and Kostyantyn

“LAST YEAR THE INVESTMENT ACCELERATOR FUND INVESTED MORE THAN \$6.8 MILLION IN 19 ONTARIO-BASED COMPANIES.”

—BRYAN KANARENS, OCE MANAGING DIRECTOR, IAF

Khomutov, Smart Rotor Systems founder. Both Taha and Khomutov will receive \$50,000 per year for up to two years (for a total of \$100,000), to start a successful business venture. Second year funding is dependant on a satisfactory review of first year outcomes.

With seed money from the **Investment Accelerator Fund (IAF)**, promising Ontario start-ups and early-stage companies address their specific needs, becoming attractive investments for venture capitalists and angel investors. Funds from the IAF go towards a range of investments, including technical development, intellectual property development and employee recruitment. IAF is part of the Ontario Market Readiness program, which OCE delivers in partnership with MaRS and the National Angel Capital Organization.

OCE's **Centre of Excellence for Commercialization of Research (CCR)** builds on the organization's 22 years of success supporting collaboration, innovation and entrepreneurship. Federally funded and with a national scope, CCR complements and extends OCE's existing research, talent and commercialization programs by developing partnerships with organizations throughout Canada and around the world. Support and advice are provided in three primary areas: an embedded executives program, access to capital and access to business resources.

COMPUTER-ASSISTED VISION

eSight provides high-tech visual aid with voice control

eSight is a Kanata-based company developing innovative high-tech glasses that use advanced imaging technology to significantly improve daily eyesight function for the millions of people who suffer from non-correctable vision impairment.

A recipient of Investment Accelerator Funding, eSight is currently in the proof-of-concept phase, the glasses include two miniature cameras in the frames and a hi-res display area in the lenses. Eventually, eSight aims to have an ordinary-sized set of glasses that can zoom in and out, and pause and rewind images, all by voice command.



Rob Hilkes, President, eSight, at his company's office in Kanata.

SURVEILLANCE SCOUT

Aeryon takes off with patented flying surveillance camera

Aeryon Labs has created the Aeryon Scout, a hovering, unmanned flying vehicle that records digital images and video for a range of security and surveillance applications. Shaped like a four-leaf clover, the Aeryon Scout is small (just 60 cm by 60 cm), lightweight (1.2 kg) and quiet. It can take off and land vertically and easily operate in confined spaces, making it ideal for dense urban environments and covert applications, both indoors and out.

Marni McVicar, Aeryon's Vice President of Business Development, credits OCE's tailored programs with helping the Waterloo company. "We've been able to tap into OCE's Market Readiness program for funding, move on to First Job for talent and obtained IAF funding."



L to r: Dr. John McPhee, Professor, Department of Systems Design Engineering, University of Waterloo, Richard Worsfold, Director, Business Development, OCE, Marni McVicar, Vice President of Business Development, Aeryon Labs Inc., Mike Peasgood, Chief Roboticist, Aeryon Labs Inc., Dave Kroetsch, President, Aeryon Labs Inc., April Blaylock (First Job), graduate student, University of Waterloo and Matthew Millard, graduate student, University of Waterloo.

MANUFACTURING TRANSFORMATION

TransForm Automotive leverages research for competitive edge

TransForm Automotive Ltd. manufactures and supplies parts for automatic transmissions. The London-based company is not only surviving during these difficult times, but it's gaining market share by implementing new manufacturing technologies.

TransForm's vision is to migrate from being manufacturing-driven to a technology-driven company. OCE helped connect TransForm with researchers at the University of Ottawa, together they are improving performance by linking highly qualified personnel and cutting-edge research directly into the product value stream, through process planning to final production.



L to r: Steve Colbert, Business Development Manager, OCE, Denis Hartman, Operations Manager, TransForm Automotive and Maysam Haghsheenas, graduate student, University of Western Ontario.

SAVING ENERGY INTELLIGENTLY

Energent's real-time technology predicts and manages energy consumption

Energent is a real-time energy informatics company in Waterloo that has developed a technology that predicts and manages a user's energy consumption. Conservative estimates indicate that the Energent tool kit can save \$150,000 on an annual energy bill of \$2 million in a commercial or industrial setting.

"Energent got its start when OCE called for proposals from academia and industry that would position Ontario as the global leader in renewable energy technologies and decided on our solution," says Norm Malloch, Energent's COO. Energent has also received the support of the Investment Accelerator Fund. The company's energy information solutions provide its clients with meaningful, customized energy information for their facilities, allowing them to make smart decisions in managing and reducing their energy use.

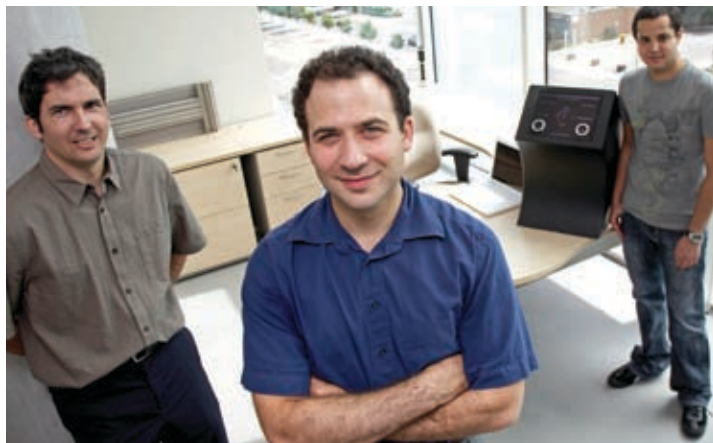


L to r: Nathan Fahey, Business Development Manager, OCE, Dr. Kankar Bhattacharya, Professor, Department of Electrical & Computer Engineering, University of Waterloo, Ian Rowlands, Professor, Environment and Resource Studies, Associate Dean, Research, Faculty of Environment, Associate Director, Waterloo Institute for Sustainable Energy, University of Waterloo and Norm Malloch, COO, Energent.

A WORLD FIRST

Digital Dash engineers a completely digital interface

Founded in Ottawa, Digital Dash may prove knobs and wires for dashboard controls obsolete. The company's Reconfigurable Tactile Display (RTD) prototype is the world's first multi-touch interface that incorporates physical controls with a curved display surface. Designed for the automotive, medical and audio mixing industries, the RTD was made possible from a partnership between Digital Dash and McMaster University's software research laboratory that OCE facilitated. Composed of a rear projector camera unit and a display control surface, the unit's projector displays images such as audio controls, maps or other indicators on the screen, including images that interface with the physical controls such as buttons and faders. The camera even senses the position of the controls or the user's touch on the screen.



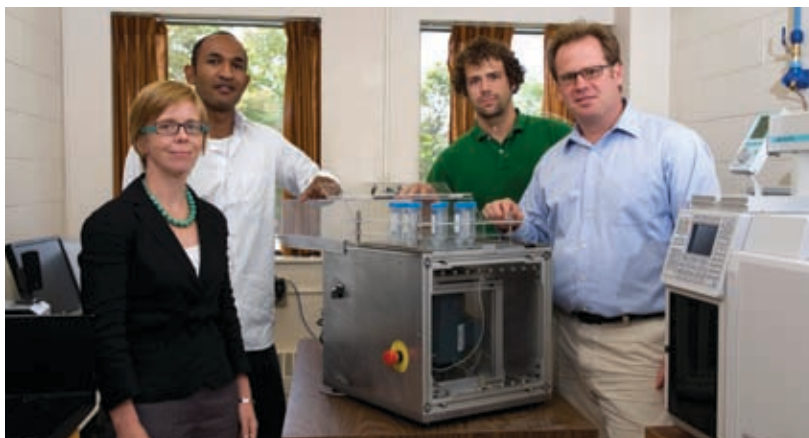
L to r: Mark Lawford, Associate Professor, Department of Computing and Software, McMaster University, Tim Pryor, President, Digital Dash and Anthony Chiarelli, Summer Research Assistant, McMaster University.

SAMPLING MADE SIMPLER

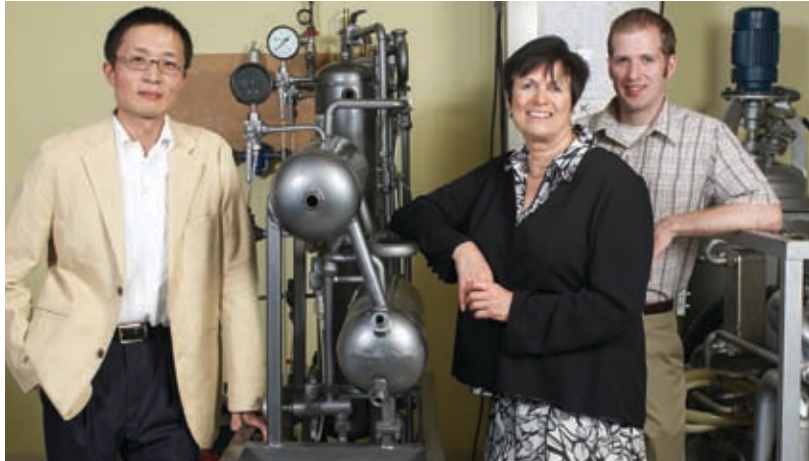
Certo Labs advance chemical extraction

Toronto-based Certo Labs has developed a device that could revolutionize the time and money spent by the pharmaceutical, environmental and food industries on extracting samples from drugs, foods and contaminated soils for analysis. Certo Labs' Certo-Ex is a lab device that offers quantitative extraction of targeted compounds, such as nutrients, fats and other elements from solid samples like food.

Its simple concept streamlines sampling, bringing a process that has historically taken up to 24 hours for a single sample, down to 30 minutes for multiple samples. "Through OCE we were able to make the industry connections that led to the research collaboration with the University of Waterloo," says Ameer Taha, Certo Labs' Co-Founder and Chief Scientific Officer.



L to r: Karen Temple, Business Development Manager, OCE, Ameer Taha, Co-Founder and Chief Scientific Officer, Certo Labs Inc., Adam Methrel, Graduate Student, University of Waterloo and Dr. Ken Stark, Assistant Professor, Kinesiology, University of Waterloo. Absent are Ahmed Taha and Lahav Gil, both co-founders of Certo Labs Inc.



L to r: David Li, Founder and Vice President, Business Development, Thermalfrost, Carole Champion, Director, Business Development, OCE and Andrew Scribner, graduate student, Carleton University.

“THIS TECHNOLOGY HAS THE ABILITY TO REVOLUTIONIZE REFRIGERATION WORLDWIDE, MAKING ONTARIO A WORLD LEADER.”

—STEVEN DONALDSON, CEO, THERMALFROST

A FASTER INTERNET EXPERIENCE

IPeak Networks improves performance of real-time Internet applications

IPeak Networks, a recipient of the Investment Accelerator Fund, has developed solutions that maximize the performance of Internet-based applications. The Ottawa-based company's patent-pending technology virtually eliminates hiccups from VoIP calls and prevents video breakups. “Our founder spent years trying to split the atom when it comes to optimizing IP networks, and he succeeded,” says Martin Horne, IPeak's CEO. “OCE, through its industry connections, was able to find the experts we needed to fast-track our idea towards commercialization.”

The technology significantly improves the overall performance of real-time applications, increasing the realism of online games as well as the delivery speed of files over the Internet by up to 15 times. IPeak's CEO was found through the embedded executive program operated by OCE's Centre for Commercialization of Research.

LAST YEAR, OCE-SUPPORTED START-UP COMPANIES ATTRACTED \$65.5 MILLION IN INVESTMENT FUNDING



L to r: Kevin Carroll, Director of Commercialization, OCE, Leo Lax, Chairman of the Board, IPeak Networks and Martin Horne, CEO, IPeak Networks.

HEAT-DRIVEN REFRIGERATION

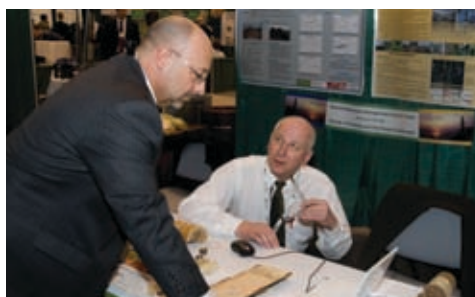
Thermalfrost turns waste heat into a cool business

By harnessing waste heat that would otherwise pollute the atmosphere, Richmond-based Thermalfrost has developed a unique technology that generates deep refrigeration for virtually any cooling application. In fact, its refrigeration technology could be modified to satisfy most of the world's refrigeration needs – from fish refrigeration to running refrigerated trucks.

The technology is the brainchild of Carleton University engineering professor Dr. Junjie Gu, and international refrigeration expert David Li. OCE and the Ontario Power Authority invested in early-stage research, giving Thermalfrost a chance to develop the technology and a prototype. OCE also connected the founders with the eventual CEO and helped Thermalfrost attract additional investment from the National Sciences and Engineering Research Council of Canada and Sustainable Development Technology Canada to move them to market.

FOSTERING CONNECTIONS

INNOVATION THRIVES WHERE THERE IS COLLABORATION. AT OCE WE'RE CONSTANTLY SEARCHING FOR NEW AND BETTER WAYS TO CONNECT RESEARCHERS, INNOVATORS, INDUSTRY AND ENTREPRENEURS BY CREATING UNIQUE VENUES WHERE GREAT MINDS CAN COME TOGETHER TO EXCHANGE KNOWLEDGE, IDEAS AND INSPIRATION



Clockwise from top: John Wilkinson, Ontario Minister of Research of Innovation, gives the keynote address at Discovery 09's luncheon. A group gets down to business at the International Café which featured 50 Canadian trade commissioners representing 24 countries from around the globe and 14 regions from across Canada and the United States. An attendee visits an exhibitor's booth, one of more than 300 on the sold-out show floor.

DISCOVERY: CELEBRATING ONTARIO'S INNOVATION SUCCESSES

OCE's annual Discovery conference is Canada's premier innovation and commercialization event, giving participants a unique opportunity to experience a myriad of never-before-seen Ontario-based technologies from the province's best innovators.

This year's sold-out show, held May 11-12 in Toronto, attracted close to 2,300 scientists, investors, researchers, business leaders and entrepreneurs. Delegates explored 100,000 square feet of ideas, innovations and solutions, exchanged ideas and creations, and made business happen.



Clockwise from top: Clayton Christensen, one of the world's leading thinkers on innovation, gives the opening keynote address. David Miller, Mayor of Toronto, at the world launch of the Zerofootprint Building Re-Skinning Competition. Seated next to the Mayor are: Deborah Kaplan, Zerofootprint's Executive Director, Mark Romoff, President and CEO, OCE, Dr. Ron Dembo, Founder and CEO, Zerofootprint, Margaret Atwood, Writer and Environmentalist, Andrew Bowerbank, Executive Director, World Green Building Council, and Donna Cansfield, Ontario Minister of Natural Resources. Attendees explore the Discovery show floor.

MIND TO MARKET SERIES: TAKING INSPIRATION ON THE ROAD

Our series of six Mind to Market speaker and panel events held across Ontario in 2008-09 set the tone for exciting interaction by inviting leading innovators to share their experiences, strategies and visions of an Ontario ready to burst onto the global scene. The series addressed a wide variety of additional topical issues, including the crucial need to attract more youth to choose science as a career, how to revitalize Ontario's manufacturing sector, and building the electrical grid of the future.



A MISSION TO SHOWCASE ONTARIO GREEN INNOVATION

Premier Dalton McGuinty held a media conference at OCE's Toronto offices on May 14, 2009. The Premier announced a seven-day trade mission to India to highlight green technologies in Ontario. PCI Geomatics, a long-time OCE partner, is a featured company on the mission. The company is poised to help India's agricultural base by using satellite technology to monitor crops, soil erosion and water supplies. At the news conference were (l to r, front row) David McFadden, Chair of the Board, OCE, Sandra Papatello, Ontario Minister of Economic Development and Trade, and Mark Romoff, President and CEO, OCE.

2008-09 MIND TO MARKET SERIES

Change by Design: How innovation is reshaping manufacturing, Burlington

With **Tim Glover**, Chief Strategy Officer & Co-Founder, Value Profit Group, and **Brian Maragno**, Operations Manager, Siemens Fossil Power Generation, Hamilton Plant

Mind Matters: Turning students on to science, Hamilton

Moderated by **Mark Chamberlain**, CEO, Trivaris Ltd.

A New Ontario: Making sustainable communities work, Guelph

Moderated by **Karen Farbridge**, Mayor of Guelph

ROI: Return on innovation. How does recent market turmoil impact the valuation game?, Toronto

Moderated by **Joe Castaldo**, Staff Writer, *Canadian Business*

Opportunities in a Bio Economy: A look at sustainable models for the north, Thunder Bay

Moderated by **Dr. Livio Di Matteo**, Professor, Department of Economics, Lakehead University

Opening Global Lines for Communication: Is Ontario on hold, Waterloo

Moderated by **John Reese**, CTO, Nortel

ONTARIO'S innovation TRAILBLAZERS

FIVE REMARKABLE COMPANIES AND PARTNERING UNIVERSITIES — THE BEST OF OCE- SUPPORTED RESEARCH COLLABORATION

M2M AWARD JUDGES

Paul Gilbert (Chair)
Chief Executive Officer, Quanser

Suzanne Corbeil
Vice President, External Relations
Canada Foundation for Innovation

Philip Haggerty
Vice President, Corporate
Development, OMERS

Jane Pagel
Vice President, Government &
Corporate Affairs, Jacques
Whitford Stantec Ltd.

Dr. Molly Shoichet
Canada Research Chair in Tissue
Engineering and Professor of
Chemical Engineering & Applied
Chemistry, University of Toronto,
President and Founder,
Matregen Corp.

Mark Romoff
President and CEO,
Ontario Centres of Excellence

Five Ontario companies and partnering universities were selected as finalists for OCE's 2009 Mind to Market Award. Together the finalists created new ways to generate clean energy, reduce manufacturing costs and connect rural areas, reflecting an innovation sector that shows no signs of slowing down.

Sponsored by the Ontario Municipal Employees Retirement System (OMERS), the OCE Mind to Market Award celebrates the best OCE-supported research collaboration between the business and research communities, resulting in ventures with tremendous market potential. OCE supported each collaboration through research funding, business mentorship and industry connections.

TOGETHER THE FINALISTS CREATED NEW WAYS TO GENERATE CLEAN ENERGY, REDUCE MANUFACTURING COSTS AND CONNECT RURAL AREAS

AWARD RECIPIENT

WDI (Wise Device Inc.) & University of Toronto

WDI's breakthrough laser and optics technologies have captured the attention of major electronics manufacturers around the world. Developed in partnership with the University of Toronto, the technology substantially reduces LCD display manufacturing costs and is poised to capitalize on the fast-growing global market for LCD screens.

FINALISTS

EION Inc. & University of Ottawa

EION has created a way to bring wireless voice, video and data communications to rural areas worldwide. To date, it has deployed more than 25,000 broadband wireless links in Africa, India, the Middle East and North America.

StormFisher Biogas & University of Western Ontario

StormFisher Biogas is a renewable-energy company that builds and operates biogas plants across North America. Working with the food-processing and agricultural industries, it processes organic by-products and turns them into natural gas and electricity; the company also produces an organic, all-natural fertilizer that reduces the need for chemical fertilizer.

Terraflux Geosynthetics Inc. & Queen's University

Terraflux Geosynthetics is making the world's landfills safer with its geosynthetic clay liner — a woven fabric-like material that acts as a barrier to keep hazardous landfill waste from leaching into the land and nearby waters.

TransForm Automotive & University of Western Ontario

TransForm Automotive is an auto parts manufacturing company that is not only surviving, but also through its growing and capturing new market share, manufacturing and supplying of parts for automatic transmissions.

the **NEXT** innovation **WAVE**

WHAT'S NEXT IN THE ENVIRONMENT

"The green economy is set to revolutionize policy and business in Ontario. Our focus on bringing innovation to communities – big and small – will yield powerful results, as this is where most people live, consume energy and material resources, and produce waste. By leveraging our years of experience in water technology and brownfield remediation and drawing on the expertise of all OCE's Centres, we are developing innovative products and methods for greener buildings, better waste management, and monitoring the state of our environment and its resources."

—**Doug Wright, Managing Director, Centre for Earth and Environmental Technologies**

WHAT'S NEXT IN MANUFACTURING

"Current research initiatives in the development of advanced materials have amazing potential for new products that will revolutionize and reshape a wide variety of manufacturing sectors – from automotive to healthcare. For example, advanced materials research has resulted in products that can heal wounds more quickly and have the potential to dramatically improve the vision of people with visual impairments. Dynamic Ontario-based companies, creative researchers and our Centre are working together at the crest of this innovation wave."

—**Bob Civak, Managing Director, Centre for Materials and Manufacturing**

WHAT'S NEXT IN PHOTONICS

"It's no accident that light and the manipulation and use of light, which is photonics, impacts on literally everything. Understanding how we can use light and apply it is really crucial to Ontario's future. Photonics has so many applications that can and are impacting manufacturing, medical imaging, health and energy just to name a few. Ubiquitous, secure and affordable broadband will also be driven by advances in photonics, meeting the escalating needs of consumers to connect anytime and anywhere."

—**Dr. Don Wilford, Managing Director, Centre for Photonics**

WHAT'S NEXT IN ENERGY

"The electrical grid is the most extensive network on earth and is going to be transformed and made smarter by information and communication technologies. On the ground, this transformation will be driven by the convergence of Ontario's energy, telecommunications and IT sectors. While our focus remains on the three S's – smart grid, storage and solar, the most disruptive will be energy storage solutions. If you don't use it, you lose it. For that reason, our Centre has made energy storage a priority and technologies that will provide consumers with far more control on how they monitor and manage their power usage."

—**Dr. Dan McGillivray, Managing Director, Centre for Energy**

OUR CENTRES' MANAGING DIRECTORS LOOK TO THE INNOVATION HORIZON AND WHERE WE MAY FIND THE "NEXT BIG THING"

WHAT'S NEXT IN INFORMATION TECHNOLOGIES

"The shift, over the past decade, has been remarkable with a dramatic move from traditional hardware manufacturing to the creation of new software applications and the rapid emergence and application of digital media and gaming. From cloud computing, visualization solutions, remote sensing and monitoring to mesh networks, these new technologies are enabling IT researchers for the first time to add intelligence to buildings, energy grids, motors, logistics and transportation. We're on the verge of creating truly smart cities."

—**Keith Parsonage, Managing Director, Centre for Communications and Information Technology**

WHAT'S NEXT IN COMMERCIALIZATION

"With innovative companies at the centre of our efforts, we are developing and implementing best-practice, scalable commercialization models based on a web of regional, national and international partnerships encompassing all necessary resources to ensure their success. The end goals are to increase the number of companies that progress successfully through the stages of commercialization to become sustainable global competitors and reduce the time to market of leading edge technologies, goods, services and business models."

—**Dr. Mario Thomas, Managing Director, Centre for Commercialization of Research**

our
EMPLOYEES
help us **GROW**



AT OCE, OUR EMPLOYEES ARE OUR GREATEST ASSET

WE'RE COMMITTED TO PROVIDING A SAFE,
RESPECTFUL AND SUPPORTIVE ENVIRONMENT.
WE BELIEVE A HEALTHY WORKPLACE* IS CENTRAL
TO WELL-BEING AND BY EXTENSION, INNOVATION



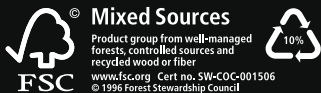
*Healthy Workplace is governed by the National Quality Institute of Canada



Ontario Centres of
Excellence

Where Next Happens

TORONTO KINGSTON LONDON MARKHAM MISSISSAUGA OTTAWA WATERLOO
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