

OCE ROI

OCE ANNUAL REPORT 2019–2020

RETURN ON INNOVATION

oce-ontario.org



Ontario 

ABOUT US

What We Do

For more than three decades, OCE has focused on ensuring the people of Ontario reap the personal and economic benefits of leading-edge research underway at our publicly funded universities, colleges and research hospitals by growing businesses, accelerating innovative products and services to global markets, and driving job creation.

OCE's vision is prosperity from innovation – an Ontario where bright minds connect to create prosperity. Together with our government, industry, and academic partners, we are working to maximize the commercial impact of intellectual property (IP) developed in Ontario and accelerate the commercialization of new technologies that drive job creation and create prosperity for our province.

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How We Do It

OCE has brought together collaborators and supported R&D and commercialization projects in over 180 communities across Ontario, spanning from Thunder Bay to Windsor to Cornwall and all parts in between. Our perspective is informed by market pull, our network is broad, our expertise is deep, and our focus is on province-wide economic development.

Our province-wide business development team:

- initiates unparalleled partnership opportunities,
- develops and manages successful industry-academic R&D collaborations,
- supports high potential SMEs commercializing new technologies,
- provides access to emerging and advanced technology platforms,
- delivers one-of-a-kind hands-on training and skills development opportunities for the next generation of innovators

OCE is a trusted pan-provincial collaboration platform that:

DRIVES INNOVATION

Creating a marketplace for companies and entrepreneurs to access the research capacity in Ontario's post-secondary institutions and help move promising technologies from the research lab to the market

CONNECTS SUPPLY AND DEMAND

Making navigation of Ontario's emerging technology assets easier for companies, accelerating time to market

CATALYZES CAPITAL

De-risking early-stage investment opportunities for investors and helping to make high-potential start-ups ready for investors and customers

Who Are Our Partners

OCE works with diverse partners across the innovation ecosystem to drive the commercialization and adoption of new technologies by connecting high-potential companies to the capital, research expertise, markets and technologies they need to grow and succeed.

PARTNERS INCLUDE:

- The Government of Ontario
- Federal and Municipal Government Partners
- Global Multinationals
- Interprovincial and International partners
- Offices of Research and Innovation/Technology Transfer Offices
- Ontario Start-ups, Scale-ups and SMEs
- Ontario's Universities, Colleges and Research Hospitals
- Private Investors (Angels/VCs)
- Economic Development Offices
- Regional Innovation Centres (RICs)
- Small Business Enterprise Centres (SBECS)
- National and Provincial Business Associations

What Sets Us Apart

Experienced Business Development Team

OCE is unique in deploying an on-the-ground, experienced business development (BD) team across the province. Our perspective is informed by the market and our focus is on province-wide economic development. BDs identify and initiate partnership opportunities while exploring the halls and labs of academe to discover the latest research breakthroughs. They not only help build industry academic collaborations to commercialize innovation but also support high-potential companies in adopting emerging technologies.

Strong Knowledge of Communities

Because no two communities are the same, OCE plays a central role in bringing together stakeholders who can work together to meet the economic development needs of each region. We have first-hand working knowledge of the communities we serve – more than 180 across Ontario in the past 5 years alone.

Embedded in the areas we serve, OCE brings together large industry, SMEs, and academic and government partners that are best able to help the most promising businesses grow.

Requirement for Matching Industry Funds

OCE requires matching industry funding and on average industry contributions are 2:1. This unique private-sector matching requirement leads to follow on investments by angel investors and venture capital funds resulting in many multiples of invested dollars, and the creation of permanent full-time jobs in Ontario at very efficient net costs to the province.

De-risking Expertise

OCE's strong expertise in de-risking innovation helps attract private investors and other funders to companies they would otherwise overlook due to the risks associated with early-stage and new ventures.

Unparalleled Network

A gateway to Ontario's innovation ecosystem, OCE continues to expand its powerful network of partners, including government, large industry, academia, SMEs, entrepreneurs, investors and other key players in the ecosystem.



HON. VIC FEDELI
Minister of Economic
Development, Job Creation
and Trade

“

Ontario is proudly home to one of the most dynamic and collaborative innovation ecosystems in the world. Our government is committed to working together with ecosystem partners, businesses and academic institutions to create the right conditions to spur new innovations, expand our opportunities, and create good jobs in Ontario. The OCE's efforts in 2019 and 2020 have nurtured invaluable partnerships and collaborations which have brought to life many homegrown ideas, contributing to the growth and future success of our province.

ENCQOR 5G

ERICSSON  **ciena** THALES IBM CGI

Canada  Ontario  Québec 

ENCQOR
INNOVATION

 prompt

 OCE
Where Next Happens

ENCQOR & NGNP
PROVINCIAL HUBS

COMMUNITECH

 Invest
Ottawa | Investir
Ottawa

MaRS



Next Generation Network Program
Powered by CENG

 CENG

 OCE
Where Next Happens

Ontario 

REGIONAL TECHNOLOGY DEVELOPMENT SITES & DEMONSTRATION ZONE

AVIN
CONNECTED. AUTONOMOUS.

 spark
CENTRE

in collaboration with the Ontario Tech
University (OTU), OTU's Automotive Centre
of Excellence (ACE), Durham College and
the Region of Durham.

 Invest
Ottawa | Investir
Ottawa

in collaboration with Carleton University,
University of Ottawa, Algonquin College
and the City of Ottawa.

Ontario 

MaRS

in collaboration with the University
of Toronto, Ryerson University, York
University and Guelph University.

COMMUNITECH

in collaboration with the University of
Waterloo, Waterloo Region Economic
Development Corporation and Canada's
Open Data Exchange.

 innovation
FACTORY

in collaboration with McMaster
University, Mohawk College and the
City of Hamilton.

WindsorEssex
ECONOMIC DEVELOPMENT CORPORATION

in collaboration with University of
Windsor, St. Clair College, City of
Windsor and WETech Alliance.

APMA
LEAD. REACH. CONNECT.

operates the Demonstration Zone in collaboration with the City of Stratford.

IBM Innovation
Incubator Project

IBM

 OCE
Where Next Happens

Ontario 

REGIONAL INNOVATION CENTRE PARTNERS

COMMUNITECH

 HALTECH
ACCELERATING INNOVATION

 INNOVATE
NIAGARA

SAULT STE MARIE
INNOVATION
CENTRE

WE·tech
ALLIANCE

 NORTHWESTERN ONTARIO
INNOVATION
CENTRE

 iion
Innovation Initiatives
Ontario North

 innovation
FACTORY

 Innovation
Guelph

NORCAT

techalliance
of southwestern ontario

 INNOVATION
MILL

 Invest
Ottawa | Investir
Ottawa

 LAUNCH LAB
THE INNOVATION CENTRE

MaRS

 spark
CENTRE

 ric
Research
Innovation
CENTRE Commercialization

 ventureLAB
Mentoring | Partnering | Connecting



DR. CLAUDIA KRYWIAK
President and CEO
OCE

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We continue to challenge and invite Ontario’s innovators – companies, researchers, and entrepreneurs – to embrace the opportunities presented by these powerful new technology tools.

PRESIDENT’S MESSAGE

If “necessity” is the mother of invention, then “adversity” must be the experienced midwife – creating the ideal conditions for new ideas to come into the world. Which is why, alongside the greatest period of adversity in recent memory, we are also experiencing a time of unprecedented innovation, invention, and creation.

Innovation, by its very definition, implies doing something better. At OCE, it has always been our mission to accelerate innovation through game-changing R&D that produces successful commercialization, company growth and job creation. Now, more than ever, we need new ideas, products, and services to drive us forward and trace a path to a prosperous economic, social and environmental future.

To achieve this, each year we work with hundreds of researchers, and companies of all sizes, to support collaborative R&D projects, catalyze capital for high-potential start-ups, de-risk new technologies and make navigating Ontario’s emerging technology assets easier for our innovators.

Through today’s adversity we are also fortunate to see, first-hand, how many of these companies have pivoted their technologies to respond to COVID-19 and their success

stories, featured in the pages ahead, highlight the resourcefulness and creativity of Ontario’s innovators.

This creativity, coupled with the development and deployment of advanced technologies, is critical to our economic recovery and increased resilience. With the support of the Ontario government, OCE provides Ontario SMEs with access to advanced technology platforms that help high-potential companies accelerate their growth and improve their competitiveness; in turn, supporting economic vitality in all regions of our province.

We are proud to report the outcomes of our efforts from the past year and we are deeply appreciative of our industry, academic and government partners, as we work closely to make ideas a reality, and reality better. We invite you to review this record of our performance and join us in celebrating the success of the entrepreneurs, companies, researchers, and innovators profiled in this year’s Annual Report – because their success is Ontario’s success.

A handwritten signature in black ink that reads "C. Krywiak." with a period at the end.



DR. DAN PATTERSON
Chair, Board of Directors
OCE

“

We offer our sincere thanks to the Government of Ontario for entrusting us with the important mandate of accelerating innovation to create jobs and help to build a strong provincial economy.

BOARD CHAIR'S MESSAGE

The events of the past year could not have been more unexpected, as a global pandemic dramatically altered everything we held as true: the way we work, the way we live and the way we interact.

As a country and a province, we witnessed unprecedented challenges, but also uncovered remarkable resilience and a determination on the part of individuals and businesses to find a new way forward.

Over the past 3 decades, OCE has been far more than a provider of programs to the innovation ecosystem – OCE has been a connector, a collaborator, and a strong presence in communities across our province. Never has this been more necessary than now.

COVID-19 required government, industry, SMEs, and academics to come together to collaborate to find the necessary expertise and know-how to create Ontario-made solutions to enable recovery.

OCE will weather this crisis with sheer resilience, determination and a belief that we can continue to make a difference by supporting and serving our innovators, entrepreneurs and ecosystem partners.

We offer our sincere thanks to the Government of Ontario for entrusting us with the important mandate of accelerating innovation to create jobs and help to build a strong provincial economy.

As always, we are grateful to work with our industry partners who understand the value of

collaboration, the need for a long-term outlook, and the constant pursuit of innovative solutions.

I extend my personal thanks to my Board of Director colleagues for their vision and guidance, the Executive Team, led by President and CEO Claudia Krywiak, who have shown a remarkable resilience and foresight in challenging circumstances, and the committed and talented staff who have kept the lights on and the doors open, both virtually and remotely, during dark and challenging times.

As someone who has spent a lifetime in academia, I know how fortunate we are to be supporting talented and committed innovators. This experience has given me extraordinary confidence in the capabilities, spirit and creative energy of our next generation of graduates and how important it is that we embrace their innovative ideas and create the environment in which they will thrive as young entrepreneurs.

Ontario is home to a workforce whose level of talent, diversity, and ingenuity is unequalled, and we are committed to supporting this entrepreneurial community as they work to develop the breakthrough products and services that will strengthen all corners of our province.

A handwritten signature in black ink, appearing to read 'Dan Patterson'.

\$360.7
MILLION

**Total Program
Investment**
into collaborative R&D
and commercialization
projects across Ontario

**OUTCOMES
ACHIEVED**

FY2019-2020*

2.7x Leverage

\$259.8
MILLION

**Total
Co-Investment
from Industry**

Matching Contributions from
Industry Partners

HIGHEST IN OCE HISTORY!

693
Start-ups

6,891
Jobs

Incremental
Sales
Revenues \$314
MILLION

Private Sector
Follow-on
Investments \$834
MILLION

* Includes retrospective survey results

GATEWAY TO ONTARIO'S INNOVATION ECOSYSTEM

We Connect
Ontario's SMEs to

OCE's expansive network from across the innovation ecosystem offers a unique pan-provincial collaboration platform that accelerates the development, commercialization and adoption of new technologies, driving job creation and long-term economic prosperity.



Post-Secondary Research Expertise

To help solve industry challenges and drive the commercialization of new technologies



Anchor Firms

To open up global markets for Ontario companies and bring investment into Ontario



Advanced Technology Platforms

To give Ontario companies access to advanced technologies and ability to prototype and test new products



Investors

To help high-potential companies accelerate time to market by catalyzing capital and facilitating access to investors



Government

To explore opportunities for government to be an early-adopter and first-customer of emerging technologies



OCE Business Development Experts

To guide application process, identify potential collaborations and advise on company building and market strategy

Ontario's **Voucher for Innovation and Productivity (VIP)** program helps develop and commercialize made-in-Ontario technologies by partnering industry with Ontario's publicly funded post-secondary institutions.

These specialized collaborations drive revenue generation, grow businesses and create high-value jobs for Ontario companies.

FY2019-2020 VIP Program Outcomes:

174
SMEs

775
Jobs

\$30.7 million
Incremental Sales

\$80.7 million
Private Sector Follow-On Investments



ACCELERATING COMMERCIALIZATION IN NORTHERN ONTARIO

Flosonics Medical

Sudbury-based Flosonics Medical has created a wearable technology, FloPatch, a wireless Doppler ultrasound probe that is placed over the carotid artery and provides continuous monitoring data to physicians, nurses and paramedics involved in the patient's care. In a collaborative project with Sunnybrook Research Institute, Flosonics worked with a team of ultrasound engineers to further develop and test their prototype in a clinical setting. The company has successfully secured customers and investors and continues to grow.

An ideal example of industry and academic collaboration, Flosonics is the past recipient of the **Mind to Market Award** (2018-2019), which is given annually by OCE to the "best of the best" in successfully commercialized research. Nominations are advanced by OCE's Business Development Managers and the winner is determined by a third-party Selection Committee.



ROI RETURN ON INNOVATION

\$6,000,000
Follow-on investment

20
Jobs created/retained

SUPPORTING NORTHERN AND RURAL COMMUNITIES

Advancing Technology for Northern Ontario with NORCAT

NORCAT is a global leader in skilled labour training and development for the future of mining technology and innovation.

NORCAT, NOKIA and CENGN recently teamed up to install a private LTE network underground at NORCAT's Underground Centre, which serves as an 'active laboratory' to develop and showcase new mining technology innovations. This partnership provides Ontario companies with another opportunity to be ahead of the curve and take their technologies to the next level.

NORCAT also recently launched the Sudbury Catalyst Fund, in collaboration with the City of Greater Sudbury, Nickel Basin Federal Development Corporation and FedNor. The \$10 million venture fund recently supported the new start-up, FORTAI, and their SmartCube technology. This support to FORTAI builds on provincial funding from AVIN, which was announced at the 2020 Prospectors & Developers Association of Canada (PDAC) conference.



NGNP: Ontario SMEs accessing next-generation network and cloud testbed

Expanding Residential Broadband to Rural and Northern Communities

In December of 2019, we saw the launch of the first Northern Ontario Residential Broadband Project, as part of the Next Generation Network Program (NGNP), to bring connectivity to underserved Northern Ontario communities.

Delivered in partnership with CENGN, the NGNP program helps Ontario companies develop and demonstrate innovative wired and wireless technology, products and services.

This project uses a microwave link, coupled with fibre-optic technology, to transmit high-speed broadband from Parry Sound to Carling Township and bring access to more than 200 homes. This project provides a model for future low-cost expansion to surrounding communities, as installation and maintenance costs are substantially reduced.

Based on this success, CENGN is already evaluating new project proposals and communities for upcoming rounds of the stream.

NGNP offers SMEs access to the CENGN testbed enabling SMEs to test and validate promising technologies, removing barriers to product commercialization and accelerating market growth

COVID-19 COLLABORATION PLATFORM

Success by
Numbers

491

Companies

400+

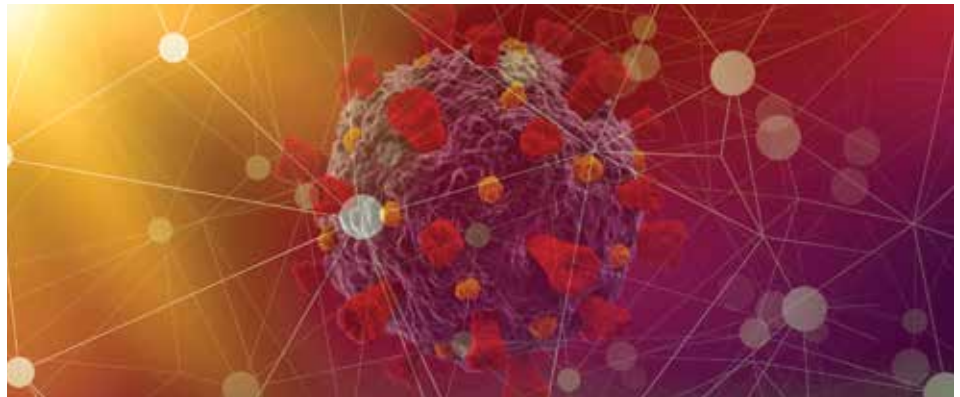
Connections

101

Communities

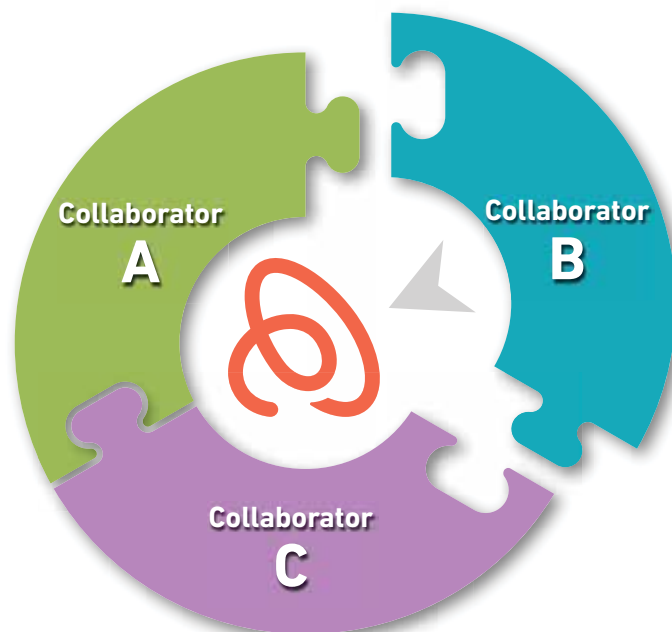
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We endeavour to match solution-seekers with solution-providers, by leveraging Ontario's innovation ecosystem.



The COVID-19 pandemic created unprecedented demands on our economic and frontline health infrastructure. In response, OCE worked with partners across the innovation ecosystem and launched the **COVID-19 Collaboration Platform** to identify technologies, businesses, and experts from across the province that could help fill the product and service gaps related to COVID-19.

Innovators developing new tools, and experts looking to support Ontario's COVID-19 response, leveraged the platform to connect with potential collaborators. Through its extensive network of businesses, experts, and business development managers, OCE connected businesses and technology developers to accelerate the commercialization of in-demand products and support the submission of production-ready solutions to the province's Ontario Together fund.



INDUSTRY PARTNERS



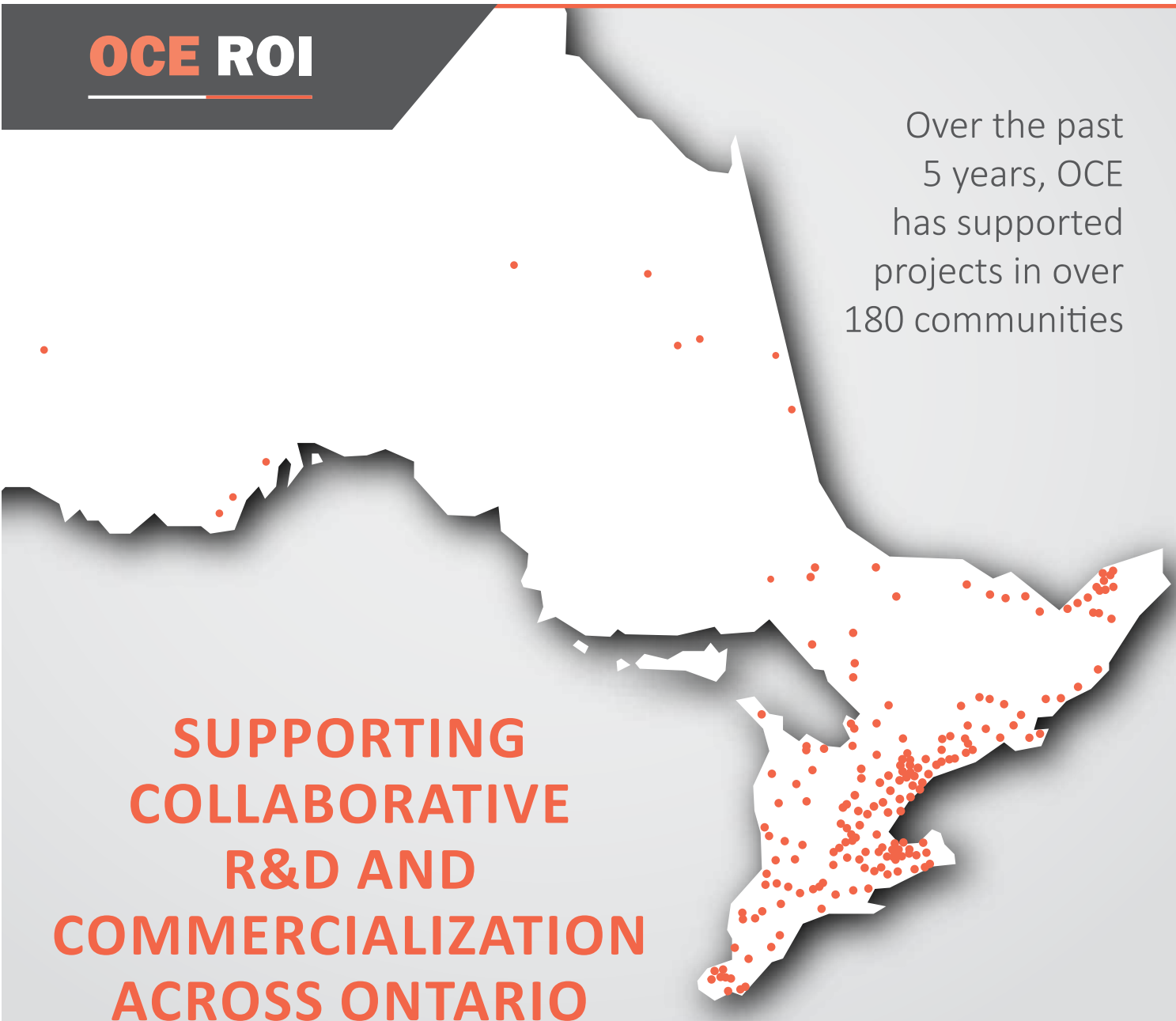
REGIONAL INNOVATION CENTRES



RESEARCH PARTNERS



Over the past
5 years, OCE
has supported
projects in over
180 communities

A stylized map of Ontario, Canada, is shown in white against a grey background. Numerous small red dots are scattered across the map, representing the locations of OCE-supported projects. The dots are more densely clustered in the southern and eastern parts of the province, particularly around the Greater Toronto Area and the Niagara region, and more sparsely distributed in the northern and western parts.

SUPPORTING COLLABORATIVE R&D AND COMMERCIALIZATION ACROSS ONTARIO

By visiting the OCE website, you can view an interactive map that lists our projects by region, economic sector, company/partner, academic institution, company location and project description.

This site also provides a view of the distribution of OCE funding by sector, number of projects by university, college, health institute or research hospital, and the key metrics related to industry and partner leverage, outcomes such as jobs created and retained, and number of award-winning companies.

HELPING REBUILD ONTARIO'S SUPPLY CHAIN

“

The most challenging front that we've been working on is the manufacturing equipment itself. The goal is to create a stable domestic supply chain.

Merrick Levine
President,
Ontario Die International

Mask Manufacturing

With COVID-19 causing global supply chain disruptions, companies have been challenged to rebuild these chains locally, including sourcing materials, pivoting manufacturing lines and seeking new regulatory approvals.

To meet the immediate and long-term demands of Ontario healthcare workers, OCE is helping to rebuild supply chains, including mask manufacturing. This initiative brought together industry and academic representatives from across the mask production supply chain who described their challenges and the opportunities to build resilience into the sourcing, manufacturing and approval process for Personal Protective Equipment (PPE).

These discussions, involving industry, academic and government representatives from across Canada and internationally, illustrated the need for domestic supply and mass production and how to connect and stabilize home-grown solutions. As a direct result of this initiative, a number of new strategic introductions have been facilitated by OCE.

Initiatives of this type provide a valuable forum for identifying connections and supporting collaborations as Ontario and Canada work toward establishing domestic supply chains for PPE needs.

CleanWorks

After the 2015 listeria outbreak, OCE supported a collaboration between an Ontario apple orchard and the University of Guelph to develop an innovative food sanitization process, creating CleanWorks Inc.

In response to COVID-19, OCE is assisting CleanWorks to pivot again into the sanitization of hospital equipment.

Having developed the “Clean Flow” prototype machine, university laboratory testing quickly validated the design. The machine can sanitize as many as 1,200 masks an hour, destroying up to 99.99% of pathogens on surfaces, including N95 masks. Due to the current shortages of PPE for front-line medical personnel, this innovative solution presents a powerful tool for Canadian hospitals in the fight against COVID-19.



Building on this early support and OCE's introductions to early customers, CleanWorks was able to submit an application for this new mask sanitization process to the Ontario Together website, resulting in \$2 million in provincial support to triple production efforts.

CleanWorks and Moyer's Apples were also winners of the **Mind to Market Award** in 2018.

Accelerating Innovation Through Partnership

Rapidly accelerating technology is having a profound impact on how industry and businesses work. To meet this challenge, the province, in partnership with OCE, launched the Advanced Technology Platforms (ATP) to provide Ontario's innovators with access to leading-edge technologies that help accelerate company growth and global competitiveness.

Through the ATPs, researchers, entrepreneurs and SMEs gain access to emerging technologies, including 5G and next generation networks, smart and cloud computing, artificial intelligence and data analytics.

By developing new partnerships between industry, academic researchers and entrepreneurs, OCE plays a crucial role in transforming emerging technologies into new applications, while sharpening Ontario's competitive edge and building export capacity.



Advanced Technology Platforms (ATPs)

Ontario's **Autonomous Vehicle Innovation Network** (AVIN) builds upon the successful early entry of Ontario into the connected and autonomous vehicle (C/AV) space. AVIN provides a competitive advantage to Ontario and allows it to reinforce its position as a North American leader in transformative automotive technologies, as well as transportation and infrastructure systems.

The **Next Generation Network Program** (NGNP), a partnership between OCE & CENGN, supports the development and implementation of ultra-high-speed digital infrastructure to interconnect digital innovation hubs within Ontario, support SME proof-of-concept projects, develop talent, support export development activities and access technical and business supports.

ENCQOR 5G is a transformational Canada-Quebec-Ontario partnership focused on research and innovation in the field of 5G disruptive technologies, on adoption initiatives and system uses.

The **IBM Innovation Incubator Project**, offered through a partnership between OCE and IBM, will deliver an integrated suite of globally disruptive, advanced computing technology infrastructure and programming to Ontario's SMEs.

Innovation Hubs

OCE works with Regional Innovation Centres to deliver the ATP suite and support Ontario SMEs to develop, test and demonstrate their cutting-edge technical solutions.



The **IBM Innovation Incubator (I3)** initiative enables SMEs to develop, demonstrate and commercialize new innovations that leverage smart computing and artificial intelligence – accelerating their time to market and driving economic growth.



IMPROVING SAFETY THROUGH IOT

SmartCone

SmartCone has been researching and developing IoT technologies to make safety more intelligent, cost-effective, adaptable, scalable and mobile, with the highest standards of security and privacy.

The SmartCone™ has been used for a variety of solutions including securing dangerous worksites, controlling bicycle lane traffic, managing vehicle fleets, monitoring traffic incident scenes, crowd control and freight tracking. Recently, SmartCone has pivoted to offer thermal monitoring solutions as part of a “Return to Work” ecosystem during COVID-19.

SmartCone leveraged the I3 program to create a global public safety IoT platform that connects their device to IBM Watson, allowing improvements in their algorithms and better safety solutions for clients. Through the partnership with IBM, SmartCone secured new customers, such as DHL and Shell Oil.

I3 Final Program Outcomes:

1,726

New products or services

8,175

Direct full-time equivalent jobs

\$158 million

Incremental provincial tax revenue

\$948 million

GDP to Ontario's economy

ROI RETURN ON INNOVATION

\$480,000

Follow-on Investment

15

Jobs Created/
Retained

\$1,515,000

Incremental sales revenue



EMPOWERING LENDERS TO MEASURE BUSINESS ON MERIT

Boss Insights

Boss Insights is a data aggregator platform that provides Business Data as a Service. The API hub enables easy access in under one minute to the leading number of APIs bridging data gaps between banks and business customers. With access to real time data with over 800 sources of business information including accounting (i.e. Quickbooks), payments (i.e. Stripe), sales (i.e. Hubspot) and more, banks are empowered to accelerate lending and cross selling from months to minutes and provide personalized service to their business customers. Boss Insights is successfully expanding to the U.S. and building traction in the financial services market.

Boss Insights leveraged the ENCQOR 5G platform to understand the performance characteristics of 5G on their mobile portfolio product, as well as gain a leadership position in the market.

ENCQOR 5G is a transformational \$400 million partnership that brings together five global digital technology leaders, including Ericsson, Ciena, Thales, CGI, IBM, and provincial coordinators Prompt, Innovation ENCQOR and OCE. The partnership is made possible through funding from industry and the governments of Canada, Ontario and Quebec.

ENCQOR 5G

**FY2019-20
ENCQOR 5G
Commitments:**

159
Projects

\$7.2 million
Program
Commitments

82
SMEs
Committed

\$7.9 million
Matching
Industry

IMPROVING VIDEO DELIVERY ACROSS 5G NETWORKS



SSIMWAVE Inc.

SSIMWAVE brings the power of the human eye to the entire video delivery chain by mapping the human visual system and putting that knowledge into software that watches video quality just like a person would.

Their customers are large media and entertainment businesses who know the quality of the viewer experience is key to attracting and maintaining subscribers. The combination of more high profile services launching video streaming services and increase in subscribers due to COVID-19, are leading to a bright future for SSIMWAVE's technology. SSIMWAVE leveraged the ENCQOR 5G platform to help their anchor customer, Rogers, evaluate video quality impairments on the 5G network both fixed and mobile. The company expects to add jobs as it continues to demonstrate its breakthrough technology with new international customers.

ENCQOR 5G Partners

ERICSSON



ciena

THALES

IBM

CGI



COMMUNITECH

MaRS

Canada

Ontario



Québec



DRIVING THE FUTURE OF MOBILITY

Invision AI

Invision AI has developed a software that enables cameras and other sensors in the field to interpret the world around them by detecting objects without relying on an internet or cloud connection. Invision AI and Thales Canada are collaborating on a project to develop a high-integrity Forward Collision Warning System for rail vehicles capable of operating in extreme weather conditions. Their goal is to build a platform that will ultimately enable deployments in urban, regional and mainline rail networks globally to reduce the frequency and severity of incidents. This AVIN project brings together the software, hardware and domain expertise to successfully demonstrate the future of mobility technologies and offer a system to markets, both domestically and internationally.



The automotive industry is undergoing a significant shift, with technological advances and evolving mobility preferences redefining its future. Through the **Autonomous Vehicle Innovation Network (AVIN)**, Ontario is at the forefront of this transformation. AVIN capitalizes on the economic potential of automotive technologies and smart mobility solutions, such as Connected and Autonomous Vehicles (C/AVs), and enables the province's transportation and infrastructure networks to plan for and adapt to this evolution.



Regional Technology Development Sites (RTDS)

Durham Region – Human Machine Interface (HMI) and User Experience

Hamilton – Multimodal and Integrated Mobility

Ottawa – Vehicle-to-Everything (V2X) Communications

Toronto – Artificial Intelligence for Connected and Autonomous Vehicles

Waterloo – High-Definition (HD) 3D Mapping and Localization

Windsor-Essex – Cross-Border Technologies and Cybersecurity



FY2019-2020 AVIN Outcomes:

124
SMEs

945
Jobs

\$17.6 million
Incremental Sales

\$78.8 million
Private Sector Follow-On
Investments

Since launching in 2018, AVIN has committed \$47 million in provincial funding leveraging an additional \$84 million in industry investment. AVIN's Regional Technology Development Sites and Demonstration Zone have supported 170 Ontario SMEs.

USING INTELLIGENT VISION TO IMPROVE ROAD CONDITIONS



Visual Defence

Visual Defence's software ROVER (Road Operated Video Extended Recognition), uses AI to look for potholes. Launched as an app run on a smartphone mounted to the inside of a vehicle's windshield, ROVER captures potholes through images, records information such as the location and time, and stores them on a Cloud system that is available to the municipality for review. Through AVIN, Visual Defence has partnered with the City of Richmond Hill to validate their technology with a real end-user and explore a new opportunity.

ROI RETURN ON INNOVATION

\$928,000

Follow-on
Investment

41

Jobs Created/
Retained

\$400,000

Incremental
Sales Revenue

Market Readiness is the most active pre-seed stage investor in Ontario, strategically investing in companies across all technology sectors. The Market Readiness Co-investment Fund invests directly in academic affiliated companies to accelerate their early-stage commercialization and support their growth into a scalable business. The Fund has invested in 187 companies to-date and supports early-stage start-ups that demonstrate evidence of a scalable, repeatable business model serving an identified need in their market.

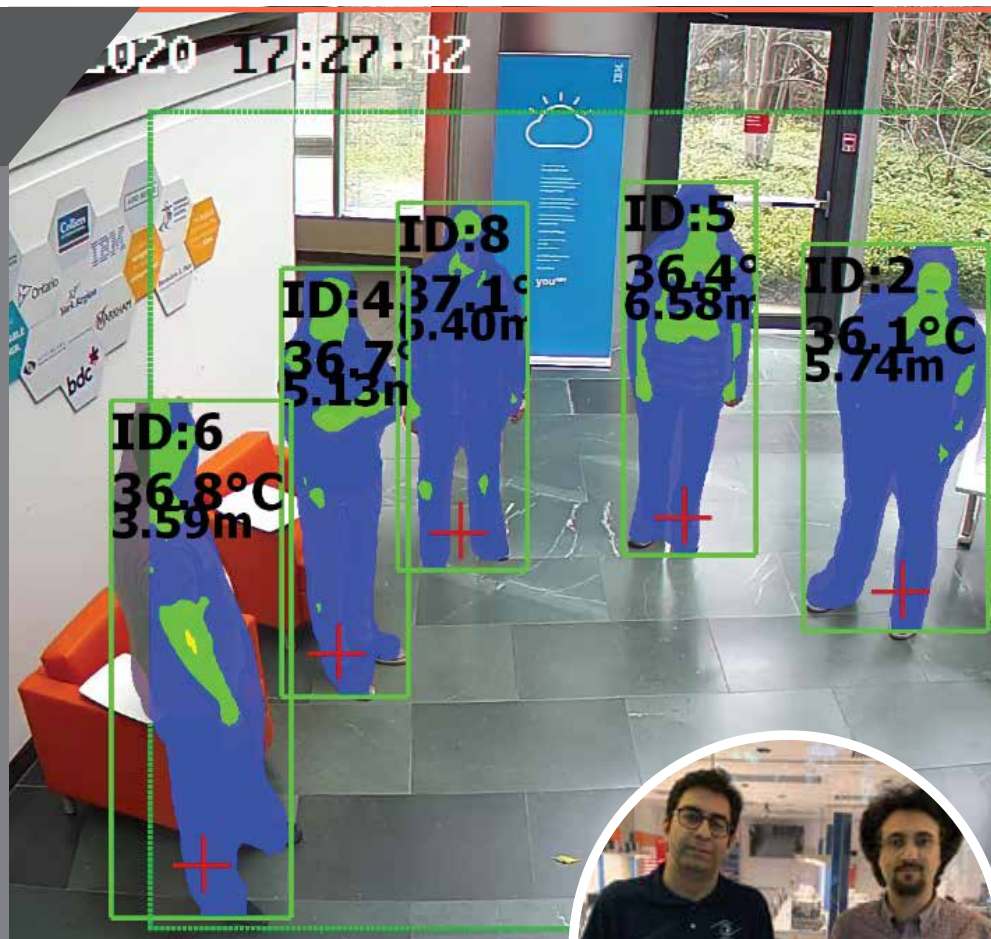
FY2019-2020 Market Readiness Outcomes:

40
SMEs

215
Jobs

\$7.8 million
Incremental Sales

\$15.3 million
Private Sector Follow-On Investments



HELPING BUSINESSES RE-OPEN SAFELY

EAIGLE

EAIGLE is a computer vision and artificial intelligence (AI) company that designs and implements AI software technologies that non-invasively detects people within indoor and outdoor spaces in real time. The technology is now being applied toward helping people stay safe and healthy during uncertain times. The automated COVID-19 screening solution helps industries and businesses plan their safe return-to-work strategy to enable employers, employees, and visitors to go to work with confidence. EAIGLE's technologies are helping businesses navigate re-opening safely, and they continue to rapidly gain market traction. The Market Readiness investment is helping the company accelerate time to market and gain a competitive advantage globally.

ROI RETURN ON INNOVATION

\$175,000

Follow-on Investment

16

Jobs Created/Retained

4

Products Developed



DEVELOPING THE NEXT GENERATION OF DIGITAL APPLICATIONS

Welbi

Welbi is a platform that helps senior living communities personalize their residents' experience. Welbi's assessment tools and real-time analytics allow teams to effectively deliver and evaluate their programming. The initiative also identifies changes in residents' wellness and habits, allowing staff to do quicker follow-ups and reduce risk of isolation.

Through NGNP, Welbi accessed the CENGN platform to test their scalability capacity in order to assure enterprise-level clients, who have hundreds of retirement facilities, that their solution can be rolled out successfully at scale.

ROI RETURN ON INNOVATION

6

Jobs Created/
Retained

2

Large Clients
Secured

As the world moves increasingly toward cloud applications, the changing needs of businesses are being met with the **Next Generation Network Program** (NGNP). NGNP provides SMEs with access to an ultra-high speed, open multi-vendor network and cloud testbed and provides technical services to support the development of new digital technologies, products and services.

The program is offered through a partnership between the **Centre of Excellence in Next Generation Networks** (CENGN), OCE and the Ontario government.

FY2019-20 NGNP Commitments:

126

Projects

\$3.6 million

Program Commitments

\$4.5 million

Matching Industry Commitments

71

SMEs



“

...OCE also plays a critical role in ensuring breakthrough technologies are supported and fostered through their founders. The Business Development Managers actively engage in making introductions to potential customers, investors and partners.

Ibraheem Khan,
CEO, Smarter Alloys

ROI
RETURN ON INNOVATION

20

Jobs Created/Retained

\$6,000,000

Industry/follow-on investment

Smarter Alloys

Mind over Matter – Transforming Advanced Manufacturing

Ibraheem Khan first appeared on the cover of OCE's Annual Report for 2011-2012. At the time, he was a young entrepreneur conducting PhD research at the University of Waterloo. There, he developed a novel "multiple memory material" technology and, with OCE's support, was able to commercialize his research. From concept to prototype, Smarter Alloys was born.

His remarkable patented technology allows a material to work like a machine. Shape memory alloys are materials that have the ability to morph into different forms and can be programmed precisely to remember different shapes, each with a different function.

The technology unlocks a much broader potential of these materials and enables breakthrough applications, including dentistry and medicine, aerospace, automotive and energy harvesting.

Over the years, Smarter Alloys has stayed connected to OCE and has taken advantage of new program opportunities to advance their technology through various stages of growth. "Beyond funding, OCE plays a critical role in ensuring breakthrough technologies are supported and fostered through their founders. The Business Development Managers actively engage in making introductions to potential customers, investors and partners. They have also hosted events that enable professional development so that a scientist, like myself, is poised to succeed outside of the lab", said Khan.

Smarter Alloys is currently a team of 28 and expects to increase staffing by 50% in the next 6 months due to high demand and will soon be opening their own state of the art manufacturing facility in Cambridge, Ontario.

This made-in-Ontario success is also benefiting the next-generation of Ontario innovation brilliance, with Smarter Alloys sponsoring this year's **Mind to Market Award** to showcase the next exciting start-up with a transformative technology.



IBRAHEEM WAS FEATURED
ON THE COVER OF OCE'S
ANNUAL REPORT IN 2011-12



WHERE NEXT:

OCE's tagline, "Where Next Happens," speaks to our focus on supporting the development of cutting-edge technologies where Ontario is leading the world.

As part of our focus on these transformational emerging technologies, we're profiling the companies that are on the leading-edge of high-opportunity areas, including Augmented Reality and Quantum computing.



Where
Next
Happens

TRANSFORMING RETAIL THROUGH CUSTOMER EXPERIENCE



TakuLabs

The COVID-19 pandemic has highlighted how important retail technology is to the resilience of merchants.

TakuLabs' retail management software lets merchants make sales and run their business from any web-enabled device, all in one platform. Where competitors have applications that can only work in certain operating systems, TAKU runs seamlessly on any hardware and is faster to build. TAKU participated in the OCE I3 Customer Demonstration Program to run pilots with established retailers. Through NGNP, TAKU has recently been working with CENG to optimize the ability of their platform to rapidly deploy at scale and run simultaneously in multiple locations and sales channels once 5G is commercially ready, giving them first-mover advantage in the global marketplace.

ROI RETURN ON INNOVATION

12

Jobs Created

WHERE NEXT



“

Working with OCE has been very valuable to Xanadu. It has helped us explore frontier research projects, secure scientific talent and build strong relationships with other Ontario-based companies.

Christian Weedbrook
Founder & CEO

ACCELERATING TIME TO MARKET AT THE FRONTIER OF COMPUTING

Xanadu

Quantum computers are the next computing platform required to help mankind to begin finding solutions for today's immense challenges like climate change or drug discovery. Quantum chips move at the speed of light and can solve problems previously unsolvable with conventional computers.

Xanadu builds quantum computers that are useful and available to people everywhere. To do this, they are building both hardware and software to help end-users easily access photonic quantum computers through the cloud and have the best tools for developing quantum applications. Their core technology is the photonic quantum processing unit (QPU) which powers the entire system.

OCE supported Xanadu on a collaborative R&D project through the VIP program and helped the company attract highly skilled talent through TalentEdge. These programs accelerated Xanadu's time to market at the frontier of advanced computing and is positioning Ontario as a world leader in quantum technologies.

ROI RETURN ON INNOVATION

\$41,000,000

Follow-on investment

60

Jobs Created/
Retained

4

Number of Products
Developed

21

Number of
Patents Created

OCE is a not-for-profit organization governed by an independent Board of Directors that includes observers from the provincial government. OCE is funded by the Government of Ontario and also receives funding from the Government of Canada.

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OCE remembers our dear friend and colleague, Julie Lukkarila

It is with profound sadness that OCE recognizes the passing of our dear friend and colleague, Julie Lukkarila.

Fun-loving, smart, kind and caring, Julie was a rare spirit who had a unique ability to make people feel seen and welcome – always quick to use her keen humour and trademark smile to put others at ease.

As a Business Development Manager with OCE, Julie took pride in identifying some of Ontario's most exciting emerging technology companies. With deep expertise, an expansive network, a tireless work ethic and an uncommon talent for identifying the game-changing connections to assist a company's growth, Julie was her own unstoppable force for innovation.

Her passing is a tremendous loss across the ecosystem and we will miss her greatly.





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Ontario Centres of Excellence promotes a healthy workplace,
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A not-for-profit organization, OCE is funded by the Government of Ontario and works in partnership with government, industry and academia to commercialize innovation and build a strong provincial economy.