

VOLUME 1

OTTAWA

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The “INNOVATE™ Ottawa” Team would like to give a special thanks to all the participants and the following companies for their support and assistance in making this project a reality.

Meet the people who are building a better **Ottawa** for tomorrow



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INNOVATE™ OTTAWA: A MULTIMEDIA EXPERIENCE AND MORE.

SVEN BOERMEESTER, FOUNDER/CEO, INTERNATIONAL GROUP PUBLISHER



Sven Boermeester, Founder/CEO, International Group Publisher with ***Callie Van Graan***, Global Village COO

INNOVATE™ Ottawa showcases the best of Ottawa's innovation and entrepreneurial ecosystem. Embedded in its pages, you will find augmented reality videos that accompany nearly every feature, and when you use the free GLOBAL VILLAGE AR app, the world of the future will open up before your very eyes.

But "INNOVATE™ Ottawa" is far more than a tech-enabled publication; it is a multimedia experience centered around the deluxe hardcover coffee-table book you are now holding, which includes AR videos, an online web platform, and multilevel social media networking. Online, the full e-book will be viewed in the millions through the InnovationsoftheWorld.com online library.

This publication aims to celebrate those involved in the Ottawa ecosystem, but it is also meant for all business leaders and decision-makers who can effect change in their industries throughout Canada and throughout the world. We publish *INNOVATE™ Ottawa* for the open-minded folk who want to know more about the exciting changes that have recently transpired in the Ottawa ecosystem, and who play or want to play an active role in its growth and development.

This inaugural edition of *INNOVATE™ Ottawa* is just part of a global series. We are currently launching volumes in cities throughout the GlobalVillage.world publishing partnership network.

By experiencing *INNOVATE™ Ottawa*, you are part of our Global Village network, and we are happy to have you. I trust you will join us as we continue the journey of the INNOVATE™ series.

Sven Boermeester
Founder/CEO
International Group Publisher

GLOBAL VILLAGE.WORLD
CONNECTING MINDS - BUILDING COMMUNITIES

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16
CHAPTER ONE

THOUGHT LEADERS

44
CHAPTER TWO

INVEST OTTAWA

52
CHAPTER THREE

INNOVATION ECOSYSTEMS

60
CHAPTER FOUR

LEADERS IN INNOVATION

94
CHAPTER FIVE

EDUCATIONAL INSTITUTIONS

202
CHAPTER TEN

TELECOMMUNICATIONS

214
CHAPTER ELEVEN

TECHNOLOGY & MANUFACTURING

232
CHAPTER TWELVE

ENERGY, GREEN TECH & SUSTAINABILITY

238
CHAPTER THIRTEEN

BIG DATA & ANALYTICS

246
CHAPTER FOURTEEN

IT OUTSOURCING & MANAGED SERVICES

CONTENTS

INNOVATE®
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GLOBAL VILLAGE.WORLD
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120
CHAPTER SIX


ACCELERATORS, INCUBATORS & MENTORS

142
CHAPTER SEVEN

FUNDERS & INVESTORS

150
CHAPTER EIGHT

ARTIFICIAL INTELLIGENCE, AUTOMATION & ROBOTICS

164
CHAPTER NINE

HEALTH CARE

256
CHAPTER FIFTEEN

INNOVATIONS IN DESIGN

268
CHAPTER SIXTEEN

MARKETING, EVENTS & MEDIA

282
CHAPTER SEVENTEEN

PRODUCT & SERVICE INNOVATIONS

296
CHAPTER EIGHTEEN

FOOD, BEVERAGE & HOSPITALITY

IT'S A KIND OF MAGIC...



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MAYOR JIM WATSON

MAIRE JIM WATSON

Located at the meeting point of three rivers, three cultures, and two languages, Ottawa truly represents the best of Canada. It has distinguished itself historically as an early centre of trade and settlement for the Algonquin-Anishinabe Nation, an active site for a prolific lumber industry which propelled the local economy in the nineteenth century, a seat of central government, as well as a leading Canadian hub for cutting-edge research, healthcare, higher learning, life sciences, aerospace, defense, and security in addition to becoming an important node for digital media, and film & television production. More recently, Ottawa's world-class technology sector has also rapidly diversified to include innovative enterprises driving clean technologies, e-commerce, connected and autonomous vehicle development, and a fifth-generation (5G) telecoms network.

Other smart applications are increasingly present in Ottawa's ecosystem, like those which move the City's ultramodern and eco-friendly O-Train on the Confederation Line. Canada's capital is also proving to be an incubator for disrupters who are emerging from local start-ups and established enterprises to revolutionize the business technology landscape and other sectors of Ottawa's economy with their innovations.

In step with the technological changes, Ottawa's skyline has experienced exponential growth and transformation with majestic heritage landmarks neighboring leading-edge architecture incorporating state-of-the-art design and innovative green features. The future Ottawa Public Library – Library and Archives Canada Joint Facility is one such iconic project which will redefine and rejuvenate the neighbourhood of Centretown West. The national capital's reputation for inspiring innovation also serves to bolster the city's profile as an increasingly popular international tourism destination with novel attractions like the world's first interprovincial zip line, 120 feet above the Ottawa River, opening this summer.

Ottawa is home to the second highest concentration of scientists and engineers in North America, and the most tech talent in Canada, which positions our city as a globally recognized talent pool drawing innovators and thought leaders to our community, who are also attracted by Ottawa's exceptional quality of living and image as a smart city open for business with valuable supports from organizations like Invest Ottawa and the Innovation Centre at Bayview Yards.

The inaugural edition of INNOVATE Ottawa brilliantly illustrates the enterprising people and organizations shaping the future of Canada's capital, and I invite you to discover them through this novel publication.



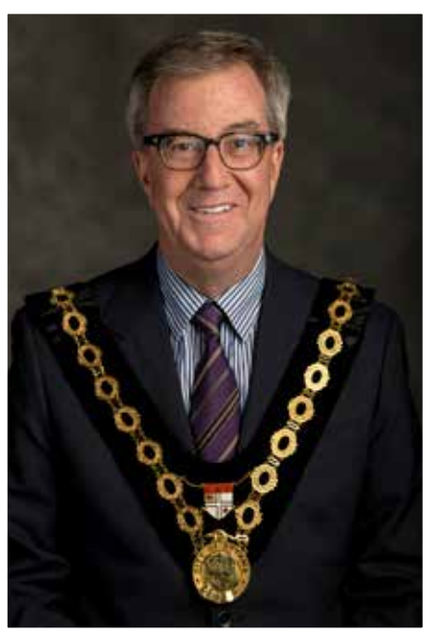
Située au point de rencontre de trois rivières, de trois cultures et de deux langues, Ottawa représente vraiment le meilleur du Canada. D'un point de vue historique, elle s'est distinguée tout d'abord comme centre du commerce et site de peuplement pour la Nation algonquine Anishinabeg, puis comme site actif pour une industrie du bois d'œuvre prolifique qui a propulsé l'économie locale du XIXe siècle, siège d'un gouvernement central, ainsi que carrefour canadien de premier plan pour la recherche de pointe, les soins de santé, l'enseignement supérieur, les sciences de la vie, le secteur aérospatial, la défense et la sécurité en plus de devenir un centre important pour les médias numériques et la production cinématographique et télévisuelle. Plus récemment, le secteur de la technologie de classe mondiale d'Ottawa s'est également rapidement diversifié pour inclure des entreprises innovantes qui développent des technologies propres, le commerce électronique, la construction de véhicules connectés et autonomes et un réseau de télécommunications de cinquième génération (5G).

D'autres applications intelligentes sont de plus en plus présentes dans l'écosystème d'Ottawa, comme celles qui permettent de faire circuler l'ultramoderne et écologique O-Train de la Ville sur la Ligne de la Confédération. La capitale du Canada est également un incubateur de perturbateurs qui émergent des entreprises locales en démarrage et établies et qui, grâce à leurs innovations, révolutionnent le paysage de la technologie commerciale et d'autres secteurs de l'économie d'Ottawa.

En phase avec les changements technologiques, la silhouette d'Ottawa a connu une croissance et une transformation exponentielles, et des points d'intérêt patrimoniaux majestueux côtoient maintenant une architecture avant-gardiste intégrant un design ultramoderne et des caractéristiques écologiques innovantes. La future installation partagée de la Bibliothèque publique d'Ottawa et de Bibliothèque et Archives Canada est l'un de ces projets emblématiques qui redéfinira et rajeunira le secteur ouest du centre-ville. La réputation de la capitale nationale en matière d'innovations inspirantes contribue également à rehausser son profil en tant que destination touristique internationale de plus en plus prisée offrant de nouvelles attractions comme la première tyrolienne interprovinciale au monde, 120 pieds au-dessus de la rivière des Outaouais, qui ouvrira cet été.

Ottawa compte la deuxième plus forte concentration de scientifiques et d'ingénieurs en Amérique du Nord, et le plus grand nombre de talents technologiques au Canada, ce qui positionne notre ville en tant que bassin de talents mondialement reconnu, attirant dans notre communauté des innovateurs et des leaders d'opinion qui sont aussi séduits par la qualité de vie exceptionnelle d'Ottawa et son image de ville intelligente ouverte aux affaires grâce au soutien précieux d'organismes comme Investir Ottawa et le Centre d'innovation des cours Bayview.

Le tout premier numéro d'INNOVATE™ Ottawa illustre avec brio les gens et les organisations dynamiques qui façonnent l'avenir de la capitale du Canada, et je vous invite à les découvrir dans cette nouvelle publication.



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PUBLISHER'S FOREWORD





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The Time is Right...

Can you live in a city your entire life, and be totally unaware of its transformation into a world class hub of Innovation and technology?

Or, can you spend your entire working life commuting to a nearby city on a regular basis and not see major geographic areas and districts evolve into thriving communities and robust centres of business and development?

I confess, I am guilty on both counts.

During the production of *INNOVATE™ Montreal* last year I discovered that my hometown had greatly evolved unbeknownst to me, and with a sense of *déjà vu*, the experience has repeated itself while working on the inaugural edition of ***INNOVATE™ Ottawa***.

Our nation's capital is currently going through a wonderful transformation driven by innovation and technology. From Bayview Yards, home to many of the city's most exciting new companies and startups, to the Kanata North business area, the site of Canada's largest Technology Park, Ottawa has become a focal point for innovation and change.

The time is right to tell the story of the innovators and their respective startups, companies, organizations, and institutions that are coming together in Ottawa to create the most significant changes that the city has seen in years.

This is the story of ***INNOVATE™ Ottawa***.

By telling the individual stories of the best and brightest who collectively, are the catalysts for this change, the book you are now holding will help traverse the new roadmap of the Ottawa innovation ecosystem.

Enjoy the ride...



L'heure est venue...

Est-ce possible passer une vie entière dans une ville et d'ignorer totalement sa transformation en une plaque tournante de classe mondiale en matière d'innovation et de technologie?

Ou, pouvez-vous passer toute votre vie professionnelle à vous rendre régulièrement dans une ville voisine et ne pas voir les principales zones géographiques et les principaux quartiers évoluer en communautés prospères et en solides centres d'affaires et de développement?

J'avoue, je suis coupable des deux chefs d'accusation.

Lors de la production d'INNOVATE™ Montréal l'année dernière, j'ai découvert que ma ville natale avait évolué à mon insu, et avec un sentiment de déjà vu, l'expérience s'est répétée en travaillant sur l'édition inaugurale ***d'INNOVATE™ Ottawa****.*

En effet, Ottawa subit actuellement une transformation majeure axée sur l'innovation et la technologie. De Bayview Yards, maison de beaucoup de la plupart des nouvelles entreprises et start-ups passionnants de la ville, à la zone d'affaires de Kanata Nord, le site du plus grand parc technologique du Canada, Ottawa est devenu un point focal pour l'innovation et le changement.

L'heure est venue de raconter le récit des innovateurs et de leurs entreprises en démarrage, sociétés, organisations et institutions respectives qui s'implantent à Ottawa pour créer les changements les plus importants que la ville a vu depuis des années.

Voici l'histoire ***d'INNOVATE™ Ottawa.***

Grâce aux histoires individuelles de ces personnes talentueuses et brillantes qui collectivement catalysent ce changement, le livre que vous tenez entre vos mains aidera à naviguer la nouvelle feuille de route de l'écosystème Ottawa de l'innovation.

Bonne découverte...



WHY OTTAWA?



OTTAWA IS A GLOBAL TECH HUB

Ottawa is a thriving and internationally recognized global tech hub anchored by multinational giants, homegrown successes, and high-growth startups and scale-ups with top talent.

Canada's capital city is a centre of business growth within the domestic and global economy, and an ideal location for innovation, entrepreneurship, business expansion and commercial success. With a diverse regional economy, Ottawa's rate of business growth eclipses many North American cities, and its unemployment rate continues to be one of the lowest in Canada.

Home to more than 1,750 knowledge-based companies that collectively employ more than 68,500 highly skilled people, Ottawa is a recognized centre of excellence for knowledge-based industries:

- Aerospace, Defence and Security
- Cleantech
- Communication Technology
- Life Sciences and Smart-Health
- Software





Ottawa is a Centre of Expertise in Disruptive Technologies

With the increasing convergence of technologies, sectors and scientific disciplines, Ottawa is cultivating world-class expertise in disruptive technologies including:

Connected and Autonomous Vehicles (CAV)
Anchored by BlackBerry QNX, Ottawa's CAV cluster includes more than 100 companies, post-secondary institutions and organizations that are contributing intelligence and technologies to CAVs of the future.

Invest Ottawa | Investir Ottawa







This list includes fellow multinationals such as Ford, which has established a connectivity and innovation centre with hundreds of employees in the Capital.

The region is also home to the Ottawa L5, the first integrated CAV and V2X living lab of its kind in North America, and CAV Canada, the must-attend national conference for any innovator, organization or community driving the safe development, commercialization and deployment of CAVs.

Cybersecurity

Canada's Capital Region is home to a thriving cybersecurity cluster established by researchers, innovators and companies that are contributing leading-edge offensive and defensive cyber solutions around the world. Spanning Ottawa-Gatineau, it is a cluster founded on innovators and firms with specialized cyber expertise, products and solutions in:

- Cybersecurity Services
- Encryption
- Identity and Access Management
- Risk and Compliance
- Security Operations
- Vulnerability Defence
- Ancillary Services

5G, Next Generation Networks and the Internet of Things (IoT)

Ottawa possesses a deep expertise and a long history of global achievements in telecommunications, advanced networks, IoT and related technologies. Today, 90 percent of Canada's industrial telecommunications R&D takes place in Canada's Capital. Bolstered by engineering and R&D labs established by Nokia and Ericsson and the rapid growth of Ciena, the region is spearheading 5G innovation, next-generation networks and communications that will revolutionize the future.



They are also fueling novel applications and solutions in public safety, security, defence, connected communities, intelligent transportation (including CAVs) and precision agriculture – to name a few.

Artificial Intelligence (AI) & Machine Learning

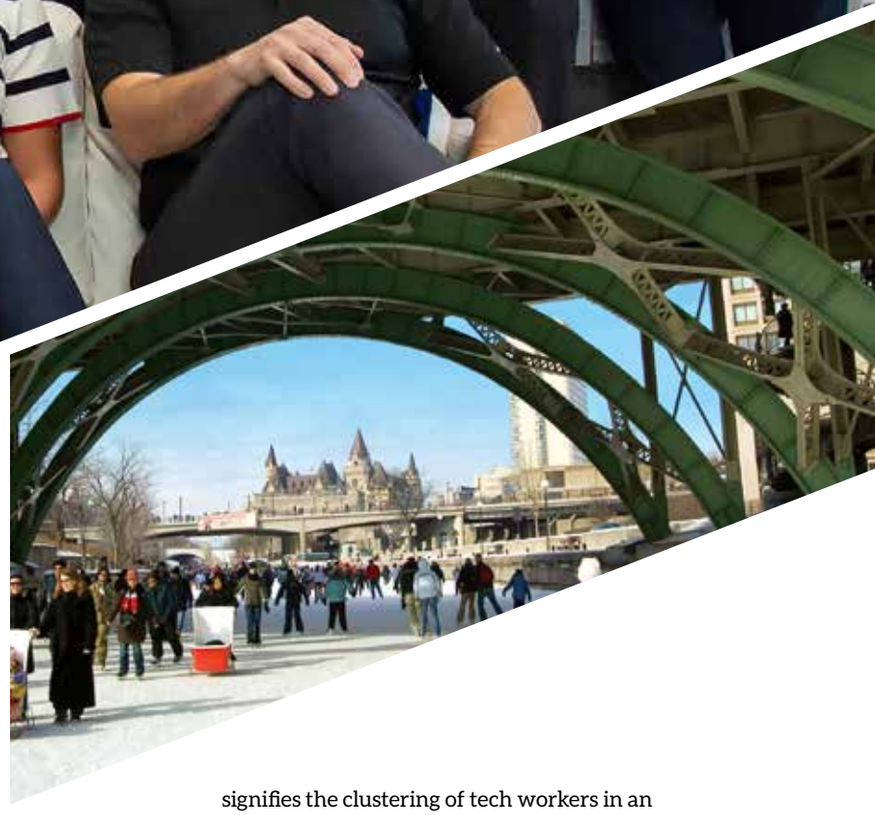
Ottawa is a global hotbed of AI and machine learning with decades of expertise in this field. Critical elements of IBM Watson were architected in Ottawa following the acquisition of Cognos in 2008. MindBridge Ai, an Ottawa fintech firm, has developed the world's first and only AI-powered auditing platform enabling the rapid detection of anomalous activities. And the region is home to a host of scaling AI-based firms, including Advanced Symbolics, Contextere, Raven Telemetry, reDock, ReLogix, and Zighra. Given this foundation of expertise, it's no wonder Ottawa is home to Impact AI, Canada's fastest-growing AI conference.

Ottawa is a Hotbed of Top Tech Talent

Innovators, entrepreneurs and companies alike leverage many competitive advantages in Canada's Capital, including:

Talent

According to CBRE's 2019 Scoring Tech Talent Report, Ottawa has the second-highest concentration of tech talent (as a percentage of a city's total employment) in North America at 9.9%—just slightly behind San Francisco at 10%. This concentration is more than double that of most other North American cities included in the survey (at 4.8%). Tech talent concentration, the percentage of a city's total employment represented by tech, is the metric weighted most heavily in the tech talent scoring report, as it



signifies the clustering of tech workers in an environment that's conducive to innovation. Ottawa is home to outstanding post-secondary institutions, including Algonquin College, Carleton University, La Cité, the University of Ottawa, and Willis College. Collectively, these institutions educate as many as 135,000 students per year, with 20% specializing in Science, Technology, Engineering, and Math (STEM). Moreover, Ottawa features:

- The second-highest concentration of engineers and scientists in North America per capita (behind Silicon Valley)
- The most undergraduate degrees per capita; 61 percent of Ottawa's labour force has a post-secondary degree
- Highly skilled folks with diverse backgrounds, cultures and walks of life, creating a rich, inclusive and high-performing workforce

Capital Advantages for Highly Productive and Impactful Business

Business Environment
Ottawa features many assets that distinguish it from other cities in North America. Canada's Capital is rated the most business-friendly environment and third best for FDI out of 77 mid-sized cities in the Western Hemisphere. Moreover, when it comes to the cost of living, Ottawa is the least expensive G7 capital in the world and the least expensive Canadian city ranked (Mercer 2019).

Globally Connected
Ottawa enables businesses to establish quickly and grow globally with direct access to the North American market. The city's geographical location and award-winning airport position Canada's Capital within a two-hour flight of more than 50% of North America's population.

The region is also home to 130 embassies, spurring international trade and global investment opportunities.

Most Connected Canadian City: 100 percent of Ottawa's schools, universities, hospitals, libraries, research institutes, and municipal facilities have high-speed internet access. No other city in Canada has this level of connectivity.





Quality of Life

Ottawa is ranked within the top three regions in North America for quality of living (Mercer) and rated the 'best overall city in Canada' based on the 3Ts of economic development: technology, talent, and tolerance (Professor Florida). The city is a giant outdoor playground featuring greenery, beaches, camping, skiing, golfing, and hundreds of freshwater lakes. It also features a thriving art, culture, and culinary scene with more than 180 famous events and festivals each year. Ottawa also has the lowest average home prices when compared with Montreal, Toronto, and Vancouver (CREA).

Ottawa Light Rail

Blessed with broad geographic reach and a wealth of natural spaces, Ottawa has the distinction as a 'green' city. More than 30% of Ottawa commuters use public transportation, walk, or cycle to work. Ottawa's transit system is currently evolving with a state-of-the-art fully accessible Light Rail Transit (LRT) system that can transport 24,000 riders per hour in each direction and includes a 2.5-kilometre tunnel that rapidly moves riders across the downtown core, further reducing traffic congestion in the inner city.

Capital Sector Strengths:

AEROSPACE, DEFENCE AND SECURITY
300+ companies—10,000+ employees

As a G7 capital city and headquarters for many federal government departments, Ottawa is the national hub for Canada's aerospace, defence, and security sector. With a wide array of R&D infrastructure, world-class multinationals and SMEs, exceptional post-secondary institutions, and a high concentration of tech talent, the nation's capital provides a globally competitive environment where innovation in aerospace, defence, and security thrives. Anchored by more than 300 companies that employ more than 10,000 highly skilled people, Ottawa aerospace, defence, and security sector includes:

- Fortune 500 companies such as General Dynamics, Thales, Leonardo, and Lockheed Martin
- A cluster globally competitive small- and medium-sized enterprises that offer large reservoirs of talent

Many of these companies leverage the constellation of federal government departments, post-secondary programs and talent, innovation agencies and R&D facilities across the region including:

- NRC's Aerospace Research Centre, a pillar of Canada's aerospace industry, with a track record of successful collaborations with Canadian and international organizations
- The David Florida Laboratory, Canadian Space Agency, Canada's world-class spacecraft assembly, integration and testing centre and facilities
- Defence Research and Development Canada (DRDC), an agency of the Department of National Defence (DND) and national leader in defence science and technology that develops and delivers new technical solutions and advice to DND, the Canadian Armed Forces, other federal departments, and the safety and security communities

CLEANTECH
240+ companies—5,500+ employees

Ottawa's evolving cleantech industry is founded on more than 240 companies that employ more than 5,500 highly skilled people, including:

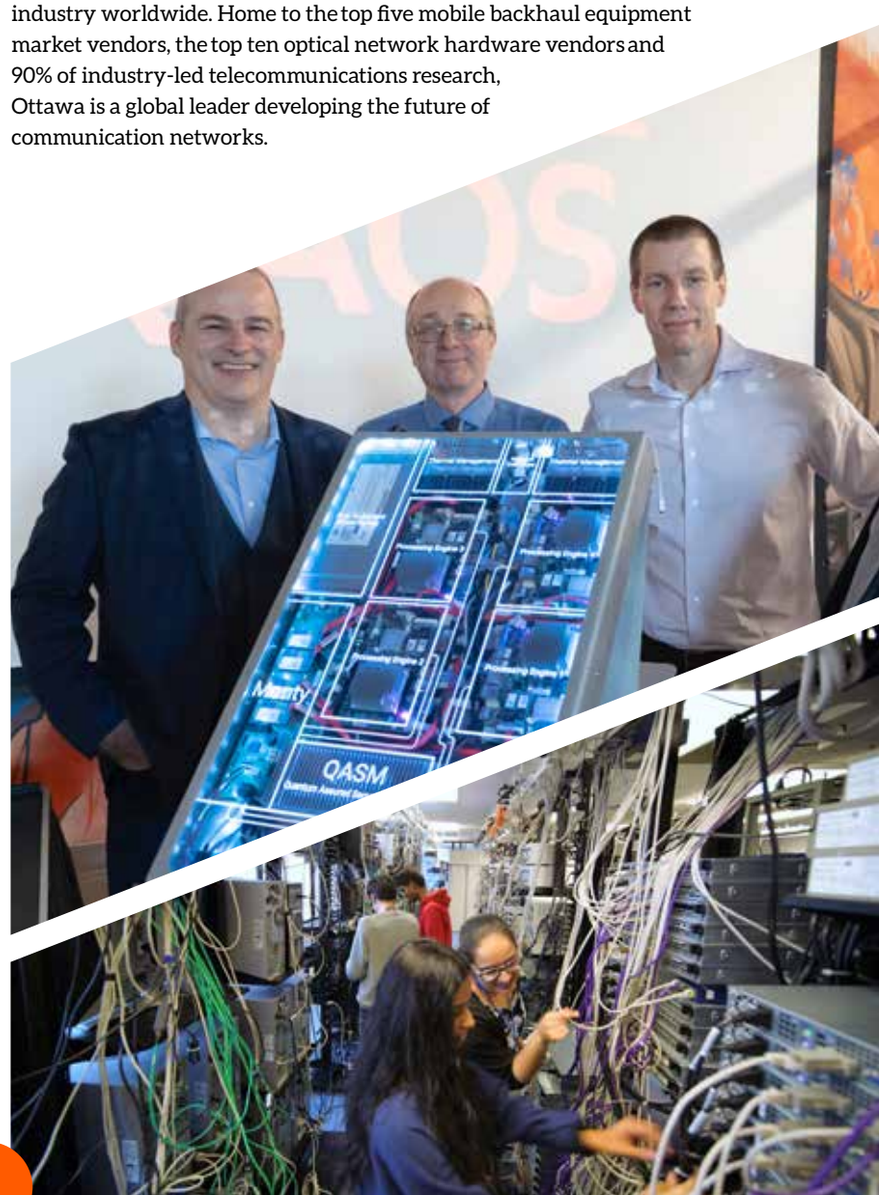
- Top-ranked Fortune 500 companies such as Waste Management, Johnson Controls, Wesco, Honeywell, and Enbridge
- World-class Ottawa innovators such as BluMetric Environmental, BluWave-ai, Blue Line Innovations, Clearford, Energate, Ensyn, GaN Systems, Iogen, iSolara Solar Power, Novozymes, Thermalfrost, Windmill Developments, and Zibi

As a G7 capital, Ottawa also boasts a large concentration of federal research agencies and laboratories that enable and accelerate cleantech R&D and innovation, including:

- The National Research Council, Canada's largest federal research and development organization
- CanmetENERGY Facility, Canada's leading research and technology organization in the field of clean energy
- National Sciences and Engineering Research Council (NSERC): Canada's federal funding agency for university-based research in natural sciences and engineering
- Agriculture and Agri-food Canada, which supports the Canadian agriculture and agri-food sector through initiatives that promote innovation, R&D and competitiveness
- Natural Resources Canada, which seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products
- Environment and Climate Change Canada, which informs Canadians about protecting and conserving our natural heritage, and ensuring a clean, safe and sustainable environment for present and future generations

COMMUNICATIONS TECHNOLOGY
250+ companies—21,000+ employees

Ottawa is an established, internationally recognized centre of excellence in communications technology that continues to shape the wireless industry worldwide. Home to the top five mobile backhaul equipment market vendors, the top ten optical network hardware vendors and 90% of industry-led telecommunications research, Ottawa is a global leader developing the future of communication networks.





With a combination of academic research, centers of excellence, government departments, world-leading hospitals and industry, the nation's capital provides a lucrative environment for leading-edge products, technologies, and innovations.

Ottawa's research hospitals provide a strong base for life sciences and R&D, with five of the forty top Canadian hospital research institutions hailing from the region. Continuing Ottawa's long-standing history of innovation and entrepreneurship, the Ottawa Hospital produced nine spin-off companies and 825 clinical trials from 2017-2018 alone.

With more than 250 companies that employ more than 21,000 highly skilled people, the region is home to world-class multinational firms including ADVA Optical Networking, Amdocs, BlackBerry, Ciena, Cisco, Ericsson, Juniper Networks, Fujitsu, Huawei, Mitel, Motorola, Nokia, Ribbon Communications, Sanmina and Telesat, which invest in R&D, grow the talent pool, and attract investment. Accelerating the growth of this cluster are a plethora of R&D facilities including:

- Communications Research Centre Canada, the Government of Canada's client-driven, applied research centre for advanced telecommunications
- Canadian Photonics Fabrication Centre (CPFC), National Research Council Canada, the only pure-play optical fabrication centre in North America
- Centre of Excellence in Next Generation Networks (CENGN), a consortium of industry, academic and research leaders dedicated to accelerating the commercialization of next-generation communications solutions

LIFE SCIENCES
130 companies—6,000+ employees

Ottawa's life sciences sector has emerged into the global market as a center of discovery, development and commercialization. With more than 130 companies employing 6,000 highly skilled people, Ottawa's life science landscape is founded on strong R&D capabilities and companies of every size with expertise in Health IT, mHealth, eHealth, and medical devices.

This sector includes world-leading and innovative companies such as Abbott Point of Care, Best Theratronics, Clearwater Clinical, DNA Genotek, Dynacare, Nordion, Spartan Bioscience, Thermo Fisher Scientific, Turnstone Biologics—to name a few.

SOFTWARE
560+ companies—22,000+ employees

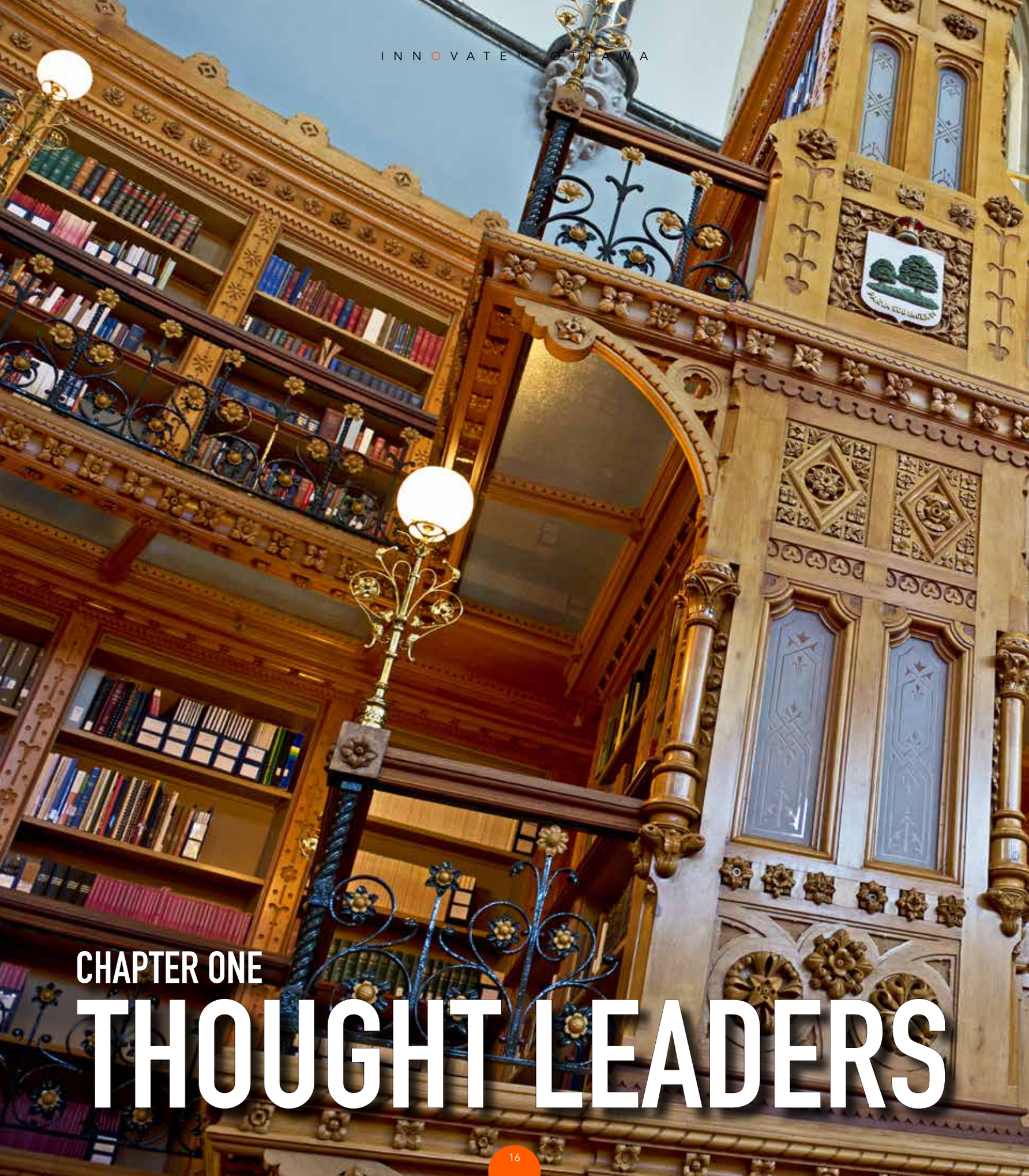
With a history of successful technology companies, world-class R&D capability, an entrenched culture of innovation, and support for businesses of all sizes, the software sector is flourishing in Ottawa. With 560+ companies that employ more than 22,000 employees, this industry is anchored by:

- Shopify, a homegrown multinational leader empowering more than 1 million businesses in 175 countries around the world that have generated USD 135+ billion in sales using the Shopify commerce platform
- Trailblazers such as Amazon, Assent Compliance, BlackBerry QNX, Kinaxis, Klipfolio, Martello Technologies, Page Cloud, ProntoForms, Pythian, Saba Software (which acquired Halogen Software in 2017), Synopsys, Qlik, and You.i TV
- The top five global enterprise software vendors including Dell EMC, IBM, Microsoft, Oracle and SAP

Software as a Service (SaaS), data analytics, and artificial intelligence-based solutions are under development in companies across the city, powering innovative applications spanning smart health, gov-tech, e-commerce, fintech and clean and connected communities including connected and autonomous vehicles (CAVs).

As the capital city of Canada, Ottawa is a centre of disruptive technology innovation, business development and commercial growth in the domestic and global economy. With the second highest concentration of tech talent in North America, and more than 1,750 technology companies that employ more than 68,500 people, Ottawa is a leading global tech hub. Our innovators, researchers and scientists are building game-changing solutions in Connected and autonomous vehicles, AI and machine learning, robotics, SaaS, data analytics, 5G and next-generation networks and cybersecurity. So, when are you coming?

investottawa.ca



CHAPTER ONE

THOUGHT LEADERS





OTTAWA IS HERE TO ROLL OUT THE RED CARPET AND NOT THE RED TAPE.

MAYOR JIM WATSON, CITY OF OTTAWA



Innovation means creating positive economic development, new jobs, dreaming about industries we thought never we had a chance of attracting and attracting them, and it means technology that can be used for the betterment of society. If we're not changing with the times, then we're falling back to a point where we just can't compete internationally.

My philosophy is that Ottawa is here to roll out the red carpet and not the red tape. We ask, *What can we do to make your life as an entrepreneur and an innovator easier?* As an example: we were the first city in North America to live-test an autonomous vehicle on a city street, working with BlackBerry and Ford to convert our traffic-control system to be compatible with the vehicle. This is in addition to our 17-kilometre autonomous-vehicle track that allows companies to test self-driving cars—especially in wintery conditions.

As the world shrinks because of technology and communication, people now can hang their hats anywhere they want. Companies are anxious to hire the best and the brightest and so are more open to their employees living where they choose. I think one of the reasons people choose Ottawa is its quality of life, its great school systems, and its safety. We're also focused on cleantech; our power is hydroelectric and we haven't had a smog day in fifteen years.

Independent surveys and publications often rank our quality of life as No. 1 in the country. We have a low unemployment rate (currently 4.2%) and 80% of Ottawa is considered green space, agriculture, or forestry. We're larger than Calgary, Edmonton, Montreal, Toronto, and Vancouver; each of those cities could fit inside our footprint with room left over. (I had our planning staff



create a map to prove it.) We have more PhDs, scientists, and engineers per capita than other Canadian cities, and we're second only, in this regard, to Silicon Valley if the boundary is North America.

Our job is really to welcome opportunities to be innovative and to welcome innovators to this city.

We still face the challenge of gaining more international flight routes, but Ottawa doesn't need those to be internationally minded. The cleantech that we're so proud of is something we're sharing with cities the world over—as in India, where a number of Ottawa companies are creating self-composting toilets to mitigate sewage issues in areas with little plumbing infrastructure.

We also have a great historic connection with the Netherlands. This year marks the 75th anniversary of the liberation of the Netherlands from the Nazis, and Canadian forces were the first to carry that out. The Dutch royal family had escaped to Canada and were living in Ottawa. The queen had a child while she was here, and we passed federal regulation that designated the room the princess was born in as foreign soil so that the princess would remain a member of the royal family. This year, we'll name a park after Princess Marguerite during our tulip festival, and she'll come to carry out the official dedication and meet with WWII veterans who helped save her country. Every year the Dutch royal family sends Canada 20,000 tulip bulbs as a gift—and have done for 75 years.

I tell this story by way of illustrating that Ottawa, a smaller city though we may be, has always worked hard to make itself home to those who are looking for one. That is especially true today for innovators looking for a place to land.

If that's you, my advice is to stop into Invest Ottawa at our Innovation Center—a five-minute walk from our LRT station—so you can meet with one of our specialists. We have everything from incubation space to executive mentoring programs at Invest Ottawa, and it's the best way to really get climatized to our ecosystem here in the nation's capital. We look forward to rolling out the red carpet for you.

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NAV CANADA OWES ITS VERY EXISTENCE TO INNOVATION.

**MARK COOPER,
SENIOR VICE PRESIDENT,
ANS TECHNOLOGY,
NAV CANADA**

navcanada.ca





In 1996, the Company was born from an original idea — to become the world's first fully privatized air navigation service (ANS). This revolutionary way of thinking created a blueprint for success that has continued to drive impactful change in air traffic management for nearly 25 years.

As one of Canada's top 100 employers, NAV CANADA recognizes that its success at designing, developing, implementing and maintaining a modern air navigation system relies on its ability to bring the right people to the table. That is where Mark Cooper comes in.

Born in Sutton Coldfield, England, Mark began his career working for the GEC Marconi before joining Lockheed Martin for 18 years, working his way up to Managing Director of the company's global air traffic management division and UK government business. He then moved to Deloitte, leading and building from scratch the consulting firm's air traffic control and airport technology business. Mark's career has focused on major aviation related projects in Europe, the U.S and other parts of the world.

Mark's track record for transforming the industry has now taken him to Ottawa where he will oversee the modernization of Air Navigation Services (ANS) technology for NAV CANADA as Senior Vice President, ANS Technology.

There's always change in our industry, and the pace of change is increasing, so the challenge is to stay ahead of the curve and continue to deliver the same standard of excellence in safety and efficiency.

We are seeing a rapid growth in commercial use of new technology, such as remote piloted aircraft systems (RPAS). These new entrants are shaping the market, which is expected to triple by 2023. Today's drones are much smaller, operate at very low altitudes, cannot be reliably detected by radar or communicate effectively with air traffic service specialists, and are forecasted to outnumber manned aviation by a factor of 20:1.

I continue to be impressed by the high quality of technology solutions across so many areas of our business that prepare us to meet this new challenge. To modernize air navigation service (ANS) technology, we also need a willingness to adopt new ways of working and to think about things differently than what may have always been done. One thing that attracted me to Ottawa was how NAV CANADA is doing most of its own research and development with some world-class achievements in this regard.

We have a responsibility to modernize in a way that will reduce greenhouse gas emissions. Performance-based navigation (PBN) has been immensely successful in delivering significant benefits to our customers in terms of fuel consumption, cost reduction and environmental footprint.

We are actively exploring how concepts such as the Digital Twin and technologies like Artificial Intelligence and Machine learning can be deployed to our ANS technology to augment these achievements maximize the value of the rich data streams we enjoy.

Data sharing will become more and more significant as we look to have the aviation ecosystems make evidence-based decisions, and the partnerships and networks we build nationally and internationally will have a significant bearing on safety, efficiency and capacity.

Aireon is the most recent example of how NAV CANADA adds value based on its ability to action great ideas into tangible results. The company's early investment in the joint venture with Iridium Satellite Communications and ANS providers in Ireland, Italy, Denmark, and the UK was essential in moving forward this ground-breaking solution in air traffic management technology that has offered real gains in safety, performance and reliability.

I am tremendously excited for the future and believe we must continue to lead collaborative initiatives to identify new opportunities and solve problems. When safety has no borders, more and more issues will require us to build collaborative solutions. Diversity and inclusion will remain a big part of the innovation ecosystem. I have seen first hand how diversity promotes new ideas and ways of thinking or generates creativity and adaptability. Those are all qualities we need to face the increasingly complex air navigation landscape. Because, at the end of the day, what we are all looking for is to increase our capacity and deliver safer, cleaner, more seamless and more cost-effective air travel.



L'INNOVATION EST LE MOTEUR DE NOTRE SOCIÉTÉ.

MARK COOPER,
VICE-PRÉSIDENT PRINCIPAL,
TECHNOLOGIES SNA,
NAV CANADA

navcanada.ca





NAV CANADA est née en 1996 d'une idée audacieuse : devenir le premier fournisseur de services de navigation aérienne (SNA) entièrement privatisé au monde. Une vision qui révolutionne depuis bientôt 25 ans la gestion de la circulation aérienne (ATM).

En tant qu'un des 100 meilleurs employeurs au Canada, nous savons que la conception, l'élaboration, le déploiement et le maintien d'un bon système de navigation aérienne dépendent de la capacité d'attirer les bonnes personnes. C'est ici que Mark Cooper entre en scène.

Originaire de Sutton Coldfield, en Angleterre, Mark a débuté sa carrière chez GEC Marconi avant de rallier Lockheed Martin où, pendant 18 ans, il a gravi les échelons jusqu'à la direction de la division mondiale de l'ATM et des relations d'affaires avec le gouvernement du Royaume-Uni. Il est ensuite passé chez la société de conseil Deloitte, où il a créé et chapeauté la division du contrôle de la circulation aérienne (ATC) et de la technologie aéroportuaire. Durant sa carrière, Mark s'est consacré à de grands projets liés à l'aviation en Europe, aux États-Unis et ailleurs dans le monde.



La qualité des solutions technologiques que nous apportons à nos activités pour relever un tel défi ne cesse de m'impressionner. Mais pour moderniser les technologies SNA, nous devons aussi consentir à adopter de nouvelles méthodes de travail et, peut-être, de réflexion. Le fait que NAV CANADA mène la plupart de ses activités de recherche et développement, avec des retombées parfois mondiales, a influé sur ma décision de m'établir à Ottawa.

Nous devons moderniser nos systèmes de façon à réduire les émissions de gaz à effet de serre. Dans ce domaine, la navigation fondée sur les performances (PBN) aide grandement nos clients à réduire leur consommation de carburant, leurs coûts et leur empreinte écologique.

Nous envisageons sérieusement l'application de concepts et de technologies comme les jumeaux numériques, l'intelligence artificielle et l'apprentissage automatique, notamment, à nos technologies SNA pour en maximiser le rendement et la valeur des flux de données.

Le partage de données s'intensifiera à mesure que les écosystèmes de l'aviation prendront des décisions fondées sur des preuves et que sécurité, efficacité et capacité dépendront des partenariats et des réseaux bâtis au pays et à l'étranger.

Aireon est le plus récent exemple montrant comment NAV CANADA peut créer de la valeur avec de bonnes idées. L'engagement précoce de la Société dans cette coentreprise, aux côtés d'Iridium Satellite Communications et des fournisseurs de SNA de l'Irlande, de l'Italie, du Danemark et du Royaume-Uni, a permis d'appliquer cette solution novatrice à l'ATM et de réaliser des gains probants en sécurité, performance et fiabilité.

Je suis très confiant en l'avenir, et vois d'un bon œil notre capacité à prendre l'initiative et à trouver collectivement des solutions et des occasions de croissance. La sécurité étant un enjeu sans frontières, un nombre croissant de problèmes devront se résoudre par la collaboration. De plus, la diversité et l'inclusion continueront de jouer un rôle majeur dans l'innovation. J'ai vu de près comment la diversité nourrit la créativité et l'adaptabilité en valorisant les nouvelles idées et façons de penser, toutes des qualités essentielles à la navigation dans un espace aérien de plus en plus complexe. En fin de compte, nous cherchons tous à accroître notre capacité et à rendre le transport aérien plus sécuritaire, propre, uniforme et rentable.

À Ottawa, Mark mettra sa remarquable expérience au service de la modernisation de notre système de navigation aérienne, à titre de vice-président principal, Technologies SNA.

Notre industrie est en constante mutation, et la cadence s'accélère; notre défi est de rester à l'avant-garde, tant sur le plan de la sécurité que de l'efficacité.

Nous observons un essor de l'usage commercial de nouvelles technologies comme les systèmes d'aéronefs télépilotés (SATP); en fait, ce marché devrait tripler d'ici 2023. Les drones sont plus petits que jamais, volent à très basses altitudes et ne peuvent être détectés par radar de façon fiable ni contactés efficacement par les spécialistes du trafic aérien; on s'attend aussi à ce qu'ils supplantent l'aviation avec pilote par un facteur de 20.



NAV CANADA

WE ARE HERE TO FOSTER AN ENVIRONMENT OF BOUNDLESS OPPORTUNITY.

JAMIE PETTEN, PRESIDENT & EXECUTIVE DIRECTOR, KANATA NORTH BUSINESS ASSOCIATION





The Kanata North Business Association (KNBA) has accomplished much since its inception in 2013, and our current strategic vision is, by 2022, to be recognized as the destination of choice for technical and business talent seeking world-class work with world-class companies.

Our progress to this point is backed by compelling data regarding the significant economic impact of the Kanata North business community. Over the past six years, KNBA has created a distinct, recognized business brand and voice for the Kanata North Technology Park. Located approximately 25 kilometres from the Ottawa downtown core, Kanata North is now nationally recognized as the home of Canada's Largest Technology Park.

A year ago, we released the Business Association's benchmark *2018 Economic Impact Assessment Report*, confirming what those of us who have worked in the Park inherently knew: business is booming in Kanata North.

We are an ecosystem in the truest sense of the word, in that we support a symbiotic and evolving suite of cutting-edge and legacy technology. Large multinationals like Ericsson, Mitel, and Nokia



have found a home at Kanata North, as have companies in emerging fields like SaaS, connected and autonomous vehicles—Ottawa is actually Canada's CAV capital—AI, cybersecurity, and IoT.

Kanata North's community has contributed over $13 billion to Canada's GDP and real-estate services Firm CBRE recently ranked our home base of Ottawa as "No. 1 among North American tech hubs with the most momentum."

We sustain that momentum with our three key pillars, which the Business Association identified in support of our current strategic vision, which commits that by 2022, *Kanata North will be recognized as the destination of choice for technical and business talent seeking world-class work with world-class companies.*

Those pillars are:

TALENT: *We engage, attract, and retain the best technical and business talent in Canada.*

TECH: *We nurture a thriving technology community through thought leadership and collaboration.*

IMPACT: *We foster a vibrant social ecosystem that drives purpose and impact for the community at large.*

With high growth expected to continue at a rapid pace over the next decade, we expect to see more companies and people coming to the Park—all amplifying the need for space, mobility and transportation, housing, and more amenities like retail, entertainment, and greenspace. KNBA is laying the groundwork for the growing community through collaborative efforts like a partnership with the City of Ottawa. Through such collaborations, we have an amazing opportunity to foster a vision for the future of this unique economic zone and develop the Kanata North Technology Park into a world-class model for innovation, technology, infrastructure, and economic development. Another example is the University of Ottawa's investment in a Kanata North campus in the Park, offering talent, research, and training—all critical to our members' ability to innovate and flourish.

As a Business Association, we are here to foster an environment of boundless opportunity—an environment where businesses can innovate, scale leading-edge technologies, and thrive.

KANATA NORTH
BUSINESS ASSOCIATION

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“CANADA’S CAPITAL HAS A SPECIAL PLACE IN THE WORLD—A CITY THAT CELEBRATES THE VERY BEST OF CANADIAN CULTURE AND VALUES IN ONE HISTORIC REGION.

MICHAEL TREMBLAY, INVEST OTTAWA & BAYVIEW YARDS



In addition to being at the center of politics, Ottawa has always been the most technology-intensive city in the nation, built from generations of government research labs (now tallying sixty-five) steadily creating and attracting world-beating companies.

Ottawa is a growing, thriving cosmopolitan city of one million residents, with vast commercial development capacity right across the region, including the downtown core. It’s recognized as Canada’s most livable city—an incredible place to work, learn and play.

To support the highest concentration of tech jobs in Canada, Ottawa has developed an impressive post-secondary system, one of Canada’s largest producers of STEM talent. Our competitive institutions attract domestic and international students and leading academics.

Our more mature sectors include Software, Communications Technology, Defence & Aerospace, Life Sciences, Cleantech, and Digital Media. The region is buzzing with a range of emerging technologies, including Autonomous Vehicles, AI/ML, Cybersecurity, IoT, Data Analytics, Precision Agriculture and Next Generation Networks.

Invest Ottawa works to catalyze economic development in the region for data/digital-centric businesses with a mandate that includes both domestic entrepreneurship development and foreign direct investment and trade. We make our home at Bayview Yards – Ottawa’s One Stop Business Acceleration Shop at the heart of Ottawa’s new light rail system.

As an organization, our vision is to enable Canada’s Capital to achieve its full potential as a globally recognized, innovative and future-ready region. Our long-range strategic markets include—clean, connected communities, innovative healthcare and gov-tech—where our region has tremendous capability to stand out and compete in world markets.

Ottawa has substantial, generational capability and momentum to compete. Our city is set to successfully navigate the fourth industrial revolution while helping to solve the world’s big problems.”

Invest Ottawa | Investir Ottawa

investottawa.ca

COURS BAYVIEW YARDS

bayviewyards.org

PARTNERING FOR A BETTER FUTURE.

BENOIT-ANTOINE BACON, PRESIDENT & VICE-CHANCELLOR, CARLETON UNIVERSITY



Photo by Fangliang Xu

Benoit-Antoine Bacon is President and Vice-Chancellor of Carleton University, an innovative and socially minded institution that is at the forefront of technological and social change for a better future. A Professor of Psychology and Neuroscience, he previously served as Vice-President, Academic, at Queen's University and at Concordia University in his hometown of Montreal.

In the beginning, there was darkness, ignorance and fear. Slowly over time, bright points of knowledge emerged and developed into rich conceptions of reality and of existence. Philosophy. Mathematics. Chemistry. The Arts. It was a time of growth and optimism. The sky was the limit.

It has been a shock to realize over the past 40 years that these new conceptions of the world unleashed chain reactions that, if left unchecked, can lead to our own destruction. The limit, it turns out, might be much closer than previously anticipated. Signs of duress are evident at every level, from the individual to the global: mental health issues, climate change, conflicts and migration crises.

Einstein famously observed that we cannot solve our problems with the same thinking we used to create them. The way that we approach research and innovation is in need of a significant mindset shift. The research of tomorrow will be (1) collaborative and inclusive on a large scale, (2) multidisciplinary by definition, and (3) intentionally and explicitly taking into account social impact from its inception.

At Carleton University, we are investing in our research infrastructure to create space for large research networks that bring together multi-disciplinary teams of experts from academia, government, industry, and NGOs. This vision takes form, for example, in the new Advanced Research in Innovation in Smart Environments (ARISE) building. It was designed from the ground up for collaborative research in emerging technologies for social change, including clean tech, health tech, smart cities, information and communication technologies, the Internet of Things, and water and energy efficiency.

A university's vision needs to be bigger than itself. It must serve as a hub for partnerships where great ideas collide and lead to game changing new paradigms for individuals, societies and the planet. We must not fall prey to cynicism and despair but rally around the societal issues we face with renewed purpose, collaboration and multidisciplinary creativity. There are answers to the problems that we face, but they will not be solved with the same thinking that created them in the first place.

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Canada's Capital University

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INNOVATION IS THE PERPETUAL IMPROVEMENT FOSTERED BY LIKE-MINDED PEOPLE.

RIMA ARISTOCRAT, PRESIDENT & CEO, WILLIS COLLEGE

When they come together to elevate, inspire, and empower, they can truly make a difference in people's lives and build a thriving community. Thriving communities mean stronger countries and stronger countries mean a better world—socially, economically, and politically—for our future generations.

As I imagine most of us do, I have specific young people in mind when I think of our future generations. I think about my four daughters, my four granddaughters, my grandson, and my great-grandson when I think about what's to come—and when I think about innovation. I am always learning from my family. I have them to thank for where I am now.

In addition to their influence, spending 35+ years in adult post-secondary education has shaped my passion for building the next generation of innovative leaders in business, healthcare, and technology. My own story has played a role, too.

When I first moved to Canada, I had left behind a career as a concert pianist, and I was starting over. I met other immigrants, professionals like me, who were working in entry-level



WILLIS COLLEGE
BUSINESS TECHNOLOGY HEALTHCARE

service-industry jobs. There is nothing wrong with these positions, of course, but it was also clear there was no easy path forward for them or for me. That was what got me started designing and delivering innovative skills training, mentorship, and scholarship programs that foster career advancement. Today, in everything I do, I try to express the importance of skills training for lifelong learning, and I am grateful to carry that out in my role at Willis College.

Lifelong learning comes in many forms, and I have worked to discover them. Enabling lifelong learning can look like delivering culturally appropriate and socially responsible programs for indigenous people; establishing gainful career opportunities for our veterans, military, and military spouses; and building technology and entrepreneurial skills training and mentorship programs for women. It is crucial to empower women to stand up and be counted and to provide them with opportunities for lucrative careers—so that our world is one where women have more decision-making opportunities and economic contributions amongst leaders in our society.

Founding, establishing, partnering, or joining local, provincial, and national organizations that promote philanthropy and innovative programs for retention and advancement has truly given a whole different meaning to innovation for me.





That definition has continued to expand, and I'm always seeking new pathways for exactly that. Establishing sister-city partnerships between Canada and China. Leveraging Willis College's partnerships to attract global organizations to Ottawa as a headquarters. Creating a $24,000 Women in Technology Scholarship and providing an opportunity for women to graduate with a Cybersecurity Analyst or Mobile Software Developer diploma—all of that is innovation to me.

An ideal future in Technology and Education includes flexibility to collaborate and innovate. An educational and technological world without borders will increase knowledge and understanding and create a prime landscape for collaboration.

Such collaboration is key to innovation in the region. Private/public/industry partnerships must work together to build a talent pipeline and increase diversity in the industry, adding voices to the conversation and enabling us to develop new ideas and perspectives. When we see each other as equals, we are more open to other ideas.

When I talk about learning and education, I don't only have students—young or adult—in mind. I don't just think of my grandchildren. I include myself in it. The successful entrepreneur in Ottawa must be a lifelong learner. We have so much to learn from one another.

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FROM SILICON VALLEY TO OTTAWA: THE OPPORTUNITY AHEAD.

ATLEE CLARK, DIRECTOR OF PARTNER PLATFORM, SHOPIFY





I moved from San Francisco to Ottawa to pursue a tech career. Yes, you read that right.

I grew up north of Toronto, but my curiosity took me all over North America. I moved to Calgary at the height of the oil boom in Alberta. I chased the energy of Barack Obama's election and moved to Washington, DC, in 2008. In 2012, I decided to jump into tech—no surprise that this decision took me to Silicon Valley. I joined Shopify to lead their app developer program from San Francisco in 2014.

For four years, I commuted to Shopify's Ottawa headquarters each month. Ottawa had a reputation for being a sleepy government town, yet each time I visited, I spotted interesting businesses being opened up throughout the city, new communities being built, the new Ottawa Art Gallery opening its doors to contemporary artists. I began to see the city shift because of people taking risks—the exact type of risks necessary for innovation.

Tech has long been part of Ottawa's identity, but there's something electric about the state of entrepreneurship in Ottawa right now. Our rich history of semiconductor innovation is transforming into a vibrant culture of diverse business creation. And so when I was asked to move to Ottawa to take on a new role at Shopify, I said yes, because I recognized the opportunity ahead of this city. More entrepreneurs are taking risks and seeing rewards; more parents are encouraging their kids to work for startups; more companies like Shopify are flourishing. These shifts are fueling our city.

I'm often told that Shopify is a cornerstone to Ottawa's tech narrative. This makes me proud, but I also think we need to embrace investment and risk-taking, while producing healthy competition to spur us forward.

If we want to build an innovative city, we each need to do our part to support entrepreneurship.

We need to support those new businesses and galleries, buy from local stores, and vote with our dollars to create opportunities for more local successes. I followed my curiosity to Ottawa because I believe the story of its technology and innovation has not yet been written. I'm here to help write it, and I hope you will, too.

shopify

shopify.ca



LE COLLÈGE DE LA CRÉATIVITÉ

LISE BOURGEOIS, PRÉSIDENTE-DIRECTRICE GÉNÉRALE, LA CITÉ

Dès mon arrivée à La Cité en 2010, j'ai constaté l'engagement et la passion de la communauté collégiale, la vitalité et la joie de vivre francophones, la culture de l'excellence dans un environnement des plus stimulants et fertiles, le désir profond de voir nos étudiants réussir, et des projets plus fascinants les uns que les autres. C'est alors que je me suis dit qu'il manquait quelque chose pour rendre notre magnifique collège encore plus visible et reconnu… une signature unique qui nous démarquerait davantage. Je voulais quelque chose de grand et d'impressionnant qui allait sortir notre beau collège de son isolement dans l'est d'Ottawa et le propulser dans l'avenir.

Je me suis mise à rêver d'un nouveau pavillon au concept hors du commun où la transmission des savoirs par l'essai ainsi que la démonstration et l'expérience seraient priorisées… un centre d'innovation et d'entrepreneuriat avec des espaces physiques et virtuels où chercheurs, entrepreneurs et étudiants se côtoieraient dans un espace d'apprentissage collaboratif, multidisciplinaire et cocréatif. Je souhaitais une infrastructure accessible et accueillante, avec une technologie avant-gardiste immersive qui mettrait La Cité sur la carte pour de bon, voire un pavillon qui lui permettrait enfin de rayonner à la hauteur de ses talents, de développer des projets audacieux et de tenir des événements d'envergure en partenariat avec la communauté et les gens d'affaires.

Si les gouvernements fédéral et provincial ont financièrement contribué à cette aventure grâce au Fonds d'investissement stratégique pour les établissements postsecondaires, le Collège se devait également d'investir 10 M$. Nous avons transformé ce défi en opportunité. Les étudiants de La Cité ont accepté par voie référendaire l'ajout d'une cotisation spéciale pour contribuer à la construction du nouveau pavillon. L'Association étudiante du Collège est donc devenue, avec un investissement de 5 M$, partenaire officiel de ce projet d'envergure. Une grande première dans les annales de La Cité! De généreux donateurs nous ont enfin permis d'atteindre le montant requis pour aller de l'avant.

Ce partenariat avec notre association étudiante est un excellent exemple de l'esprit créatif dont fait preuve La Cité pour trouver des solutions novatrices. Nous innovons en forgeant des alliances avec des partenaires francophones et anglophones, en façonnant les talents et en privilégiant les collaborations pour assurer la pertinence de nos programmes et la réussite de nos étudiants.

Le pavillon Excentricité : un rêve devenu réalité à La Cité, un grand collège qui contribue au développement économique et socio-culturel de toute la communauté et à la mise en valeur de talents francophones prêts à changer demain, ici dans la province comme ailleurs sur la planète.

Soon after my arrival at La Cité, I realized that our beautiful College needed something unique and impressive to further increase its exposure in Ottawa's east end and propel it into the future. The idea of a welcoming infrastructure with cutting-edge and immersive technology came to mind … a pavilion that would allow La Cité to showcase its talents, develop bold projects, and hold major events in partnership with the community and business people. Our state-of-the-art building, Excentricité, has emerged thanks to our creative spirit and our efforts to forge alliances with French- and English-speaking partners.

"COLLABORATION IS THE FUTURE OF HEALTH-CARE INNOVATION."

ALAN FORSTER, MD, FRCP MSC, VP, INNOVATION AND QUALITY, THE OTTAWA HOSPITAL



Why do we pursue innovation in health care?

The population is aging, and patients are entering the health-care system with more complex health needs. As a leader in world-first health-care research and as a part of the Ottawa community, The Ottawa Hospital pursues health-care innovation to support healthier populations while ensuring an excellent care experience for individuals.

Modern hospitals must make population health a priority that is embedded in every aspect of operations. They must create and thrive in a forward-thinking health-care culture focused on finding solutions that are more efficient, more customized, and more effective from an operational standpoint, which will result in a better experience and better outcomes for patients.

In other words, the health-care system of the future must transform in ways that maximize value, because the more value we can bring, the better we can deliver care to patients.

Collaboration is the future of health-care innovation. Our strategy is to build, fortify and contribute to partnerships between the care provider, academic community and business community to enable health innovation in our region.

We are pursuing this kind of innovation on three fronts:

1. **Internal innovation:** Empowering health-care professionals, scientists and researchers to pursue initiatives to transform health care
2. **External innovation:** Welcoming insights from small and medium-sized enterprises to help find solutions to the most significant challenges in health care
3. **Innovation via global partners:** Investing in and contributing to initiatives from around the world that could result in bold new approaches to health care

As an example of global partnership, The Ottawa Hospital joined Israel's Sheba Medical Center to become one of only two hospitals in the world considered an "ARC," a model that aims to ***accelerate*** efforts to ***redesign*** health care through ***collaboration***.

The ARC model is unique in its 'open innovation' philosophy, which recognizes that health-care challenges cannot be solved unless experts from outside the system – including patients and industry – participate in the process.

The ARC model has four elements.

1. **Prioritizing digital technologies.** While other technologies can make small shifts in health-care value, big changes will only happen as a result of digital technologies, including advanced analytic techniques.
2. **Advocating for open innovation.** Innovation thrives through partnerships with industry in both countries and beyond.
3. **Encouraging teamwork.** Critical to success is learning from the experiences of others, avoiding duplication of effort, spreading successful approaches rapidly and taking advantage of complementary strengths.
4. **Creating the infrastructure for innovation**. While innovation must include creativity and a 'bottom-up' approach, it must also be disciplined in order to move solutions from 'prototype to product' effectively and efficiently. This principle clarifies how innovation occurs and who is accountable for it.

The lessons we learn from forming an ARC with Israel will significantly enhance our 'made-in-Canada' efforts to achieve higher quality at lower cost in support of a healthier population.

High-value health care is the key to us sustaining a health system that is universal, publicly-administered, portable and comprehensive for generations to come.

The Ottawa Hospital | L'Hôpital d'Ottawa

www.ottawahospital.on.ca

« LA COLLABORATION CONSTITUE L'AVENIR DES SOINS DE SANTÉ. »

DR ALAN FORSTER, FRCPC, VICE-PRÉSIDENT, INNOVATION ET QUALITÉ, L'HÔPITAL D'OTTAWA



Pourquoi misons-nous sur l'innovation en santé?

La population vieillit et les patients ont des besoins de plus en plus complexes en matière de soins. À titre de chef de file mondial en recherche dans le domaine de la santé et faisant partie intégrante de la collectivité, L'Hôpital d'Ottawa mise sur l'innovation pour améliorer la santé de la population, tout en assurant à chacun une excellente expérience de soins.

Les hôpitaux modernes doivent faire en sorte que la santé de la population soit une priorité ancrée dans chaque aspect de leurs activités. Ils doivent susciter une culture avant-gardiste axée sur la recherche de solutions efficientes, personnalisées et efficaces sur le plan opérationnel pour améliorer l'expérience et la santé des patients.

En d'autres mots, le système de santé de l'avenir doit se transformer de façon à optimiser la valeur, ce qui se traduit par une capacité accrue d'offrir d'excellents soins aux patients.

La collaboration constitue l'avenir des soins de santé. Notre stratégie consiste à bâtir et à renforcer des partenariats entre les établissements de soins, le milieu universitaire et le secteur des affaires afin de favoriser l'innovation en santé dans notre région.

Nous encourageons l'innovation sur les trois plans suivants :

1. **Innovation à l'interne :** Outiller les professionnels de la santé, les scientifiques et les chercheurs afin qu'ils puissent lancer des initiatives pour transformer les soins de santé.
2. **Innovation à l'externe :** Recueillir les points de vue de petites et moyennes entreprises pour apporter des solutions aux plus grands défis en santé.
3. **Innovation avec des partenaires à l'**échelle mondiale **:** Investir à l'échelle mondiale dans des initiatives, ou y contribuer, en vue d'engendrer de nouvelles approches audacieuses en santé.

À titre d'exemple de partenariat à grande échelle, L'Hôpital d'Ottawa emboite le pas au Sheba Medical Center d'Israël, devenant ainsi le second hôpital dans le monde à adopter le modèle ARC, dont le but est d'**accélérer** les efforts pour **redéfinir** les soins de santé par la **collaboration**.

Le modèle ARC repose sur une philosophie d'innovation ouverte, unique en son genre, qui affirme que les solutions aux défis en santé ne seront trouvées que si des experts externes au système – notamment les patients et le secteur privé – participent au processus.

Le modèle ARC se décline en 4 volets :

1. **Prioriser les technologies numériques.** Là où d'autres technologies améliorent légèrement la qualité des soins, les changements majeurs s'opèreront seulement grâce aux technologies numériques, y compris les techniques analytiques de pointe.
2. **Promouvoir l'innovation ouverte.** Les partenariats avec le secteur privé dans les deux pays et ailleurs stimulent l'innovation.
3. **Favoriser la collaboration.** La clé du succès réside dans plusieurs éléments : tirer des leçons de l'expérience des autres, éviter le chevauchement des efforts, diffuser rapidement les approches probantes et exploiter les forces complémentaires.
4. **Créer une infrastructure d'innovation.** S'il est vrai que l'innovation repose sur la créativité et une approche ascendante, elle doit aussi être disciplinée pour faire évoluer les solutions du stade de prototype à celui de produit fini, et ce, de façon efficace et efficiente. Ce principe clarifie le processus qui donne naissance à l'innovation et en détermine la responsabilité.

Les leçons tirées de notre partenariat ARC avec Israël renforceront énormément nos propres efforts pour rehausser la qualité des soins à moindre coût afin d'améliorer la santé de la population.

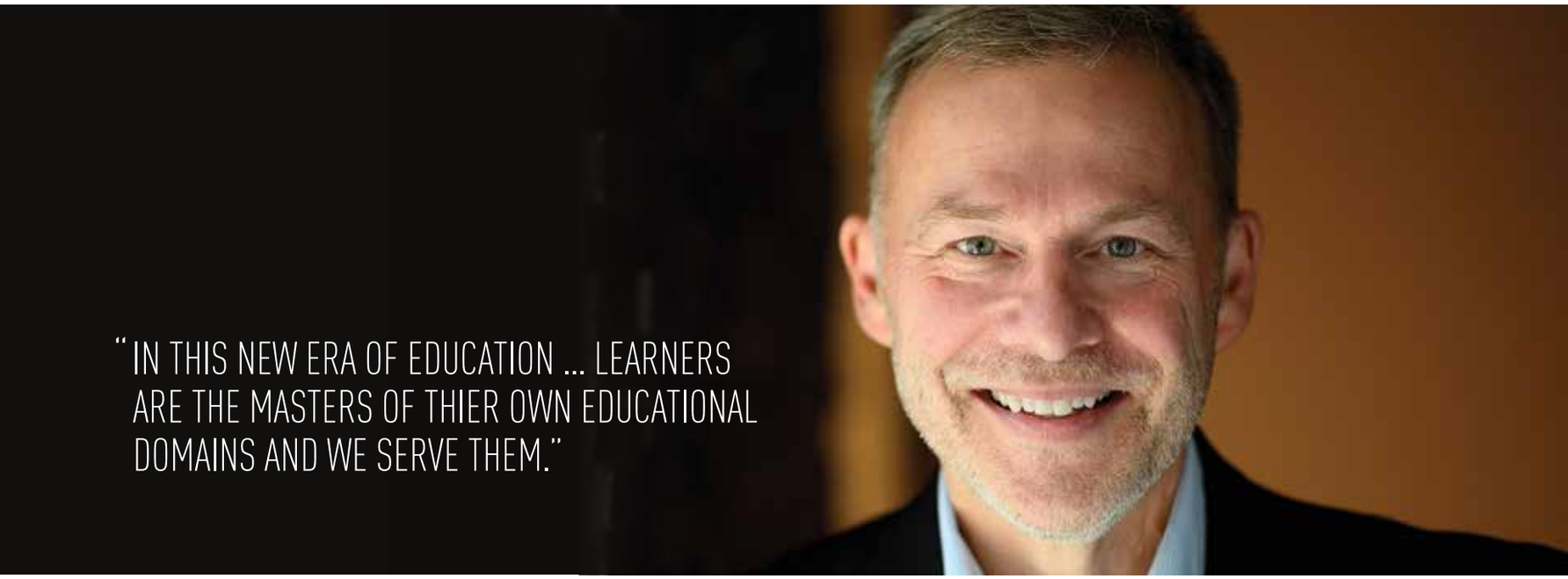
Des soins à valeur ajoutée sont la clé pour maintenir un système de santé universel, public, transférable et intégral pour les générations à venir.

The Ottawa Hospital | L'Hôpital d'Ottawa

www.ottawahospital.on.ca

ALGONQUIN COLLEGE OF APPLIED ARTS AND TECHNOLOGY

CLAUDE BRULÉ, PRESIDENT AND CEO



When Claude Brulé was appointed Algonquin College's ninth president in mid-2019 he quickly embarked on an innovation agenda to establish experiential, personalized learning as the institution's guiding educational principle for the future.

"We know the people who walk through our doors, both physically and digitally, will not accept a one-size-fits-all agenda," he says. "In this new era of education, the proverbial cookie-cutter has been left in the past. Now learners are masters of their own educational domains and we serve them."

The statement reflects President Brulé's thinking on the future direction not only of Algonquin College but also of Canada's college system. He argues that as society changes in our digital, high-mobility era so, too, must educational institutions. Indeed, he thinks the word "students" no longer accurately describes the college population and the work they do. "Those who study with us are learners – full stop," he says. "To us, a learner is a person who is not just studying, but who is actively 'doing' to acquire knowledge."

For President Brulé, it is the changing nature of educational needs that underscores the necessity of personalized learning. This pedagogical shift is evident in an innovative undertaking close to his heart – Algonquin's soon-to-be realized Online Campus.

Among the first of its kind in Canada, the Online Campus will allow learners to take hundreds of courses by remote access – from forensic accounting and early childhood education to fitness and health promotion. The intent is to deliver College programs to learners when and where they wish.

For example, people unable to physically attend Algonquin's campuses in Ottawa, Perth, or Pembroke because of work or financial constraints will be able to take online courses regardless of where they live or the time of day.

President Brulé's interest in personalized learning can be traced back a long way. He came to Algonquin after two decades in the Canadian Armed Forces where, among other duties, he was chief of staff at the Canadian Forces School of Communications and Electronics. He joined the College in 1999 and through the years held various senior positions, including Academic Chair of the Information and Communications Technology Department, Dean of the Faculty of Technology and Trades, and, most recently, Senior Vice-President, Academic.

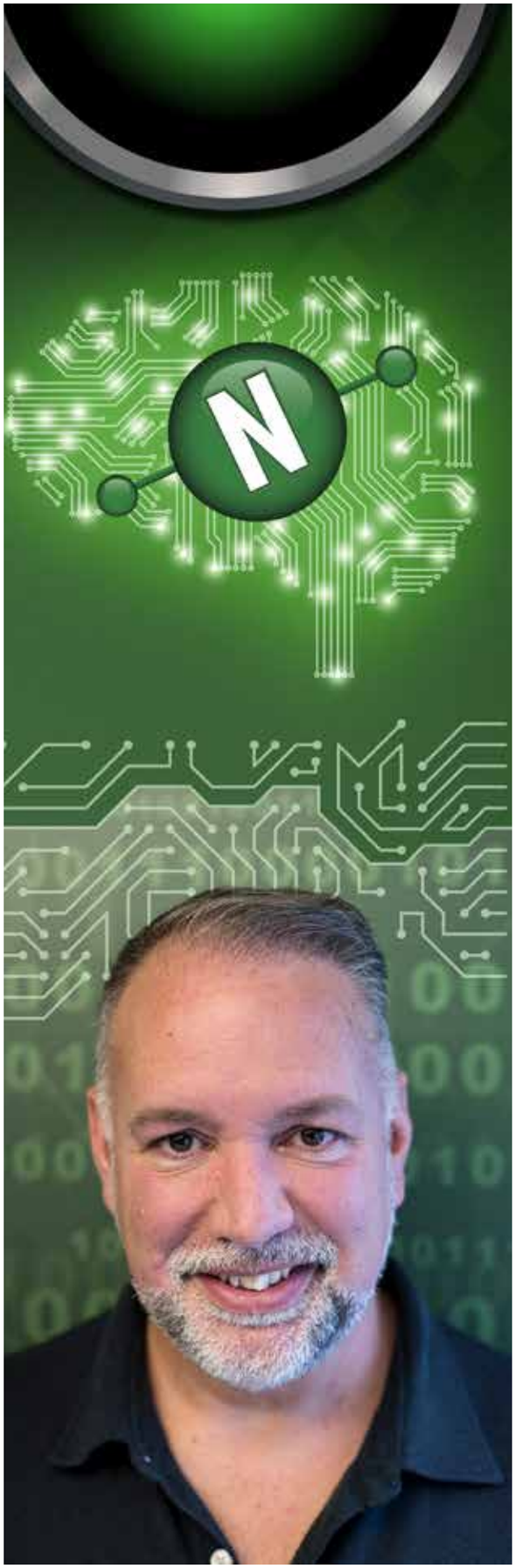
In that latter capacity, he oversaw the College's adoption of 14-week terms in an academic calendar that spans the entire year and replaces the traditional Fall/Winter semester system. Again, the emphasis was on a system that delivers personalized learning. As he puts it: "Our new 14-week term will offer multiple entry points for many programs, so learners can start their course at the time that is most convenient for them – in fall, winter, spring, or summer."

This personalized approach to education is necessary not only for the sake of learners but also for the country, says President Brulé. "We need to find ways – and quickly – to attract and retain prospective learners. It is no secret that there is a looming shortage of skilled workers across Canada. If colleges cannot tap the workers needed to fill those jobs, who will build our country's infrastructure?"

ALGONQUIN COLLEGE

Changing Lives

algonquincollege.com



STAYING RELEVANT IN THE DIGITAL AGE.

AN EXERCISE IN INNOVATION AND DEMONSTRATING VALUE.

JIM STACKHOUSE, FOUNDER & CEO

The digital landscape of IT Support is forever changing. Just five years ago, the ways IT Managed Service Providers (MSPs) supported their clients is totally different than today.

As more companies turn to MSPs for outsourced IT Support and Cloud services, the value that they provide must increase as well.

With the introduction of the Cloud, it has posed both a challenge and opportunity for companies and MSPs alike. While they were promised ease of use, integration and scalability, security around the Cloud continues to be a challenge as more online services fall victim to cyberattacks. This creates a more significant challenge for the MSP as they are the trusted advisor tasked to secure their clients' data.

Also, clients' increasing demand for faster response times, transparency, higher customer service and better pricing mean MSPs must demonstrate they can be innovative to bring their clients into the future.

> AT NEOLORE NETWORKS INC., WE UNDERSTOOD THIS MANY YEARS AGO.

As an MSP leader in Ottawa, we have increasingly demonstrated value and innovation for our clients. We were the first to provide 30-day service agreements; to put our internal real-time help desk statistics online; to implement artificial intelligence against our help desk ticketing system giving our technicians unprecedented access and speed to information and solutions.

As a sign that we are continually innovating, NeoLore Networks Inc. is offering a managed security service in early 2020. For a cost-effective monthly amount, our clients will benefit from a wide range of cyber security services to better protect them while they are in the digital landscape.

NEOLORE NETWORKS INC.
THE WAY I.T. IS SUPPOSED TO BE



THE PROMISE OF A NEW DIGITAL DECADE

Namir Anani, P.Eng

Information and Communications Technology Council

President and CEO

In the next decade, our world is expected to witness greater socioeconomic shifts than those experienced in the last 50 years. Climate change, increased urbanization, evolving trade dynamics, and demographic shifts are among the many factors shaping this new paradigm.

Today's advances in Artificial Intelligence and Deep Learning are engendering great strides in real-life applications, ranging from enhanced analysis of soil nutrients leading to better crop yield, to fast-tracking clinical trials that are markedly improving the economics and timeliness of medical drug discoveries.

Global markets are also increasingly being reshaped by the advent of the Internet of Things (IoT), 5G wireless deployment, Blockchain, and the rise of the Data Economy. Harnessing the full potential of these technologies will address the many global endeavours in energy production, carbon emissions, food supply, clean water, and disease eradication.

ICTC's recently published report, Outlook 2023 - Canada's Growth Currency, points to a vibrant digital economy that contributed $89 billion to GDP or 4.5% to the total economic output in 2018.

The forecasted demand for digital talent is also accelerating to the tune of 305,000 skilled workers by 2023. Such promising projections are echoed by the tech sector gains on the stock market with record high growth of 160 % over the past five years, signaling a larger industrial shift towards innovation-laden sectors. This vibrant, digital-based economy is poised to reshape the industrial fabric of our economy while advancing Canada's competitive advantage on the global stage.

Owning the Global Podium

As a nation, our game plan for the next decade should continue to focus on shaping Canada's aspirations for a digital-based economy that owns the podium on the global innovation stage while opening markets and heightening foreign direct investment attraction. The construct of our digital ambitions should aspire to:

- Having a modern and competitive digital infrastructure in wireless broadband, smart roads, and IoT connectivity.
- Enabling sustainable cities and communities that are data driven, responsive, energy efficient, and environmentally responsible.
- Having a state-of-the-art academic system that is on-demand, market focused, and responsive to the disruptive nature of technology in the workplace.
- Enabling smart governance that supports capital investment, trade, and protects Intellectual Property while incentivizing innovations and international market expansion.
- Preparing Canada's talent for tomorrow's economy in skills and labour needs.

Ottawa - The Nation's Capital Tech Advantage

As a national centre of expertise for the digital economy, ICTC is proud to call Ottawa our home office, a city of fast-growth tech companies, innovation hubs, and state-of-the-art educational institutions.

The Ottawa-Gatineau census metropolitan area (CMA) tops the list of Canadian cities for its share of adults aged 25 to 64 who have a bachelor's degree or higher (43.5% in 2016). With almost one-tenth of its workforce employed in technology-based roles, Ottawa is one of the most technology-intensive cities in Canada.

The city is host to several incubators and research centres, including the National Research Council of Canada, the Communications Research Centre, the Centre of Excellence in Next Generation Networks, the Autonomous Vehicles Innovation Network, Defence Research and Development Canada and Canada's Advanced Research and Innovation Network, which are actively cultivating world-class expertise in technology fields such as cybersecurity, IoT, and autonomous vehicles.

The Future is Now

There is no time like the present to carve a place for Canada on the global stage while fully embracing the transformative nature the digital landscape that is upon us. The best way to predict the future is to create it! The science, policies, and practice of our actions today will form the foundations of a better and prosperous future for generations to come.

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LA PROMESSE D'UNE NOUVELLE DÉCENNIE NUMÉRIQUE

Au cours de la prochaine décennie, notre monde devrait connaître des changements socio-économiques plus importants qu'l ait connu au cours des 50 dernières années. Les changements climatiques, l'urbanisation accrue, l'évolution de la dynamique commerciale et les changements démographiques sont parmi les nombreux facteurs qui façonnent ce nouveau paradigme.

Les progrès actuels en matière d'intelligence artificielle et d'apprentissage profond engendrent de grandes avancées dans les applications de la vie réelle, allant de l'analyse améliorée des nutriments du sol qui conduit à un meilleur rendement des cultures, aux essais cliniques accélérés qui améliorent considérablement l'économie et l'opportunité des découvertes de médicaments médicaux.

Les marchés mondiaux sont également de plus en plus remodelés par l'avènement de l'Internet des objets (IdO), le déploiement du sans fil 5G, la Blockchain et la montée de l'économie des données. L'exploitation du plein potentiel de ces technologies permettra de répondre aux nombreuses initiatives mondiales en matière de production d'énergie, d'émissions de carbone, d'approvisionnement alimentaire, d'eau potable et d'éradication des maladies.

Un rapport du CTIC, Tendance de croissance au Canada - Aperçu 2023, fait état d'une économie numérique dynamique qui a contribué 89 milliards de dollars au PIB ou 4,5 % à la production économique totale en 2018. On prévoit que la demande de talents numériques sera de 305 000 travailleurs qualifiés d'ici 2023. Ces projections prometteuses trouvent un écho dans les gains du secteur technologique sur le marché boursier, avec une croissance record de 160 % au cours des cinq dernières années, ce qui indique un déplacement industriel plus important vers des secteurs chargés d'innovation. Cette économie numérique dynamique est sur le point de remodeler le tissu industriel de notre économie tout en faisant progresser l'avantage concurrentiel du Canada sur la scène mondiale.

Détenir le podium mondial

Le plan de match de notre pays pour la prochaine décennie devrait continuer de mettre l'accent sur la concrétisation des aspirations du Canada à une économie numérique qui possède le podium sur la scène mondiale de l'innovation tout en ouvrant des marchés et en augmentant l'attraction des investissements étrangers directs. Le fondement de nos ambitions numériques devrait aspirer à :

- Disposer d'une infrastructure numérique moderne et concurrentielle en matière de large bande sans fil, de routes intelligentes et de connectivité à l'IdO.
- Permettre l'établissement de villes et de collectivités durables qui sont axées sur les données, qui sont réceptives, qui ont un bon rendement énergétique et qui sont responsables sur le plan environnemental.
- Disposer d'un système académique de pointe qui soit à la demande, axé sur le marché et sensible à la nature perturbatrice de la technologie en milieu de travail.
- Permettre une gouvernance intelligente qui soutient l'investissement de capitaux, le commerce et protège la propriété intellectuelle tout en encourageant les innovations et l'expansion des marchés internationaux.
- Préparer les talents du Canada pour l'économie de demain en matière de compétences et de besoins en main-d'œuvre.

Ottawa - L'avantage technologique de la capitale nationale

En tant que centre national d'expertise pour l'économie numérique, le CTIC est fier de considérer Ottawa comme sa ville d'attache, une ville d'entreprises technologiques à croissance rapide, de centres d'innovation et d'établissements d'enseignement de pointe.

La région métropolitaine de recensement (RMR) d'Ottawa-Gatineau est en tête de liste des villes canadiennes pour sa proportion d'adultes de 25 à 64 ans qui détiennent un baccalauréat ou davantage (43,5 % en 2016). Avec près d'un dixième de sa population active occupant des postes à caractère technologique, Ottawa est l'une des villes canadiennes les plus axées sur la technologie.

La ville est l'hôte de plusieurs incubateurs et centres de recherche, dont le Conseil national de recherches du Canada, le Centre de recherches sur les communications, le Centre d'excellence des réseaux de la prochaine génération, le Réseau d'innovation pour les véhicules autonomes, Recherche et développement pour la défense Canada et le Réseau canadien de recherche et d'innovation avancées, qui cultivent activement une expertise de classe mondiale dans des domaines technologiques tels que la cybersécurité, l'IdO et les véhicules autonomes.

L'avenir, c'est maintenant

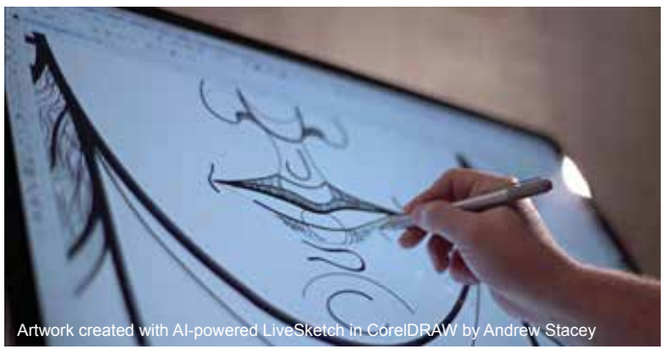
Il n'y a pas de meilleur moment que maintenant pour faire une place pour le Canada sur la scène mondiale tout en saisissant pleinement la nature transformatrice du paysage numérique qui s'offre à nous. La meilleure façon de prédire l'avenir est de le créer ! La science, les politiques et la pratique de nos actions d'aujourd'hui formeront les bases d'un avenir meilleur et prospère pour les générations à venir.

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WELCOME TO THE FUTURE OF USER-FOCUSED SOFTWARE

– GÉRARD MÉTRAILLER, EXECUTIVE VICE PRESIDENT OF GLOBAL PRODUCTS, COREL





Artwork created with AI-powered LiveSketch in CorelDRAW by Andrew Stacey

The world of work has never moved as quickly as it does now. Compelled to be more productive from virtually anywhere, it's easy to be dazzled by the latest app or service that promises to make us smarter and more connected.

Things may be changing rapidly, but technology for its own sake will not unlock the tremendous benefits we need. No matter the role – creative designer, project manager, sales executive, or marketing professional – modern knowledge workers rely on constant product innovation to achieve more meaningful results. And as all of us modern knowledge workers can attest, we need these results faster than ever before.

Too often, claims of innovation are based on the 'cool factor' of the technology. This industry is infamous for building things simply because it's possible, not necessarily because it's needed. As the proponent of great design, Donald A. Norman said in his classic book, *The Invisible Computer*, "I don't want to use a computer, I want to accomplish something. I want to do something meaningful to me."

This idea is now more true than ever. If we want to unlock real value, we can never lose focus on what matters to the user. Deep understanding paired with continuous innovation are the only way to make sure we achieve it.

This relentless process keeps us striving for the next technology leap to push us ahead. And without question, it's here today in the form of Artificial Intelligence. With the latest AI advances, we now have the opportunity to enhance the capabilities and productivity of human beings more significantly than ever. When the person and their needs, goals, and aspirations serve as the north star of our application design, AI delivers the power we need to create the next generation of interfaces and tools.

Thanks to AI, we can now develop apps that enable the complexity of technology to fade away, putting the focus on the user and their task at hand. Great user experience designers and software developers now have the ability to create applications that completely change the entire software user experience.

As you'll see in the pages of this beautiful book, Ottawa is rich with the talent, skill, and drive to make the next generation of technology a reality. Proud to be in the nation's capital for more than three decades, our company is excited to be leading the way with user-focused, AI-powered software that's reshaping the way we work, connect, and collaborate.

Gérard Métrailler
Executive Vice President of Global Products

Gérard Métrailler has made Ottawa his home since moving from Europe in 2006. Today he is Corel Corporation's Executive Vice President of Global Products, where he is responsible for developing and maintaining worldwide product strategy, management, and marketing across major software brands such as CorelDRAW, MindManager, Parallels, Clearslide, and WinZip.

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STOP STARTING UP AND START SCALING: WHY BUSINESSES STRUGGLE TO GROW

– JASON BURKE, CEO/FOUNDER, POSITIVE VENTURE GROUP



Jason Burke, CEO and Founder
Positive Venture Group

Jason has spent over 25 years providing operational and financial expertise in leadership positions for rapidly growing companies such as Conversant (MOSAID), AVID Technologies, and IBM (Cognos). He started Positive Venture Group with the mission to help growth-stage businesses reach their full potential.

"Most entrepreneurs start a venture because they feel passionately about a product or service that they want to bring to market but many of these ventures are unsuccessful because "business" gets in the way."

It is common to see articles in the business press about the fact that 90-95% of start-ups fail. Most of these publications highlight the many reasons that cause this failure rate and they try to identify a single cause. Generally, it boils down to lack of funding, difficulty acquiring customers or lack of talent. However, these causes are more indicative of a symptom versus the cause itself which is often more systemic.

It is not a surprise that most businesses in the early stages are founder powered. Founders are the ones that often design the product or service, build the team, raise the money, support the messaging, and sign the first customers. In the early days they are the company. The problem with this is, no matter how much energy or effort new business owners put forward, there are only 24 hours in a day and 7 days a week. The time they have available to them is something that doesn't scale.

There comes a point, where every business needs to stop starting up and focus on scaling. The sooner this is done, the more successful the venture will be.

Founders are hesitant to invest in the people, processes and systems they need to enable scalability during the early stages of their business. This is an inflexion point that can be difficult for the company and often leads to failure. If an investment is made, they often struggle to "let go" and trust the people they've hired, the processes they've established and the systems they have implemented.

I tell the founders who I work with that if you build a successful, scalable business, you will have no shortage of investors, customers and employees wanting to work with you. However, too often business owners are distracted by treating the symptoms: chasing investors, customers and employees. These distractions prevent them from spending adequate time on building a successful business and is a critical systemic cause of failure that founders need to understand in order to fast track their company's growth.

Positive Venture Group

positiveventure.group

THE POWER OF BEING A CONNECTOR.

ADRIAN SALAMUNOVIC, ENTREPRENEUR, ADVISOR, INVESTOR, BESTSELLING AUTHOR





Decades of ups and downs, helping others start companies, starting my own companies (and sometimes failing) has taught me the power of pattern recognition. It is key to both innovation and entrepreneurship because it is also at the core of being an early adopter and a connector.

That was how I began: as an early adopter. I was involved in mobile-web technology—that's the Internet on your phone—in 1999. I saw how huge mobile was going to be, and I'm proud of how I was able to pick up on trends like that, though there is such a thing as being too early. My first venture-backed startup failed for this reason, but I learned a lot about marketing, eventually enough to become a consultant. I helped many companies between Ottawa, Los Angeles, and further afield to grow and to connect with new clients and new partners. After one of the companies I helped launch as a consultant was sold to J2 for over $220 million, I thought it was time to try again as an entrepreneur. I had known how to recognize patterns, but now I understood a new facet of that skill. If seeing connections was at the heart of recognizing patterns, then I'd learned the power of connecting people.



I decided to launch one of the first consumer genomics companies called DNA11. This was before 23andMe, and it wasn't about analysis, it was about art; we'd take people's cheek swabs and turn them into modern artwork. We bootstrapped that company to over $1 million in a little over a year. We did so using the power of PR and the power of earned media—press, exposure, word of mouth; whatever you want to call it. You could also call it connecting people or connecting with people, because earned media is exactly that: earning a client's trust, a journalist's, an editor's. The marketing worked because I had learned to connect people through what each of them was searching for. It worked so well that we expanded to create another company called CanvasPop, which we bootstrapped and took to eight figures—again, with no venture backing and through leveraging earned media.

Through all of that, I recognized a pattern in myself: I wanted to position myself as a connector, an advisor, an investor—and even an author—to help other entrepreneurs accelerate their own progress by leveraging my experience. Today, I see myself as someone who connects people and who connects people to opportunities, in Ottawa and globally. There is nothing more meaningful to me than being known as a connector and specifically one who supports entrepreneurs.

Entrepreneurship is one of the most important elements in society in the way it creates innovation. Entrepreneurs are the ones out there competing and using technology and seeking out talent; they are the ones making changes. The amazing thing about serving as a connector is that I get to be out there, too, talking to real entrepreneurs, getting real data, looking behind the scenes, and when you're looking for great ideas, what could be more powerful?

From what I've experienced, Ottawa is a great place to be an entrepreneur; we have spawned so many incredible companies. That's partly due to our ecosystem (as you'll see in the pages that follow) and mostly to do with how many amazing, smart yet humble entrepreneurs we have here, because they make up that network of support. I'm proud to consider myself part of that network; it's what I'm all about.

As someone who's always monitoring the pulse of the innovation ecosystem in Ottawa, I can tell you there's never been a better time to start a company here. Tenacity is important—that's true anywhere—but while Ottawa has no shortage of technologically minded people, thanks to our being an engineering town, what we need more of is marketing and business-minded people, and entrepreneurs who are in it for the long haul. I think of my friend Tobi Lütke, who emigrated from Germany, founded Shopify, and instead of selling the company, as he had many opportunities to do, he built a multi-billion dollar enterprise from Ottawa. We're in a position to see more entrepreneurs do more of that; we have the local resources for them to leverage in order to make a global difference—to shine on a global stage.

The magic happens when different cultures and mindsets—diverse people, and not just in terms of race or gender, but in ideas—all come together. That's what Ottawa provides. It's like an artist's palate; creatives, engineers, artists, business people, marketers—they are all here. If the world is a canvas, let Ottawa be our masterpiece.

adrian@earned.co | asalamunovic | adriansalamunovic

INNOVATION CAN BE LIKE A BLACKBOX

FRANCO VARRIANO, TECHNOLOGIST & ENTREPRENEUR, HEAD OF PRODUCT DISCOVERY & INNOVATION AT WORKSHOPX & EXECUTIVE DIRECTOR OF FRESH FOUNDERS



It's a powerful, attractive and evocative concept.

We all have ideas and conceptions on what innovation is all about; usually centering around new products, novel technologies or advanced patents. But Innovation comes in many forms.

And from the outside, Innovation may even appear similar to other skilled endeavours: *easy enough that anyone could do it*.

But the truth of the matter is that true innovation is so distinct that it is in no way simple or straightforward. Even for the most seasoned practitioners.

Innovation is a discipline steeped in-between Myth & Method.

Perhaps the root of this gap stems from the fact that we haven't been able to codify it in quite the same way as other business functions. True Innovation has no unique blueprint or how-to process that can be universally applied and expected to deliver results like clockwork.

However, the innovation mindset and guiding values that have been documented - can be applied across sectors, industries and even cultures.

But for this mindset to take hold, there must first be space and desire for these values and ideas to exist freely. Innovation is of no use to anyone if its practice isn't innately clear to the individuals and organizations who champion it.

'Why innovation?' is just as critical as the rest of the equation.

Knowing the answers to seemingly simple questions like: 'What do we want to accomplish?', 'What resources do we need? Who is the team? How do we keep them motivated? How do we measure the outcomes?' may seem trivial and straightforward, but evolve quickly in our modern market environment.

Fostering the core proponents of Innovation will be the outcome of your 'why'. These broadly include:

- Keep risk low & iteration high (lots of small bets);
- Experiment like crazy (momentum);
- Merge patience and passion (Innovation is hard. Having a 'why' is critical)

But above all, the cardinal rule of Innovation is the classic and cliché sounding "think outside the box". Because Innovation isn't just about solving the problem at hand. It's about pushing everything forward and doing something better than what can be imagined.

And that brings us to Ottawa.

A city that is often placed upon a balance and weighed against many others - both near and far - for what it lacks in comparison.

Ottawa has largely been written-off and labeled as a "boring" city to those looking for a flashy spotlight. But this is a label that we natives are quick to revoke.

Instead of fighting to be "the next" anything - we are authentically Ottawa.

A true multi-disciplinary community of creators, makers, artists, researchers, public servants, entrepreneurs and everyday people making a difference.

We aren't like other cities. And we don't want to be like them.

Just as innovation isn't the same within all organizations, we all embrace our uniqueness - *constraints and capabilities alike* - knowing that we are capable of building on the momentum that's gotten us here and continue to innovate forwards.

Today, we have a rich ecosystem that has grown from decades of effort.

As a technologist & entrepreneur, the Head of Product Discovery & Innovation at WorkshopX, and the Executive Director of Fresh Founders - I am fortunate enough to have a very unique perspective into the many outlets of innovation - both here in Ottawa and around the world.

From small startup teams, to enterprise, to academics, to government - and to passionate creators and do-ers that make everything happen in-between those labels.

Innovation isn't a zero sum game, and while the book that follows looks at Ottawa in particular, like the overall project, it's about how we all contribute into a larger narrative and global story of humanity.

We're all pushing everything forward and doing something better than what can be imagined - together.

Fresh Founders.

www.freshfounders.com

DISRUPTING THE GLOBAL BOOK BUSINESS

SVEN BOERMEESTER, FOUNDER, CEO, INTERNATIONAL GROUP PUBLISHER, GLOBALVILLAGE.WORLD

"With personal contact at an all time low in the world our book gifting business model is growing, we are a conference in a book. Books are the new business card that people do not throw away. They establish your expertise, credibility, and educate, which attracts clients and business opportunities."

How is the commercial book publishing world being disrupted?

Some clients joke with us that we are bringing back a dying art form as books are cool again. The business model however has changed completely, gone are the days of pay to play by selling advertorials or advertising. A great book on an ecosystem or industry needs to be authentic and all encompassing of all the major players sharing their story, not just whoever paid to be in there. To finance that we moved to a crowd funded book buying model where the market and the participants buy the books in bulk to use as gifts to clients, visitors, investors and employees. You also need to add technology to the printed book by embedding augmented reality videos into its pages, we do that by hiding QR codes behind the images that a mobile phone can read to activate a video. The books also need to be available online as ebooks, a blog and ultimately a forum where all the participants can communicate with each other.



How do you set up your business in new cities and countries?

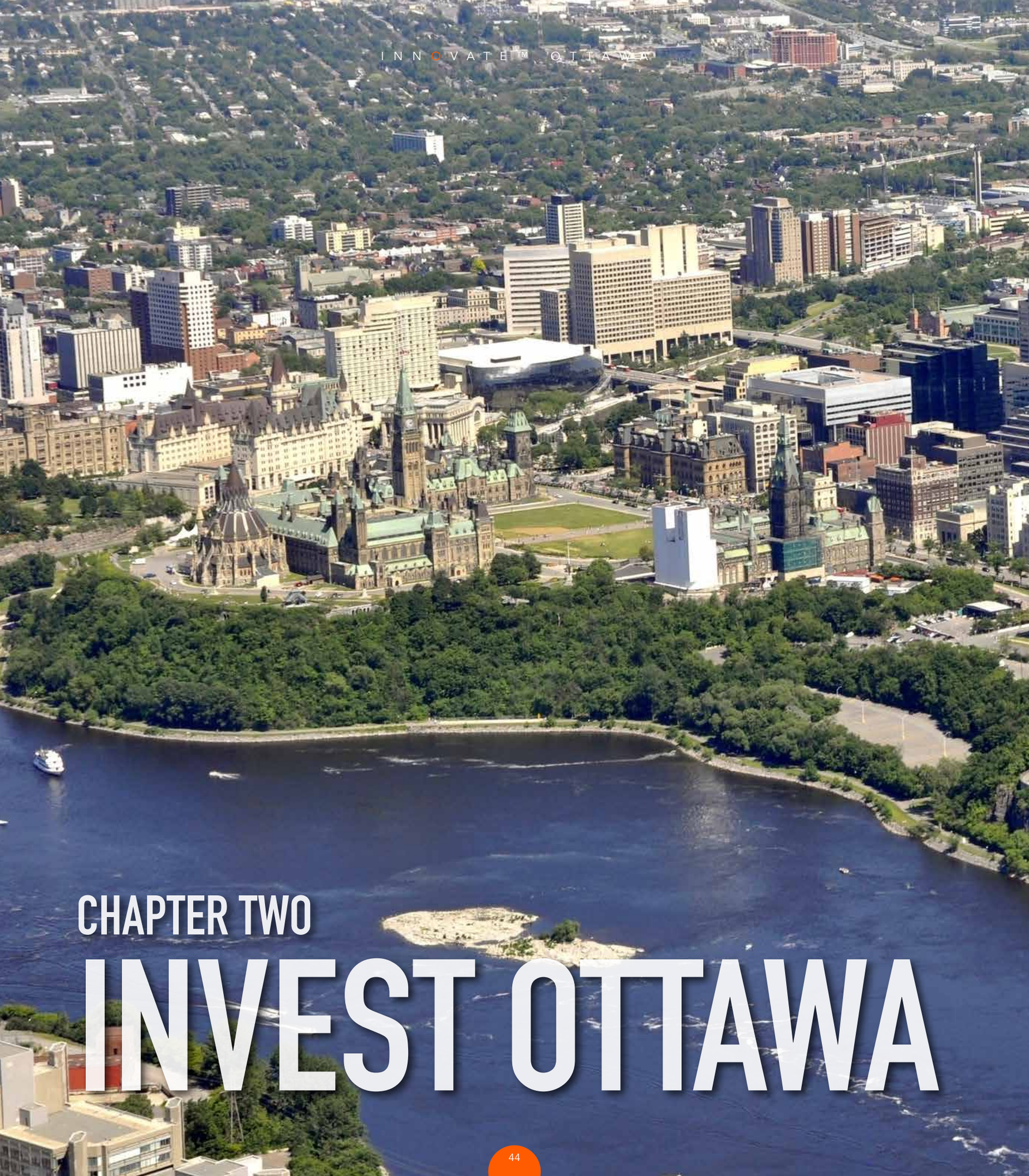
We look for skilled marketing professionals in each city that know their community well and form 50/50 partnerships with them where they collect the stories and we design and print book. We are a fast growing tribe of fun and energetic publishing entrepreneurs, partners and friends. We all share a passion for innovation, beautiful places and cultures that we want to embrace, share and showcase with the rest of the world. We are always looking for marketing entrepreneurs to join our team, please reach out to me on LinkedIn or info@globalvillage.world.

__Sven Boermeester__ is a global publishing entrepreneur with a career that spans over 20 years with stops in more than 100 countries. He was born in Antwerp, Belgium and grew up in South Africa. After completing his business studies in Cape Town, he opened his first media company and started publishing the trade and industry directories for South Africa followed by the launch of the Best of the World publishing series in Dubai. Fast forward 20 years and 183 'Best of' editions across 60 countries, Sven now lives in Tampa, Florida with his wife and young son. He is working on disrupting the publishing business by mapping out the Innovation ecosystems of every major city, in the U.S. and around the world, through his latest Innovation books and augmented reality video series.



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CHAPTER TWO

INVEST OTTAWA



INVEST OTTAWA

Invest Ottawa is the lead economic development agency for knowledge-based industries in Canada's Capital, facilitating economic growth and job creation in the City of Ottawa.



Guided by a vision to help realize Ottawa's full potential as a globally recognized, innovative and future-ready city, and the best place to learn, work, live, and play. We are on a mission to enable market-led innovation by leveraging emerging technologies to build high-value jobs, long-term economic growth and community prosperity.

At Invest Ottawa, our team passionately fosters entrepreneurship, accelerates startups, scales established businesses and attracts foreign investment for sustainable global success. We deliver integrated venture development and global expansion programs and services that catalyze the growth and achievement of entrepreneurs and firms. These programs and services include small business training, mentorship, growth coaching, acceleration support, foreign business and investment attraction, talent attraction, local business retention and expansion, as well as commercialization support.

Since 2012, Invest Ottawa has worked with thousands of entrepreneurs and companies, helped firms attract more than $602 million in capital, contributed to the creation of more than 8,450 jobs, and attracted $575M in domestic & foreign investment.

Venture Development

Invest Ottawa's Venture Development team comprises of two divisions: Entrepreneurship and Venture Acceleration.

Entrepreneurship Services

Our Entrepreneurship Team serves aspiring and early-stage entrepreneurs who aim to build a mainstreet, product or service-based business, or a technology-supported and technology-driven business.

These early-stage programs have helped thousands of small business owners grasp the basics of entrepreneurship, establish a solid business plan and launch a product or service company. Leveraging an impressive roster of experts dedicated to supporting our clients, our team works with founders and business owners to address critical



roadblocks, identify and seize new opportunities, and overcome challenges to help them realize their potential. Key programs and services include:

Education Centre
Entrepreneur workshops and seminars with a targeted curriculum, one-to-many sessions, and hands-on training focused on fundamentals that help entrepreneurs build successful small businesses.

Advisory Services
One-on-one or one-to-few meetings with experts that advice based on a client's specific needs, sector focus, investor and market-readiness, stage of customer, and business opportunities and challenges.

Youth (Age 15-29) and Early-Stage Entrepreneurship Programs
Specialized programs that create a pipeline of entrepreneurs by focusing on building strong business foundations. Budding business owners gain hands-on practical training, mentorship, and can potentially win grants.

IO Peer Groups
A group of non-competing business owners that run similar-sized companies come together consistently to meet and support each other. Led by a trained and seasoned expert, each peer group works through professional challenges and tackles tough business issues while building a strong network of support.

Venture Acceleration
The Venture Acceleration team aims to enable and accelerate the development and success of high-growth Ottawa technology, and technology-enabled firms, from startup to scale-up. These firms target a global market opportunity with the potential to scale and create high-value, knowledge-based jobs. To support these clients, the Venture Acceleration team delivers an integrated suite of programs and services that catalyze growth, customer, market and investor-readiness, and commercial success.

Our team helps technology and technology-enabled companies launch, scale, and export. Key programs and services include:

IO Pre-Accelerator(s)
10-week boot camps designed to help early-stage entrepreneurs with technology or technology-supported startups to validate their ideas and solidify their business foundations.

IO Accelerator Program
This program aims to rapidly and systematically accelerate the development and commercial success of high-growth technology firms. In a phased and milestone-based approach, founders push themselves over twelve to eighteen months to create a scalable and globally competitive company.

Scaleup Platform
The Scaleup Platform helps companies overcome three key challenges to rapid growth and market success—customers, revenue and talent. Delivered by Invest Ottawa, Communitech, MaRS Discovery District, the platform offers strategic advisory services, programs and networks customized to the specific needs of each company. It will help hundreds of high-growth firms attract more customers, talent, sales and capital over the next five years.

Invest Ottawa | Investir Ottawa





















Global Expansion

Invest Ottawa's Investment and Trade team focuses on three key goals:

- Local business retention and expansion, with an emphasis on multinationals with an R&D presence/capability in Ottawa;
- Foreign direct investment, company and talent attraction; and
- International business expansion, including trade.

Global Expansion services and programs help businesses land, expand and invest in the region.

Business Retention and Expansion Services

Locally, Invest Ottawa's Invest and Trade team helps to address the needs of growing SMEs and established firms by:

- Identifying and assessing opportunities for business expansion by gathering and analyzing intelligence;
- Establishing and implementing strategies that facilitate market access, business retention and expansion; this includes brokering relationships to prospective partners; and
- Mitigating potential risks related to business retention and expansion and minimizing potential impact.

Foreign Investment Attraction Services

At Invest Ottawa, we have the municipal mandate to help entrepreneurs go global and attract foreign direct investment. As part of its targeted international outreach, our team works closely with a host of federal and provincial agencies and programs in support of shared objectives.

Invest Ottawa's Foreign Investment Attraction team also helps foreign companies make a 'soft landing' in Canada's dynamic, high-tech hub. We work closely with foreign firms to select the right site for their business, navigate the set-up process, and get connected to the business resources, government agencies and industry associations. This work helps companies take root in Ottawa and flourish.

International Business Expansion (Trade) Services

Invest Ottawa local companies—including startups—enter the exciting world of export trade. Our team of market directors and business development strategists work with Canadian trade commissioners abroad to glean customized market intelligence and identify the kinds of business opportunities companies require to succeed internationally.

Here at home, our team works with industry associations, government departments and elected officials to mount trade missions that bring entrepreneurs face-to-face with decision-makers. Key partners include Global Affairs Canada, the Ministry of Economic Development, Trade and Employment, Ontario's Ministry of Research & Innovation, and Export Development Canada.

The Ottawa L5

The Ottawa L5 Connected and Autonomous Vehicle (CAV) Test Facilities established and led by Invest Ottawa provides world-class integrated testing grounds for the safe implementation of CAVs. These facilities support V2X (Vehicle-to-Everything) testing and validation of CAV technologies in Ottawa's true four-season climate on public and private testbeds. Building on Ottawa's internationally recognized strengths in telecommunications and security, the Ottawa L5 is equipped with V2X connectivity including GPS (RTK), DSRC (Dedicated Short Range Communications), Wi-Fi, 4G/LTE and 5G infrastructure, making it the first integrated ***CAV test environment of its kind***.

These capabilities enable R&D in communications, as well as CAV operations in inclement weather with systems that pinpoint the location of hidden objects, cybersecurity, interoperability and use of CAV-generated data. Leveraging valuable regional CAV expertise, public and private partnerships and investment, the Ottawa L5 is a Regional Technology Development Site (RTDS) in Ontario's Autonomous Vehicle Innovation Network (AVIN). It also leverages critical contributions from founding and strategic public and private partners, including Accenture, Avanade, Blackberry QNX, the City of Ottawa, Ericsson, Juniper Networks, the National Capital Commission (NCC), Microsoft, and Nokia.

Talent

In the worldwide war for talent, the demand for highly skilled people represents a key hurdle facing high-growth firms in our region and across Canada. According to the Information and Communications Technology Council (ICTC), the demand for digitally-skilled talent will reach 305,000 people by 2023, for total employment of over two million workers in Canada's digital economy.

Invest Ottawa is committed to tackling this talent shortage with our partners and helping firms across our region address key talent challenges, accelerate business growth, and create new jobs that fuel our economy.

The IO Talent (Pilot) Program launched in 2019 aims to help growing Ottawa companies attract, develop and retain the top tech and business talent required to thrive, compete and succeed in the global market.

Leveraging technology, knowhow and talent management strategy, sourcing and employer branding capabilities, this program equips Ottawa's fast-growing startups, scale-ups and SMEs with a talent advantage by providing coaching and mentorship, access to global technology expertise, as well as talent solutions and support for every stage of growth.

Integrated within our broader suite of venture development and global expansion programs and services, the IO Talent (Pilot) Program leverages Invest Ottawa's Work in Ottawa and Why Ottawa campaigns to help drive the attraction and retention of top talent, and showcase why Ottawa is the best place to learn, work, live, and play.















Enabling and Accelerating the Launch, Growth and Success of Female Founders and Womxn-Owned Firms

Invest Ottawa and Bayview Yards strive to enable and accelerate the startup, scale-up, and commercial success of more female founders and womxn-owned firms in our region, with a focus on the creation of Ottawa's first $100 million womxn-led company.

Leveraging our Female Founder and Womxn-Owned Business Sub-Committee of our Board of Directors, and building on our Gender Diversity and Inclusion Guideline, Invest Ottawa and Bayview Yards have established a strategy and initiated the implementation of an action plan with our community to advance these goals.

Our Vision

- To be the best city in the world for womxn founders and business owners from every walk of life to launch, grow and scale commercially successful, globally oriented and sustainable companies
- To establish Ottawa as an internationally recognized region with a critical mass of top womxn business founders and owners

Our Goals

- **Near-Term: Establish the Foundation**: Build a robust pipeline of Ottawa womxn founders and the value delivered by Invest Ottawa to womxn-owned businesses
- **Medium-Term: Drive Measurable Progress Towards Goals**: Continue implementation and ramp-up of new programs and services that expand the capabilities, impact and long-term success of womxn founders
- **Long-Term: Expand Global Leadership and Collaboration**: Facilitate sustainable, long-term cooperation on big-picture goals and challenges to create more significant market and investment opportunity for womxn founders

Our Action Plan: How Are We Working Towards Our Goals?

Together with our community, we are taking strategic action to:

- **Promote**: Increasing the visibility of female founders; creating new content and promotional platforms that showcase womxn-led firms, their achievements and contributions to our economy and community; and amplifying the voice and impact of womxn founders





- **Educate**: Creating and delivering training, workshops and other formal and informal education opportunities that help support the growth and success of female founders and womxn-owned firms; and inspiring through womxn role models and leaders
- **Equip**: Creating and evolving programs, services and support specifically targeted to female founders and womxn-led firms including mentorship and enhanced R&D, business and market capabilities
- **Connect**: Getting more womxn engaged; establishing new womxn-led networks and peer-to-peer groups; facilitating new linkages to prospective mentors, investors and customers; and driving new opportunities in national and global markets

It is a journey. We have a long way to go, but we're focused on growth and progress.



Invest Ottawa | Investir Ottawa



International Womxn's Week in Canada's Capital

On March 8, the world celebrates and strives to catalyze further the economic, social, cultural and political achievements of womxn, on International Women's Day. In Canada's Capital, we join forces with folks across our region, throughout Canada and around the world, to create an entire week dedicated to these important goals: International Womxn's Week (IWW).

Together, we aim to establish Ottawa as an internationally recognized region with a critical mass of top womxn leaders who achieve a significant impact on our economy and society. During this impactful week, we unite to inspire, empower and equip womxn in leadership in professional fields that span tech, entrepreneurship, investment, industry, government, academia, research and innovation, and non-profits. We are harnessing the power of our community to create a critical mass of support and establish a strong foundation of long-term collaboration in support of these goals.

We are calling on all regions across the country and around the world to develop and implement strategies with their stakeholder communities to further increase our collective impact on womxn leaders as a national and global community. Collaboration is critical to our success and our future. It will take all people working together as a collaborative force to help create, attract and retain more womxn leaders in a region where opportunity abounds.

This collective action will help more womxn achieve their leadership potential and increase our performance, competitiveness and impact as a region, a country and world. Independently and together, champions, allies and organizations are working to address these goals during IWW and far beyond.

Fostering a Culture of Diversity, Inclusion, and Belonging

Invest Ottawa and Bayview Yards have established an ambitious five-year strategic plan that aims to create new jobs, investment and global market advantage for companies across Canada's Capital. To achieve key objectives and the desired economic and social impact, Invest Ottawa and Bayview Yards recognize that diversity and inclusion are required to drive sustainable wealth creation and prosperity across our region. They are proven multipliers to performance and economic growth and critical success factors for global companies and organizations. As such, the creation of an inclusive culture and infusing gender diversity and inclusion into our programs, operations and governance represent key strategic goals for our organizations.

That is why we launched our Gender Diversity and Inclusion Guidelines and established diversity, inclusion and belonging as a key pillar of our five-year strategic plan and annual operating plans. We recognize there is diversity within gender, including the intersections of ethnicity, ability, age, culture, religion, and other important attributes. We have chosen to focus initially on gender diversity and inclusion as it creates a strong foundation on which to build even greater diversity and inclusion within our programs, services, operations and governance. This focus has enabled our organizations to build on this initial platform and take targeted action to leverage, support and foster all types of diversity within our community.

We look forward to building on this foundation and continuing to work closely with our employees, clients, partners, investors and stakeholders on these critical objectives going forward.

In 2020, Invest Ottawa was recognized as one of the 'National Capital Region's Top Employers. This special designation recognizes the employers that lead their industries in offering exceptional places to work.





To learn more about Invest Ottawa, visit **investottawa.ca**.

KANATA NORTH
BUSINESS ASSOCIATION

Canada's Largest Tech Park



CHAPTER THREE

INNOVATION ECOSYSTEMS


DragonWave
WIND RIVER
Pleora Technologies
SYNTRONIC
api technologies corp.
SONICWALL
ERICSSON
Honeywell
amdocs
HUAWEI
MARCH networks
artaflex
infinera
nuvyyo
ITEX
GetGuide
sciemetric
APLAS
OKIA
CSC
CENGN
Tweed
MNP LLP
Inphi
solace
incognito
Quest
snyk
hp
irdeto
PRONTOFORMS
TREND MICRO
MASV
LiveQoS
IQVIA
AVAYA
Innovaposte
Esterline
CMC Electronics
SEMTECH
Schneider Electric
bsi.
INTERSET
Kongsberg Geospatial
inBay
nureva
eclipsys
eSight
CLEARFORD
WATER SYSTEMS INC.
MAGNET FORENSICS
SANMINA
tsmc
KodaCloud
ROCKPORT
embotics
YOPPWORKS
ROSS
fusebill
flex
SOLANDT DR
SABA
Evidence Partners
solarwinds msp
purecolo
BlackBerry QNX
Instantel
STANLEY
BTG
Broadview NETWORKS
Elliptic
epiphan video
Microsemi
WannLynx
INTOUCH INSIGHT
In Live
CANOPY GROWTH
CAE
upland InGenius
ACACIA COMMUNICATIONS, INC.
Nanometrics
you.i
BMT
LYTICA
L-SPARK
Nordion
A Sotera Health company
Thinkwrap Commerce
SOLINK
thinkRF
Wesley Clover
Qlik
MARTELLO
superna
neptec
MDA
ELECTRONICS TEST CENTRE
MPB TECHNOLOGIES INC.
BENBRIA
Loop
STATION RD
Optelian
JABIL
applied micro
AuscultSciences
CV Diagnostix
Ackroo
CGI
ALLPHASE
CLINICAL RESEARCH
Viscore
Procom
numbercrunch
Tallysman
I4C
ASTENJOHNSON
Advanced Fabrics
STEACIE DR
Emtec
GILMORE GLOBAL
MARCH RD
HERZBERG RD

KANATA NORTH



Established in 1978, the Kanata North technology park is a critical part of Ottawa, Ontario, and Canada's economic development and a renowned hub of technology and innovation. Home to Canada's Largest Technology Park, the Kanata North business area is a robust and vital region that contributes over $13 billion to Canada's GDP, up 66% since 2015, with a rich base of 24,000+ employees and 540 companies who call Kanata North home.

Who we are

An evolving and balanced ecosystem of old and new, with a long legacy in telecommunications, Kanata North is a thriving technology hub representing multiple technology sectors, including:

- Telecommunications, Wireless, and Photonics
- Defence, Security, and Aerospace
- Manufacturing
- Cleantech
- Software, Data, and Cloud Services
- Life Sciences
- Semiconductors
- Consumer Electronics

Kanata North is the destination of choice for technical and business talent seeking world-class work with world-class companies. As a result, the Kanata North workforce is highly educated, skilled, and valuable, contributing at **four times the national productivity rate**.



The mission of the Kanata North Business Association is to advocate for business success in this world-leading technology park. As the uniting force and voice of the members, the Association is focused on fostering an environment where the best talent in Canada can innovate, create connections, and make an impact.

Together with innovation and government partners, the Association maintains a keen focus on developing the region into a world-class model for innovation, technology, infrastructure, and economic development.

Tech accounts for well over half of the membership in Kanata North, so it is safe to say in Kanata North, *Serious Tech Lives Here*.











An evolving and balanced ecosystem of old and new technology, Kanata North has a long legacy in telecommunications. Although this remains the largest subsector with pioneering and large multinationals such as Ericsson, Mitel, and Nokia, in recent years new and fast-growing companies have emerged in key subsectors, including Software and Cloud Services, Cleantech, and Life Sciences.

Kanata North is recognized as a world-class application leader and emerging front runner in Software-as-a-Service (SaaS), Connected and Autonomous Vehicles (CAV), artificial intelligence, cybersecurity, and the Internet of Things (IoT).

Anchored by Kanata North–based BlackBerry QNX, Ottawa is Canada's Connected and Autonomous Vehicles (CAV) Capital and home to more than 90 startups, corporations, and post-secondary institutions that are contributing intelligence to CAVs of the future.

As an Ottawa L5 partner, the Tech Park is home to the City's public test track, where Ottawa was the first Canadian city to launch testing of an on-street autonomous vehicle (AV) communicating with live City infrastructure. The Kanata North tech community is the perfect Smart Cities *living lab*.

Technology in Kanata North also powers the cannabis industry with recent investments in grow-house equipment and greenhouse automation. Industry leaders Canopy Growth, Tweed, and HEXO have made Canada's Largest Technology Park their home, creating a tight-knit cannabis cluster.

And while a technology park may seem an unusual fit for a cannabis firm, these leading life sciences companies have found that access to a talented pool of hardware and software engineers has been critical in preparing for the next wave of developments in their respective industries.

Coupled with a flourishing startup culture and growing entrepreneurship community, it's easy to understand why success happens here.

Headquartered in Kanata North and under the direction of Chairman Terry Matthews, Wesley Clover has an extensive track record as a private, global investment management firm and holding company. The focus has been



consistent for more than four decades—found or fund successful technology companies.

With their recent homegrown L-SPARK Accelerator, global tech businesses are actively being incubated in Kanata North today, leveraging established relationships with key venture capital firms, angel investors, and the investment community at large. L-SPARK's goal is to scale Canadian technology companies and boasts a portfolio that has grown to more than 50 companies from across Canada, of which an aggregate of $45.7 million in venture capital investment has been raised to date.

Talent drives growth and expansion within Kanata North. The raw material of the tech industry, it is another critical capability in which Kanata North punches above its weight. The Kanata North workforce is highly educated, skilled, and valuable, contributing at four times the national productivity rate. This can be attributed to the fast-paced, highly enthusiastic culture that exists within our innovation community and the many member businesses who foster it.

Stanford University has drawn admiration for their role in building Silicon Valley as an





epicenter of technology innovation. The recent addition of the University of Ottawa-Kanata North campus supports a successful partnership and a close integration of the University of Ottawa to the Technology Park, offering talent, research, and training to accelerate the ability of our companies to innovate and flourish.

Working with each of the post-secondary institutions in Ottawa as educational partners, and others across the country, the Association strives to advance how the bright minds of the future connect to the opportunities that are abundant in Canada's Largest Technology Park. To further connect business in the Tech Park with talent, the Association produces Ottawa's largest career fair and tech expo. Discover TechNATA offers a platform for talent to discover the unique tech landscape of Kanata. The tech expo and career fair has grown considerably since its inception in 2015, drawing over 80 exhibitors and 3,000 attendees from across Canada.



Impact powers influence and engagement. A huge part of Kanata North's success can be attributed to the vibrant social ecosystem that exists in the technology park. This strong





collaborative community identifies ***corporate social responsibility, community-building, and charitable involvement as inherent characteristics in the DNA of their companies***. Leaders in Kanata North are focused on what can be done ***for*** their community beyond just what they do ***in*** their community.

The Kanata North Business Association plays an active role in nurturing a social community that promotes ***diversity, inclusion, youth mentorship, mental health, sustainability, workplace wellness, and grassroots entrepreneurship,*** ensuring that collective corporate resources are being leveraged as a force for good. The Association facilitates community festivals and events, builds strong partnerships among members, and offers valuable programming and networking opportunities to foster a vibrant social ecosystem for members.

During the summer months, members can relax and give back at outdoor lunch parties with food trucks and live music in lush and open green-space. There are weekly outdoor yoga classes at the Community Hub for workers to take a break, stretch their legs, relax, and enjoy some fresh air.

Where we work

With affordable housing, short commute times, and plenty of greenspace and family amenities, Kanata North has quickly become one of the best places to live, work, and play. With the internationally recognized award-winning Brookstreet hotel and PGA-approved 18-hole championship golf course in our backyard, biking and hiking paths alongside winding streams, yoga in the park, and a Community Hub that hosts themed lunches with food trucks, live music, and games, there is certainly plenty to do outside of work hours. Residents of Kanata North can also enjoy an array of craft breweries located right in the middle of the Tech Park, which offers beer lovers a destination for lunch and networking opportunities with their colleagues. Kanata North is not only home to Canada's Largest Tech Park; it is also home to a growing community of resources and amenities for family and friends.

KANATA NORTH
BUSINESS ASSOCIATION

Canada's Largest Tech Park





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KanataNorthBA.com

NAV CANADA

CHAPTER FOUR
LEADERS IN INNOVATION





NAV CANADA

Taking Innovation to New Heights

As the country's air navigation service provider, NAV CANADA safely tracks and guides aircraft from across the globe through Canadian airspace — among the busiest in the world. Our role begins well before takeoff and continues right up to arrival. Driving safety through service, NAV CANADA delivers the air navigation services that customers, stakeholders and the flying public depend on every single day.

NAV CANADA is a private, not-for-profit Company that operates from coast to coast to coast. In Canada, we're a unique and an integral part of the aviation ecosystem.

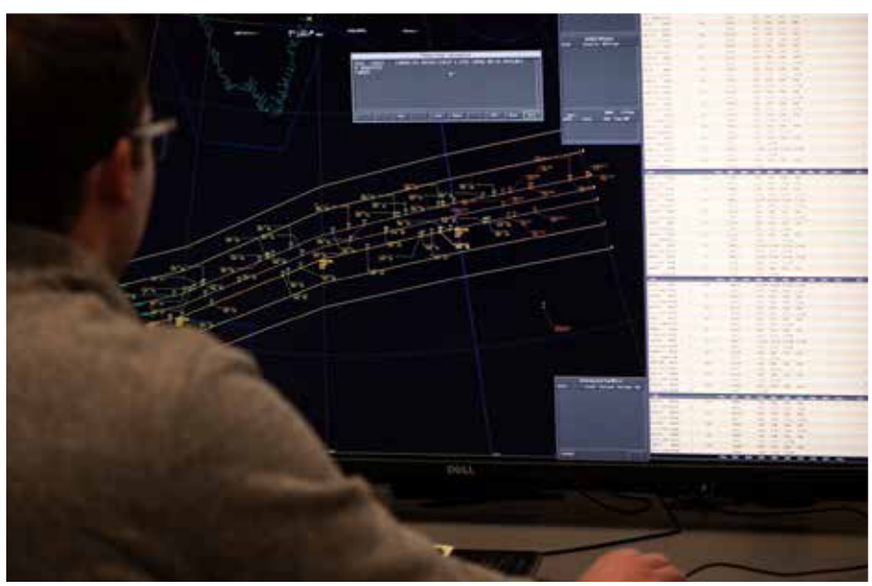
"Since we were established in 1996, we've invested $2.4 billion in our facilities and technologies — the infrastructure we use to manage 18 million square kilometres of airspace," said Neil Wilson, NAV CANADA President and Chief Executive Officer. "That investment has led to first-class, award-winning solutions and standards that benefit Canada and the world, delivering landmark breakthroughs to civil aviation."

Our success — at designing, developing, implementing and maintaining a state-of-the-art air navigation system — comes through our collaborations. Together with airports, airlines, industry organizations and other air navigation service providers (ANSPs) around the globe, we have made ground-breaking advances in air traffic management technology and airspace modernization, improving safety, performance, reliability, cost-effectiveness and efficiency.

Canada First

We are the first fully-privatized civil air navigation service provider (ANSP) in the world. While most civil air navigation systems are government-owned and operated, our unique corporate governance model enables us to be service-oriented and customer-focused. It also ensures greater independence between Canada's civil aviation operator and regulator.

NAV CANADA's dynamic approach to governance is matched by our service delivery, and our in-house development and deployment of cutting-edge technology.



NAV CANADA

Amener l'innovation à de nouveaux sommets



En tant que fournisseur de services de navigation aérienne du pays, NAV CANADA guide les aéronefs du monde entier en toute sécurité dans l'espace aérien canadien, l'un des plus achalandés au monde. Son travail commence bien avant le décollage et se poursuit jusqu'à l'arrivée. C'est dans un souci constant de sécurité que NAV CANADA fournit les services de navigation aérienne sur lesquels ses clients, les parties prenantes et le public voyageur comptent, jour après jour.

NAV CANADA est une société privée sans but lucratif active d'un océan à l'autre. Elle est un élément unique et essentiel de l'écosystème de l'aviation au Canada.







« Depuis sa création en 1996, la Société a investi 2,4 milliards de dollars dans ses aménagements et technologies qui servent à gérer un espace aérien de 18 millions de kilomètres carrés », explique Neil Wilson, président et chef de la direction de NAV CANADA. « Ces investissements ont engendré solutions et normes de première classe, primées, qui sont des percées remarquables en aviation civile et avantagent le Canada et le monde entier. »

Son succès en conception, en développement, en mise en œuvre et en entretien d'un système de navigation aérienne de pointe, NAV CANADA le doit à ses collaborations. De concert avec des aéroports, des transporteurs, des membres de l'industrie et des fournisseurs de services de navigation aérienne (FSNA) du monde entier, NAV CANADA a réalisé de grands progrès en technologies de gestion de la circulation aérienne (ATM) et en modernisation de l'espace aérien, améliorant ainsi la sécurité, la performance, la fiabilité, la rentabilité économique et l'efficacité.

Une première canadienne

NAV CANADA est le premier fournisseur de services de navigation aérienne civile entièrement privatisé au monde. Son modèle de gouvernance unique lui permet, contrairement à la plupart de ses homologues, qui sont détenus et exploités par l'État, de placer ses services et ses clients au cœur de ses priorités, et il renforce l'indépendance entre l'exploitant et l'autorité de réglementation de l'aviation civile.

En outre, l'approche dynamique de NAV CANADA n'a d'égal que ses capacités internes de développement et de déploiement de technologies à la fine pointe.

LEADING VALUES

Mission statement: To be a world leader in the provision of safe, efficient and cost-effective air navigation services on a sustainable basis while providing a professional and fulfilling work environment for our employees.

We're proud to be an award-winning Company in service delivery and technology development. We also value our reputation as a leading employer: for the past four years, we've been one of Canada's Top 100 Employers, and have been included on Forbes' list of Canada's Best Employers.

Our eye for innovation has extended beyond Canadian borders, looking to joint initiatives with international businesses. We've sold many of our technology solutions to other ANSPs, including electronic flight data, surveillance and operational information displays, and airfield lighting and control systems. To date, our tools have been deployed at more than 100 sites worldwide, operating on 1,600 controller workstations.

Our performance sets industry standards for safety, operational efficiency and environmental responsibility, helping to streamline flight routes, reduce aircraft noise and reduce civil aviation's carbon footprint. It's our responsibility — and our honour — to lead the way in shaping the air navigation system, in Canada and around the world.

BY THE NUMBERS

18 million km²
airspace managed by NAV CANADA

3.4 million
flights handled each year

45,000
customers: airlines, air cargo operators, air charter operators, air taxis, business and general aviation, helicopter operators

5,000
employees across the country







DES VALEURS EXEMPLAIRES

NAV CANADA a pour mission d'« être un chef de file mondial dans la prestation sécuritaire, efficace et rentable de services de navigation aérienne durables et ce faisant, fournir un milieu de travail professionnel et enrichissant pour ses employés ».

La Société est fière d'avoir été récompensée pour sa prestation de services et les technologies qu'elle met au point. Elle attache aussi beaucoup d'importance à sa réputation d'employeur exemplaire : cela fait quatre années de suite qu'elle figure au palmarès des 100 meilleurs employeurs au Canada, en plus d'être sur la liste des meilleurs employeurs de Forbes.

Lorsqu'il est question d'innover, NAV CANADA ne s'arrête pas aux frontières canadiennes pour trouver des collaborateurs. Elle a vendu nombre de ses solutions technologiques, dont ses fiches de données de vol électroniques, ses écrans de surveillance et d'information opérationnelle et ses systèmes de contrôle et de balisage lumineux, à d'autres FSNA. À ce jour, ses outils ont été déployés à plus de 100 emplacements dans le monde et sont utilisés sur près de 1 600 postes de travail de contrôleur.

NAV CANADA travaille à simplifier les routes de vol, à atténuer le bruit des aéronefs et à réduire l'empreinte carbone de l'aviation civile, ce qui fait d'elle une référence en matière de sécurité, d'efficacité opérationnelle et de responsabilité environnementale. Elle se fait un devoir — et un honneur — d'être à l'avant-garde pour façonner le système de navigation aérienne, au Canada et dans le monde.

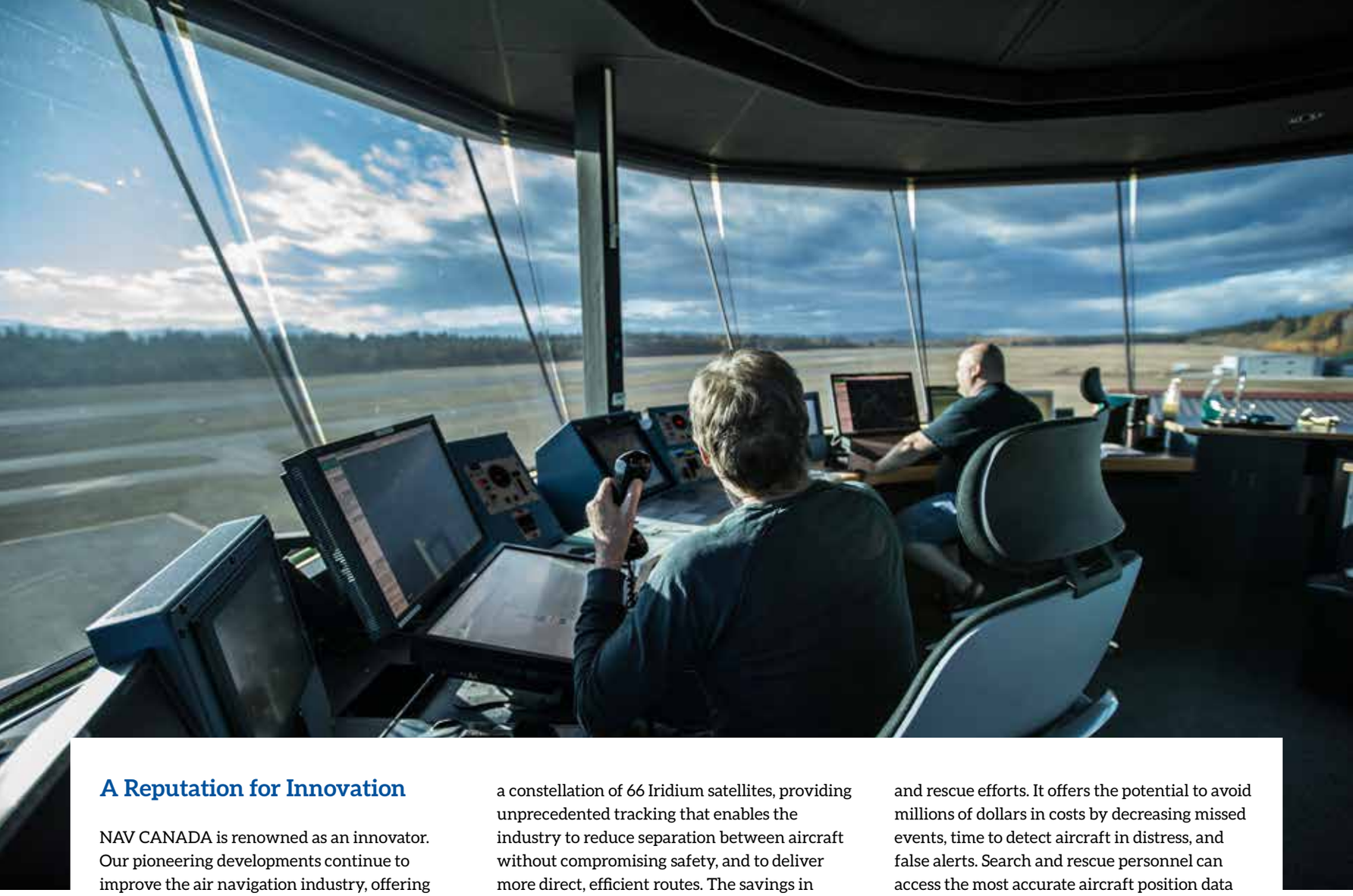
EN CHIFFRES

18 millions km²
d'espace aérien géré par NAV CANADA

3,4 millions
de vols gérés chaque année

45 000
clients : lignes aériennes, exploitants de fret, de vols nolisés et d'hélicoptères, taxis aériens, et aviation générale et d'affaires

5 000
employés au Canada



A Reputation for Innovation

NAV CANADA is renowned as an innovator. Our pioneering developments continue to improve the air navigation industry, offering better surveillance, communication and predictability than ever before. We're proud to highlight some of our key innovations.

Transforming the Aviation Ecosystem

Space-Based ADS-B

NAV CANADA is an investor in and early supporter of Aireon, along with Iridium Satellite Communications. Other ANSPs from the UK, Ireland, Italy and Denmark later followed suit. As the first-ever completely global air traffic service surveillance system, Aireon uses a space-based automatic dependent surveillance-broadcast (ADS-B) receiver network to track flights worldwide. It represents the most transformational change in air navigation since the advent of radar.

Aireon service extends air traffic surveillance to the 70 per cent of the globe that was not covered by ground-based surveillance — mountains, remote regions and oceans. With Aireon, ADS-B receivers have been installed on a constellation of 66 Iridium satellites, providing unprecedented tracking that enables the industry to reduce separation between aircraft without compromising safety, and to deliver more direct, efficient routes. The savings in time, money and fuel are significant: estimates show that space-based ADS-B could decrease greenhouse gas emissions by more than 14 million metric tonnes over a 10-year period.

Implementing Aireon service was a complex process involving workforce readiness, decision support, tool development, system testing and data validation. The initial results of our efforts have shown resounding success. In collaboration with NATS, the UK's ANSP, we launched a North Atlantic trial with the goal of creating a safer airspace and providing greater opportunities for efficiency and fuel savings. An analysis jointly undertaken by NATS and NAV CANADA, and endorsed by the International Civil Aviation Organization (ICAO), projects an approximate 76 per cent reduction in safety risk in the North Atlantic trial, as controllers are notified in seconds, rather than minutes, when aircraft change levels or routes without clearance.

Space-based ADS-B is also proving its worth as an alerting tool and an enhancement to search and rescue efforts. It offers the potential to avoid millions of dollars in costs by decreasing missed events, time to detect aircraft in distress, and false alerts. Search and rescue personnel can access the most accurate aircraft position data available, reducing critical response time to incidents regardless of location.

Optimizing Air Navigation

Air Traffic Management (ATM) Technologies

"NAV CANADA's ATM technology was brought in-house, to the hands of our innovative employees, and the results have been outstanding," said Rudy Kellar, Executive Vice-President, Service Delivery.

"Our tools and solutions have contributed immensely to gains in safety and performance throughout the air navigation industry."

Implementing the Canadian Automated Air Traffic System (CAATS) — a state-of-the-art flight data processing system — across the country was a critical achievement in continuing to modernize Canada's air navigation system. Its features were revolutionary when it was first deployed in Moncton, New Brunswick in 2005; the system



Une réputation d'innovation

NAV CANADA a une réputation d'innovateur. Grâce à ses créations avant-gardistes offrant des gains accrus en surveillance, en communications et en prévisibilité, l'industrie de la navigation aérienne ne cesse de s'améliorer. Voici quelques innovations dont la Société est particulièrement fière.

Transformer l'écosystème de l'aviation

ADS-B satellitaire

NAV CANADA compte parmi les premiers investisseurs dans Aireon, avec Iridium Satellite Communications. D'autres FSNA (Royaume-Uni, Irlande, Italie et Danemark) ont ensuite emboîté le pas. Premier système de surveillance de la circulation aérienne à couvrir le monde entier, Aireon travaille au moyen d'un réseau de récepteurs de surveillance dépendante automatique en mode diffusion (ADS-B) satellitaire. Il s'agit du changement le plus important depuis l'avènement du radar.

Le service d'Aireon étend la surveillance de la circulation aérienne aux 70 % du globe — montagnes, régions éloignées et océans — non couverts par la surveillance sol. Depuis une constellation de 66 satellites Iridium, les récepteurs ADS-B d'Aireon offrent un suivi incomparable permettant de réduire l'espacement entre les aéronefs sans compromettre la sécurité, donc de fournir des routes plus directes et efficaces. Les économies de temps, d'argent et de carburant sont majeures : l'ADS-B pourrait retrancher plus de 14 millions de tonnes métriques aux émissions de gaz à effet de serre (GES) sur 10 ans.

La préparation de l'effectif, l'aide à la décision, le développement d'outils, l'essai de systèmes et la validation de données nécessaires ont rendu complexe la mise en œuvre d'Aireon, mais les premiers résultats annoncent un vif succès. En collaboration avec NATS, FSNA du Royaume-Uni, NAV CANADA a lancé un essai au-dessus de l'Atlantique Nord visant à créer un espace aérien plus sécuritaire et à accroître les possibilités d'efficacité et d'économies de carburant.

Selon l'analyse des partenaires, avalisée par l'Organisation de l'aviation civile internationale (OACI), une réduction d'environ 76 % des risques pour la sécurité est prévue dans cet essai, puisque les contrôleurs sont avisés en quelques secondes, et non minutes, du changement de niveau ou de route non autorisé d'un aéronef.

L'ADS-B satellitaire est aussi un outil d'alerte précieux qui facilitera grandement les opérations de recherche et sauvetage. En réduisant le nombre d'alarmes manquées, le délai de détection d'aéronefs en détresse et les fausses alertes, elle pourrait permettre d'économiser des millions de dollars en coûts associés. De plus, comme les équipes de sauvetage ont accès aux données de position d'un aéronef les plus précises disponibles, elles peuvent intervenir plus rapidement, peu importe le lieu de l'incident.



Optimiser la navigation aérienne

Technologies ATM

« Les technologies ATM de NAV CANADA sont développées en interne, par des employés ingénieux, et les résultats sont exceptionnels », raconte Rudy Kellar, vice-président directeur, Prestation des services.

« Les outils et solutions de la Société ont fortement amélioré la sécurité et le rendement de l'industrie de la navigation aérienne. »

Le lancement du Système canadien automatisé de la circulation aérienne (CAATS) — un système de traitement des données de vol ultramoderne — au Canada a été une étape cruciale dans la modernisation du système de navigation aérienne national. Lancé à Moncton, en 2005, il proposait des caractéristiques révolutionnaires; cinq ans plus tard, il était utilisé partout au Canada. Le CAATS présente les renseignements concernant le plan de vol et la position réelle des aéronefs en format électronique aux contrôleurs, en plus d'automatiser les transferts entre secteurs de contrôle de la circulation aérienne. Les employés de la Société peuvent ainsi gérer la hausse du trafic

SAFETY MEASURES

IFR-to-IFR losses of separation measures aircraft flying under instrument flight rules (IFR) whereby less than the authorized separation existed or in which the minimum was not assured.

"Separation" is the international measure of flight safety — maintaining safe distance between two aircraft to reduce the risk of collision. All ANSPs must keep a record of separation losses, known as "IFR-to-IFR losses of separation per one million IFR flight hours." NAV CANADA has one of the world's lowest rates of IFR-to-IFR losses of separation.



THE FIRST GLASS TOWER

In 1998, the first "glass tower" opened at Toronto's Pearson International Airport. The NAV CANADA-developed extended computer display system (EXCDS) replaced paper-based flight data strips with touchscreen-accessible electronic strips, enhancing safety by minimizing errors and enabling controllers to work more efficiently. EXCDS has evolved to become a fully integrated suite of tools, and has expanded its reach to every tower and flight service station in Canada, as well as to sites in the UK, Caribbean, Australia, Denmark, Italy, India, Dubai and Hong Kong.

was fully rolled out across Canada by 2010. CAATS takes all information related to aircraft flight plans and actual position and presents it electronically to controllers. The system also automates hand-offs between Air Traffic Control jurisdictions. This crucial integration of information has empowered NAV CANADA's employees to manage increased traffic more effectively and efficiently. Since its cross-country installation, CAATS continues to evolve, with further functionality and safety-net tools added, enhancing the controller's ability to respond to growing air traffic demands.

Most recently, we launched our next-generation surveillance data processing system, called Fusion. It provides air traffic controllers with more complete and accurate data on aircraft positions by merging all available forms of surveillance data — including Aireon — directly to controller display screens. This data Fusion system will enable important new safety-net features, including short-term conflict alert, which sounds alarms on controller displays in the event of potential separation loss.

With Fusion, NAV CANADA remains ahead of the curve. Our leading-edge system complies with the latest international regulatory standards, and will bring considerable safety and efficiency benefits for the industry.

Reducing Fuel Costs and Emissions

Performance-Based Navigation: Established on Required Navigation Performance Authorization Required

Innovation in air navigation services encompasses more than technology. It extends to new airspace procedures and design, moving beyond sensor-based navigation to reflect the full range of factors that impact each flight. Performance-based navigation (PBN) is quickly becoming the world standard for aircraft navigation.

NAV CANADA is dedicated to exploring how PBN can enable aircraft to take shorter routes, reducing flight times to enhance the traveller experience, and cut fuel costs, greenhouse gas emissions and aircraft noise. One of our most recent PBN initiatives is Established on RNP-AR (EoR), a new separation standard that safely enables simultaneous arrivals on parallel runways without requiring a separation minimum of 1,000 feet vertically or three nautical miles laterally (the current conventional standard). We introduced EoR at the Calgary International Airport in November 2018, making NAV CANADA the first ANSP to implement a new ICAO standard.

EoR was designed to significantly improve how air traffic is managed and integrated, and to enable quieter continuous descent operations. In its inaugural year, there were over 35,000 RNP-AR approaches flown, with an incredible reduction of more than 250,000 nautical miles of power-on, low-altitude flight over Calgary. This also amounts to a decrease of more than 4.1 million kgs of CO_2 emissions. By the end of 2020, EoR is expected to yield an estimated $132 million CAD in avoided fuel costs. And flying time for customers has declined by four to five hours per day — or more than 1,400 hours per year.

In addition, EoR has reduced vectoring, controller workload and reliance on visual approaches, offering the industry a safer, more dependable standard. Many major airports are showing interest in adopting this new standard: London Heathrow plans to use EoR; Brisbane Airport will adopt it when their new runway opens; and representatives from Paris Charles de Gaulle Airport have been to Canada to observe the Calgary operation. Versions of EoR are also in use at Denver and Huston international airports.

Shaping the Future

"With our 25th anniversary just over the horizon, NAV CANADA continues to steer the international air navigation industry to new heights," said Wilson. "Every day, we fulfill our critical role within the fabric of civil aviation, helping to safely guide aircraft through Canadian airspace."

With emerging technologies and new aircraft in the skies — including remotely piloted aircraft systems and digital facilities — we remain committed to keeping Canada's air navigation system at the forefront of safety, efficiency and customer service. We're proud to be a modern, innovative Canadian Company like no other, bolstering our country's reputation as a global leader at the cutting edge of air navigation services.

de manière efficace et efficiente. Et ça ne s'arrête pas là, le CAATS continuant d'évoluer. L'ajout de nouveaux filets de sécurité et fonctions améliore la capacité des contrôleurs à répondre à la hausse de la demande du trafic aérien.

Tout récemment, NAV CANADA a lancé Fusion, un système de traitement des données de surveillance de nouvelle génération. Fusion combine toutes les formes de données de surveillance disponibles — dont celles d'Aireon — directement sur l'écran des contrôleurs, qui comptent donc sur des renseignements complets et exacts sur la position des aéronefs. Ce système de « fusion » des données ouvrira la porte à d'importants filets de sécurité, comme l'alerte de conflit à court terme, laquelle fait sonner une alarme sur l'écran des contrôleurs en cas de perte d'espacement éventuelle.

Grâce à Fusion, NAV CANADA conserve une longueur d'avance. Ce système à la fine pointe respecte les normes réglementaires internationales les plus récentes et engendrera d'importants gains de sécurité et d'efficacité pour l'industrie.

Réduire les coûts de carburant et les émissions de GES

Navigation fondée sur les performances : Établi sur l'autorisation requise pour la qualité de navigation requise

L'innovation en services de navigation aérienne ne s'arrête pas aux technologies. Elle comprend aussi de nouvelles procédures et conceptions de l'espace aérien, compte tenu que la navigation fondée sur les capteurs n'est qu'un des facteurs qui influencent chaque vol. Ainsi, la navigation fondée sur les performances (PBN) devient rapidement une norme mondiale.

NAV CANADA tient à voir en quoi la PBN peut raccourcir la route des aéronefs, réduire le temps de vol au bénéfice du voyageur et réduire les coûts de carburant, les émissions de GES et le bruit des aéronefs. La norme « Établi sur la RNP AR (EoR) »



est l'une de ses plus récentes initiatives de PBN. Elle rend possible des arrivées simultanées sur des pistes parallèles sans exiger d'espacement minimum de 1 000 pi (vertical) ou de trois milles marins (latéral), soit les normes régulières actuelles. NAV CANADA a instauré la norme EoR à l'aéroport international de Calgary en novembre 2018, devenant le premier FSNA au monde à appliquer cette nouvelle norme de l'OACI.

La norme EoR est faite pour améliorer grandement la gestion et l'intégration de la circulation aérienne, en plus de permettre l'utilisation d'opérations en descente continue moins bruyantes. Lors de sa première année, plus de 35 000 approches RNP AR ont été exécutées, totalisant une réduction remarquable de plus de 250 000 milles marins de vol à basse altitude avec poussée au-dessus de Calgary. Il s'agit également d'une diminution de plus de 4,1 millions de kilogrammes d'émissions de CO_2. On prévoit que, d'ici la fin de 2020, la norme EoR aura engendré des économies de quelque 132 millions de dollars canadiens en carburant. Sans compter que les temps de vol ont aussi diminué de quatre à cinq heures par jour, soit plus de 1 400 heures par année.

Enfin, la norme EoR a réduit le guidage, la charge de travail des contrôleurs et la nécessité de recourir aux approches visuelles, et s'avère conséquemment une norme plus sécuritaire et fiable pour l'industrie. Beaucoup d'aéroports majeurs s'y intéressent maintenant : Londres Heathrow compte l'utiliser; l'aéroport de Brisbane l'adoptera lorsqu'il aura inauguré sa nouvelle piste; et des représentants de Paris-Charles de Gaulle sont venus à Calgary pour en observer le fonctionnement. Des versions de la norme EoR sont aussi en usage aux aéroports internationaux de Denver et de Houston.

MESURES DE SÉCURITÉ

On parle de perte d'espacement IFR-IFR lorsque l'espacement d'un aéronef IFR était inférieur à l'espacement autorisé ou que son minimum n'a pas été respecté.

La mesure internationale de la sécurité aérienne est l'« espacement », c'est-à-dire le maintien d'une distance sécuritaire entre les aéronefs afin de réduire le risque de collision. Tous les FSNA doivent tenir un registre des pertes d'espacement, soit les « pertes d'espacement IFR-IFR par millions d'heures de vol IFR ». NAV CANADA affiche l'un des taux de pertes d'espacement IFR-IFR les moins élevés au monde.

Façonner l'avenir

« À l'aube de ses 25 ans, NAV CANADA continue de pousser l'industrie mondiale de la navigation aérienne vers de nouveaux sommets, souligne M. Wilson. Jour après jour, la Société accomplit son rôle essentiel dans le milieu de l'aviation civile, soit celui de guider les aéronefs dans l'espace aérien canadien. »

Avec l'avènement de nouvelles technologies et de nouveaux aéronefs dans le ciel — comme les systèmes d'aéronefs télépilotés et les aménagements numériques — NAV CANADA demeure fidèle à son engagement consistant à maintenir le système de navigation aérienne du Canada à l'avant-garde en matière de sécurité, d'efficacité et de service à la clientèle. Elle est fière d'être une entreprise canadienne moderne et innovante comme aucune autre, et fière d'affermir la réputation du Canada à titre de chef de file mondial avant-gardiste des services de navigation aérienne.

LA PREMIÈRE TOUR DE VERRE

En 1998, NAV CANADA inaugure, à l'aéroport international Pearson de Toronto, la première « tour de verre » au monde, équipée de son Système d'affichage amélioré (EXCDS) maison, lequel remplace les fiches de données de vol papier par des fiches électroniques gérables à l'aide d'un écran tactile. L'EXCDS rehausse la sécurité en réduisant les erreurs et en permettant aux contrôleurs de travailler plus efficacement. Depuis, l'EXCDS est devenu une suite parfaitement intégrée d'outils utilisée dans toutes les tours et stations d'information de vol au Canada, de même qu'au Royaume-Uni, dans les Caraïbes, en Australie, au Danemark, en Italie, en Inde, à Dubaï et à Hong Kong.

Deloitte's innovation outpost at Bayview Yards provides a safe haven for their clients to innovate as part of Ottawa's innovation ecosystem

Phase 1 - Humble beginnings



When people think of Deloitte, they may have images of tidy accountants and business school grads watching the bottom line and providing sound advice to CEOs. With over 175 years in business, Deloitte's focus is increasingly on delivering innovative solutions to their clients in both the private and public sectors.

With a little help from their (new) friends

From their downtown Ottawa office, hundreds of Deloitte practitioners serve their clients across audit, tax, and consulting practices. The consulting practice includes specialists in Operations, HR, Finance and IT and a small group of intrepid explorers that make up their Innovation Team.

The Innovation Team is comprised of a diverse group of professionals with interests in emerging technology, new methods of work, and a keen eye for sensing where the world is changing. Not satisfied with limiting their possibilities to what could be found within the walls of the Deloitte office, the team started attending local meet-ups, talks and 'unconferences' held by Ottawa's vibrant innovation ecosystem.

This active community is made up of entrepreneurs, start-up incubators, social innovators and, Ottawa being the uber government town, policy innovators looking to shake up the public service. Through these events, Deloitte's team was able to connect with an organization at the heart of ecosystem: Invest Ottawa.

While looking for ways to participate in Invest Ottawa's community education program, the start-up accelerator shared their plans to move their operations to a renovated and revitalized former City of Ottawa Workshop at Bayview Yards. Knowing that this plan would create a hub for innovation in Ottawa, Deloitte eagerly signed up as a founding tenant.

From humble beginnings comes disruption by design

Starting with just four simple workstations in Bayview Yard's west wing, the Innovation Team began inviting their clients to step out of their concrete and glass towers to join them for design workshops and education sessions and also began to meet their neighbours – start-ups and innovation enablers – in the halls and at ecosystem events held in Bayview's sprawling central space.

Within six months, it was clear that the 'collisions' made and the work done at Bayview Yards were paying dividends with energized clients and new opportunities and so soon after, Deloitte began plans for an expansion of their footprint at Bayview Yards.

The new space, now occupying a fifth of Bayview's west wing, provides a dedicated collaboration space complete with all the latest





Phase 2 - Deloitte's DSpace Innovation Lab was born





technology and facilities to host Deloitte's clients and provide a new home for their Greenhouse and experimentation program.

At Bayview Yards, the Deloitte team has been busy. To name just a few, they have partnered with Bayview's Prototyping Lab to build an augmented reality prototype for a crown corporation, worked with a start-up to build and deploy a large department's first interactive chatbot, and delivered immersive learning around disruptive technologies with the Public Policy Forum to over 150 public servants.



Phase 3 - Stay tuned!



So what's next?

Deloitte continues to build on their programming for their presence at Bayview Yards and is looking forward to capitalizing on future Bayview Yards expansions to increase the services they can offer and start to tackle even bigger challenges.

Deloitte.

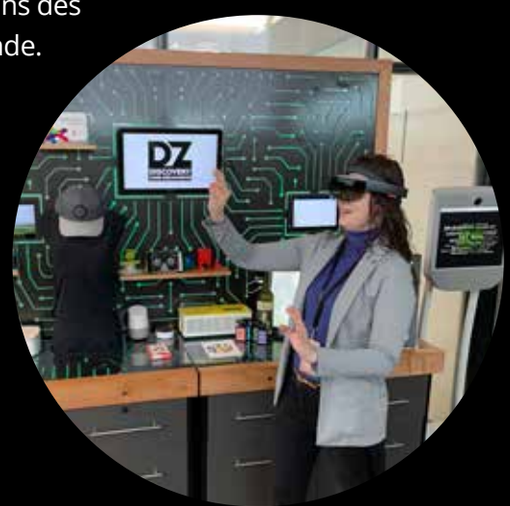
www.deloitte.ca/innovation



Entrevue avec l'équipe de l'Expérience Greenhouse à Ottawa de Deloitte



À un moment où le statu quo n'était plus de mise, l'avènement du centre Greenhouse de Deloitte s'est imposé comme un moyen de proposer des expériences immersives aux participants afin d'aplanir les difficultés et d'accélérer les percées transformatrices. Les expériences proposées par le centre Greenhouse de Deloitte visent à aider les clients du Cabinet à résoudre leurs problèmes les plus complexes et à comprendre les conditions en évolution dans lesquelles ils exercent leurs activités. Chaque séance est une expérience personnalisée, qui se déroule dans des installations ultramodernes partout dans le monde.



Pourquoi le bureau d'Ottawa avait-il besoin de vivre une expérience de ce genre? Pour répondre à cette question, nous avons rencontré l'équipe de l'Expérience du Centre Greenhouse d'Ottawa.



Deloitte Greenhouse™

www.deloitte.ca/greenhouse

Lorsque vos parents vous demandent ce que vous faites, que leur dites-vous?

Équipe du centre Greenhouse : Eh bien, nous avons l'habitude de répondre à ce genre de question; il devrait être facile de répondre à la vôtre. Nous aidons les leaders à réfléchir et à agir différemment. Plutôt que de nous asseoir autour d'une table de conférence et de nous enliser dans des discussions que nous avons eues des centaines de fois, nous offrons des expériences qui interpellent la tête, le cœur et le corps pour réaliser des percées et résoudre des problèmes pressants. Ces percées peuvent prendre diverses formes : encourager les clients à être réceptifs à de nouvelles possibilités ou technologies qu'ils n'avaient pas envisagées auparavant; mobiliser l'équipe de direction autour d'un projet ou d'un plan d'action; permettre aux clients d'établir des partenariats qui changeront la donne. Nous sommes fiers d'aider nos clients à prendre des mesures qui leur permettent de faire bouger les choses dans leur entreprise.



Qui vient au centre Greenhouse et pourquoi?

Équipe du centre Greenhouse : Nous collaborons avec des dirigeants de l'ensemble de la collectivité, qui proviennent d'une foule de secteurs d'activité et de domaines d'expertise. Ils connaissent leur entreprise, et nous savons comment animer des conversations stratégiques pour entrer rapidement dans le vif du sujet. Nous sommes conscients de la vitesse à laquelle les perturbations frappent les organisations, et nous aidons les équipes de direction à répondre à des questions épineuses et très intéressantes comme celles-ci :

- Que dois-je faire en tant que chef d'entreprise pour exercer une influence optimale aujourd'hui et à l'avenir?
- Qu'est-ce que l'innovation et comment pouvons-nous être plus innovateurs?
- Que faudra-t-il pour que les idées géniales de mon équipe se matérialisent?
- Comment puis-je tirer parti de nouvelles capacités (analytique, IA et numérique)?
- Les risques changent constamment. Quels sont ceux qui devraient particulièrement retenir mon attention?

Pourquoi avez-vous choisi les cours Bayview pour l'Expérience Greenhouse?

Équipe du centre Greenhouse : Les meilleures idées ne viennent habituellement pas d'une seule personne : elles viennent d'une communauté. Nous savions qu'il serait important de faire partie intégrante de la communauté de l'innovation d'Ottawa dans les cours Bayview. Nous risquons tous de nous retrouver dans une ornière si nous ne changeons pas de point de vue. Notre présence ici nous permet d'innover dans notre propre organisation et d'expérimenter de nouvelles méthodes qui font partie de cet écosystème. Les dirigeants qui franchissent le seuil des cours Bayview repartent enrichis. Le simple fait d'être présents ici les amène à penser différemment.

Enfin, nous estimons que toute équipe de l'innovation doit s'exposer à la vitalité et à la richesse des points de vue externes, et les intégrer dans son parcours. C'est pourquoi nous sommes ici.

Qu'est-ce qui vous procure le plus de fierté dans votre travail?

Équipe du centre Greenhouse : Une foule de choses, mais surtout l'aide que nous apportons aux équipes de haute direction pour s'arrimer à un objectif commun, ou voir un participant sceptique faire une découverte décisive qui lui insuffle une énergie positive qu'il transmettra à ses équipes. Nous constatons qu'il y a dans notre communauté des visionnaires, notamment des personnes et des organisations qui ont une incidence véritable, en particulier dans la fonction publique; nous en sommes très fiers. Nous saisissons les occasions de les aider à relever leurs défis les plus difficiles et de leur faire connaître des moyens innovants d'aborder leurs problèmes.

Notre appartenance à cette communauté nous procure une profonde fierté et nous avons hâte de nouer d'autres contacts avec nos collègues innovateurs.

CANADA MORTGAGE AND HOUSING CORPORATION (CMHC)

CMHC: Innovation driven by a "big hairy audacious goal" of affordable housing for all



Views of CMHC's Ottawa campus on Montréal Road.
Vues du campus d'Ottawa de la SCHL sur le chemin de Montréal.





Is it possible for a 70-year-old insular, risk-averse bureaucracy to transform itself into a leader in innovation? For Canada Mortgage and Housing Corporation (CMHC), the answer is a resounding yes! A sense of urgency and a winning aspiration are the keys to our success.

Our urgency to innovate at Canada's national housing agency comes from seeing the troubling effects of soaring housing costs in our major cities. Canadians are finding it tough to make ends meet. More and more must relocate far from their workplaces to find affordable housing, which threatens the vibrancy and diversity of our cities. What was our response? Mobilize all of our resources around a big hairy audacious goal* that **"by 2030, everyone in Canada has a home that they can afford and that meets their needs."**

CMHC SCHL



Steffan Jones
Vice President, Innovation, CMHC
Vice-président, Innovation, SCHL

SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT

SCHL: L'innovation est stimulée par le « grand objectif audacieux » de permettre à tous d'avoir un logement abordable.

Est-il possible qu'une bureaucratie vieille de 70 ans, solitaire et réfractaire au risque, se transforme en chef de file en innovation? Pour la Société canadienne d'hypothèques et de logement (SCHL), la réponse est oui et encore oui! Un sentiment d'urgence et une aspiration gagnante sont les clés de notre succès.

Les effets préoccupants de la montée en flèche des coûts du logement dans les grandes villes poussent l'organisme national responsable de l'habitation au Canada à innover de façon urgente. Les Canadiens ont de la difficulté à joindre les deux bouts. De plus en plus de gens doivent déménager loin de leur lieu de travail pour trouver un logement abordable, ce qui menace le dynamisme et la diversité de nos villes. Quelle a été notre réaction? Nous avons mobilisé toutes nos ressources autour d'un grand objectif audacieux, soit que* ***« d'ici 2030, tout le monde au Canada pourra se payer un logement qui répond à ses besoins ».***

Et qui dit objectif audacieux dit mesures audacieuses. La SCHL met en œuvre, en partie en dirigeant la toute première Stratégie nationale sur le logement (SNL) du Canada, un plan de 55 milliards de dollars sur 10 ans qui permettra à plus de Canadiens d'avoir un chez-soi. Pourtant, nous devons en faire encore plus. C'est pourquoi nous nous sommes positionnés pour générer les idées novatrices et élaborer les approches inédites nécessaires pour apporter encore plus de changements.

Qu'avons-nous fait à la SCHL pour réunir les conditions propices à l'innovation? Nous avons procédé à une transformation à l'échelle de la Société, qui a suscité l'intérêt des secteurs public et privé. Voilà ce que nous avons fait! De 2014 à 2019, pratiquement tous les aspects de la Société ont été modernisés.

La SCHL a maintenant une structure organisationnelle aplanie et une culture qui ne tient pas compte de la hiérarchie. Nous adhérons à la gestion des risques, au service à la clientèle, aux partenariats créatifs et nous pensons toujours à « dire oui ». Nous sommes en train de redéfinir notre image de marque pour refléter notre nouvelle personnalité et de revoir le concept de nos bureaux pour qu'ils deviennent des espaces de travail orientés sur les activités. La SCHL est aussi la plus grande organisation au Canada à adopter un milieu de travail axé uniquement sur les résultats (ROWE), ce qui permet aux employés de se concentrer sur le travail essentiel. Le travail n'est pas un lieu où l'on va, c'est la somme des choses que l'on accomplit. Ce changement s'appuie sur une transformation technologique majeure, fruit d'un partenariat novateur de 10 ans avec Accenture.

La SCHL a maintenant la capacité et la culture nécessaires pour expérimenter de nouvelles idées—et nous voyons déjà des résultats.

A bold goal calls for bold action. CMHC is delivering, in part by leading Canada's first-ever National Housing Strategy (NHS), a 10-year, $55-billion plan to give more Canadians a place to call home. Yet we need to do even more. That's why we've positioned ourselves to generate fresh ideas and groundbreaking approaches needed to create even more change.

So what did we do at CMHC to create the conditions for innovation? A company-wide transformation that has captured the interest of the public and private sectors alike, that's what! From 2014-19, literally every aspect of the company has been modernized.

CMHC now has a flattened organizational structure and a culture that rejects hierarchy. We embrace risk, client service, creative partnerships, and always "think yes." We are rebranding to reflect our new personality, and redesigning our offices into activity-based workspaces. CMHC is also the largest organization in Canada to adopt a results-only work environment (ROWE), which frees up employees to focus on the work that matters most—work is something you do, not a place you go.

Underpinning all of this change is a major tech transformation, made possible through a pioneering 10-year partnership with Accenture.

CMHC now has the capacity and culture to experiment with new ideas—and we're already seeing results.

We are investing in innovative financing and building design models, such as Karen's Place, a highly energy-efficient building recently completed in Ottawa—Canada's first "passive" affordable housing project. We are also funding solutions labs and demonstration projects that help the housing sector to test and scale new housing solutions.

Beyond CMHC's funding programs, we are investing heavily in building our modelling and data analytics capabilities. We know that improved data and enhanced evidence will lead to better housing policy. We are exploring how technologies like blockchain and artificial intelligence could support improved housing affordability. We are also in the midst of





a multi-year initiative to redesign emili, our proprietary, world-class mortgage underwriting system.

And let's not forget Project Galaxy! Working closely with Accenture, we're exploring how we can use digital to help people living in Canada more efficiently find and live in the right home. Not only are we exploring some cool ideas, but we are also working in a new way—agile sprints with multidisciplinary teams that are really flexing our ability to prototype quickly, learn, advance, pivot or fail.

Of course, all of this is anchored in our 2030 goal. We know we need to be laser-focused and, as we like to say, innovate with purpose.

That's why our innovation team is spurring efforts to invest in problem framing and analysis. This will ensure we accurately define the problems keeping us from achieving our goal so that we can focus our experimentation.

While we have a long way to go to achieve our audacious goal, we are well on our way. When it comes to making our cities livable, housing matters. We are committed to making a difference, starting with ourselves at CMHC. We are continually pushing ourselves to be a progressive, productive, and impactful company that Canadians can count on. The future is bright and housing will be made more affordable for all.

Steffan Jones

Vice-President, Innovation
Canada Mortgage and Housing Corporation

**The term "Big Hairy Audacious Goal" was coined by Jim Collins and Jerry Poras in their book,* Built to Last: Successful Habits of Visionary Companies. *They define BHAG as "an audacious 10-to-30-year goal to progress towards an envisioned future."*







Architectural renderings of the redesign of CMHC's Ottawa offices, to be completed early 2021. Credit: Perkins&Will and Designstor
Réalisations architecturales de la refonte des bureaux de la SCHL à Ottawa achèvement prévu au début de 2021. Source : Perkins&Will et Designstor

Nous investissons dans des modèles novateurs de financement et de conception de bâtiments, comme Karen's Place, un immeuble très écoénergétique récemment achevé à Ottawa—le premier ensemble de logements abordables « passif » au Canada. Nous finançons également des laboratoires de solutions et des projets de démonstration qui aident le secteur du logement à mettre à l'essai et à adapter de nouvelles solutions de logement.

Outre ses programmes de financement, la SCHL investit massivement dans le développement de ses capacités de modélisation et d'analytique des données. Nous savons que des données améliorées et des faits consolidés mèneront à une meilleure politique de logement. Nous examinons comment des technologies comme la chaîne de blocs et l'intelligence artificielle pourraient appuyer l'abordabilité accrue des logements. Nous sommes également à mi-parcours d'une initiative pluriannuelle de refonte d'emili, notre système exclusif de souscription hypothécaire de calibre mondial.

Et n'oublions pas le projet Galaxy! En étroite collaboration avec Accenture, nous examinons comment nous pourrions utiliser le numérique pour aider plus efficacement les personnes vivant au Canada à trouver le logement qui leur convient. Non seulement explorons-nous des idées géniales, mais nous travaillons aussi d'une nouvelle façon—des sprints agiles avec des équipes multidisciplinaires qui nous permettent vraiment de mettre à profit notre capacité de faire des essais rapidement, d'apprendre, de progresser, de changer de direction ou d'échouer.

Bien sûr, tout cela est ancré dans notre objectif de 2030. Nous savons que nous devons être focalisés et, comme nous aimons le dire, innover de façon réfléchie. C'est pourquoi notre équipe de l'innovation multiplie les efforts visant à investir dans la définition et l'analyse des problèmes. Nous pourrons ainsi cerner avec exactitude les problèmes qui nous empêchent d'atteindre notre objectif afin que nous puissions bien cibler notre expérimentation.

Bien que nous ayons encore beaucoup de chemin à faire pour atteindre notre objectif audacieux, nous sommes sur la bonne voie. Lorsqu'il s'agit de faire de nos villes des lieux où il fait bon vivre, le logement compte. Nous sommes déterminés à faire une différence, en commençant par nous-mêmes à la SCHL. Nous nous efforçons constamment d'être une organisation progressiste, productive et influente sur laquelle les Canadiens peuvent compter. L'avenir est prometteur et oui, les logements seront plus abordables pour tous.

Steffan Jones

Vice-président, Innovation
Société canadienne d'hypothèques et de logement

* *Jim Collins et Jerry Poras ont inventé l'expression* Big Hairy Audacious Goal *(grand objectif audacieux) dans leur livre* Built to Last : Successful Habits of Visionary Companies. *Ils définissent le modèle BHAG comme « un objectif audacieux sur 10 à 30 ans pour progresser vers un avenir envisagé ».*

CANADA FOUNDATION FOR INNOVATION (CFI)

GIVING CANADA'S BRIGHTEST MINDS THE TOOLS THEY NEED TO INNOVATE



Martin Fortier-ArcticNet, CCGS Amundsen

Researchers need world-class research infrastructure to compete on the global stage. The Canada Foundation for Innovation (CFI) was created in 1997 to fund the tools essential for conducting leading-edge research in the 21st century.

We support the evolving needs of Canada's universities, colleges and research hospitals across all areas of research — from health and medicine, to the natural sciences and engineering, to the social sciences and humanities — by funding state-of-the-art equipment, laboratories and facilities.

Since its creation, the CFI has invested more than $8 billion in projects of all sizes — from databases, electron microscopes and gene sequencers to large-scale digital networks, ocean research vessels and world-class particle physics facilities.

Connecting researchers in state-of-the-art facilities with the private and public sectors

The CFI fosters collaboration within Canada's research and innovation landscape through the Research Facilities Navigator, an online directory of publicly funded research facilities that are open to working with industry, academia and government partners.

Since 2013, the Navigator's unique platform has helped innovators connect with research expertise, state-of-the-art equipment and labs located in universities, colleges, hospitals and federal government facilities from across Canada. Today, the Navigator features more than 675 research facilities covering 28 sectors of application, including aerospace, ocean industries, environmental technologies, advanced manufacturing and life sciences.

Visit **navigator.innovation.ca**

INNOVATION.CA

CANADA FOUNDATION FOR INNOVATION | FONDATION CANADIENNE POUR L'INNOVATION



Applied Geomatics Research Group, Nova Scotia Community College

The WindEEE Research Institute, Western University

55, rue Metcalfe Street, 1100
Ottawa ON K1P 6L5, Canada
innovation.ca



FONDATION CANADIENNE POUR L'INNOVATION

DONNER AUX PLUS BRILLANTS ESPRITS DU CANADA LES OUTILS DONT ILS ONT BESOIN POUR INNOVER

Les chercheurs ont besoin d'une infrastructure de recherche de calibre mondial pour être concurrentiels à l'échelle internationale. La Fondation canadienne pour l'innovation (FCI) a été créée en 1997 afin de financer les outils essentiels à la réalisation de travaux de recherche d'avant-garde au XXIe siècle.

La FCI soutient les besoins en constante évolution des universités, des collèges et des hôpitaux de recherche du Canada, et ce, dans toutes les disciplines de recherche de la santé à la médecine, en passant par les sciences naturelles, le génie et les sciences humaines en finançant des laboratoires, des installations et de l'équipement de pointe. Depuis sa création, la FCI a investi plus de 8 milliards de dollars dans des projets d'envergures diverses de bases de données, microscopes électroniques et séquenceurs de gènes à des réseaux numériques à grande échelle, navires de recherche océanique et installations de physique des particules de classe mondiale.

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Centre canadien de rayonnement synchrotron, Université de la Saskatchewan



Le Laboratoire audionumérique de recherche et de création, Université Laval, Dragos Chiriac

Mettre en relation les chercheurs travaillant dans des installations de pointe, avec les secteurs public et privé

La FCI favorise la collaboration dans le milieu canadien de la recherche et de l'innovation, au moyen de son Navigateur d'installations de recherche – un répertoire en ligne d'installations de recherche financées par des fonds publics qui sont ouvertes à des partenariats avec les entreprises, le milieu universitaire et le gouvernement.

Depuis 2013, la plateforme unique du Navigateur aide les innovateurs à avoir accès à l'expertise de recherche, l'équipement de pointe et les laboratoires des universités, des collèges, des hôpitaux et des installations du gouvernement fédéral partout au Canada. Aujourd'hui, le Navigateur met en vitrine plus de 675 installations de recherche dans 28 secteurs d'application, y compris l'aérospatial, les industries marines, les écotechnologies, la fabrication de pointe et les sciences biologiques.

Visitez ***navigateur.innovation.ca***

55, rue Metcalfe Street, 1100
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THE INFORMATION AND COMMUNICATIONS TECHNOLOGY COUNCIL

Shaping Canada's Digital Future

As a not-for-profit, national centre of expertise, ICTC strengthens Canada's digital advantage in a global economy. Through trusted research, practical policy advice, and creative capacity-building programs, ICTC fosters globally competitive Canadian industries enabled by innovative and diverse digital talent. In partnership with a vast network of industry leaders, academic partners, and policy makers from across Canada, ICTC empowers a robust and inclusive digital economy.

FAST FACTS

- *12+ Capacity building initiatives*
- *ICTC has staff and offices in cities across Canada and overseas! Find us in: Nanaimo, Vancouver, Calgary, Winnipeg, Toronto, Ottawa, North Bay, Huntsville, Montreal, Halifax, St John, as well as India and the Philippines.*
- *Recent ICTC Publications: Building Canadian Consensus: Our Maturing Blockchain Ecosystem, A Digital Future for Alberta, Transformative Technologies for Smart Canadian Cities, Smart Cities Priority & Labour Market Readiness for Canadians, Developing Cyber Talent for Canadian Road Authorities and, MVNOs-The Next Wave of Telecommunication Services.*

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The combined offering of our forward-looking research, evidence-based policy advice, and successful capacity building programs provide a unique value proposition in Canada by enabling measurable and tried and tested solutions for Canada's digital economy.

With a core team of over 70 highly-qualified professionals across Canada, we champion research, talent and organizational development, and digital policy solutions for Canada. Our team is comprised of economists, researchers, analysts, engineers, program managers, social scientists, public relations and outreach specialists with the drive to advance a pivotal digital agenda for Canada. Our values are anchored in our independence and passion to advance what is right for Canada's economy and society in this evolving digital landscape.

Our Forward-Looking Research and Policy Advice

As an independent, neutral policy advisor, ICTC offers specialized knowledge and an informed perspective on digital policy in support of government and business leaders. ICTC is a recognized, authoritative source of technology, economic, and labour market research that adheres to the highest research standards and leverages our networks to help shape policies that enable Canadians to seize upon national and global digital opportunities.

The range of our research and policy advice extends to hundreds of publications on critical issues of significant potential for the economy and job market. Most recently, this includes, Autonomous Vehicles, 5G Wireless, Smart Cities, Blockchain, Artificial Intelligence, Critical Infrastructure, Data Economy Strategy, Investment Attraction, and Cybersecurity, to name only a few.

Our Capacity and Innovation Building Programs

ICTC is a leader in developing workforce solutions and delivering talent programs to enable Canadian businesses to access the right talent with the right skills, while leveraging all human capital needed to drive innovation and productivity in an increasingly competitive environment.

ICTC has developed a multitude of capacity building programs to help individuals and organizations build digital skills to better participate and compete in a global economy, some of the key programs include: our student work placement program WIL Digital; upskilling and transitioning of displaced workers to in-demand jobs such as the partnership with the Calgary Economic Development (CED) Edge Up program; Digital Dash 2.0 for middle and secondary schools; CyberTitan youth cybersecurity education and competition initiative targeting middle and secondary school students; the GO Talent program that connects international ICT talent with Canadian businesses; the Women in Technology initiative; and the Ontario Career Connect wage subsidy program that enables young graduates to earn on-the-job experience and potential full-time employment.

We also recently launched the iAdvance initiative that paves the way for the future of work through skills mapping, enabling training pathways, and micro-credentialing.



Shaping Canada's Digital Aspirations

ICTC also participates in a variety of wide-ranging forums and speaking engagements at leading national and international events to provide insights and elevate the national discourse on matters of national interest. Most recently, ICTC is leading a Pan-Canadian policy forum titled Digital Canada 2030 to explore the future state of Canada's digital economy to inform enterprises, entrepreneurs, policymakers, investors, educators, and job seekers on Canada's prospects in the coming years.

ICTC looks forward to continuing to work with its partners and stakeholders to bring exceptional research, policy, and innovative programming in our pursuit of a robust digital economy for Canada.

Join us in this important mission!













CONSEIL DES TECHNOLOGIES DE L'INFORMATION ET DES COMMUNICATIONS

Façonner l'avenir numérique du Canada





En tant que centre d'expertise national à but non lucratif, le CTIC renforce l'avantage numérique du Canada dans une économie mondiale. Grâce à des recherches fiables, à des conseils stratégiques pratiques et à des programmes de renforcement des capacités créatives, le CTIC favorise la compétitivité mondiale des industries canadiennes qui sont habilitées par des talents numériques novateurs et diversifiés. En partenariat avec un vaste réseau de chefs de file de l'industrie, de partenaires universitaires et de décideurs de partout au Canada, le CTIC favorise une économie numérique inclusive et concurrentielle à l'échelle mondiale.

L'offre combinée de nos recherches prospectives, de nos conseils stratégiques fondés sur des données probantes et de nos programmes fructueux de renforcement des capacités constitue une proposition de valeur unique au Canada en permettant d'offrir des solutions mesurables et éprouvées pour l'économie numérique du Canada.

Avec une équipe de base de plus de 70 professionnels hautement qualifiés à travers le Canada, nous nous faisons les champions de la recherche, du talent et du développement organisationnel, et des solutions de politique numérique pour le Canada. Notre équipe est composée d'économistes, de chercheurs, d'analystes, d'ingénieurs, de gestionnaires de programmes, de spécialistes des sciences sociales, de spécialistes des relations publiques et de la sensibilisation qui ont à cœur de faire progresser un programme numérique essentiel pour le Canada.

Nos valeurs sont ancrées dans notre indépendance et notre passion à faire avancer ce qui est approprié pour l'économie et la société du Canada dans ce paysage numérique en évolution.

Nos recherches prospectives et nos conseils stratégiques

En tant que conseiller indépendant en matière de politiques, le CTIC offre des connaissances spécialisées et un point de vue éclairé sur la politique numérique à l'appui des dirigeants du gouvernement et des entreprises. Le CTIC est une source reconnue et faisant autorité en matière de recherche sur la technologie, l'économie et le marché du travail dans le respect des normes de recherche les plus élevées et tire parti de ses réseaux pour aider à façonner des politiques qui permettent aux Canadiens de saisir les occasions numériques nationales et mondiales.

L'éventail de nos recherches et de nos conseils stratégiques s'étend à des centaines de publications sur des questions critiques présentant un potentiel important pour l'économie et le marché du travail, notamment, plus récemment, les véhicules autonomes, le sans fil 5G, les villes intelligentes, la Blockchain, l'intelligence artificielle, les infrastructures essentielles, la stratégie de l'économie des données, l'attraction des investissements et la cybersécurité, pour n'en nommer que quelques-unes.



Nos programmes de renforcement de la capacité et de l'innovation

Le CTIC est un chef de file dans l'élaboration de solutions de main-d'œuvre et la prestation de programmes de gestion des talents pour permettre aux entreprises canadiennes d'avoir accès aux bons talents et aux bonnes compétences, tout en tirant parti de tout le capital humain nécessaire afin de stimuler l'innovation et la productivité dans un environnement de plus en plus concurrentiel.

Le CTIC a élaboré une multitude de programmes de renforcement des capacités pour aider les individus et les organisations à acquérir des compétences numériques afin de mieux participer et d'être plus concurrentiels dans une économie mondiale, parmi les principaux : le Programme d'apprentissage intégré au travail, le perfectionnement des compétences et la transition des travailleurs déplacés vers des emplois en demande, comme le programme Calgary Economic Development (CED) Edge Up, ainsi que des programmes jeunesse bien ciblés comme l'initiative numérique DASH 2.0, l'initiative de formation et de compétition en cybersécurité pour les jeunes de CyberTitan, le programme GO Talent qui relie les talents internationaux en TIC aux entreprises canadienne, l'initiative sur les femmes et la technologie , le programme de subventions salariales Connex'Carrière Ontario qui permet aux jeunes diplômés d'acquérir de l'expérience en milieu de travail et d'obtenir un emploi potentiel à temps plein.

Nous avons également lancé récemment l'initiative iAdvance qui ouvre la voie à l'avenir du travail grâce à la cartographie des compétences, à la facilitation des parcours de formation et à la micro-certification.







Façonner les aspirations numériques du Canada

Le CTIC participe également à divers forums de grande envergure et prononce des allocutions lors d'événements nationaux et internationaux de premier plan afin de donner un aperçu et d'élever le discours national sur des questions d'intérêt national. Plus récemment, le CTIC a dirigé un forum pancanadien sur les politiques intitulé Le Canada numérique 2030 pour explorer l'état futur de l'économie numérique du Canada afin d'informer les entreprises, les entrepreneurs, les décideurs, les investisseurs, les éducateurs et les chercheurs d'emploi sur les perspectives du Canada au cours des prochaines années.

Le CTIC se réjouit de continuer à travailler avec ses partenaires et les intervenants afin d'apporter une recherche, des politiques et des programmes novateurs exceptionnels dans notre quête d'une économie numérique forte pour le Canada.

Joignez-vous à nous dans cette importante mission!







FAITS SAILLANTS

- *Plus de 12 initiatives de renforcement des capacités*
- *Le CTIC a du personnel et des bureaux dans les villes du Canada et de l'étranger ! Retrouvez-nous à : Nanaimo, Vancouver, Calgary, Winnipeg, Toronto, Ottawa, North Bay, Huntsville, Montréal, Halifax, St John, ainsi qu'en Inde et aux Philippines.*
- *Publications récentes: Rallier un consensus canadien : L'évolution de notre écosystème de la blockchain, A Digital Future for Alberta, Des technologies transformatrices pour les villes intelligentes canadiennes, Domaines prioritaires des villes intelligentes et préparation au marché du travail pour les Canadiens, Developing Cyber Talent for Canadian Road Authorities; et, MVNOs-The Next Wave of Telecommunication Services.*

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CATAlliance

> *The Canadian Advanced Technology Alliance* **IS A CANADIAN INSTITUTION** ... *the one organization that represents Canadian homegrown technology business.*

Paul Vallée, Founder & CEO,
Tehama; Co-founder, Pythian



Homegrown Collaboration and Humble Beginnings

The Canadian Advanced Technology Alliance (CATA) was conceived 50 years ago when Canada's few and emerging technology companies banded together to have a greater voice and influence. Rooted in the spirit of collaboration, CATA continues to draw brilliant industry minds, leaders, academe and policy makers to solve the challenges ahead.

The Business and Culture of Innovation

CATA is a trusted alliance for Canada's homegrown technology sector, supporting commercial competitiveness, economic growth and resilience. In preparation for the opportunities and challenges of the next decade, CATA is focusing on advocacy and building robust commercial capabilities, future talent and skills, and sustainable and equitable best practices within technology operations and commerce. CATA is "all the things"—business & culture of innovation, especially inspiring boldness and podium culture confidence. CATA's longstanding mandate to elevate a thriving innovation sector is evergreen.

> *inspiring bold podium culture & confidence*

#1 Podium Gravitas

Hooray! Canada ranks top in the world taking the number one place in terms of venture capital deals and also first in joint venture–strategic alliance deals (/bn purchasing power parity (PPP) $ GDP). Big deal!

AND

A little damper on the celebration;

- stellar performance in market sophistication ranking 2nd and institutions 4th, are weighed down by creative outputs and infrastructure both falling at 27th, and business sophistication at 22nd.
- Knowledge and technology outputs and human capital and research lag at 19th.

Canadian Innovation Competitiveness Snapshot

A leading education system and motivated, smart investor backed entrepreneurs have demonstrated that Canada is a capable inventor and startup nation. Despite this foundation, and stellar performances from our few unicorns, the overall return of innovation investment is not performing—not yet. Canada ranks 17th in the world in the 2019 Global Innovation Index. Although Canada ranks 9th in "innovation inputs" or costly investments, outputs are far behind at 22nd.



> *"Canada's expensive investments in innovation are not translating into innovation outputs."*

You see the potential here to move the ranking and push Canada's economic engine right? New ideas, technology, and processes reach innovation potential when leveraged with sophisticated commercial practises. Innovation is a continuum—the process of realizing the fullest market potential of an idea, whether it be a service, process or a product.

CATA's Call to Action

CATA is espousing a cultural shift to move beyond building good companies with world class technology; struggling to transform to large companies, or getting sold abroad. Evolving from inventor to growth innovator building HQ Canada large companies (500 employees +) requires a shift to commercial sophistication including resource commitment, building masterful expertise and world class capabilities.

A Little Less Conversation, a Lot More Bold

Brand Canada is a solid foundation for Brand Canadian Innovation; valuing intellectual property ROI, investing big & believing in Canadians, embracing risk, fully appreciating entrepreneurs and commercial success, creatively embracing talent, the future, adopting and buying new tech, inclusive leadership and robust podium culture fuelled by commercial savvy.

Bring the swagger Canada. You've earned it!

> *We are building something ambitious and amazing. If you are a bold innovator and leader that believes* ***Canada's time is now ... You belong. Grow with us!*** —Suzanne Grant, CEO, CATA*Alliance*



Engagement

62,000
ENGAGED COMMUNITY

250 and growing
MEMBERS, PARTNERS AND SUPPORTERS

+17 M
ANNUAL DIGITAL MEDIA IMPRESSIONS

CATA is revising its Innovation Leadership Council and forming Expert Panels. Appointments to the CACP/CATA E-Crimes and Cyber Counsel are also filled on a needs basis. If you want to be considered, tell us how you're a good fit and email cmalette@cata.ca.

Have your say.

Share your thoughts on how Canada can own the Innovation Competitiveness podium
https://cata.ca/2019/cata-checkup | **info@cata.ca**
groups/37239
CATAAlliance
cata.ca



SHOPIFY

Building world-changing products from Ottawa

Shopify is a commerce platform built for independent business owners of all sizes to start, sell, market, and manage their businesses online, in-store, and everywhere in between. From small merchants to massive brands including Gymshark, PepsiCo, Allbirds, and many more, Shopify is powering a global economic movement of more than one million entrepreneurs in 175 countries. The company is democratizing commerce by providing ambitious entrepreneurs with powerful tools to be successful and connect directly with customers.

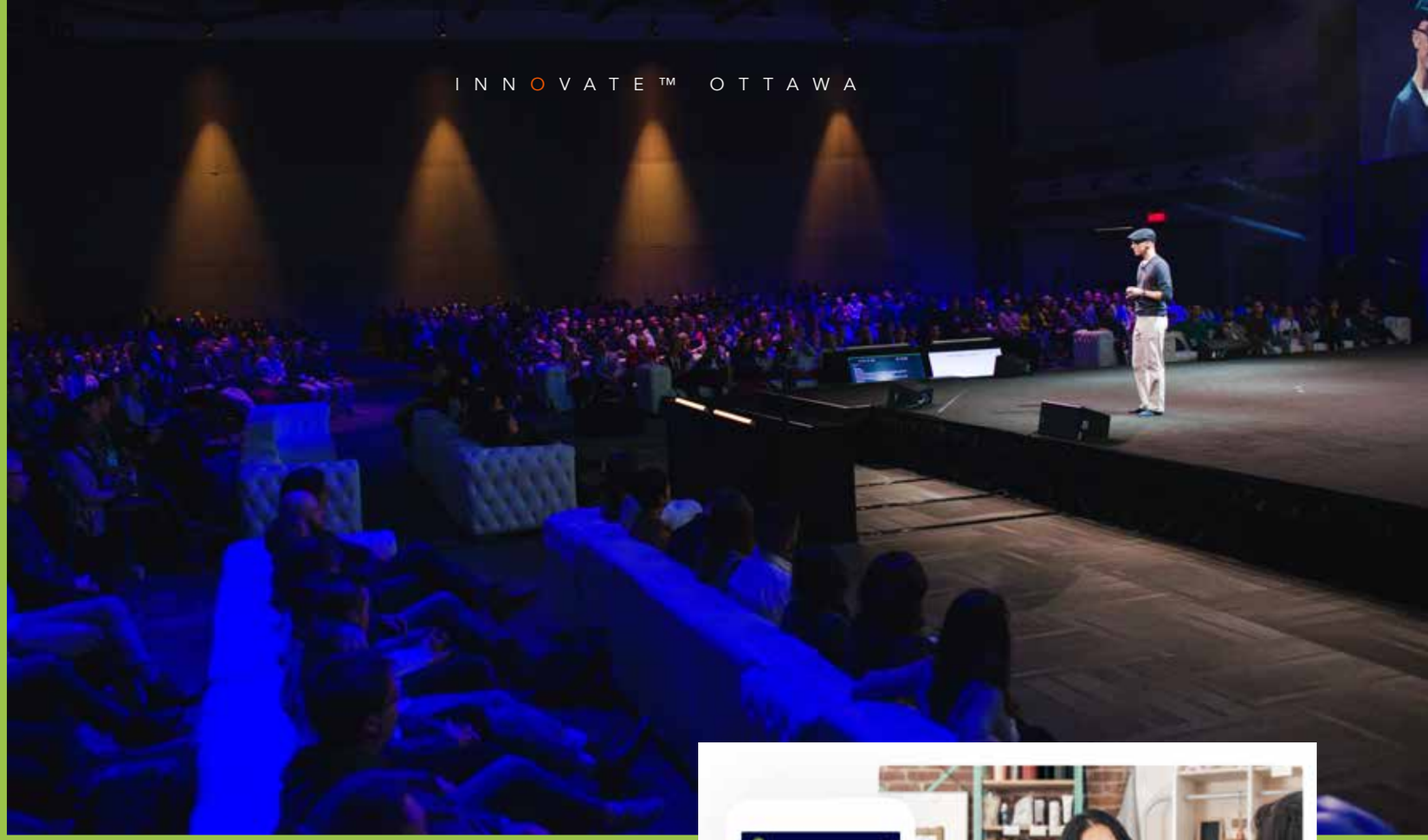
When Tobi Lütke immigrated to Canada from Germany in 2002, he brought with him a cat named Homie, his coding skills, and a desire to become an entrepreneur.

Snowboarding was a hobby of his, so he decided to launch an online snowboard store from his new home in Ottawa.

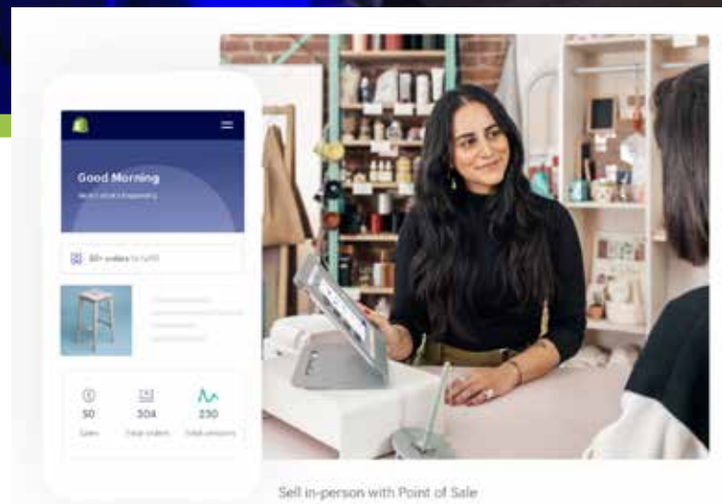
He called it Snowdevil.

At the time, the internet was new and online stores were few. The software of the day was clunky, expensive, and hard to use. Instead of relying on an existing solution, Tobi decided to build his own e-commerce software from scratch. The resulting product made it so easy to start an online store that Tobi realized the software was far more valuable than the snowboards could ever be. He called up some friends in Ottawa to join the company, and together they turned his modest snowboard shop into a software-as-a-service company called Shopify—a combination of the words “shop” and “simplify.”

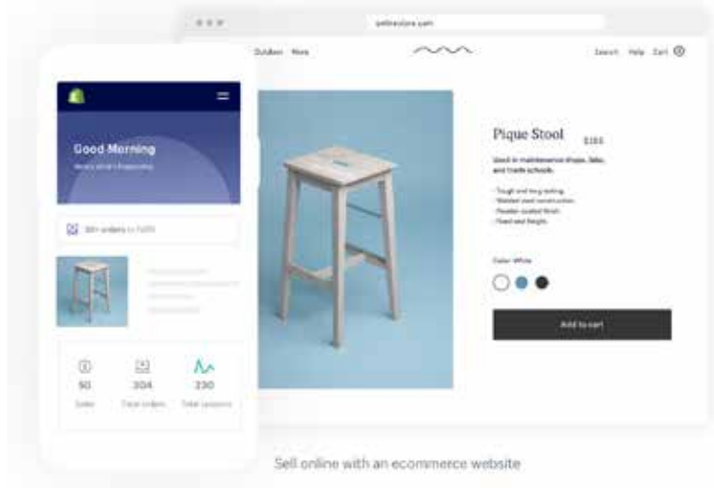
Despite multiple requests from venture capitalists for Shopify to relocate to Silicon Valley, there’s never been any doubt in Tobi’s mind that Ottawa is the right spot to build a world-beating software company. The city’s highly educated workforce and history of tech innovation makes it a natural home for the company’s headquarters. Shopify is proudly Canadian, and has built







Sell in-person with Point of Sale



Sell online with an ecommerce website

the country's multicultural values into its own company culture by hiring a diverse range of tech talent from Canada and all over the world, and enabling entrepreneurs of all types and sizes in more than 175 countries.

Shopify has built multiple world-class products ranging from Shopify Capital, which provides funding to businesses just getting started, to the Shopify Fulfillment Network that offers business owners fulfillment solutions that used to only be available to the largest companies in the world.

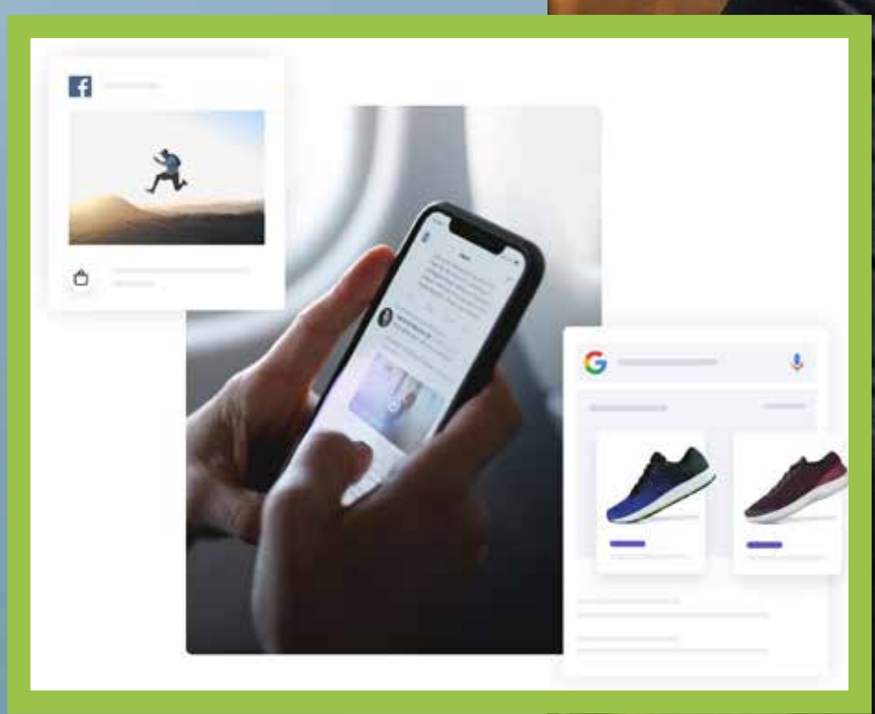
Shopify has invested so much into its home country that in 2018, the company contributed 9% of Canada's total research and development (R&D) spending.

This is more than a Canadian success story, however. Since the early days, Shopify's team has grown to more than 4,000 employees internationally, and the company's global reputation has earned high-profile merchants. But even though Shopify has stretched up-market with its enterprise product Shopify Plus, the company has never lost sight of its goal: to allow small, independent business owners the opportunity to compete with giants.

Shopify is driven by its mission to make commerce better for everyone, and that means providing tools and resources that level the playing field so anyone can start and grow their business. When faced with two choices, Shopify takes the path that leads to more entrepreneurs, to enable more voices rather than fewer.

Today, one million businesses use Shopify to sell online, in retail stores, and at pop-up events.

Simply put, Shopify makes enterprise-level technology available to businesses of all sizes, whether they want to grow big or stay small. And there's no better place to build that company than in Canada's capital city.



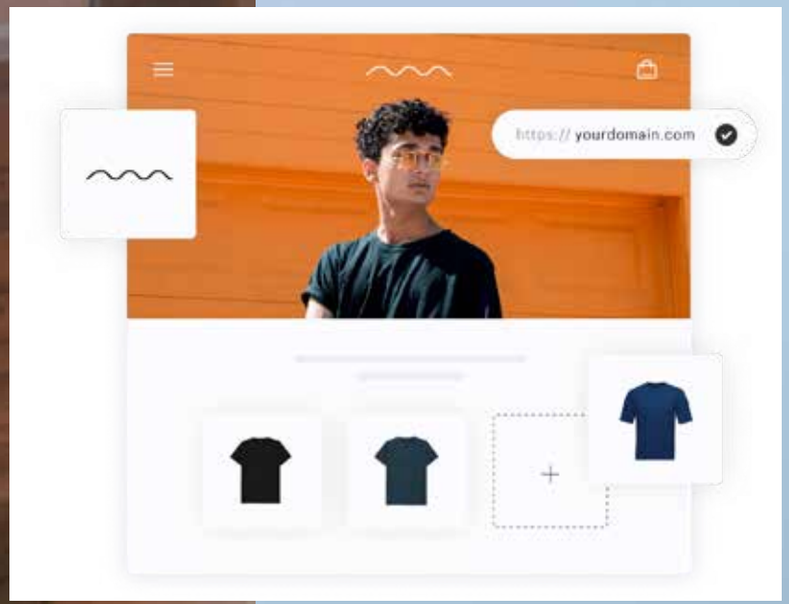
shopify







shopify





Shopify is a leading global commerce company, providing trusted tools to start, grow, market, and manage a retail business of any size.

Shopify makes commerce better for everyone with a platform and services that are engineered for reliability, while delivering a better shopping experience for consumers everywhere. Headquartered in Ottawa, Canada, Shopify powers over one million businesses in more than 175 countries and is trusted by brands such as Allbirds, Gymshark, PepsiCo, Staples, and many more.

shopify

shopify.ca



CHAPTER FIVE

EDUCATIONAL INSTITUTIONS


Carleton
UNIVERSITY
Canada's Capital University

CARLETON UNIVERSITY

Carleton University is a community of 40,000 people committed to creating a better world through education and research.

We are always looking for partners who share our values and complement our skills to tackle real-world problems in new, innovative ways. Carleton University has completed construction of the Advanced Research and Innovation in Smart Environments (ARISE) building (right) that serves as a new home for applied research in clean technology, health technology and information and communication technology. ARISE is a living laboratory that will host industry partners and collaborators, and allow students to become entrepreneurs through early-stage commercialization development and facilitating interactions with partners of all sizes.



Carleton UNIVERSITY

Canada's Capital University



The Urbandale Centre for Home Energy Research. (Photo by Ashley Fraser)

Climate change, inequalities, an aging population—it's no secret that the challenges we're facing are stark. Researchers at Carleton are rising to meet them with solutions that are innovative, inclusive, collaborative, connected, and sustainable.

The $1.5 million Urbandale Centre for Home Energy Research hosted on Carleton's campus was funded by the Canada Foundation for Innovation, the Ontario Research Fund, and various industry partners including homebuilder Urbandale Corporation. Opened in 2017, the world-class research facility is a long-term test bed for innovative concepts that challenge the traditional way houses are designed and built, with a goal to reduce energy use and greenhouse gas emissions in the Canadian residential sector.

Recognized by the Web of Science Group as one of the world's most highly cited researchers, School of Information Technology Professor Dr. Richard Yu believes that emerging technologies like autonomous vehicles will generate too much data for even the fastest networks. To achieve full autonomy, vehicles will need to share what their onboard neural networks have learned about their local environment.



Sonia Chiasson explores solutions to online safety issues for children and youth. (Photo by Dwayne Brown)

Carleton is a hub for cybersecurity, with deep roots in the field. While working with Entrust in the 1990s, Dr. Paul Van Oorschot contributed to one of the world's first generic public key infrastructure (PKI), a type of asymmetric cryptography that is critical to the security of cellphones and e-commerce. Today, Carleton researchers like Sonia Chiasson, Canada Research Chair in User-centric Cybersecurity, are tackling emerging challenges such as developing secure authentication for youth, securing critical infrastructure and improving e-Health systems.



Richard Yu, Professor in the School of Information Technology, is one of the world's most highly cited researchers. (Photo by Luther Caverly)



Professor Stephan Gruber is the lead researcher on the new NSERC Strategic Network PermafrostNet partnership. He is also Carleton's Canada Research Chair in Climate Change Impacts/Adaptation in Northern Canada. (Photo by Luther Caverly)

5G networks are only beginning to take shape, but Dr. Richard Yu is already envisioning what the next 'next generation' of cellular networks could look like. 6G won't arrive until 2030, but Yu envisions these networks will enable us to share more than just data—6G will facilitate the transfer of artificial intelligence.

Yu's research is just one part of Carleton's autonomous vehicle research cluster. In-house expertise in emerging technologies like AI and sensor fusion led us to partner on the new L5 Autonomous Test Track, where researchers can deploy new technologies in an environment that's controlled and realistic.

Our researchers are working to improve sustainability—especially in energy-intensive cold weather environments. Dr. Stephan Gruber was the lead author of a chapter on high mountain areas in the Intergovernmental Panel on Climate Change's *Special Report on the Ocean and Cryosphere in a Changing Climate*, and he's leading PermafrostNet, one of two NSERC Strategic Networks funded in 2019, that brings together 12 universities and more than 40 partner organizations to monitor, predict and adapt to thawing permafrost.



Cynthia Cruickshank, an Associate Professor in the Department of Mechanical and Aerospace Engineering, received a multimillion-dollar project funded by Natural Resources Canada and the Province of Ontario to work on the energy efficiency of the buildings we live and work in. (Photo by Martin Lipman)





Every 15 seconds, a child somewhere in the world dies from a preventable waterborne disease. Globally, 1.1 billion people lack access to clean drinking water. In Canada, rural and remote communities, especially in the North, frequently lack clean water and adequate wastewater treatment. Professor Banu Örmeci, who serves as the Jarislowsky Foundation Chair in Water and Global Health, leads an innovative and internationally recognized research program on wastewater and biosolids treatment at Carleton. (Photo by Luther Caverly)

We're also reducing our own carbon footprint. In 2019, Carleton's work to make itself more sustainable garnered it a campus sustainability ranking of 2nd in Canada and 35th in the world, as announced by UI GreenMetric. Over the past decade, we've reduced our carbon emissions intensity by 35%, and we're working to further reduce our emissions.

Cynthia Cruickshank is taking a more analog approach. The Professor of Mechanical and Aerospace Engineering has been awarded a $5.1 million grant to develop better building envelope technologies. She'll be developing experimental materials—windows, doors and insulation that keep the elements out—and training students at the Carleton University Centre for Advanced Building Research, a purpose-built energy efficiency lab.



The launch of the Canadian Accessibility Network at Carleton University has sparked a number of national conversations. Carleton is nationally recognized as being at the forefront of accessibility research, design and policy. (Photo by Mike Pinder)

> *Researchers in our Department of Civil and Environmental Engineering are also mining data to identify inefficiencies in how campus buildings are heated and cooled.*

> *Inclusivity is a key element of our vision. Carleton is working to ensure women are included in non-traditional fields like defence and security studies, and we are a leader in providing accessibility services to our students.*

When the Accessibility Canada Act was passed in 2019, we saw an opportunity to take a leadership role on a national level. The Canadian Accessibility Network brings together experts from academia, NGOs, and government to facilitate collaboration on areas of core importance. We want to ensure that all of our students have the opportunity to succeed, and believe that when students are given the opportunity to make the most of their abilities, we all win.

Carleton isn't only about advanced research. By partnering with innovative companies on co-op and internship programs, we're training the tech workforce of tomorrow. Our students can gain experience at local tech leaders like QNX and Shopify, and we've partnered with universities throughout eastern Ontario and western Quebec to foster expertise in drones through the Uninhabited Aircraft Systems Training, Innovation, and Leadership Initiative, which offers graduate students work experience and course credit through placements with drone companies across Canada.



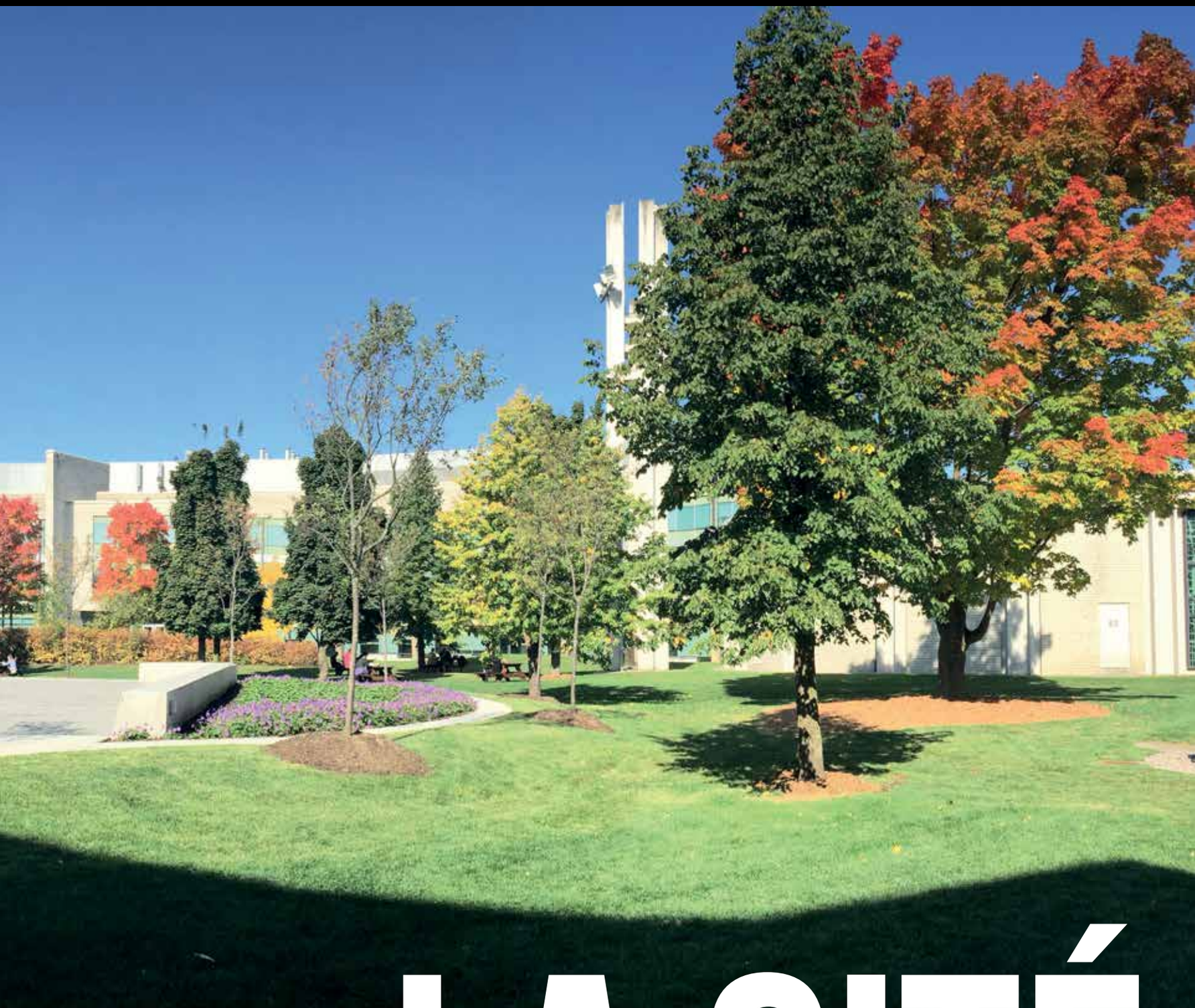
(L to R) Faculty of Engineering and Design professors Liam O'Brien, Steven Fai and Gabriel Wainer are designing systems to optimize building energy usage. (Photo by Luther Caverly)



The Sensor-based Unified Simulation Techniques for Advanced In-Building Networks (SUSTAIN) project is optimising building energy use. A multidisciplinary collaboration between systems engineers and designers, SUSTAIN uses 3D laser scanning technology, generative design and computer modelling to identify inefficiencies—and generate design options that could improve them. It's starting out on campus, but these techniques could improve the management of large buildings anywhere.

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carleton.ca





LA CITÉ



Déjà solidement établie comme chef de file en matière d'innovation dans la région d'Ottawa, La Cité, le plus grand collège francophone d'arts appliqués et de technologie en Ontario, a atteint de nouveaux sommets en septembre 2018 avec l'inauguration d'un véritable joyau au cœur de son campus principal : le pavillon Excentricité.

Construit au coût de 30 millions de dollars, l'Excentricité est une merveille technologique de plus de 34 000 pieds carrés. En son centre se trouve « Le Studio », un espace de 4 000 pieds carrés disposant de technologies permettant de faire vivre aux visiteurs des expériences multimédias totalement immersives grâce à son impressionnante capacité de projection 360 degrés sur 252 pieds linéaires et son système audio d&b Soundscape. Pouvant accueillir jusqu'à 1 200 personnes, la salle est dotée de murs et de gradins rétractables à configurations variables qui permettent d'organiser galas, concerts, conférences, classes de maître et événements corporatifs, en plus d'offrir des possibilités d'activités éducatives hors du commun.

L'Excentricité est né de la vision de Lise Bourgeois, présidente-directrice générale du Collège, qui souhaitait créer un espace unique d'apprentissage, de collaboration et de co-création multidisciplinaire unissant étudiants, professeurs, entrepreneurs et autres acteurs de la communauté pour cultiver l'innovation, composante clé de l'ADN de La Cité.







La Cité incarne et fait vivre cette culture d'organisation innovante de multiples façons. Le Collège a notamment créé un Fonds d'innovation pour soutenir des projets avant-gardistes proposés par son personnel qui améliorent la qualité des programmes d'études et des services. Ce Fonds a permis à La Cité d'appuyer trois projets qui exploitent le potentiel technologique de l'Excentricité :

PROMENADE ARCHITECTURALE

Promenade architecturale propulse le design dans l'ère de la réalité virtuelle 360 degrés. Les utilisateurs peuvent non seulement visualiser un espace, mais s'y déplacer librement et interagir avec lui grâce au moteur de jeu vidéo Unreal Engine. Ils ont la possibilité, par exemple, de visiter virtuellement toutes les pièces d'un futur condo et d'aménager celles-ci à leur guise.

LABYRINTHE D'ÉVASION

Le projet *Labyrinthe d'évasion* met à profit les technologies immersives de l'Excentricité pour créer un jeu d'évasion nouvelle génération. Cette expérience d'apprentissage exceptionnelle permet d'approfondir les connaissances académiques, sociales et professionnelles en intégrant des notions théoriques et pratiques à un jeu coopératif, amusant et créatif.

IMAGINARIUM

Enfin, *Imaginarium* est une tour interactive mobile servant d'interface physique entre les utilisateurs et la technologie multimédia de l'Excentricité. Grâce à divers capteurs et autres dispositifs, les utilisateurs pourront diffuser et contrôler des contenus audio-visuels sur les écrans 360 degrés de la salle.

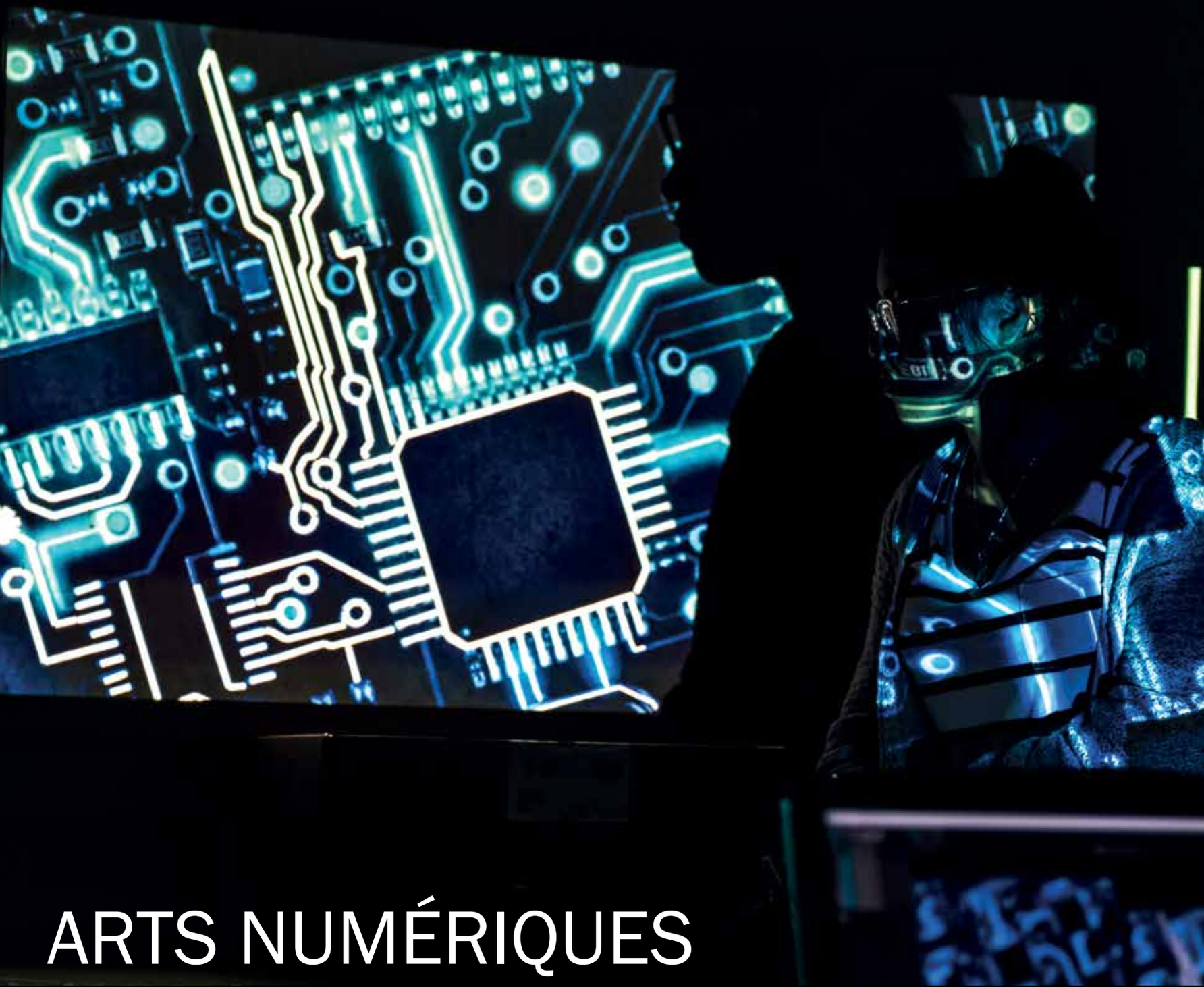
13 PROJECTEURS LASER
LASER PROJECTORS

PROJECTION IMMERSIVE **360°** IMMERSIVE PROJECTION

32 HAUT-PARLEURS
SPEAKERS

POUR EXPÉRIENCE SONORE IMMERSIVE
FOR IMMERSIVE SOUND EXPERIENCE





ARTS NUMÉRIQUES

EXPLORER LA CRÉATIVITÉ

Le programme d'Arts numériques de La Cité, lancé à l'automne 2018, propose un parcours riche en expériences créatives et interdisciplinaires, s'appuyant sur des innovations en matière de technologies audiovisuelles et médiatiques pour immerger les étudiants dans un environnement numérique hautement créatif.

Le programme s'offre sur quatre trimestres et propose trois pôles de création numérique: les projections vidéos et interactives, les réalités augmentée et virtuelle, et les installations physiques et numériques. Ce croisement de disciplines facilite les apprentissages expérientiels et favorise une démarche créative organique.

Non traditionnels, les canevas consistent notamment en des façades de bâtiments, des installations urbaines et l'environnement naturel. L'accès au pavillon Excentricité permet la création de contenus visuels et sonores génératifs inédits. Technocentrique de par sa nature, ce programme mise également sur une analyse réflexive fondée sur les principes du *design thinking* et d'autres méthodologies avant-gardistes pour outiller les étudiants de sorte qu'ils développent des œuvres numériques originales.


CRÉDIT : PAUL ST-ONGE



An innovation leader in the Ottawa region, La Cité, the largest French college of applied arts and technology in Ontario, scaled new heights in September 2018 with the opening of the Excentricité pavilion, a technological marvel of more than 34,000 ft^2 built at a cost of $30 million.

Excentricité was born thanks to the vision of Lise Bourgeois, President and CEO of La Cité, who wished to create a unique multidisciplinary learning and co-creation facility. It includes Le Studio, an immersive space with a 360-degree projection capacity and a d&b Soundscape system. The room, with its retractable walls and bleachers, can accommodate up to 1,200 people.

La Cité brings innovation to life in many ways, including through the creation of an innovation fund to support cutting-edge projects to improve the quality of learning programs and services. This fund has allowed La Cité to support three projects that take full advantage of Excentricité's potential: the *Promenade architecturale* ("Architectural Walk") where users can visualize a space, move within it, and interact; the *Labyrinthe d'évasion* ("Escape Labyrinth") that uses the space's immersive technologies to create the latest iteration of an escape room; and finally, the *Imaginarium*, a mobile interactive tower that can be used as a physical interface between users and the pavilion's multimedia technology.

La Cité also launched, in the fall of 2018, its Digital Arts program which offers, over four semesters, a rich variety of creative experiences based on audiovisual and media technological innovations. Three creative clusters comprise the program: interactive and video projections; virtual and augmented realities; and physical and digital facilities. Learning is based on reflexive analysis grounded in innovative methodologies like design thinking. Accessing Excentricité makes it possible to create original audio and visual content.





LA CITÉ
LE COLLÈGE D'ARTS APPLIQUÉS ET DE TECHNOLOGIE





ALGONQUIN COLLEGE

PROVIDING THE BEST IN PERSONALIZED LEARNING

The name of Algonquin College's newest building is a testament to innovation. The DARE District – the acronym stands for discovery, applied research and entrepreneurship – is a state-of-the-art structure devoted to providing the best in experiential, personalized learning.

The $45-million structure, which opened in mid-2018, is a multidisciplinary space where students, employees, industry, and the community can engage in a wide range of applied research and entrepreneurial activities.

As a catalyst for cutting-edge learning, the DARE District avoids the traditional classroom. Instead, it provides open spaces – from a new wired library and learning centre and communal kitchens, to numerous labs and research centres with the latest tools and technology. Available to all aspiring discoverers, the spaces are intended to spark creative collisions, conversations, and community encounters that will prompt innovative and marketable products.

Algonquin's commitment to Indigenous education and the celebration of Indigenous identity is also evident throughout the building. In response to the Truth and Reconciliation Commission's Calls to Action, the College made sure that numerous Indigenous elements were incorporated in the structure and design of the DARE District. This includes an Indigenous Commons known as Nawapon, an outdoor courtyard named Ishkodewan, and a space for Indigenous entrepreneurship called Pìdàban – all Algonquin words that translate respectively as "gathering strength for the journey," "there is fire," and "past, present, and future."

Algonquin College President Claude Brulé describes the three-storey structure as a "re-imagined building" that increases "the representation of Indigenous culture, teachings, and values through the design of its physical space."

Innovation efforts like this have been a hallmark of Algonquin College's history since its establishment in 1967. What began as a one-building campus on a farm field has become one of Ontario's premier polytechnics with about 20,000 full-time learners and nearly 40,000 part-time attendees spread across three campuses in Ottawa, Perth, and Pembroke. Full-time students enjoy access to nearly 200 programs, including apprenticeship, co-op, collaborative degrees, and bachelor's degree programs.

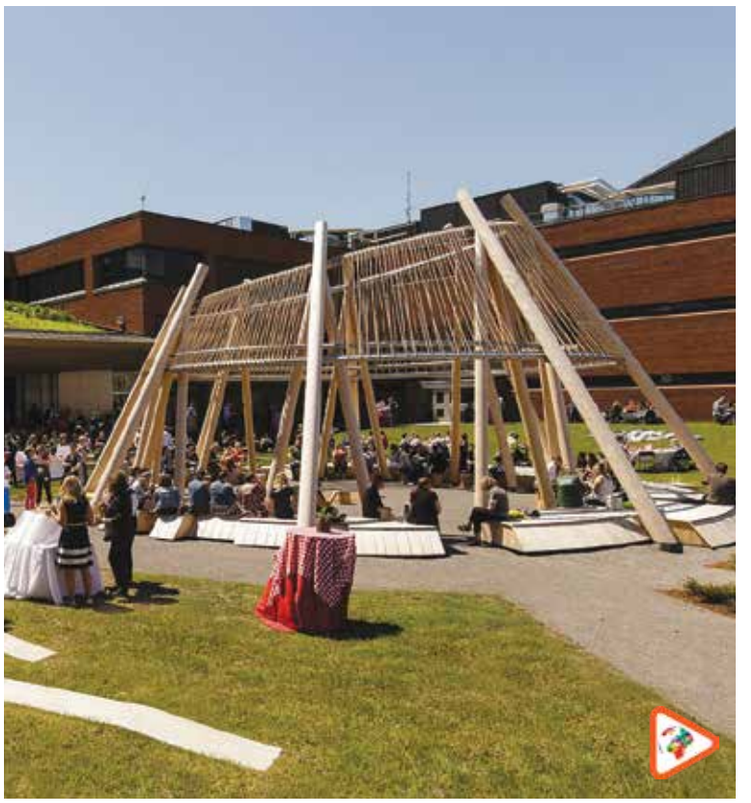
The Innovation Agenda

The DARE District, located on the Ottawa campus, reflects and extends this legacy, both as a statement of where the College has been but also where it is going.

The future is well demonstrated by the DARE District's Office of Applied Research, Innovation & Entrepreneurship (ARIE). With its various research centres, ARIE is devoted to everything from construction research and data analytics to environmental science, resource management, and social innovation. These centres generate innovative ideas, nurture start-up enterprises, and drive leading-edge education within the College and among the wider community:

- The Data Analytics Centre is the first of its kind in Canada. Drawing on students and faculty, the Centre offers companies collaborative expertise in everything from machine learning to applied data engineering.





- The Social Innovation Lab provides an opportunity for students to serve the public good. Students in design and engineering disciplines assist social-sector clients in using digital technology to address real-world problems.
- The MakerSpace is a hands-on technology hub open to all. It offers students, faculty, and external partners assisted access to 3D printers, virtual reality stations, laser engravers, and other technological devices to transform ideas into real things. This openness has fostered numerous college-community collaborations.

"A RE-IMAGINED BUILDING ... THAT INCREASES THE REPRESENTATION OF INDIGENEOUS CULTURE, TEACHINGS, AND VALUES THROUGH THE DESIGN OF ITS PHYSICAL SPACE."

— Claude Brulé, President and CEO, Algonquin College

- The Student Learning Centre on the second floor offers a one-stop shop for services, including 24/7 access to peer tutoring, digital literacy lab workshops for students and staff, an area where students can get help with writing, math, computers, and English-language learning, and a presentation studio with multimedia equipment that learners can use to practise and record course presentations.
- The first-floor Employee Learning Exchange provides a single space for employee learning, collaboration, and service. Rather than going from building to building on different issues, employees can get the help they need and take advantage of learning and development opportunities in one location.

Behind these DAREing innovations is a singular purpose. Algonquin College wants students to receive the hands-on, experientially-grounded education that will allow them, as the College motto says, "to transform hopes and dreams into lifelong success."

The Innovation "Classroom"

The DARE District also gives new meaning to the notion of "classroom." No longer do students sit in a room listening to lectures. Now they are active participants in their own education – personalized, hands-on, student-centred learning:

- The spacious third-floor Library offers seating to more than 500 learners, along with computers, laptops, and printing services. There are books of course – 35,000 of them – but a huge digital collection accounts for about 70 per cent of the total collection.

ALGONQUIN COLLEGE

Changing Lives

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algonquincollege.com



WILLIS COLLEGE

Established in 1866, is proudly Canadian and still one of Canada's best-kept secrets.

WILLIS COLLEGE
BUSINESS TECHNOLOGY HEALTHCARE



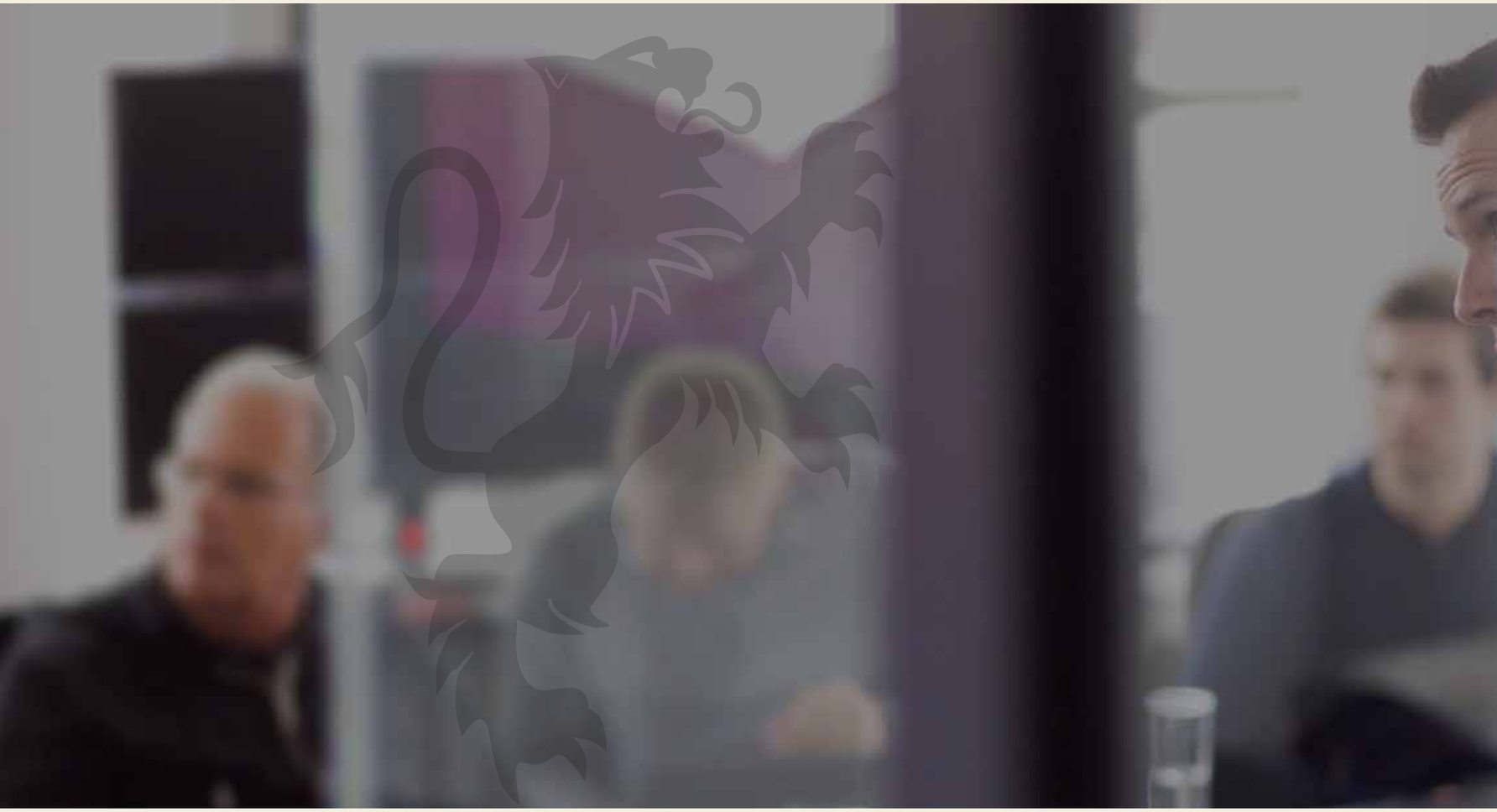
The word innovation often brings to mind previously unfathomable advancements in technology, but the true title of innovator goes to those who have stood the test of time. Willis College, now in its 154th year, is one such institution.

A shining example of the strength and agility of career colleges in Canada, Willis College has produced over 150,000 graduates, which is to say some of the top talent in industries like business, healthcare, and technology—industries in which some of the greatest strides in innovation are being made. As a private career college, Willis College is employment-oriented and student-centric, and its programs prepare learners for professions in rapidly changing fields. In order to do so, the College itself must focus on innovation.

An agile business model has enabled Willis College to adapt to suit emerging needs through the decades, taking the institution from one specializing in secretarial and business courses upon its opening in 1866, to what it is today: home to a cybersecurity academy that is the only multi-vendor academy with industry-led partners from the US, the UK, and Israel; a revolutionary force in developing women in STEM programs; and creator of the Cybersecurity Analyst diploma, the only such Canadian program recognized by the Canadian Armed Forces.



Graduates benefit from Willis College's long prestigious history and accomplishments as one of the preeminent career colleges in Ottawa and Canada.



"Because of our agility, Willis College has been able to establish dynamic relationships with industry leaders such as Microsoft, Fortinet from California, Sophos from the UK, Checkpoint from Israel, and with government organizations such as the Department of National Defence and the Canadian Armed Forces," says Rima Aristocrat, President of Willis College. "It's only through such collaborations that we can gather the knowledge necessary to effectively craft a unified framework."

These collaborations first led Willis College's leadership to analyze the state of cybersecurity training. Industry leaders were looking for curricula to upskill their employees—and the talent pipeline in general—and Willis College has risen to the task with its technology programs, which include Cybersecurity Analytics, Network Security, and Software Development (Mobile Applications).





Its programs in Business and Healthcare fulfill the equally pressing workforce needs of those industries, too. The College's curricula incorporate timely and useful skills, bolstering the diplomas' value. For example, students studying to become Administrative Assistants can focus on either human resources or in marketing. Within its Healthcare program, students can earn diplomas as Addiction & Community Services Workers, Personal Support Workers, or as Medical Office Administrators with a Ward Clerk Specialty.

Additionally, Willis College's micro-credential skills trainings—including facilitation skills, integration of technical skills into management, and leadership skills in cybersecurity—are sought after by many corporations.

Willis' swift answers to industry needs have always been a hallmark of the College. The '70s and '80s, for example, saw the opening of the Willis College Language School, a direct response to the Canadian Federal Government's need to fulfill its bilingualism requirements.

Willis College is as focused on the experience of its potential students as it is on talent pipelines for the business, healthcare, and technology industries. In 2004, President Rima Aristocrat established TeKnoWave, Canada's first national aboriginal IT training program.



The nonprofit, through its partnership with Willis College, oversees the delivery of IT, business, and sustainable-energy training programs to create an essential technical and managerial capacity within the First Nations, Inuit, and Metis populations. TeKnoWave creates employment and entrepreneurial opportunities that in turn help to achieve community social and economic goals.

Another local partnership exists with Petawawa Military Base, with whom Willis College established the Veteran Friendly Transition Program. It first offered a two-year pilot program for veterans training to become Cybersecurity Operators, and today, both Willis College's campuses—Ottawa and Arnprior—house VFTP training centers.

In 2018, the Department of National Defence funded Calian Technologies and the Veteran Friendly Transition program, under Willis College's leadership, to develop a study to better understand why only 10% of cyber professionals are women.



"We have to reach women and young girls to raise awareness among them that this is a field they can thrive in."
—Rima Aristocrat

Part of Willis College's commitment to doing so has been to establish a $24,000 Women in Technology scholarship, benefiting female students entering the Cybersecurity Analyst or the Mobile Software Developer programs. Another means is its latest public/private/industry partnership with the University of Ottawa and Mind Bridge, which supports women in STEMP programs through its micro-credentials training.

Willis College has evolved over 154 years by creating a culture of innovation. It is building both the pipelines and the talent needed to create a stronger innovation ecosystem and a stronger country.

"We want to give everyone an opportunity to be part of high-growth industries," says Rima Aristocrat. "When we do so, it creates diversity, and that in turn contributes to the innovation and vitality of our city. It creates an environment of collaboration and through that collaboration, innovation is the outcome."





Rima Aristocrat
President of Willis College

As an educator, entrepreneur, philanthropist, and keynote speaker, Rima has been bridging the skills gap between education and industry for over 40 years. She is the founder of the Canadian Association of Immigrant Professionals, TeKnoWave, Inc., the Veteran Friendly Transition Program, Willis College's Cybersecurity Academy, Willis Women in Technology, and a Soldier's Hero for Military Spouses Scholarships. The only Canadian on Microsoft's Education Advisory Council, Rima has also received numerous national and international recognitions for her contributions to post-secondary education, including the 2018–2019 Global Cyber Startup Observatory's Cyber Hall of Fame, 2020 Women Who Work Global Award and the 2020 Women in Cybersecurity Global Award.



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Ottawa, ON K1K 3B8, Canada
williscollege.com



HERZING COLLEGE OTTAWA: EMPOWERING STUDENTS SINCE 1970

Herzing College is about much more than career training. Dr. Henry Herzing and his wife Suzanne founded the school back in 1965 with a very clear mission: to help hard-working people transform their lives through education, self-empowerment, and better job opportunities.

More than 55 years, 5 campuses, and thousands of successful graduates later, that mission is still going strong.

Over 9,000

Herzing graduates since 1970

Above 90%

Graduate employment rates for the past 7 years

93% Satisfaction Rate

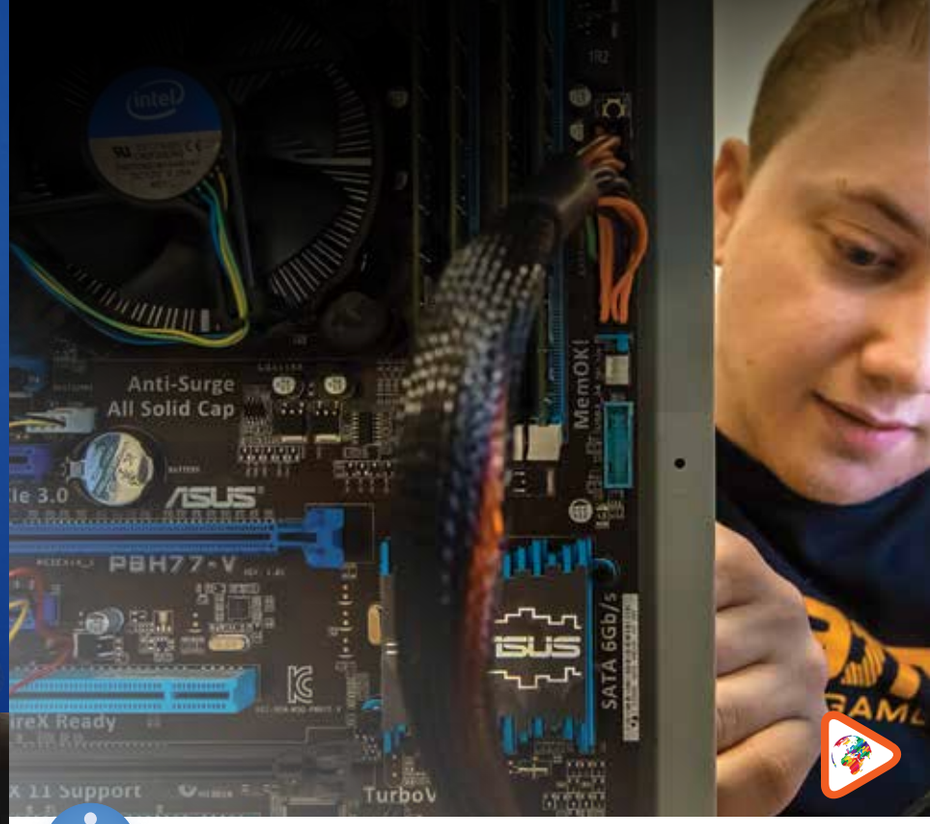
Percentage of surveyed students who said they would recommend Herzing College to a friend or family member

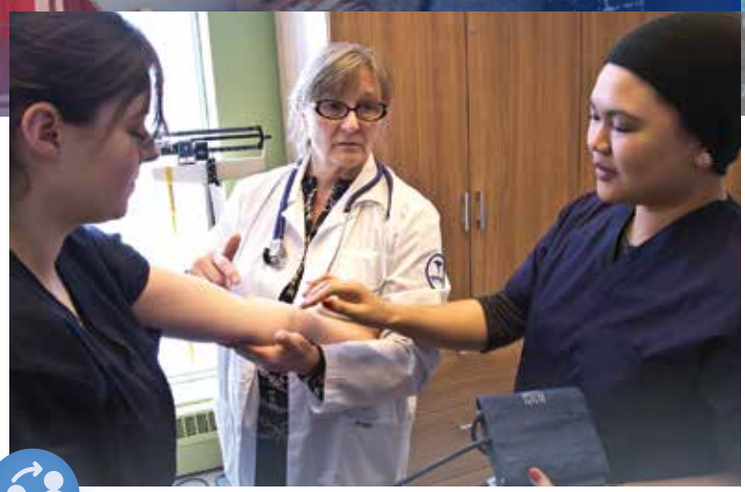
QUALITY PROGRAMS, PROVEN RESULTS, BIG STUDENT BENEFITS

Herzing College Ottawa was one of the first campuses opened in Canada back in 1970. Since then, we have earned a reputation for quality diploma programs, expert instructors, and a uniquely caring atmosphere.

- Choose from 12 diploma programs in 5 different areas of study: Healthcare, Business, Legal, Design, and Technology.
- Online professional development certificates in Mediation, Arbitration, Human Resources, Emergency Management, Mental Health, Gerontology, and Digital Marketing.
- Quick, effective training based on the skills Ottawa employers want.
- Internships that provide real-world experience and fully prepare you for your first job.
- Flexible class schedules for busy, working students.
- Every Herzing student gets tuition "credits" they can use to take additional courses after graduation, tuition-free! We call it the Herzing Open Education Program (HOEP). Build new skills without spending more money.







MAKE IT HAPPEN WITH HERZING!

Herzing College Ottawa is more than just a school. We are a community. We are committed to improving people's lives, both on and off campus. We welcome you to join us, and begin your journey toward a fulfilling career, a stronger sense of purpose, and a more secure future.

Stop by the Herzing College campus to speak with an Admissions Advisor. Or, visit **herzing.ca** to browse programs and chat with us online.

Find your career path and achieve your goals.
Make it happen with Herzing!

OUR CONNECTION TO OTTAWA RUNS DEEP

Herzing College is deeply rooted in the Ottawa community. We have partnerships with numerous businesses and participate in several charitable organizations.

Herzing College is the title sponsor of the *It Shouldn't Hurt to Be a Child* annual hockey tournament, an Ottawa tradition for over 30 years. The event has raised over $300,000 for *Victims of Violence Canadian Centre for Missing Children*, and *Make-A-Wish Eastern Ontario*.

Our students also hold regular fund-raising events for:

- Youville Center, which supports teen mothers and their children
- Heart and Stroke Foundation
- Carefor Health and Community Services
- Children's Hospital of Eastern Ontario
- Canadian Cancer Society

HERZING COLLEGE

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CHAPTER SIX

ACCELERATORS, INCUBATORS & MENTORS


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MEET L-SPARK

The L-SPARK Accelerator is the destination for market-ready SaaS and cloud companies to connect with Canada's SaaS experts.



The L-SPARK acceleration model positions companies to propel their revenues to $100k MRR and beyond. Leveraging established relationships with key venture capital firms, angel investors, and the investment community at large, L-SPARK's goal is to scale Canada's best in SaaS to 10x revenue growth and Series A funding.

L-SPARK also drives innovation with its two corporate accelerator programs. In partnership with BlackBerry QNX, L-SPARK works with startups focused on vehicle connected services and cloud connectivity to the vehicle and with TELUS, BlackBerry, and Solace, L-SPARK works on secure IoT solutions. Through these initiatives, L-SPARK pairs multinational organizations with startups to create fruitful collaborations.

To date, L-SPARK has accelerated 51 companies with over 50% of those companies raising follow-on funding, totaling over $45 million. The companies are headquartered across Canada and exist in verticals such as SaaS, AV, IoT, cybersecurity and more.

L-SPARK is also the co-founder of SAAS NORTH, Canada's go-to SaaS conference for founders, executives, service providers, investors and their teams; facilitating networking, knowledge-sharing, and access to resources to scale-up.

L-SPARK

L-SPARK'S ROOTS

L-SPARK was co-founded by Leo Lax and Patrick White.

Leo brings valuable experience as a practiced veteran of both the corporate and entrepreneurial sides of the telecom sector. Before L-SPARK, Leo was the CEO and co-founder of Skypoint Capital, a venture capital firm specializing in telecom.

Patrick is a seasoned executive in the high-tech sector with significant experience in startups, entrepreneurship, and business development. Patrick comes from a long history with Wesley Clover International, acting as the point man on several projects aimed at enhancing research and innovation in the Ottawa region.

Leo and Patrick have since been joined by Marco Janeczek, Mike Laginski, Elza Sereglyi, Erin Blaskie and Stef Reid, as well as a talented network of mentors and advisors.



▲ *Leo, Erin and Patrick being presented with two awards from the city for efforts during the tornado that devastated the Ottawa region. L-SPARK opened its doors for free co-working and coordinated a food drive for the Kanata Food Cupboard.*





▲ *Each year, L-SPARK graduates its accelerator cohort at SaaS Showcase, a celebration of tech and startups. Pictured here are the 2019 event founders, the L-SPARK team, and guest speaker, Mark MacLeod.*

◀ *Leo presenting the State of SaaS report at SAAS NORTH. This annual report highlights investments made into SaaS companies over the year and signals the industries that are receiving the most attention.*



▲ *The first BlackBerry/L-SPARK Accelerator program cohort at a demo day at Ottawa's L5 test track. During this event, BlackBerry committed to continuing the successful program and creating further opportunities for Canadian startups in the connected car space.*

Making a Difference

Beyond its acceleration activities, L-SPARK looks for ways to increase its overall support of the startup and tech ecosystem to fill gaps that may exist in current support structures. As a result, there are a few notable initiatives that have been created that the L-SPARK team is incredibly passionate about.

Canada's List of Female Founders & Funders

In an effort to shine a spotlight on an often-underrepresented group, L-SPARK created an open Google Doc spreadsheet to encourage the startup community to band together to build the largest database of Canada's female founders and funders. It started with only a few names and now has over 280 individuals on the list. The list is used by conference organizers, investors, and the community at large to identify and engage female founders and funders in Canada.

Mental Health and Entrepreneurship

Many founders suffer from burnout and depression as a result of taking on the stress of entrepreneurship. Being an entrepreneur can be lonely and isolating and in many cases, self-care falls to the bottom of the to-do list. L-SPARK created an event series called L-SPARK UNPLUGGED to encourage founders to connect outside of traditional networking settings to share stories of founder failure, overcoming obstacles, and the hard realities of running a company.



▲ *Guests, startup founders, mentors and the L-SPARK team at the 2018 Cottage Pitchfest event, in the Thousand Islands. Founders pitch to an invite-only guest list of investors.*



Supporting Technovation Girls via SaaS Showcase

Every year, our L-SPARK Accelerator culminates in a graduation event called SaaS Showcase. 500+ members of the tech and startup community gather to celebrate startups from our accelerator, as well as from Ottawa-based partner organizations, and to learn more about the technology being built in the city. Proceeds from this event support Technovation Girls, an organization that is inspiring girls and families to change the world using technology.

▲ *Leo Lax, Executive Managing Director; Erin Blaskie, Director of Marketing; Patrick White, Managing Director; and Elza Seregelyi, Director, at an L-SPARK Female Founders & Funders event.*

l-spark.com

BAYVIEW YARDS

Bayview Yards is the first entrepreneurial and innovation hub of its kind in Canada's Capital: Ottawa's one-stop business acceleration shop.

Since its launch in 2016, the facility's become an epicentre for job creation; walk through the hub, and you'll find the ultimate 'mashup' of technical, business, and market capabilities. It's the place where budding and flourishing firms—from startups to scales-ups—go to build, launch, grow, and thrive. Bayview Yards serves as a springboard for these ventures, helping them to reduce risk, accelerate growth, and spur commercial success and economic development in our community. Constructed in the 1940s, Bayview Yards once served as the public works building with critical operational and storage facilities for the City of Ottawa, housing machinery storage and repair shops, stables, and stock rooms. Today, it is a revitalized heritage building with edgy, industrial-style architecture.



COURS
BAYVIEW
YARDS

Future-focused in its design, it is home to an array of advanced tools and technologies, as well as community gardens, outdoor terraces, and other unique areas that foster creative and collaborative exchange.

Founded on this rich history, Bayview Yards is now catalyzing a new wave of entrepreneurship, investment, and urban renewal in the surrounding region. Serving as the basecamp for some of Ottawa's greatest homegrown technology talent, capabilities, and companies, the innovation centre is home to brilliant trailblazers, founders, and firms in emerging fields from Artificial Intelligence (AI) and machine learning to robotics, analytics, the Internet of Things (IoT), cybersecurity, connected and autonomous vehicles, and Augmented Reality and Virtual Reality (AR/VR).



The innovation hub is committed to clean and connected communities and a proud recipient of the Leadership in Energy and Environmental Design (LEED) Gold certification. This independent rating system promotes high-performance building standards, including sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. It also further inspires Ottawa entrepreneurs to build companies, products, and services that address these very same objectives.

What we do

Leveraging significant investment from all three levels of government and industry, Bayview Yards brings together many organizations that catalyze innovation, fuel entrepreneurship, and deliver services and support to firms. This list includes Invest Ottawa, anchor tenant and strategic partner, that delivers economic development programs and works closely with fellow academic, public, private, and nonprofit partners.

Harnessing the power of these partnerships, Bayview Yards assembles many ingredients for commercial success under one roof. These include incubation and meeting spaces, business programs, services and support, prototyping tools and technologies, market linkages, and access to investment. These offerings work together to accelerate business growth and success and stimulate new jobs and wealth creation in the Ottawa economy. It also helps to facilitate productive and impactful collaboration with Ottawa's outstanding post-secondary institutions with 120,000 students, the National Research Council, and many of the other 65 government labs across our region.

Bayview Yards welcomes hundreds of events annually, attracting more than 22,000 visitors from industry, academia and the investment community. These visitors include technology developers, government







COURS
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YARDS

representatives, media and global dignitaries. It is truly the place to host innovation, technology and business-focused activities. Bayview Yards is a thriving hub located only steps from a new Light Rail Transit station, next door to Ottawa's downtown core, surrounded by green spaces and overlooking the Ottawa River.

The Prototyping Lab

The Bayview Yards Prototyping Lab is a custom design, prototyping and manufacturing workshop. The lab's expert team supports clients through any or all phases of a project. Their resources and guidance enable the rapid and cost-effective transformation of a concept into a proof-of-concept prototype.

What we do

From an industrial designer and a multimedia expert to a welder, a sculptor and a robotics inventor, the Prototyping Lab team helps entrepreneurs, small-to-medium enterprises, R&D-intensive multinationals, and innovative public sector teams to

Design

Design, develop, manufacture, adapt and/or refine a new or existing innovation, concept, technology, product or process that serves as a sample, model, or release build. The result is meant for:

- Testing a concept or process
- Creating something replicable, interactable or informative

Build

Build a proof-of-concept prototype that can be piloted, validated and demonstrated to customers, investors and partners to increase market, customer and investor-confidence. The result is meant to:

- Acquire end-user feedback
- Validate a value proposition

Alida Burke
The Growcer Co-founder

Launch

Transform ideas into working prototypes with desired functionality. Leverage the latest digital media, design and commercial-grade manufacturing tools, technologies and processes.

- Optimize quality and performance
- Reduce R&D risk, cost and future hurdles

An Entrepreneur's Story: *The Growcer*

Co-founders Alida Burke and Corey Ellis saw first-hand how the high costs of fresh, healthy food were hurting Canadians in the North, so they decided to act by creating better, more efficient food system solutions. Today their agri-tech company, the Growcer, is a scaling social enterprise that builds hydroponic growing systems: repurposed shipping containers transformed into indoor farms that produce up to 12,000 pounds of product annually. These systems enable farmers, in all climates, to grow fresh produce all year round. When the Growcer's hydroponic growing systems had entered the fourth-to fifth-stage prototype, the startup turned to the Bayview Yards Prototyping Lab for help. They leveraged critical design and prototyping services to fabricate growth tray components, evolve supporting system elements and receive essential advice for their electronic environmental monitoring system. They were able to demo their product before going to market by working with the prototyping team. And when they were ready to tell their story, they relied on the lab's digital media gurus to do it. In the end, the Growcer was able to keep costs low, validate their solution and launch.

Capabilities in house and onsite are always expanding. Visit the Bayview Yards website, **bayviewyards.org** and explore the facility for yourself at 7 Bayview Station Rd., Ottawa On.

CAPITALIZING ON INNOVATION

Founded in 2012 by former Mitacs postdoctoral fellow Richard Beal, COFOVO Energy develops advanced solar panels and sensors for the global solar industry. The company recently launched Spectrafy Inc., a cost-effective solar and atmospheric measurement tool. A past Rhodes Scholar, Richard started the company when he realized that existing next-generation solar technologies would prove to be too expensive for widespread adoption.

"My Mitacs fellowship was foundational to the success of this company, because that is where the idea for the company was launched. And without Mitacs, I would not have had the time and resources to develop this technology."

Mitacs, a not-for-profit organization, fosters growth and innovation in Canada by solving business challenges with research solutions from the best academic institutions at home and around the world.

For more than 20 years, Mitacs has built an ecosystem of partners that helps businesses achieve breakthrough results, supports essential talent acquisition for growing companies, and prepares researchers for rewarding industry-focused careers.

Richard Beal



Mitacs

Not to mention Mitacs provides a blueprint for entrepreneurial-minded researchers to forge their own paths.

The dedicated business development team in Ottawa — and throughout Ontario and across Canada — has created thousands of partnerships by connecting researchers to address industry challenges. Talented graduate students and academic researchers from universities and postsecondary institutions work with companies and organizations of all sizes to advance research and development.

In a range of sectors and with large and small companies, Mitacs interns address a host of challenges, providing individualized solutions specific to the business client's needs. For example, some Mitacs interns work on clean tech solutions, as Richard Beal did at COFOVO Energy. Others in Ottawa are advancing security, investigating physical activity for children with heart disease, and creating a new program to divert mental health patients away from emergency rooms.

Another example of partner organization is the Canadian Ocean Literacy Consortium (COLC), which is sponsored by Ocean Wise, Stratos, Students on Ice Foundation, NIVA Inc., and Clean Foundation. Mitacs funding supports research partnerships between COLC and University of Ottawa, Dalhousie University, Trent University, and Simon Fraser University.

The consortium focuses on developing "ocean literacy" — a relatively new term — which refers to understanding the ocean's influence on people and people's influence on the ocean.

CAPITALISER SUR L'INNOVATION

Fondée en 2012 par Richard Beal, ancien chercheur postdoctoral de Mitacs, COFOVO Energy met au point des capteurs et des panneaux solaires perfectionnés pour l'industrie solaire mondiale. La société a récemment lancé Spectrafy inc., un instrument rentable de mesure atmosphérique et solaire. Ancien boursier de la Fondation Rhodes, Richard Beal a décidé de lancer son entreprise lorsqu'il a constaté que les technologies solaires de nouvelle génération alors disponibles sur le marché se révéleraient trop coûteuses pour être adoptées à grande échelle.

« Ma bourse postdoctorale Mitacs a joué un rôle fondamental dans la réussite de cette entreprise, car c'est elle qui m'a donné l'idée de la fonder. Sans Mitacs, je n'aurais pas eu le temps ni les ressources pour mettre au point cette technologie. »

Mitacs est un organisme sans but lucratif qui favorise la croissance et l'innovation au Canada en résolvant des défis d'entreprise grâce à des solutions de recherche issues des meilleurs établissements d'enseignement ici et dans le monde.

Depuis plus de 20 ans, Mitacs crée un écosystème de partenaires qui aide les entreprises à réaliser des percées inédites, soutient l'acquisition essentielle de talent pour des entreprises en croissance et prépare des chercheurs à des carrières enrichissantes axées sur le secteur privé.

Sans mentionner que Mitacs fournit un plan pour aider les chercheurs à l'esprit entrepreneurial à tracer leur voie.



Angelica Blais



L'équipe dédiée au développement des affaires basée à Ottawa, mais aussi dans tout l'Ontario et à travers le Canada, a créé des milliers de partenariats pour permettre à des chercheurs de relever de nombreux défis du secteur privé. De talentueux étudiants des cycles supérieurs et chercheurs postsecondaires d'universités et d'établissements d'enseignement travaillent avec des entreprises et des organismes de toutes tailles pour faire progresser la recherche et le développement.

Auprès d'entreprises de différentes envergures évoluant dans de nombreux secteurs, les stagiaires Mitacs abordent une foule de défis, fournissant des solutions individualisées pour les besoins de l'entreprise cliente. Par exemple, certains stagiaires Mitacs travaillent sur des solutions de technologie propre, comme Richard Beal l'a fait avec COFOVO Energy. D'autres à Ottawa perfectionnent la sécurité, étudient l'activité physique des enfants souffrant de cardiopathies ou encore mettent au point un nouveau programme visant à rediriger les patients qui présentent des troubles mentaux vers d'autres services afin de ne pas surcharger les urgences.

Commanditée par Ocean Wise, Stratos, Students on Ice Foundation, NIVA inc. et Clean Foundation, la Coalition canadienne de la connaissance de l'océan (CCCO) constitue un autre exemple

Dr. Lisa (Diz) Glithero, an adjunct professor at the University of Ottawa and current postdoctoral fellow at Dalhousie University, is spearheading a multi-year, pan-Canada Mitacs-funded project, intended to increase Canadian's ocean literacy. She oversees the consultation process that includes studies in five regions across Canada. Once the studies are completed, she will draft a national strategy and coordinate the implementation of the plan.

From ocean literacy to physical literacy for kids with a congenital heart defect (CHD), Mitacs interns apply research and deliver evidence-based solutions. University of Ottawa researcher Angelica Blais worked with Sportball to develop research-backed guidelines to modify physical activity programs for children with CHD to be more inclusive. Collaboratively, they developed changes to Sportball's existing programming as well as training for coaches on how to accommodate children with CHD and other developmental limitations.

Within the arena of health-based research, University of Ottawa interns Alexia Pollio and Jennifer Rae worked with the Ottawa Branch of the Canadian Mental Health Association (CMHA) to evaluate new innovative mental health services intended to divert individuals from overusing emergency rooms and having further hospitalizations for mental health problems. The Mitacs-funded research will help the organization develop more effective services.

"Right from the start, one of our fundamental beliefs was that we need evidence to ensure we're doing this right and that the program could evolve to become better," says CMHA Ottawa's Executive Director, Tim Simboli. "There are big, important, and challenging questions tied to this project."

Many times, Mitacs interns find careers due to their internships.

After two fruitful Mitacs internships, Rafael Falcon, a University of Ottawa Computer Science PhD graduate, was hired by Larus Technologies, an Ottawa-based software development company specializing in intelligence and surveillance systems to protect Canadian land, public safety, international borders, and public transportation systems.

As an employee of Larus, Rafael continued his research and development work on the company's flagship product, which uses real-time algorithms to monitor multiple data streams, filter out unnecessary information, and then fuse it into one picture.

With a focus at the crux of R&D, Mitacs proudly supports innovation in Ottawa and across Canada. The research helps businesses grow and creates jobs. Together, Mitacs and its ecosystem of researchers and industry partners work toward an innovative and prosperous future.









Mitacs by the numbers / Mitacs en chiffres

92% of companies recommend Mitacs internships
des entreprises recommandent les stages Mitacs

66% of projects have been/will be commercialized
des projets ont été ou seront commercialisés

31% of companies saw market segment expansion
des entreprises ont constaté un élargissement de leurs segments de marché



d'organisme partenaire. Les programmes de financement de Mitacs appuient des partenariats de recherche entre la CCCO et l'Université d'Ottawa, l'Université Dalhousie, l'Université Trent et l'Université Simon Fraser.

Le consortium se concentre sur le développement de la « connaissance de l'océan », un terme relativement nouveau qui fait référence à la compréhension de l'influence de l'océan sur nous, et de notre influence sur l'océan.

Professeure adjointe à l'Université d'Ottawa et actuellement chercheuse postdoctorale à l'Université Dalhousie, Lisa (Diz) Glithero pilote un projet pancanadien sur plusieurs années financé par Mitacs et destiné à améliorer l'accès aux connaissances de l'océan des Canadiens. Elle supervise le processus de consultation qui comprend des études menées dans cinq régions partout au pays. Lorsque ces études seront terminées, elle rédigera une stratégie nationale et coordonnera la mise en œuvre du plan.

De la connaissance de l'océan à la littératie physique pour les enfants atteints de cardiopathie congénitale, les stagiaires Mitacs mettent en application la recherche et élaborent des solutions concrètes. Chercheuse à l'Université d'Ottawa, Angelica Blais a collaboré avec Sportball pour élaborer des lignes directrices appuyées par la recherche en vue de rendre les programmes d'activité physique plus inclusifs pour les enfants atteints d'une cardiopathie congénitale. Ensemble, ils ont identifié des changements à apporter aux programmes existants de Sportball ainsi qu'à la formation des entraîneurs pour tenir compte des enfants souffrant de cardiopathie congénitale et d'autres troubles du développement.

Dans le domaine de la recherche médicale, Alexia Pollio et Jennifer Rae, stagiaires de l'Université d'Ottawa, se sont associées à la division d'Ottawa de l'Association canadienne pour la santé mentale (ACSM) afin d'évaluer de nouveaux services innovants en matière de santé mentale destinés à inciter les individus à éviter de surcharger les urgences et de se faire hospitaliser pour des problèmes de santé mentale. La recherche financée par Mitacs aidera l'organisme à développer des services plus efficaces.

« Dès le départ, nous avions la conviction fondamentale d'avoir besoin de preuves pour nous assurer de mener à bien cette initiative et que le programme pouvait évoluer », affirme Tim Simboli, directeur général de l'ACSM de la région d'Ottawa. « Il y a des questions très importantes et très difficiles liées à ce projet. »

Très souvent, les stagiaires Mitacs trouvent un emploi grâce à leurs stages.

Après deux stages Mitacs fructueux, Rafael Falcon, titulaire d'un doctorat en informatique de l'Université d'Ottawa, a été embauché par Larus Technologies. Basée à Ottawa, cette société de développement informatique est spécialisée dans les systèmes de renseignement et de surveillance visant à protéger le territoire canadien, la sécurité publique, les frontières internationales et les systèmes de transport public.

En tant qu'employé de Larus, Rafael a poursuivi son travail de recherche et de développement sur le produit phare de l'entreprise qui utilise des algorithmes en temps réel pour surveiller plusieurs flux de données, filtrer les informations inutiles, puis les fusionner dans une image.

En ciblant le cœur de la R-D, Mitacs soutient fièrement l'innovation à Ottawa et dans l'ensemble du Canada. La recherche contribue à la croissance des entreprises et à la création d'emplois. Ensemble, Mitacs et son écosystème de chercheurs et d'organismes partenaires bâtissent un avenir prospère et innovant.

www.mitacs.ca

tease tea

Founders Fund

The Founders Fund is Canada's first online accelerator that emphasizes not only investing in your own success as a founder but also paying it forward.







They support women-identifying entrepreneurs during every stage of their growth. Started by entrepreneurs for entrepreneurs, the Founders Fund believes they don't just need one company or one person to make a difference, they need thousands. With every membership, more than half of the fee contributes to a pool of non-repayable funding for members to apply for in the spring. The other half supports operational costs to bring programming like mentorship and workshops to life—for all members to access.

The Founders Funds began as a passion project led by Sheena Brady, the founder and CEO of Tease Tea Inc, and brought to life with help from fellow social entrepreneur Kim Kirton and investor Komal Minhas. Sheena founded Tease Tea in 2013 out of her condo in Toronto and grew it to where it is today; with a team, headquarters in Ottawa, and shipments going out to more than 30 countries—but her journey wasn't without its challenges, especially around finding the funding she needed to continue growing her business. Navigating barriers as a female entrepreneur is what sparked Sheena's personal desire to be a part of supporting other women entrepreneurs along their journey.

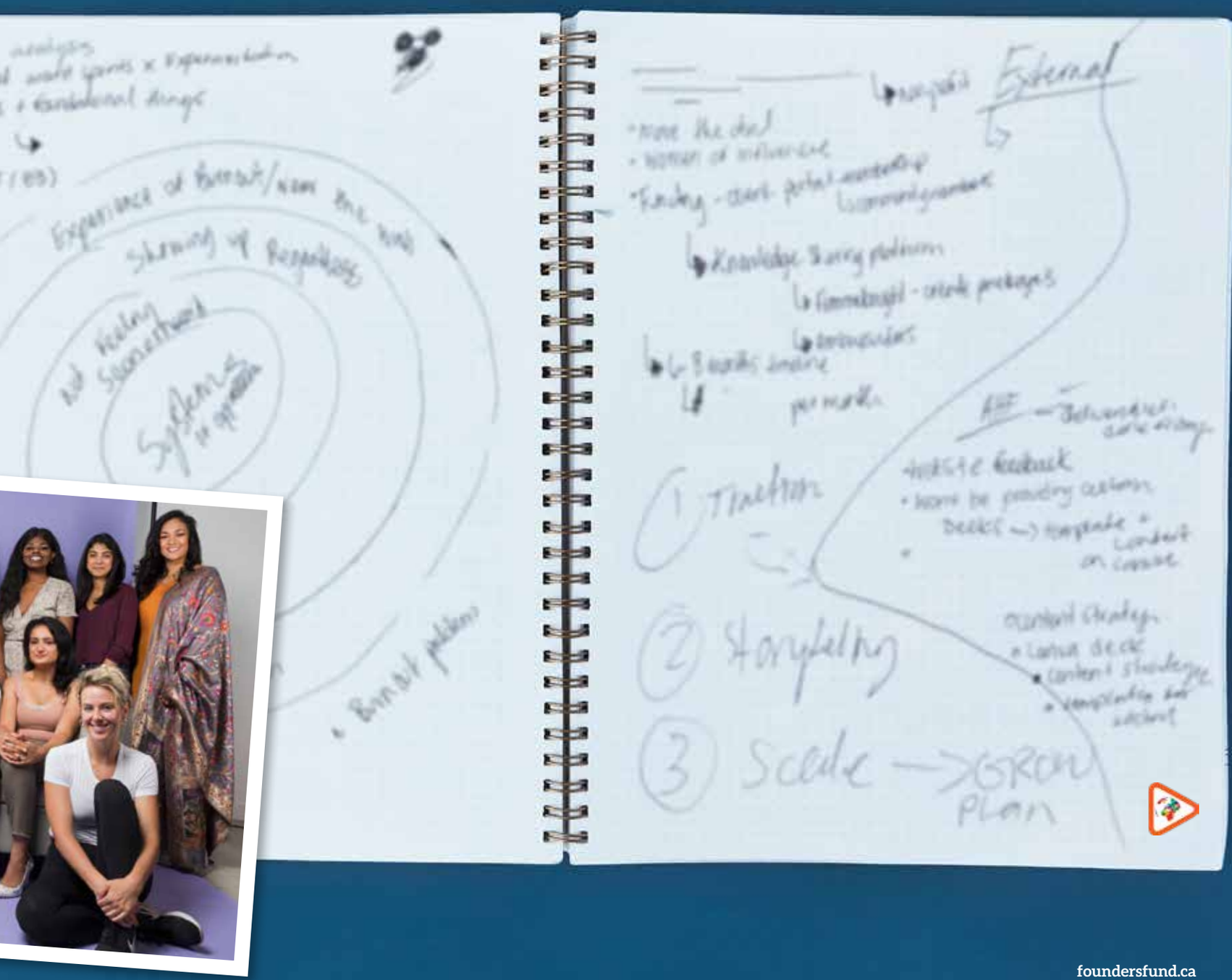
Founders Fund members receive exclusive access to the pool of non-repayable funding, access to discounted services for their business with their partners, mentorship office hours with their established mentors, a library of digital resources, access to in-real-life events across Canada, an online community space for support as well as a needs assessment with their core team and bi-monthly check-ins for feedback.

The Founders Fund is created for entrepreneurs, by entrepreneurs. As business owners, they know what it's like to be in the trenches and empathize with their members to serve them better. The Founders Fund's peer-mentor matching system with community members makes all members accountable and more likely to succeed.

They created The Founders Fund for women-identifying entrepreneurs, but understand that the challenges faced by founders within this community are not uniform—they are intersectional; shaped by factors like race, disability, sexual orientation, and other aspects of identity that intersect with gender. The Founders Fund promises to listen and learn, and to work to find ways to break down the unique barriers they face.

According to recent studies released by BDC, the amount of women leaders and business owners have quadrupled in the last 40 years, though today, only 16% of businesses are majority owned and led by women. While Canada has made great improvements; there is still plenty of work to do to improve gender balance and equality within the small business landscape.

Why is this work important? Studies show time and time again that businesses who prioritize gender balance and diversity amongst leadership and ownership are often more profitable, drive more revenue, and are of course, more innovative.



foundersfund.ca

TIE OTTAWA

On a mission to strengthen the Ottawa Entrepreneurship Ecosystem





TiE Ottawa is the most active sister chapter of TiE Global. Established in 1992, in Silicon Valley, The Indus Entrepreneurs (TiE), TiE Global is a nonprofit organization devoted to entrepreneurs in all industries, at all stages, from incubation, throughout the entrepreneurial life cycle. TiE was established by a group of successful entrepreneurs, corporate executives, and senior professionals, which provides TiE with a global reach and a local focus. The heart of TiE efforts lies in its five foundational programs: Mentoring, Networking, Education, Funding, and Incubation.

It connects the entire entrepreneurship ecosystem from early-stage entrepreneurs, serial entrepreneurs, professionals at leading corporations, venture capital, angel investors, and thought leaders among others. The organization emphasizes the spirit of giving in all aspects of their work.

There are currently 15,000 members (including over 3,000 charter members or mentors) in 61 chapters across 14 countries. TiE's mission is to foster entrepreneurship globally through mentoring, networking, and education. Dedicated to the virtuous cycle of wealth creation and giving back to the community, TiE's focus is on generating and nurturing our next generation of entrepreneurs.

Launched in November of 2002, and in keeping with the spirit and giving philosophy of the organization, the Ottawa chapter of TiE aims to establish a strong and interconnected entrepreneurial community, and create wealth through entrepreneurship. It is supported by a team of highly committed and passionate volunteers.

TiE Ottawa serves as an optimal training and networking forum Ottawa-based entrepreneurs. The chapter organizes and hosts more than 20 events for seasoned and aspiring industry leaders. These workshops, symposium and networking sessions help to facilitate entrepreneurial linkages, education, mentorship and global perspective. They also help to build a strong and integrated Ottawa business community.

In 2019, TiE Ottawa launched a new program for international students to help them prepare for the job market in Ottawa and introduce them to the entrepreneurial ecosystem. The program was delivered over five sessions covering the topics around personal career strategy, building confidence and how to gain relevant employable skills. The program was very well received and saw a huge participation. TiE Ottawa hopes to continue delivering the program.





TiE Ottawa hosts its annual flagship premium technology conference TiECon Canada for startups, entrepreneurs, SMEs, industry veterans, investors, and other members of the Canadian business community. Organized in partnership with Canadian sister chapters, TiECon Canada is the largest event of its kind in the region. It features daring entrepreneurs, industry leaders, technologists, and investors from the hottest sectors. TiECon Canada attracts over 500 participants, including hundreds of startups, speakers, and funding agencies, and dozens of investors, potential customers, and collaborators every year. In the last few years, TiECon Canada have been able to bring leaders like Tim Draper (Skype investor), Michael Katchen (CEO of Wealthsimple), and others.

TiE OTTAWA
FOSTERING ENTREPRENEURSHIP

hub.tie.org/c/tieottawa

FRESH FOUNDERS

Created for founders, by founders.





Fresh Founders.

Fresh Founders is an exclusive, invite-only, mastermind group of founders, CEOs and high-impact individuals who are out to change the world.

In 2007, as Facebook and other new internet businesses were beginning to take off - here in Ottawa, Canada - our own “Silicon North” was quickly taking shape.

A curious and passionate group of rookie entrepreneurs - including Tobias Lutke, Founder & CEO of Shopify - initially started an informal gathering of like-minded people who were interested in building new companies, powered by this emerging wave of technology.

Guided by cooperation and fueled by new ideas, they gathered in coffee shops and bars to exchange tactics, strategies, leadership lessons and more - all learned through their relentless work trying to build their companies and the city they call home.

Today, Fresh Founders continues to support local founders and their startups. With over 150+ active members, Fresh Founders is one of the driving forces of entrepreneurship in the Nation’s Capital.








www.freshfounders.com

JA OTTAWA Delivered by the Ottawa Network for Education

Turning today's students into tomorrow's leaders





JA Ottawa creates the next generation of community leaders: youth who are ready to act on their dreams and achieve their highest potential.

JA Ottawa recruits volunteers from the local business community to teach entrepreneurship, financial literacy, and work readiness skills in grade 5 to 12 classrooms. JA Ottawa gives students real-world tasks like goal setting, personal budgeting, and working with a team to start a small business.

In the past 7 years, JA Ottawa has inspired over 42,000 K-12 students in Ottawa to explore career pathways, make better financial decisions, and take on the world with an entrepreneurial mindset. Of these students, over 1,600 in high school have created 138 small businesses in the JA Company program.

We believe that every child should have the opportunity to thrive. In order to make our powerful programming available to all students regardless of background, JA Ottawa takes place in classrooms at no charge to students or educators. JA Ottawa is run by a dedicated team of staff at the Ottawa Network for Education, who manage programs and recruit and train hundreds of volunteers.



Membre de JA Canada
JA Ottawa
A Member of JA Canada

Delivered by / Réalisé par
OTTAWA NETWORK FOR EDUCATION
RÉSEAU D'OTTAWA POUR L'ÉDUCATION

JA Ottawa delivered by the Ottawa Network for Education
900 Morrison Drive, Suite 205 | Ottawa, ON, K2H 8K7 | Phone: (613) 366-3085



The Ottawa Network for Education (ONFE) must fundraise $350,000 each year to maintain JA Ottawa programming, and the demand to grow our programming is great.

Donating to JA Ottawa is an investment in Ottawa's growth

Entrepreneurship is a huge engine of economic growth for Canada. According to Statistics Canada, approximately 68% of net new jobs are created by Small and Medium Businesses. However, few opportunities exist for K-12 students to develop key skills and gain real-world experience in the areas of entrepreneurship, financial literacy, and work readiness skills. By fostering a culture of innovation and entrepreneurship in K-12, we are empowering young people to become job creators.

According to the Boston Consulting Group, JA Company graduates in Canada are 50% more likely to become entrepreneurs, and three times less likely to spend more than they earn or to be unemployed.

In 2016, ONFE and OCDSB won an IPN Global Best Gold Award for Partnership (North America) for their innovative and collaborative approach to helping local students apply business concepts to real-world tasks, work in a team to start a small business, and develop essential skills they will use in the future.

JA Ottawa is a member of JA Canada, which is known for its innovative approach to program development and delivery. In Canada, where small businesses represent 50% of our GDP and 70% of private sector job creation, JA is cultivating Ottawa's workforce of the future.









CHAPTER SEVEN

FUNDERS & INVESTORS



CAPITAL ANGEL NETWORK

The Capital Angel Network is a nonprofit, membership-based organization comprised of accredited investors seeking investment and mentorship opportunities in dynamic, early-stage companies.





We aim to increase members' returns and benefits with our support for collaborative due diligence, education, and screening processes. We are a key part of the early stage development of startups in the region.

Angel investors traditionally have experience investing as individuals or in small closed circles of friends and family. Beyond financial support, Angels often provide mentorship and help open doors for investee companies by leveraging their personal networks. One or two investee companies out of 10 may realize their potential—and what potential that can be!

As a network of individuals, The Capital Angel Network leverages our collective knowledge, contacts, and know-how to help these early-stage companies.

Founded in 2009, the Capital Angel Network (CAN) has been investing in startups in the National Capital Region for a decade. Since its inception, CAN Members have invested over $30 million into nearly 100 early-stage companies.

This funding has also leveraged over $200 million in additional investment through government grants, syndication with other angel groups, and venture capital funds. CAN is heavily invested in the region with 90% of the portfolio companies located in the Ottawa region. The portfolio has now seen eight exits that provided a positive return for investors.

CAPITAL ANGEL NETWORK

eSight CRYPTO4A welbi fusebill

GoFor höppier neurovine SPIDERWORT™



It all begins with CAN's bi-annual Mashup, which showcases the best of what our community has to offer.

From there, companies apply to pitch on a monthly basis, and once screened, they are presented to the membership for investment—a process that ensures only high-quality investment opportunities with strong potential for returns reach members for consideration. CAN actively engages with the Ottawa startup ecosystem by integrating directly with local incubators and accelerators. Given the background of CAN's 50+ members, our portfolio primarily consists of the following verticals:

- B2B/Enterprise SaaS
- Artificial Intelligence
- Internet of Things
- Cybersecurity
- Health and Wellness Technology

However, as a new generation of more diverse investors join the network the diversity of companies invested in a diverse portfolio of companies ranging from a food-waste recycler to a spectrum analyzer to an RV-Sharing marketplace.



BROKRETE · CYBERNETIQ · noibu · SMART CONE TECHNOLOGIES, INC IoT DELIVERED · Foko Retail · RAVEN · reDock

capitalangels.ca

POSITIVE VENTURE GROUP

Positive Venture Group offers full enterprise-class outsourced finance for growth-stage and scaling businesses.



Positive Venture Group's services give founders more time to focus on building their business by providing them with the support they need to reach their full potential. Positive's vision is to help their clients bring their ideas to the world.

Most growth-stage companies begin with an idea that has the potential to impact their industry in a meaningful way. 95% of these companies fail because they don't have the experience or the support to navigate common business challenges. Access to capital, inexperience in finance and regulatory matters and distractions can prevent business from executing their vision. Larger companies manage these challenges by leveraging their finance function, but most growth-stage businesses are unable to afford this.

The founders of Positive Venture Group, Jason Burke and Jeff Stoss recognized a need for outsourced finance services that cover every role within a complete finance department. They partnered with knowledgeable advisors, hired experienced finance staff and built a technology stack fit for large-scale businesses. With their technology partnerships, they bring an enterprise-class finance department to growth-stage companies for a fraction of the cost.

Positive
Venture Group



Positive chose to partner with the Oracle | NetSuite based on their user experience, software features and completeness of vision. This top-ranking cloud Enterprise Resource Planning (ERP) system allows businesses to manage all fundamental back-office operations and processes from one secure, accessible network.

Positive Venture Group was named the 2019 Oracle | NetSuite Breakthrough BPO partner of the year. As an Oracle | NetSuite Solution Provider and Business Processes Outsource (BPO) partner, Positive's team of 50+ finance professionals have established effective strategies, processes and best practices for leveraging this ERP platform. Their proprietary finance processes have been developed from the collective knowledge of all their CFOs, bridging multiple industries. Positive aims to provide clients with the structure that best suits their business and personalized training sessions to ensure a smooth transition.

Building on their success with Oracle | NetSuite, Positive's Financial Planning and Analysis (FP&A) team selected Prophix as their Corporate Performance Management (CPM) platform of choice. They offer Prophix for FP&A in a similar BPO model. A key step in Positive's finance process is linking strategy to execution. In large enterprises, this is supported by FP&A, which most growth-stage companies are forced to live without. Positive's technology stack also includes ADP, Solium, Expensify and Pitchbook.

Since 2016, Positive Venture Group has helped raise over $400 million of funding for their clients from SEED to Series B. Their services include all functions you'd expect in a large enterprise finance department including accounts payable, accounts receivable, payroll, order management, accounting, controllership, financial planning and analysis, stock administration, funding services and fractional CFO services. Positive has served more than 100 growth-stage companies and continues to work with more than 70 clients today. Their outsourced finance model provides businesses with the people, processes and technology they need to grow at an accelerated rate.

positiveventuregroup.com

MISTRAL VENTURE PARTNERS

is one of the top seed-stage venture capital firms in Canada



The Ritual team

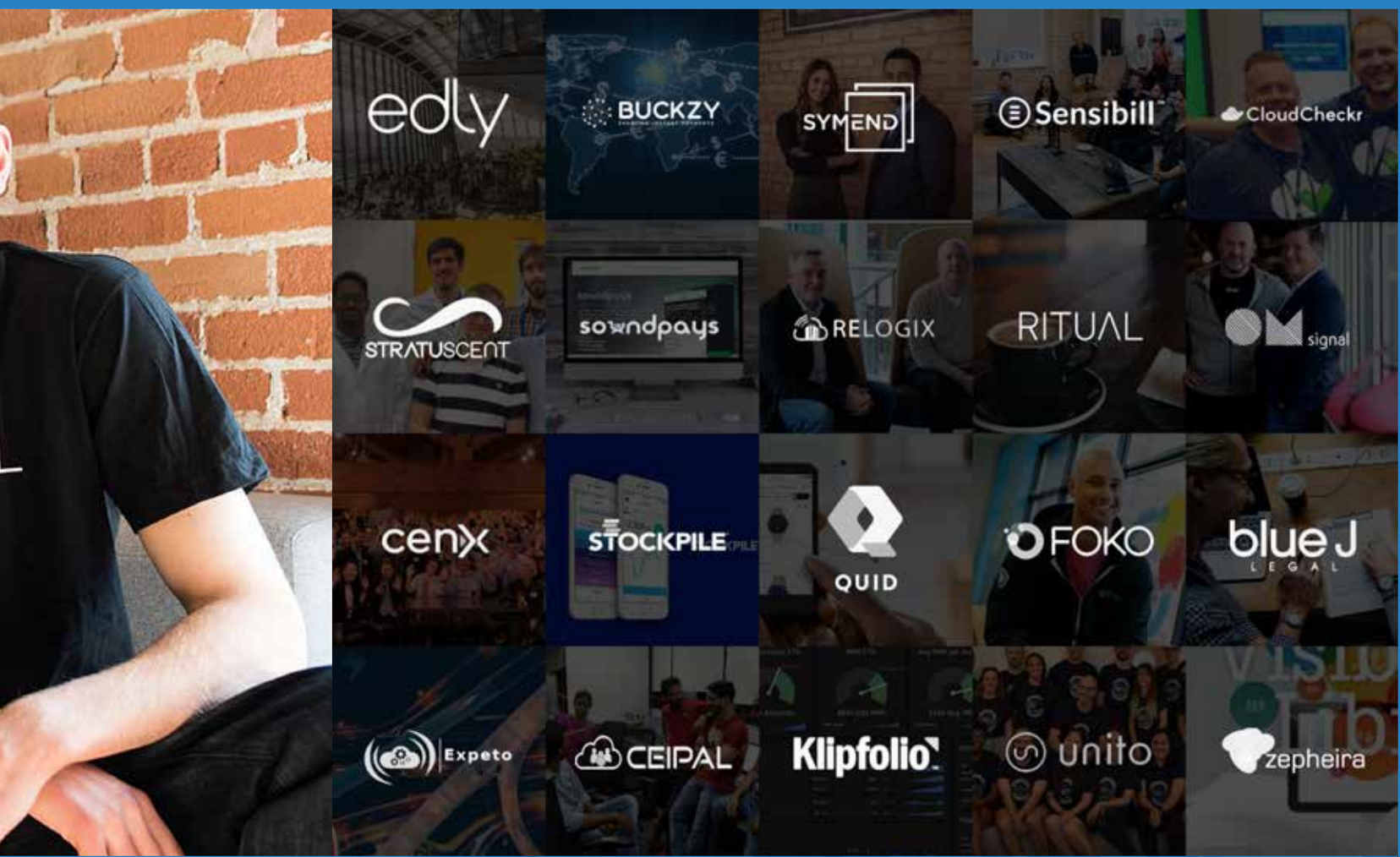
Headquartered in Ottawa, with offices in Montreal and California, Mistral focuses on seed and early stage investing across Canada with a particular focus on Ontario and Quebec.

Mistral was founded in 2012 and based on a thesis that exceptional Canadian innovators were struggling to find experienced early-stage capital providers, who were able to help with the earliest stages of company creation. Armed with decades of early-stage venture investing experience by a team of former entrepreneurs, Mistral set out to build a firm dedicated to serving the best technology startups in Canada.

After a first close in Fund I in early 2013, Mistral has gone on to raise $60 million across two funds and has invested in 27 companies to date (15 in Fund I and 12 in Fund II). Mistral invests primarily in Canadian technology companies, but also makes investments in US-based startups when our network provides preferred access. The funds currently have investments in Ottawa, Toronto, Montreal, Calgary, and Vancouver as well as New York, Ohio, and California.

Our team is led by four general partners, all of whom have also been founders of at least

> *Our belief is that the promise of the Internet from 20 years ago is the reality of today.*

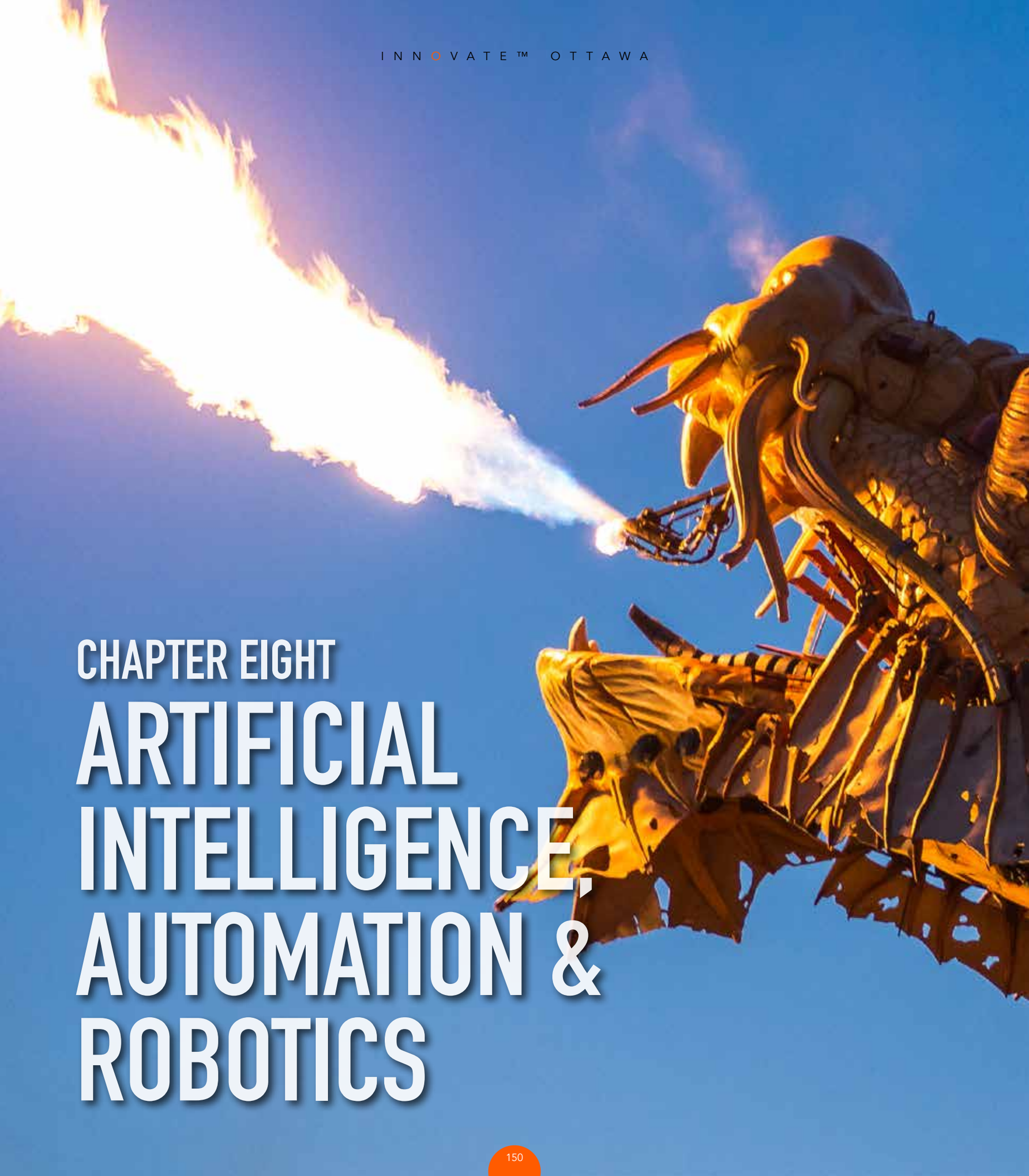


two companies and have an average of 20 years investing experience. The four founding partners were all trained by prominent US-based venture capital firms, bring many years of technology investing experience, and have exceptional track records. In addition, Mistral benefits from having 30 executive fellows—LPs who have previous experience as founders and/or operators and who devote time to helping our portfolio companies.

We are typically the first institutional investor in our companies. We generally lead our rounds but sometimes join another trusted firm in filling out a round. In either scenario, our goal is to help position our companies for the next stage of fundraising by helping them grow from early traction to predictable growth.

We invest in startups that solve critical business problems, regardless of the business model enterprise software, B2B SaaS, marketplaces, etc. We partner with founders who value experience, commitment, and the highest standards of integrity and respect. We look for clear value propositions that drive meaningful utility for end customers.

mistralvp.com



CHAPTER EIGHT

ARTIFICIAL INTELLIGENCE, AUTOMATION & ROBOTICS





MINDBRIDGE: RETURNING VALUE BACK TO SOCIETY USING AI

Over $4 Trillion is lost to the global economy each year due to mistakes or fraud in financial data.



MindBridge

MindBridge has spent the last four years delivering products to identify, track, and predict where these losses occur, whether it's in general ledger data or nation-wide payment systems. By helping auditors, CFOs, and other financial management professionals find risk within their data, MindBridge enables firms of any size to act sooner to minimize losses and accelerate their shift towards new data-driven services. Powered by an ensemble of AI, machine learning, statistical methods, and business rules, the MindBridge platform is purpose built for people to identify risk without the traditional need for specialized programming and data science skills.

Founded in 2016 by entrepreneur Solon Angel, MindBridge took a unique approach to AI solution delivery that identified the market opportunities, assembled a qualified leadership team, and built the democratization of AI directly into product releases. Starting with an extensive validation period of meeting with potential clients, users, and industry experts in the audit and assurance profession, the first MindBridge product was released in 2017. Led by CEO Eli Fathi, MindBridge continues to develop and deliver financial risk assessment solutions, growing to over 130 people worldwide and supporting over 330 clients in 13 countries.

The MindBridge AI platform was officially announced in 2019, kicked off with significant public-private funding that included Series B round financing and investment through the Department of Innovation, Science and Economic Development Canada's Strategic Innovation Fund. The leadership team has grown to include Robin Grosset, former Chief Architect for IBM Watson Analytics, Miyo Yamashita, former Managing Partner &

member of the Global Board of Directors at Deloitte, and Greg Adams, IBM Distinguished Engineer and former VP for IBM Business Analytics.

MindBridge practices business with a heart through a cross-demographic strategy to promote education, mentorship, opportunities, and social responsibility for the advancement of all individuals. This strategy is committed to providing AI thought leadership and education through the MindBridge University Alliance Program, with over 100 participating academic institutions worldwide, and by advising organizations such as the Vector Institute for AI, MILA, the Carleton University Institute of Data Science, and the NRC Digital Technologies Research Centre.

In 2018, MindBridge launched the IMPACT AI conference with the goal of raising awareness of the ethical, moral, and social implications of AI on society. The annual conference has attracted over 1300 attendees and participation from industry leaders that include IBM,





Microsoft, Amazon, General Motors, Global Affairs Canada, and Payments Canada. At the 2019 conference, three awards were established to recognize the efforts of those advancing STEM in Canada in an inclusive and diverse manner, including young and immigrant women in technology.

MindBridge is committed to the advancement of girls and women in STEM, through an employee base that is inclusive of gender, diversity, and indigenous representation and community programs that are designed to effect positive change. In partnership with the University of Ottawa, Algonquin College, Carleton University, and Willis College, MindBridge launched the HERoes initiative to change the future of the industry by connecting women students with academic and business mentors for annual workshops and training to produce more diverse leaders in technology.

Guided by the principle of delivering AI solutions and community initiatives that provide real value for people, MindBridge continues to lead the creation and education of practical, accessible AI for all.



MindBridge c/o Roy Sarkar
1730 St Laurent Blvd.
Suite 540, Ottawa, Ontario
K1G 5L1, Canada
mindbridge.ai

OTTAWA L5

Driving the Connected and Autonomous Vehicle Technology Revolution (CAV)—and Future Clean, Connected Communities



In the heart of the nation's capital, innovation, cutting-edge technology, and top talent are driving the connected and autonomous vehicle (CAV) revolution. Known as driverless or self-driving cars, and capable of sensing their environment and navigating without human input, CAVs are unleashing a world of opportunity. They are poised to revolutionize the transportation industry and the way we work and live.

As world-leading technology, automotive, and transportation innovators and firms propel us towards a connected and autonomous future, Ottawa is a global epicentre of CAV innovation.

Anchored by BlackBerry QNX, the region is home to a thriving CAV cluster with more than 100 SMEs, multinational companies, post-secondary institutions, and other organizations that contribute a wealth of expertise, technology, and intelligence to CAVs of the future.









The Ottawa L5: The First of its Kind

The Ottawa L5 CAV Test Facilities established and led by Invest Ottawa, the lead economic development agency in Canada's Capital, provides a living lab and world-class integrated testing grounds for the safe implementation of CAVs.

The first integrated test facility of its kind in North America, the Ottawa L5 enables innovators, entrepreneurs, small- and medium-sized enterprises (SMEs) and multinationals to advance the safe development, validation and adoption of these technologies.

Building on anchor investment from the Government of Ontario through the AV Innovation Network (AVIN), the Ottawa L5 is an impactful public-private partnership that leverages critical contributions from Accenture, Avanade, Blackberry QN, the City of Ottawa, Ericsson, the Government of Canada, the National Capital Commission, Microsoft, and Nokia. These industry partners are world leaders in disruptive technologies from cybersecurity to drones, AI and machine learning, cloud computing, and advanced networks. And together with Invest Ottawa, they are contributing leading-edge capabilities that fuel CAV innovation, commercialization, and implementation.

What makes Ottawa unique?

Canada's Capital City can harness the true power of CAVs and put associated capabilities and emerging data to work for the benefit of drivers, citizens, and the cities in which they live. This advancement demands a reliable, robust, and pervasive wireless next-generation network of 5G and secure communications technologies and applications.

Ottawa is a proven global leader in these technologies, with more than 250 communications companies that employ 21,000 people. Building on decades of innovation and industry leadership in information and communications technologies (ICT), Ottawa firms are developing novel CAV technologies by leveraging expertise and experience in:

- Research
- Software, data, and analytics
- Design, engineering, and manufacturing
- Safety and security
- Connectivity: GPS, 4G/LTE, 5G
- Autonomous solutions
- Sensors and IoT solutions
- Wireless and mobile technologies

Ottawa has emerged as the first Canadian municipality to launch a CAV testbed that enables testing of licensed CAVs on city streets. It was also the first city to conduct a live demonstration of a CAV interacting with live city infrastructure. These capabilities underscore the region's commitment to becoming an even smarter city—one that connects people, infrastructure, and technology to open up a world of new possibilities and benefits for companies and citizens alike.

Technology evolves at an unprecedented rate. The ability to rigorously test, validate and demonstrate CAVs, and related innovations are imperative to ensure their safe implementation and adoption. Enter the Ottawa L5.



Driving CAV Technology to the Next Level

The Ottawa L5 is helping firms to address key CAV opportunities and challenges, including CAV operations in inclement weather, safety and security, interoperability, data collection and analytics, and connectivity. These world-class testing grounds enable Vehicle-to-Everything (V2X) testing in Ottawa's true four-season weather climate, with temperatures that range from +37° to -38° Celsius, and harsh winter conditions marked by heavy snow, sleet, and ice. Comprised of a public and private CAV test track, and close to policymaker and regulators, the Ottawa L5 comes equipped with 5G, 4G/LTE, GPS (RTK), dedicated short-range communications (DSRC), and Wi-Fi telecommunications and networking infrastructure.

- **The Public CAV Test Track is in Kanata North**, Ottawa's west end and home of Canada's largest technology park. Enabling testing of CAVs approved for use on city streets by the Government of Ontario, it offers 9 kilometres of public roads with live city infrastructure and CAV connectivity; and
- **The Private CAV Test Track is in the heart of Ottawa's Greenbelt**. With 1,866 acres and 16 kilometres of paved roads, it is the largest secure facility for CAV testing, validation and demonstration in Canada. Designed as a private mini-city for authentic, real-world conditions and scenarios, it offers three and four-way intersections, active streetlighting, a host of sensors, interconnected city infrastructure, and a forthcoming level rail crossing and roundabout.

These capabilities, coupled with Ottawa's globally recognized industry leadership and expertise in CAVs, telecommunications and security, create a powerful environment for innovators, SMEs and multinationals

Ottawa L5

Powered by | Propulsé par
Invest Ottawa | Investir Ottawa

investottawa.ca



to test, validate and demonstrate V2X CAV and smart city technologies and solutions. It is increasing the competitiveness of firms that put these capabilities to work, helping them to further capitalize on the growing CAV global market. According to Allied Research, it's projected that the international autonomous vehicle market will reach more than $556 billion by 2026.

Now serving researchers, companies, and governments, this facility is helping Ottawa achieve its full potential as a globally recognized, innovative and future-ready city in CAV and clean, connected communities. In addition to founding partners, Invest Ottawa established Ottawa L5 technology, research and ecosystem through partnerships with Algonquin College, Aurrigo, Canal Geomatics, Carleton University, CAVCOE, Cohda Wireless, La Cité, Farm Credit Canada, Hexagon NovAtel, Kanata North Business Association, MH Corbin, Swift, the University Ottawa, and Willis College.

Officially launched in May 2019 and continually evolving, the Ottawa L5 has welcomed more than 2,000 visitors and enabled CAV and related technology testing, validations and demonstrations with entrepreneurs, SMEs, multinationals, and policymakers.

For example, the Ottawa L5 powered by Invest Ottawa:

- Joined forces with Kanata North Business Association to lead and conduct the Ride the Pod trial in August 2019, with Aurrigo and Transport Canada. It enabled hundreds of community members to ride in the self-driving Ottawa L5 'pod' at Marshes Golf Course and share their feedback. It represented the first Ottawa L5 pod pilot and Aurrigo's first pilot in North America.
- Co-led and co-organized CAV Canada, Canada's premier CAV conference, with Kanata North Business Association and CAVCOE. This national event assembled more than 350 stakeholders from industry, academia and government and 70 authorities from around the world that addressed key sector opportunities and challenges.

Together with world-class companies, innovators, post-secondary institutions and organizations in this CAV cluster, the Ottawa L5 is enabling market-led innovation, helping to drive high-value jobs, long-term economic growth, investment and prosperity. Ottawa is a global tech hub and Canada's CAV capital—how can we help you achieve your objectives?









IMRSV DATA LABS

Consultants. Engineers. Thought Leaders.

AI IS CHANGING THE WORLD. AS A SOLUTION-FOCUSED ARTIFICIAL INTELLIGENCE COMPANY, OUR GOAL IS TO MAKE IT EASIER AND MORE ACCESSIBLE.

IMSRV Data Labs understands that technology is disrupting the traditional view of data. We are unlocking the potential to turn data into valuable business insights. Powered by our internal R&D team of expert machine learning engineers and external partnerships with government and academia, we are global leaders in applied Machine Learning. Our industry-leading technology supports our mission to assist clients in integrating AI and making sense of their new and existing data to solve common business challenges.





We design and deliver custom machine learning solutions using the latest cutting edge technology available. Whether the data takes the form of audio, text or video, structured or unstructured, we are capable of creating the right solution for our client's needs. We hold patents in Natural Language Processing (NLP) and Natural Language Understanding (NLU), which provide us with the ability to rapidly convert, analyze and provide detailed insights using custom-tailored solutions to our clients.

We work collaboratively with our clients from the very beginning of their data pipeline to final production. The first stage is understanding the workflows of all intended end users. We must design with their needs as a framework. We gain an in-depth knowledge of their workflows and uncover their business challenges allowing us to design, build, configure, integrate, train and maintain their customized solution ensuring long-term value.



OUR ABILITY TO IDENTIFY THE CORE BUSINESS OPPORTUNITY, BUILD THE SOLUTION, AND MANAGE THE OPERATIONAL CHANGE ASSOCIATED WITH ITS IMPLEMENTATION IS UNIQUE IN THE INDUSTRY.

OUR BUSINESS IS BUILT ON THESE THREE PILLARS AND WE FIRMLY BELIEVE THAT THEY ARE ESSENTIAL TO THE SUCCESS OF ANY PROJECT.



WE APPLY OUR CUTTING-EDGE TECHNOLOGIES TO DRIVE BUSINESS INSIGHTS AND GENERATE TANGIBLE RESULTS.

SAMUEL WITHERSPOON, FOUNDER & CEO, IMRSV DATA LABS



We've learned that one of the biggest obstacles for AI projects, is establishing a use case, measuring success and demonstrating return on investment (ROI). We help our clients overcome these obstacles using our Discovery and Design (D&D) engagement sessions. During these sessions, our team consults with key stakeholders to identify opportunities for workflow improvements and for AI to augment human performance.

OUR KNOW-HOW ENABLES US TO TAKE YOUR DATA NO MATTER ITS FORM AND PROVIDE CUSTOM-TAILORED SOLUTIONS.

This enables decision-makers to effectively understand and strategize for the future implementation of an artificial intelligence-enabled solution. We are excited to see where this new service can take us and our clients within the AI field.

We are a proudly Canadian company located in our nation's capital of Ottawa, Ontario. We are an equal opportunity employer and support our local community and industry by offering workshops and hosting meetups. Our growing team is made up of experts in varied fields and of diverse academic, professional and cultural backgrounds. We have global insights while remaining rooted in our community.



If you have a project with specific objectives in mind, want to explore how you can use your data, or simply want to reach out to learn more about us, please get in touch. We are always happy to talk about how we can contribute to your ongoing success.



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SMARTCONE TECHNOLOGIES, INC.

Offers an adaptable industrial multi-sensor IoT platform that enables customers to use previously unavailable data sources to increase efficiencies and safety across all industries.







SMARTCONE TECHNOLOGIES, INC IoT DELIVERED

SmartCone is the only company in the current market who offers safety, accountability, and productivity technology from end to end with a portfolio of devices, software and integration services. We are your single-point data solution.

SmartCone Technologies provides the most versatile modular IoT platform on the market today to addresses customer needs surrounding safety, logistics and asset tracking, inventory management, and much more.

Thanks to its ability to integrate a wide array of sensors, cognitive edge computing, sensor fusion software, and artificial intelligence (AI) analytics, SmartCone increases safety and productivity onsite, wherever that site may be.

Our platform has been used for securing dangerous worksites, managing vehicle fleets, tracking assets in warehouses, monitoring traffic incident scenes, crowd control, and site security surveillance. IBM, Nokia, Exelon, City of Ottawa, and City of Hamstead have all entrusted such sites to SmartCone's products and platform.

Its eponymous device, TheSmartCone™, can function as fixed or portable surveillance and also as a situational awareness and communications system to monitor indoor and outdoor environments. It creates a gateway and mesh network to integrate sensor feeds, all while collecting and analyzing data at the edge.

The SmartCone™ annunciator module brings visual and audible alerts that activate according to customizable parameters. Additional connected devices—like TheSmartTorch™ and a multi-sensor wearable—each incorporates the same custom audio and visual alerts for increased situational awareness and broaden the reach onsite.

The SmartCone™ is modular, incorporating third-party sensors for data collection and pushing high-value data to the internet through most communications types. Each configuration involving TheSmartCone™ is tailor-made. For example, lidar and cameras for perimeter detection relating to safety and security on a worksite; add radar to detect the speed vehicles approaching; RFID module to track assets; and our constellation module for indoor positioning—the combinations are endless, as are the use cases. And all of it occurs in real-time for mission-critical environments.

SmartCone's multi-sensor wearable can be attached to any standard safety helmet and detects the wearer's state, including man-down and distress, and external elements like humidity, temperature, air quality and more. It features a panic button, eye-level LED lighting, and a speaker and microphone, which help to relay dangerous work environments and whether an area is a go or no-go zone.







Completing the suite is TheSmartTorch™, which can be mounted in many ways from impact-resistant bollards, to existing poles or on a moving asset itself. Placed throughout a worksite, it creates intelligent zones and muster points with both visual and audible notifications.

Some applications of TheSmartCone™ products to improve efficiency in the workplace include automatic check in/out of workers onsite along with tools in a kit and notifications of missing items. For safety; go/no-go zones created with alerts both on the worker and at the intrusion point, man-down alerts to nearby workers and supervisors, with automatic recording for audits.

Large assets like cranes can have separate moving perimeters created, with alerts sent to the operators if a known or unknown person walks into the area. Warehouses can be made "smart" with indoor positioning and locating of packages within 10cm. Fleets are managed automatically through license-plate recognition with video capture and geostamping. In summary, we can track any asset, anywhere, and keep it safe.

All SmartCone's products are designed to be easily deployable in almost any environment, enabling extreme portability in the field or even mounted on a vehicle. It can be mounted on existing infrastructure or dropped in a standard safety cone.

SmartCone's products are as flexible as they are innovative. As there are so many applications, we encourage entrepreneurs to come forth with ideas to utilize this core technology as a platform for a new business venture.

Our first subsidiary, AutoGuardian by SmartCone, was created in late 2018 and utilizes our platform to benefit vulnerable road users and create safer, smarter cities.

In 2019, SmartCone incubated AutoGuardian and secured two multi-million-dollar contracts, subtracting AutoGuardian to bring their autonomous shuttle solution with intelligent infrastructure to market.

We look forward to offering a collaborative and inspiring environment to continue our growth and expansion.





Jason Lee is the founder and Chief Executive Officer of SmartCone Technologies. Jason has dedicated most of his professional life to developing new technologies that make the world a safer place, with applications in aviation, business intelligence, manufacturing, and software development. He has spent time in Kuwait and Afghanistan researching and developing smart safety for military use, for which he was presented the Challenge Coin for Excellence. Jason has created three award-winning products and has 10 Intellectual Property patent clusters.

thesmartcone.com

AUTOGUARDIAN
by SmartCone

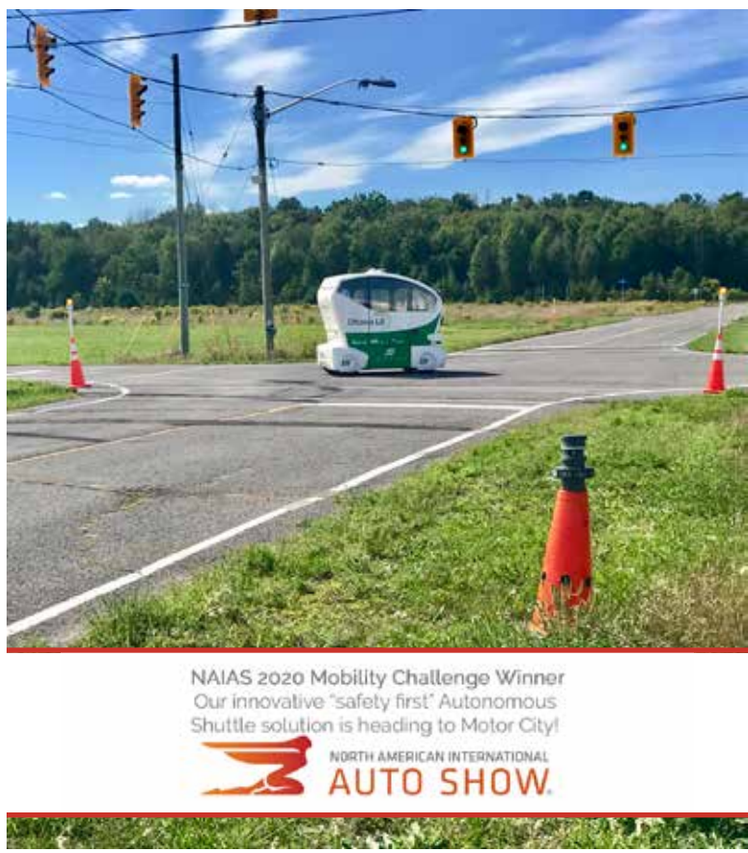
Through cutting-edge infrastructure and analysis, AutoGuardian arms cities with the data and solutions they need to attain Vision Zero. By increasing awareness between motorists and vulnerable road users, we are making urban environments safer for everyone.

Drivers are more distracted than ever while on the road, but they're not the only ones. Vulnerable road users, like cyclists and pedestrians, are also distracted. The combination has led to a significant increase in traffic accidents and in fatalities.





AutoGuardian
by SMARTCONE



In Canada in 2016 alone, 583 vulnerable road users—30.7% of all fatalities—were killed and 7,500 cyclists injured, and municipalities have struggled with solutions to the problem.

"With distracted driving at an all-time high, we need to increase situational awareness for cyclists, pedestrians, and vehicles co-located in high-traffic areas," says Tenille Houston, founder and Chief Communications Officer of SmartCone, AutoGuardian's parent company.

As municipalities struggle to find solutions to traffic-related pedestrian and cycling injuries and fatalities, AutoGuardian can deploy cost-effective solutions to improve traffic flow and more importantly, make streets and traffic intersections safer for all. By developing first-of-its-kind intelligent safety infrastructure, AutoGuardian can create awareness of vehicles, autonomous shuttles, cyclists, and pedestrians, giving everyone the time to act and be safe.

The core technology platform comes from our parent company SmartCone Technologies; sensors and sensor fusion software technology are housed in TheSmartCone™ device. This is an easily deployable piece of hardware that we incorporate various sensors into for the solution we are working to achieve.

The incoming information is processed on the edge in real-time so that cyclists, motorists, and pedestrians are automatically alerted to their surroundings through audio and visual cues in a variety of zones.

The alerts can come from the main device but the bulk of the alerts are from the connected peripheral devices, TheSmartTorch™, which are placed on certified impact-resistant flex bollards. AutoGuardian brings the technology solution together along with route monitoring and maintenance to offer unparalleled results.



We want to change the way municipalities are reconstructing their infrastructure. In particular, if we look at bike lanes, we see additions of painted lines and flex posts to add separation at best.

But as studies and community outreach are showing, painted lines are not sufficient. A recent study went so far as to note, "Painted cycle lanes significantly reduce the distance motorists give cyclists." In regards to separating a lane with flex posts, it is a great start, but according to CAA, cyclists are more likely to be killed or injured at an intersection or at a location where there are traffic signals or other traffic control signs.

By making these segregated lanes "smart," we can increase awareness of a cyclist as they approach an intersection, automatically detecting them as they pass through a monitored zone.

"We are working to become the market leader with an IoT platform and connected infrastructure for smart cities focusing on safer, smarter, more sustainable, and healthier communities," Tenille says.

AutoGuardian is also developing and testing a never-before-seen suite of safety solutions for autonomous shuttles powered by IoT (internet of things) technology. Shuttles are often silent and communities are not used to seeing them on the road.

By providing an extra set of eyes for the shuttle and for vulnerable road users, AutoGuardian helps everyone to be more comfortable with this new technology and so aids its further adoption.

From pilot projects and technology demos, like NAIAS Mobility Challenge 2020, to permanent private locations such as a campus or tech parks, AutoGuardian alerts vulnerable road users to the presence of oncoming shuttles.

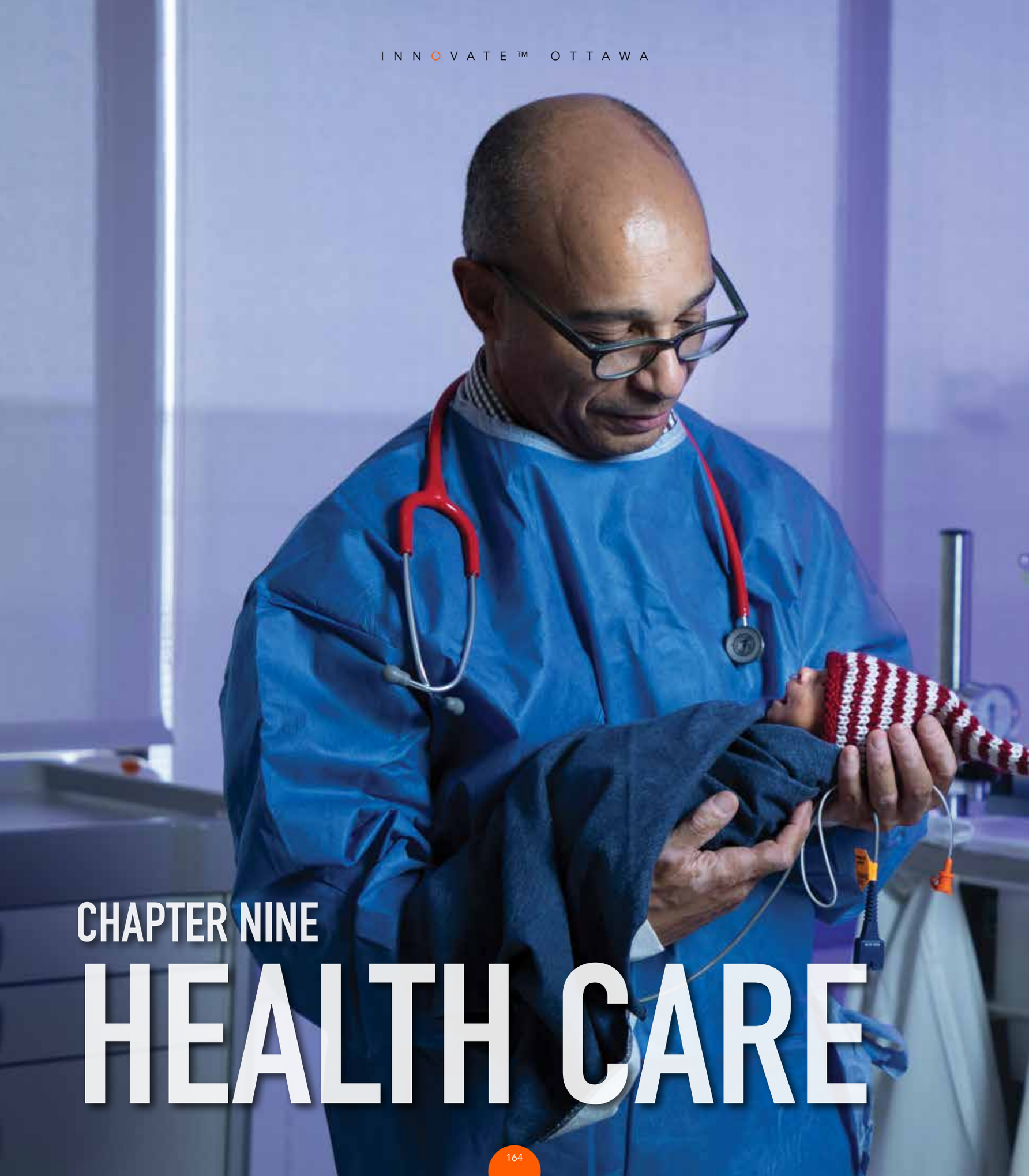
The solution includes an "intelligent lane" for any AV shuttle project, perimeter detection with video-intrusion capture, audio and visual infrastructure to alert vulnerable road users to oncoming shuttles, back-up sensor data, and non-line-of-sight visibility. No matter the mode of transit, AutoGuardian is bringing urban areas into the future—with safety and sustainability at the fore.



TENILLE HOUSTON
CEO AutoGuardian by Smartcone

Tenille brings experience from a wide-ranging client set to include automotive giants like Toyota, Information Technology through Northrop Grumman, and most recently, Internet of Things through SmartCone Technologies. While building relationships and spreading the word as Chief Communications Officer for SmartCone, she was heavily focused on the vulnerable road user (VRU) space with the recent opening of the Ottawa L5 Test Track. Her entrepreneurial spirit led her to take the VRU solution offerings to the next level and lead the charge for SmartCone's new subsidiary, AutoGuardian by SmartCone, to create safer roads through intelligent infrastructure, helping to make cities smarter and safer for all. She has a master's degree in Public Administration and a Bachelor of Science in Psychology.

autoguardian.ca



CHAPTER NINE
HEALTH CARE

The Ottawa Hospital | L'Hôpital d'Ottawa





THE OTTAWA HOSPITAL

The world is watching The Ottawa Hospital

The Ottawa Hospital is inspired by research and driven by compassion. Innovation – from the operating room to the research lab to the bedside – helps us save lives and deliver exceptional care to our patients.

World leaders in patient care

Thanks to brilliant minds, pioneering treatments, cutting-edge technology and state-of-the-art facilities, The Ottawa Hospital is internationally known for changing the way medicine is practiced around the world. Through innovation and research, our doctors, researchers, staff and volunteers are defining new standards in patient care by discovering better ways to diagnose and treat patients.

A research powerhouse in Canada's capital

When you think about the health research powerhouses in Canada, The Ottawa Hospital should come to mind.

The sharpest minds in the world come here to nurture new ideas. Research and innovation are efficiently transitioned from idea to bedside to improve every aspect of the care we provide to our patients.

The Ottawa Hospital | L'Hôpital d'Ottawa

L'HÔPITAL D'OTTAWA

Le monde a les yeux rivés sur L'Hôpital d'Ottawa



À L'Hôpital d'Ottawa, nous sommes inspirés par la recherche et guidés par la compassion. Du bloc opératoire aux découvertes en laboratoire jusqu'au chevet du patient, l'innovation nous aide à sauver des vies et à fournir d'excellents soins aux patients.

Un chef de file des soins aux patients

Grâce à des esprits brillants, à des traitements avant-gardistes et à des technologies et installations de pointe, L'Hôpital d'Ottawa est connu à l'échelle internationale pour sa capacité de transformer la pratique de la médecine partout dans le monde. En misant sur l'innovation et la recherche, nos médecins, nos chercheurs, notre personnel et nos bénévoles définissent de nouvelles normes de soins aux patients en découvrant de meilleures façons de diagnostiquer et de traiter les patients.

Un grand centre de recherche dans la capitale nationale

Quand on pense aux grands centres de recherche au Canada, L'Hôpital d'Ottawa vient forcément à l'esprit.

Les plus grands experts du monde viennent ici pour cultiver des idées novatrices. Grâce à eux, la recherche et l'innovation se traduisent efficacement au chevet du patient pour améliorer tous les aspects des soins que nous fournissons aux patients.





A reputation for world-first biotherapeutics clinical trials

The Ottawa Hospital is leading the world in developing new therapies that use living cells, genes and viruses to treat disease, called biotherapeutics. Our ground-breaking work includes numerous world-first clinical trials of cancer-fighting viruses as well as stem cells to treat conditions such as heart attack and septic shock.

Our researchers also pioneered the use of stem cells and chemotherapy to "reset" the immune systems of patients with autoimmune diseases. This procedure can stop the most active form of multiple sclerosis in its tracks. Patients from across Canada come to The Ottawa Hospital to receive this remarkable treatment.

Researchers at The Ottawa Hospital were also the first in the world to identify stem cells in skeletal muscle, paving the way for the development of regenerative therapies for patients with muscular dystrophy and other conditions.

A pioneer in life-saving cancer treatment

From unmatched expertise in biotherapeutics to revolutionizing the clinical trials process, our hospital is changing what the world knows about cancer and how to treat it.

The Ottawa Hospital is home to the most advanced cancer therapeutics program in the country. Our hospital sees and treats more patients facing cancer than anywhere else in Canada.

Over the next 15 years, almost one in two Canadians will develop cancer in their lifetime. World-first research in to new patient therapies and one of the best-equipped cancer centres in the country means that our hospital is well positioned to join our patients and face this challenge head-on.

Une réputation pour la mise au point d'essais cliniques biothérapeutiques uniques

L'Hôpital d'Ottawa est le chef de file mondial pour la mise au point de nouvelles thérapies, appelées biothérapies, qui misent sur des cellules vivantes, des gènes et des virus pour traiter des maladies. Parmi nos travaux novateurs figurent de nombreux essais cliniques uniques portant sur des virus pour combattre le cancer et des cellules souches pour traiter des problèmes de santé comme la crise cardiaque ou le choc septique.

Nos chercheurs sont également des pionniers de l'utilisation de cellules souches et de la chimiothérapie pour rebâtir le système immunitaire de patients atteints de maladies auto-immunes. Cette procédure peut enrayer la forme de sclérose en plaques la plus active. Des patients de tout le Canada viennent à L'Hôpital d'Ottawa pour recevoir ce traitement novateur.

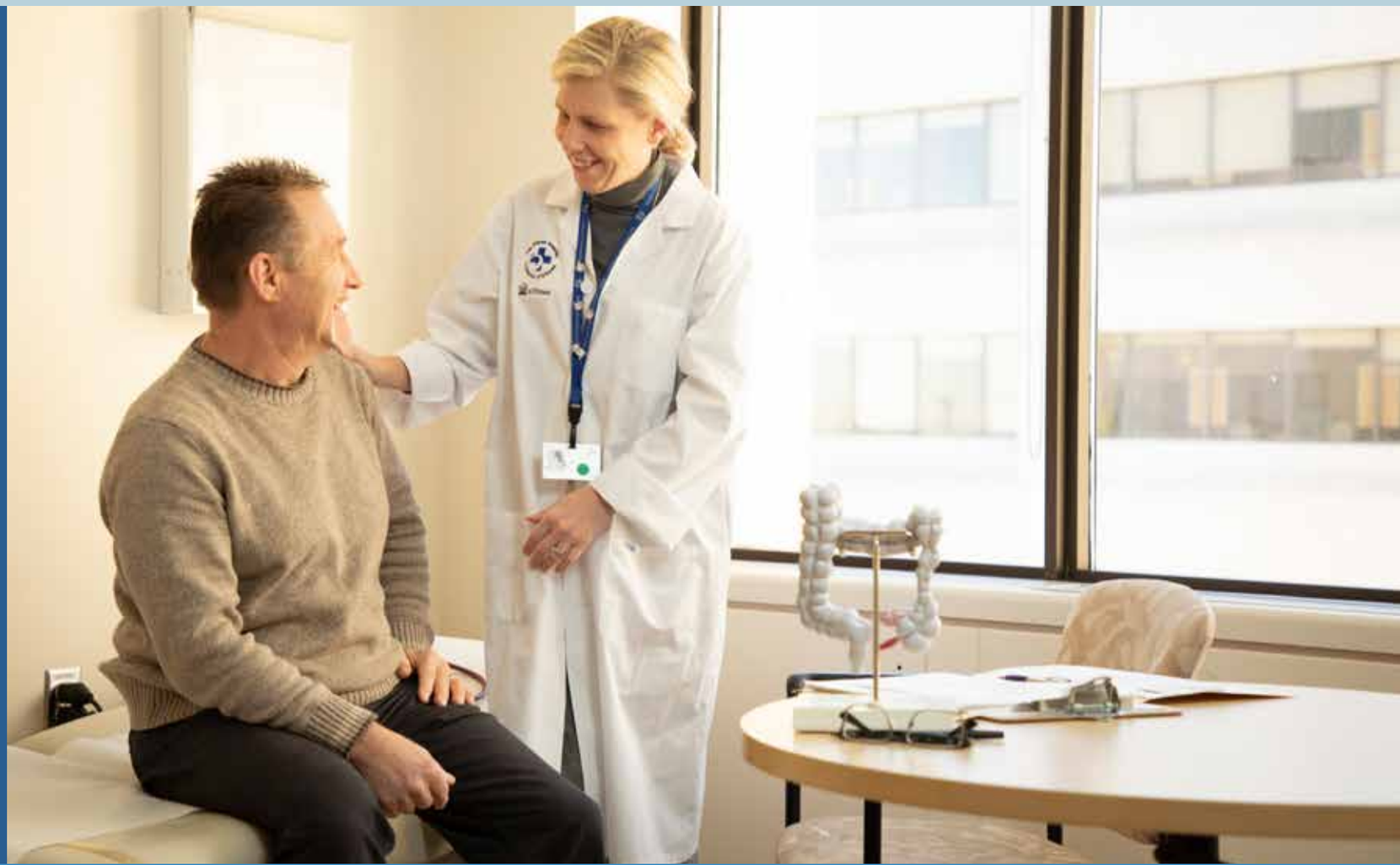
Des chercheurs de L'Hôpital d'Ottawa ont également été les premiers au monde à cibler des cellules souches dans les muscles squelettiques, ouvrant ainsi la voie à la mise au point de thérapies régénératrices pour les patients atteints de dystrophie musculaire et d'autres problèmes de santé.

Un pionnier des traitements contre le cancer qui sauvent des vies

De son expertise hors pair en biothérapies à sa capacité de transformer le processus des essais cliniques, notre hôpital révolutionne les connaissances sur le cancer et ses traitements.

L'Hôpital d'Ottawa abrite le Programme de thérapeutique anticancéreuse le plus avancé au pays. Au Canada, notre hôpital est l'établissement qui consulte et traite le plus grand nombre de patients atteints du cancer.

Au cours des 15 prochaines années, près d'un Canadien sur deux aura un cancer au cours de sa vie. En menant des études uniques au monde sur de nouvelles thérapies pour les patients et en étant un centre de cancérologie parmi les mieux équipés au pays, notre hôpital est bien positionné pour aider les patients à relever ce défi de front.



Fighting cancer with CAR-T therapy

The Ottawa Hospital is leading a national network that is bringing made-in-Canada CAR-T cell therapy to patients.

CAR-T cell therapy harnesses the power of a patient's own immune cells, known as T-cells, to treat their cancer. T-cells play a critical role in the immune system by killing abnormal cells. In CAR-T therapy, the T-cells are collected and reprogrammed in the lab to recognize and destroy the cancerous cells.

The Ottawa Hospital is the only site in Canada manufacturing a key component of these cells, and our patients have been among the first in Canada to participate in clinical trials of this revolutionary therapy.

Ottawa Methods Centre the 'secret ingredient' to research success

Innovation at The Ottawa Hospital also includes investing in programs that help our researchers to continue pursuing the cures of tomorrow.

The Ottawa Methods Centre is a one-stop-shop for helping researchers at The Ottawa Hospital design, conduct and share the results of their research. No other hospital in Canada offers such a wide variety of research services to all its staff.

It has been called the "secret ingredient" behind The Ottawa Hospital's success in research, allowing us to lead many high-impact clinical trials that have transformed how we care for patients with conditions ranging from cancer to kidney disease to blood clots.

From clinical decision rules to artificial intelligence

The Ottawa Hospital is known around the world for developing clinician decision rules that help doctors diagnose complex conditions and determine which treatments are best. In fact, three of the top five clinical decision rules recommended in U.S. emergency departments were developed at The Ottawa Hospital. Our Ottawa Rules app is used in more than 100 countries.



Our researchers are now taking their expertise to the next level, using artificial intelligence to develop the next generation of clinical decision rules and apps to help with diagnosis and treatment. This research and innovation is saving lives in Ottawa and around the world.

Building the hospital of the future

As we continue to innovate within our existing infrastructure, we are also embarking on a journey to build the hospital of the future.

The Ottawa Hospital is in the early stages of planning a new health-care centre in the heart of the nation's capital.

Like the Civic Campus before it, the new campus will be eastern Ontario's regional Trauma Centre, and will provide acute, specialized and complex care to the region's 1.3 million residents.

It will feature cutting-edge science that will drive learning and discovery, and will be a community space that serves as a cornerstone of this great city. It will be laced with and surrounded by nature and greenery, and will honour the Indigenous land on which it rests.

The 21st-century building will be dedicated to promoting health and wellness alongside health care and healing. It will be digitally connected and will incorporate accessible design that will, based on scientific evidence, improve the flow of patients as well as their access to treatments. The design innovation will help reduce hospital stays, the spread of infection, stress, staff injuries, and the need for pain medication.

Through innovation and our commitment to our patients, The Ottawa Hospital is achieving remarkable things. Together, we are creating tomorrow.

La lutte contre le cancer par l'immunothérapie à base de cellules CAR-T

L'Hôpital d'Ottawa est à la tête d'un réseau national qui fournit aux patients une immunothérapie à base de cellules CAR-T élaborée au Canada.

L'immunothérapie à base de cellules CAR-T exploite le pouvoir des cellules immunitaires propres au patient, appelées cellules T, pour traiter son cancer. Les cellules T jouent un rôle déterminant dans le système immunitaire en éradiquant les cellules anormales. Dans le cadre de l'immunothérapie à base de cellules CAR-T, les cellules T sont prélevées, puis reprogrammées en laboratoire pour reconnaître et détruire les cellules cancéreuses.

L'Hôpital d'Ottawa est le seul établissement au Canada à fabriquer un composant essentiel de ces cellules, et nos patients ont été parmi les premiers au Canada à participer à des essais cliniques de ce traitement novateur.

Le Centre de méthodologie d'Ottawa, le secret du succès de la recherche

À L'Hôpital d'Ottawa, l'innovation consiste également à investir dans des programmes qui permettent à nos chercheurs de poursuivre la mise au point des remèdes de demain.

Le Centre de méthodologie d'Ottawa est un guichet unique pour les chercheurs de L'Hôpital d'Ottawa qui souhaitent concevoir et mener leurs activités de recherche et publier leurs résultats. Au Canada, aucun autre hôpital n'offre une aussi vaste gamme de services de recherche à tout son personnel.

Le Centre est reconnu comme le secret du succès de la recherche à L'Hôpital d'Ottawa. Il nous a permis de diriger de nombreux essais cliniques de grande portée qui ont transformé notre façon de traiter les patients atteints de problèmes de santé comme le cancer, les maladies rénales et les caillots de sang.



Des règles de décision clinique à l'intelligence artificielle

À l'échelle internationale, L'Hôpital d'Ottawa est connu pour ses règles de décision clinique qui aident les médecins à diagnostiquer des problèmes de santé complexes et à déterminer les meilleurs traitements. En fait, sur les cinq principales règles de décision clinique recommandées dans les services d'urgence aux États-Unis, trois d'entre elles ont été mises au point à L'Hôpital d'Ottawa. Notre application sur les règles d'Ottawa est d'ailleurs utilisée dans plus d'une centaine de pays.

Nos chercheurs rehaussent actuellement leur expertise d'un cran en utilisant l'intelligence artificielle pour élaborer la prochaine génération de règles de décision clinique et d'applications pour faciliter les diagnostics et les traitements. Leur recherche alliée à l'innovation sauve des vies à Ottawa et ailleurs.

La construction de l'hôpital de l'avenir

Pendant que nous continuons à innover au sein de notre infrastructure actuelle, nous sommes également engagés dans un projet de construction de l'hôpital de demain.

L'Hôpital d'Ottawa entame la planification d'un nouveau centre de santé au cœur de la capitale nationale.

À l'image du Campus Civic actuel, le nouveau campus sera le Centre régional de traumatologie de l'Est ontarien, et fournira des soins de courte durée, spécialisés et complexes aux 1,3 million de résidants de la région.

Il sera un lieu où la recherche novatrice oriente l'apprentissage et la découverte et un espace communautaire qui sera un pilier de notre grande ville. À l'intérieur comme à l'extérieur, le Centre sera en harmonie avec la nature et la végétation et rendra honneur à la terre autochtone sur laquelle il repose.

L'édifice moderne sera conçu pour promouvoir la santé et le mieux-être et favoriser les soins et le rétablissement. Il sera connecté à la technologie numérique, accessible et façonné selon des principes scientifiquement éprouvés. Sa conception innovante optimisera le cheminement des patients et leur accès aux traitements, aidera à raccourcir leurs séjours et réduira la propagation des infections, le stress, les blessures au travail et le besoin de médicaments antidouleurs.

Grâce à l'innovation et à notre engagement envers nos patients, L'Hôpital d'Ottawa réalise de grandes choses. Ensemble, nous créons l'avenir.

The Ottawa Hospital | L'Hôpital d'Ottawa
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BRUYÈRE



Bruyère is a multi-site academic healthcare organization that is maximizing quality of life and helping people stay and return home. They deliver a wide variety of services in aging and rehabilitation, medically complex, palliative, residential, and primary care. Their research leads to constant innovation in the services they provide with a focus on providing care that promotes independence. This work is enhanced by the Bruyère Foundation that shares Bruyère's story and raises funds with the support of the generous community.

The world's population is growing older. People are living longer, birth rates have lowered, and the baby-boomer generation, which represents a unique population spike, is moving into its senior years. In a country like Canada, demographic shifts of this magnitude are having and will continue to have considerable impacts on the public health system. While many view this as a challenge, Bruyère is focused on the considerable opportunity to innovate in the delivery of care and further world-class research on aging to address these pressures.

Bruyère is unique. Not only is it one of Canada's top research hospitals, offering an array of clinical services and long-term care, but it is also an affordable housing provider, giving it distinct insights into the home-care needs of older adults. As such, whether in the lab, hospital, or at home, Bruyère is changing the way Canadians think about aging. For example:

Bruyère



- Bruyère's on-site smart apartment* is a living lab where innovations are tested with the explicit intention of enabling older adults to live safely and independently while mitigating risks, such as falls and wandering. Wandering is a common symptom for people living with dementia and places incredible strain on their caregivers. This is why scientists at the smart apartment are researching wandering detection and diversion technology through the development of sensors that can alert caregivers to wandering behavior. This technology, in addition to many other innovations happening at Bruyère, will keep people with dementia safe and provide peace of mind for their caregivers.

- The hospital hosts an assistive technology program leveraging SensAct, an open-source, low-cost microcontroller that can receive input from touch and gestures to relay information back to a patient's smartphone or computer. For example, one patient who came to Bruyère with an illness that had left them unable to speak or move their arms was able to communicate again through gestures with a custom-made, single button-based, text-to-speech writer.

- Bruyère is also making rehabilitation more accessible by testing the use of non-immersive virtual reality (VR) to motivate patients to do more exercise in the home. Home-based VR removes common barriers for older adults to participate in rehabilitation and exercise, such as a lack of transportation, prohibitive costs, or bad weather. This simple innovation helps improve health outcomes and keeps older adults active. With huge potential to scale, Bruyère is now partnering with a number of sites to deliver VR rehabilitation in assisted living residences, rehabilitation hospitals, and in the homes of Canadians in British Columbia, Northern Ontario, and New Brunswick.

Bruyère also recognizes that it cannot successfully support a healthy and independent aging population alone. From the applications used in their wandering-detection system to assistive technology in the hospital or VR in the home, Bruyère knows the value of working with industry that are willing to collaborate, iterate, and design products for the largest growing demographic of our time: older adults.

In 2019, Trillium Health Partners, in partnership with Bruyère and a number of healthcare organizations across Canada, founded the CAN Health Network. Funded by the Government of Canada, the Network is dedicated to helping local health-technology companies pilot and scale their innovations across the Canadian health system. Bruyère is the only partner in this collaborative exclusively dedicated to supporting the nation's aging population.

One of the technology companies that Bruyère is piloting through the Network is SHOEBOX, an innovation focused on identifying hearing loss through automated cloud-based application. As of 2019, three quarters of older adults in Canada have hearing loss and did not know it. Hearing loss both increases risk of falls and speeds up age-related cognitive decline. Thanks to Bruyère's participation in the CAN Health Network, SHOEBOX will be available in Bruyère care settings, and can be made available to partners within the Network, increasing access to hearing testing so that more patients are aware of hearing loss and can access supports.

Through innovating and researching, as well as collaborating with industry, Bruyère is solving real-world problems and ensuring Canada's aging population is healthy, independent, and living their best lives. This is what Canada's older population is asking for and this is what Canada's health system needs.

**The AGE-WELL SAM 3 (Sensors and Analytics for Monitoring Mobility and Memory) National Innovation Hub is a collaboration between Bruyère, Carleton University, and AGE-WELL NCE*



Bruyère est un organisme de soins de santé universitaire comprenant plusieurs campus, qui maximise la qualité de vie de ses usagers et les aide à retourner vivre à la maison et à y rester. On y offre un vaste éventail de services dans les domaines du vieillissement, de la réadaptation, des soins médicaux complexes, des soins palliatifs, des soins primaires et en milieu résidentiel. Ses travaux de recherche mènent à une innovation constante qui profite aux services que l'organisme offre et dont l'accent est mis sur la prestation de soins visant le regain de l'autonomie. Ce travail est mis en valeur par la Fondation Bruyère, qui fait connaître notre histoire et recueille des fonds grâce au soutien de nos généreux concitoyens.



La population mondiale vieillit. Les gens vivent plus vieux, le taux de natalité diminue et les bébé-boumeurs, issus d'une poussée démographique historique, avancent vers le troisième âge. Dans un pays comme le Canada, les changements démographiques de cette ampleur ont eu et ont toujours des répercussions considérables sur le système de la santé. Bien que pour plusieurs il s'agit d'un défi à surmonter, Bruyère entend répondre à ces pressions en mettant plutôt l'accent sur les possibilités inestimables d'innovation dans la prestation des soins et sur la recherche de calibre mondial sur le vieillissement.

Bruyère est unique. Non seulement est-il l'un des meilleurs hôpitaux de recherche du Canada qui offre une panoplie de services cliniques et de soins de longue durée, mais il propose aussi des logements à prix abordable, ce qui le met dans une excellente position pour bien comprendre les besoins en soins à domicile des aînés. Ainsi, que ce soit en laboratoire, à l'hôpital ou à la maison, Bruyère change la façon dont les Canadiens perçoivent le vieillissement. Par exemple:

- *L'appartement intelligent* de Bruyère est un laboratoire vivant où les innovations sont mises à l'essai dans le but exprès de permettre aux personnes âgées de vivre de façon sécuritaire et autonome tout en réduisant les risques qu'ils pourraient courir, comme les chutes et l'errance. L'errance s'observe fréquemment chez les personnes atteintes de démence et elle exerce une pression incroyable sur leurs proches aidants. C'est pourquoi les scientifiques qui ont conçu l'appartement intelligent cherchent à détecter l'errance et à mettre au point une technologie de diversion en se servant de capteurs capables d'alerter les proches aidants en cas d'errance. Cette technologie, en plus des nombreuses autres innovations de Bruyère, assurera la sécurité des personnes atteintes de démence et la tranquillité d'esprit de leurs proches aidants.*

- *L'hôpital héberge un programme de technologie d'assistance qui exploite SensAct, un microcontrôleur à code source ouvert et à faible coût qui peut recevoir les données obtenues par le toucher et les gestes pour transmettre l'information au téléphone intelligent ou à l'ordinateur du patient. À titre d'exemple, un patient qui était arrivé à Bruyère avec une maladie qui lui avait fait perdre la parole et sa capacité de bouger les bras a pu communiquer de nouveau par des gestes à l'aide d'un rédacteur de synthèse vocale à bouton-poussoir unique, créé sur mesure.*

- *Bruyère rend également la réadaptation plus accessible par la mise à l'essai de la réalité virtuelle non immersive pour inciter les patients à faire plus d'exercice à la maison. La réalité virtuelle à domicile élimine les obstacles (manque de transport, coûts prohibitifs, intempéries) qui démotivent les personnes âgées qui voudraient faire de la réadaptation et de l'exercice. Cette simple innovation contribue à améliorer les résultats sur la santé et à garder les personnes âgées actives. Avec un énorme potentiel à l'horizon, Bruyère s'associe désormais à un certain nombre d'établissements pour offrir des services de réadaptation en réalité virtuelle dans les résidences de vie assistée, les hôpitaux de réadaptation et chez les Canadiens qui vivent en Colombie-Britannique, dans le nord de l'Ontario et au Nouveau-Brunswick.*

Bruyère reconnaît toutefois qu'il ne peut soutenir à lui seul une population vieillissante en santé et autonome. Qu'il s'agisse des applications utilisées dans son système de détection de l'errance, de la technologie d'assistance à l'hôpital ou de la réalité virtuelle à domicile, Bruyère sait à quel point il est important de travailler avec des entreprises prêtes à collaborer et à concevoir des produits pour le groupe démographique le plus important de la société, les adultes âgés.

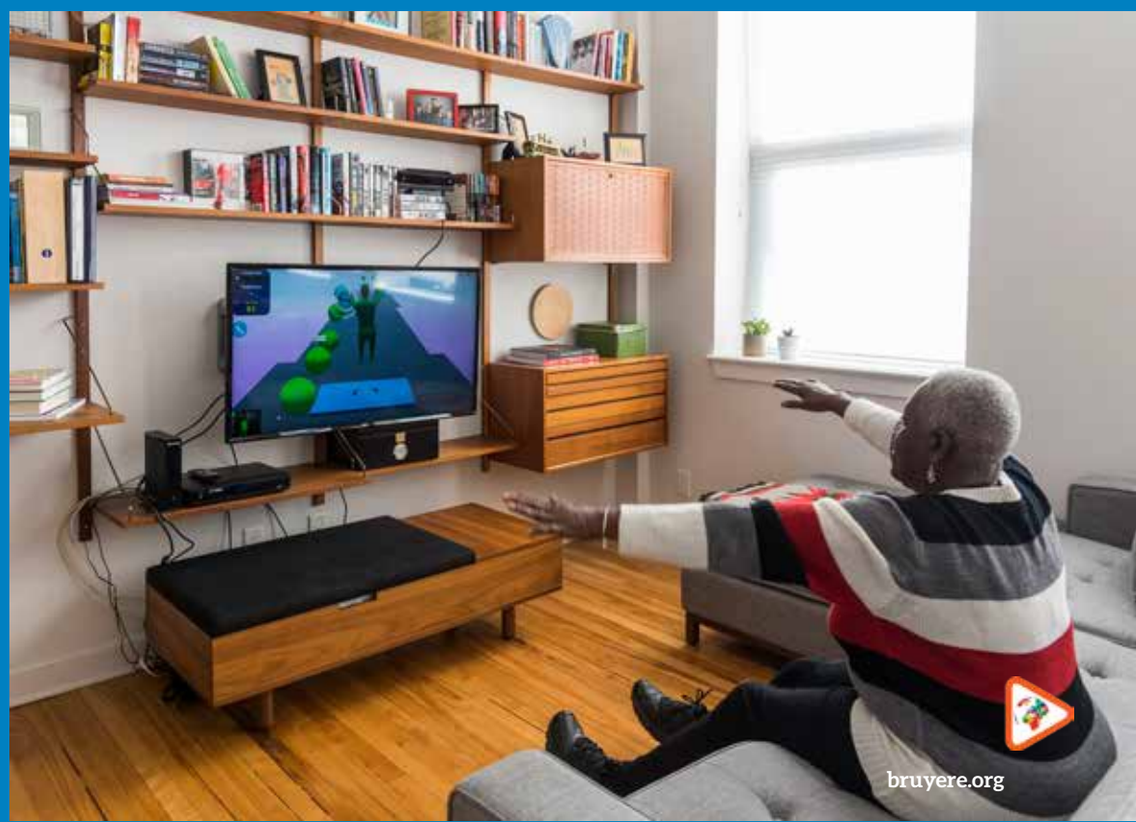
En 2019, Trillium Health Partners s'est associé à Bruyère et à un certain nombre d'organismes de soins de santé au Canada pour fonder le Réseau de santé CAN. Financé par le gouvernement du Canada, le Réseau a pour mandat d'aider les entreprises locales de technologies de la santé à mettre à l'essai et à diffuser leurs innovations dans tout le réseau de la santé canadien. Bruyère est le seul partenaire qui se consacre exclusivement au soutien de la population vieillissante du pays.

L'une des entreprises en technologie que Bruyère met à l'essai par l'entremise du Réseau est SHOEBOX, qui se voue à la détection des pertes auditives au moyen d'une application automatisée infonuagique. En 2019, le trois quarts des personnes âgées au Canada étaient malentendantes sans le savoir. La perte auditive augmente le risque de chutes et accélère le déclin cognitif lié à l'âge. Grâce à la participation de Bruyère au Réseau CAN Health, SHOEBOX sera disponible partout à Bruyère et sera disponible aux partenaires du Réseau, ce qui facilitera l'accès aux tests auditifs pour qu'ainsi, plus de patients deviennent conscients de leur perte auditive et puissent recevoir du soutien.

Par ses travaux d'innovation et de recherche, ainsi que par sa collaboration avec le secteur privé, Bruyère trouve des solutions à des problèmes concrets et aide la population canadienne vieillissante à rester en santé, autonome et à vivre la meilleure vie possible. C'est ce que demande la population âgée du Canada et c'est aussi ce dont le système de santé canadien a besoin.

** Le Centre national d'innovation SAM 3 (capteurs et analytique de suivi mobilité-mémoire) d'AGE-WELL est un partenariat entre Bruyère, l'Université Carleton et les réseaux de centres d'excellence AGE-WELL.*







Sarah Zaidi, Research Coordinator assisting Mackenzie Lalonde-Stiff with Trexo—a robotic walker that is being clinically tested to determine impact on function, activity, and participation.

«Sarah Zaidi, coordonnatrice de recherche aide Mackenzie Lalonde-Stiff avec Trexo—un robot marcheur qui est testé cliniquement pour déterminer l'impact sur la fonction, l'activité, et la participation.»

CHEO

Calling all inventors, brainiacs, smarty-pants, wannabe-dragons, and out-of-the-box thinkers. We need your ideas!"

These are the words which called for submissions to CHEO's Eureka contest—an initiative that got responses from health-care professionals and information technology companies to engineers, parents, and kids. CHEO crowd sourced solutions to problems families face: long waits for clinic appointments and having to come to the Emergency Department because there aren't other options.

"Innovation and challenging the status quo are core values at CHEO," says Mari Teitelbaum, Chief Innovation Officer and Vice-president of Quality, Strategy and Family Partnership. "The Eureka contest was just one example of our willingness to find solutions to the things which matter most to families, no matter the source of the innovation."

CHEO is motivated by compassion and driven by research. In 2019, the scientists and clinicians at the CHEO Research Institute involved over 70,000 kids and families in research. This research was shared in more than 650 publications including 109 high-impact journals, not to mention the *Canadian Science Fair Journal*—founded by CHEO—which celebrates research from student authors in Grades 7 to 12, tomorrow's innovators.

Care4Rare

Dr. Kym Boycott, a senior scientist at the CHEO Research Institute and clinical geneticist at CHEO, leads "Care4Rare"—a team of clinicians, bioinformaticians and scientists focused on improving care for patients with rare diseases not only in Ottawa and Canada but around the world.

Boycott and her colleagues—a pan-Canadian team of 200 physicians and 100 scientists—have studied over 1,000 rare diseases, so far solving the genetics underlying almost 500 of them. Thanks to Care4Rare, identifying and treating rare diseases is getting faster and easier.

SHOEBOX Ltd.

"I am lucky to work at CHEO," says Dr. Mathew Bromwich, Otolaryngologist. "CHEO is an organization which encourages and supports innovation."

Supported by CHEO, Bromwich invented SHOEBOX, a reliable, hearing-test system that's small enough to fit in a shoebox and is so easy to use it enables more testing, by more people, in more locations. For example, families from Nunavut often needed to make expensive and disruptive trips to Ottawa to have their hearing properly tested. With SHOEBOX, they

« Appel à tous les inventeurs, intellos, petits futés, dragons en herbe et penseurs hors du commun ! Nous avons besoin de vos idées ! »

C'est en ces termes qu'un appel de participation a été lancé pour le concours Eurêka de CHEO, une initiative qui a suscité des réponses de la part de professionnels de la santé, d'entreprises de technologies de l'information, d'ingénieurs, de parents et d'enfants. CHEO a trouvé des solutions aux problèmes auxquels les familles sont confrontées : les longues attentes pour les rendez-vous en clinique et le fait de devoir se rendre au Service des urgences parce qu'il n'y a pas d'autres options.

« L'innovation et la remise en question de la situation actuelle sont des valeurs fondamentales à CHEO », a déclaré Mari Teitelbaum, directrice de l'innovation et vice-présidente de la qualité, de la stratégie et du partenariat avec les familles. « Le concours Eurêka n'était qu'un exemple de notre volonté de trouver des solutions aux problèmes qui importent le plus aux familles, quelle que soit la source de l'innovation ».



Alex Munter, President and CEO with Mari Teitelbaum, Chief Innovation Officer and Vice-president of Quality, Strategy and Family Partnership.

« Alex Munter, président-directeur général avec Mari Teitelbaum, responsable de l'innovation et vice-présidente de la qualité, de la stratégie et du partenariat avec les familles. »

CHEO est motivé par la compassion et la recherche. En 2019, les scientifiques et les cliniciens de l'Institut de recherche de CHEO ont fait participer plus de 70 000 enfants et familles à des recherches ayant fait l'objet de plus de 650 publications, dont 109 dans des revues à fort impact, sans oublier La Revue canadienne d'expo-sciences fondée par CHEO qui célèbre les recherches des auteurs élèves de la 7e à la 12e année, les innovateurs de demain.

Care4Rare

La Dre Kym Boycott, scientifique principale à l'Institut de recherche de CHEO et généticienne clinique à CHEO, dirige « Care4Rare », une équipe de cliniciens, de bio-informaticiens et de scientifiques qui se consacrent à l'amélioration des soins aux patients atteints de maladies rares, non seulement à Ottawa et au Canada, mais aussi dans le monde entier.

La Dre Boycott et ses collègues, une équipe pancanadienne de 200 médecins et de 100 scientifiques, ont étudié plus de 1 000 maladies rares et ont pu résoudre jusqu'à présent la génétique sous-jacente de près de 500 d'entre elles. Grâce à Care4Rare, l'identification et le traitement des maladies rares s'accélèrent et deviennent plus faciles.

SHOEBOX Ltd.

« J'ai de la chance de travailler à CHEO », a déclaré le Dr Mathew Bromwich, otorhinolaryngologiste. « CHEO est une organisation qui encourage et soutient l'innovation ».

Soutenu par CHEO, Bromwich a inventé SHOEBOX, un système de test auditif fiable, suffisamment petit pour tenir dans une boîte à chaussures et si facile à utiliser qu'il permet d'effectuer plus de tests, par plus de personnes, dans plus d'endroits. Par exemple, les familles du Nunavut devaient souvent faire des voyages coûteux et déstabilisants pour venir à Ottawa faire leur test d'audition de manière appropriée. Avec SHOEBOX, ils peuvent rester chez eux. Une personne de leur communauté peut facilement être formée pour effectuer des tests auditifs diagnostiques aussi fiables que ceux effectués par un médecin de CHEO.



Dr. Mathew Bromwich, Otolaryngologist, the inventor of SHOEBOX.

« Dr Mathew Bromwich, otorhinolaryngologiste, inventeur de la SHOEBOX. »

can stay home. Someone in their community can easily be trained to administer diagnostic hearing tests which are as reliable as those done by a CHEO physician.

In 2019, SHOEBOX Ltd. gave $150,000 to the CHEO Foundation to support more ear-health research and medical outreach, taking innovations from CHEO around the world. With donations from the community, the CHEO Foundation provides $15 million annually to support innovation, research and care at CHEO.

A culture of constant improvement

Big changes like Care4Rare and SHOEBOX are built on research. Small daily improvements are built on the knowledge, expertise and innovation of staff on the frontlines. CHEO's annual goal is to make one improvement per person per year, not only in clinical departments but everywhere, including Food Services, Information Technology, Building Services, Health Records, Environmental services and more.

In 2019, CHEO staff and medical staff logged 2,385 improvements, big and small, each contributing to progressively better, safer, faster care for children and youth.

Digital revolution

Generally, health care has been Johnny-come-lately to the digital revolution. CHEO, on the other hand, was the first hospital in Canada to adopt Epic, the most powerful electronic health record system in the world. Families clearly told CHEO that they wanted a complete, accessible health record. Epic not only makes all of a child's medical information available to their entire health team but it gives families remote electronic access to the health record—informed families make robust partners in care.





Dr. Kym Boycott, Senior Scientist at CHEO Research Institute and Clinical Geneticist at CHEO with Etta Taylor.
« Dre Kym Boycott, scientifique principale à l'Institut de recherche de CHEO et généticienne clinique à CHEO avec Etta Taylor. »

En 2019, SHOEBOX Ltd a donné 150 000 $ à la Fondation de CHEO pour soutenir davantage la recherche en santé de l'oreille et les équipes médicales afin que les innovations de CHEO aillent partout dans le monde. Grâce aux dons de la communauté, la Fondation de CHEO donne 15 millions de dollars par an pour soutenir l'innovation, la recherche et les soins à CHEO.

Une culture d'amélioration constante

Les grands changements apportés comme Care4Rare et SHOEBOX sont fondés sur la recherche. Les petites améliorations quotidiennes reposent sur les connaissances, l'expertise et l'innovation du personnel de première ligne. L'objectif annuel de CHEO est d'apporter une amélioration par personne et par an, non seulement dans les services cliniques, mais dans tous les domaines, notamment les services alimentaires, les technologies de l'information, les services en installations, les archives médicales, les services environnementaux et bien d'autres encore.

En 2019, le personnel de CHEO et le personnel médical ont enregistré 2 385 améliorations, petites et grandes, et chacune a contribué à fournir des soins progressivement meilleurs, plus sûrs et plus rapides pour les enfants et les adolescents.

Révolution numérique

En général, les soins de santé sont les derniers à entrer dans la révolution numérique. CHEO, en revanche, a été le premier hôpital au Canada à adopter Epic, le système de dossiers médicaux électroniques le plus puissant au monde. Les familles ont clairement indiqué à CHEO qu'elles voulaient un dossier de santé complet et



Graduate student researchers Aiman Baig, Jarred Lau and Huy-Dang Hoang with the CHEO Research Institute's cell freezer used, in part, for genetic research.

« Les étudiants chercheurs diplômés Aiman Baig, Jarred Lau et Huy-Dang Hoang avec le congélateur de cellules de l'Institut de recherche de CHEO utilisé en partie pour la recherche génétique. »

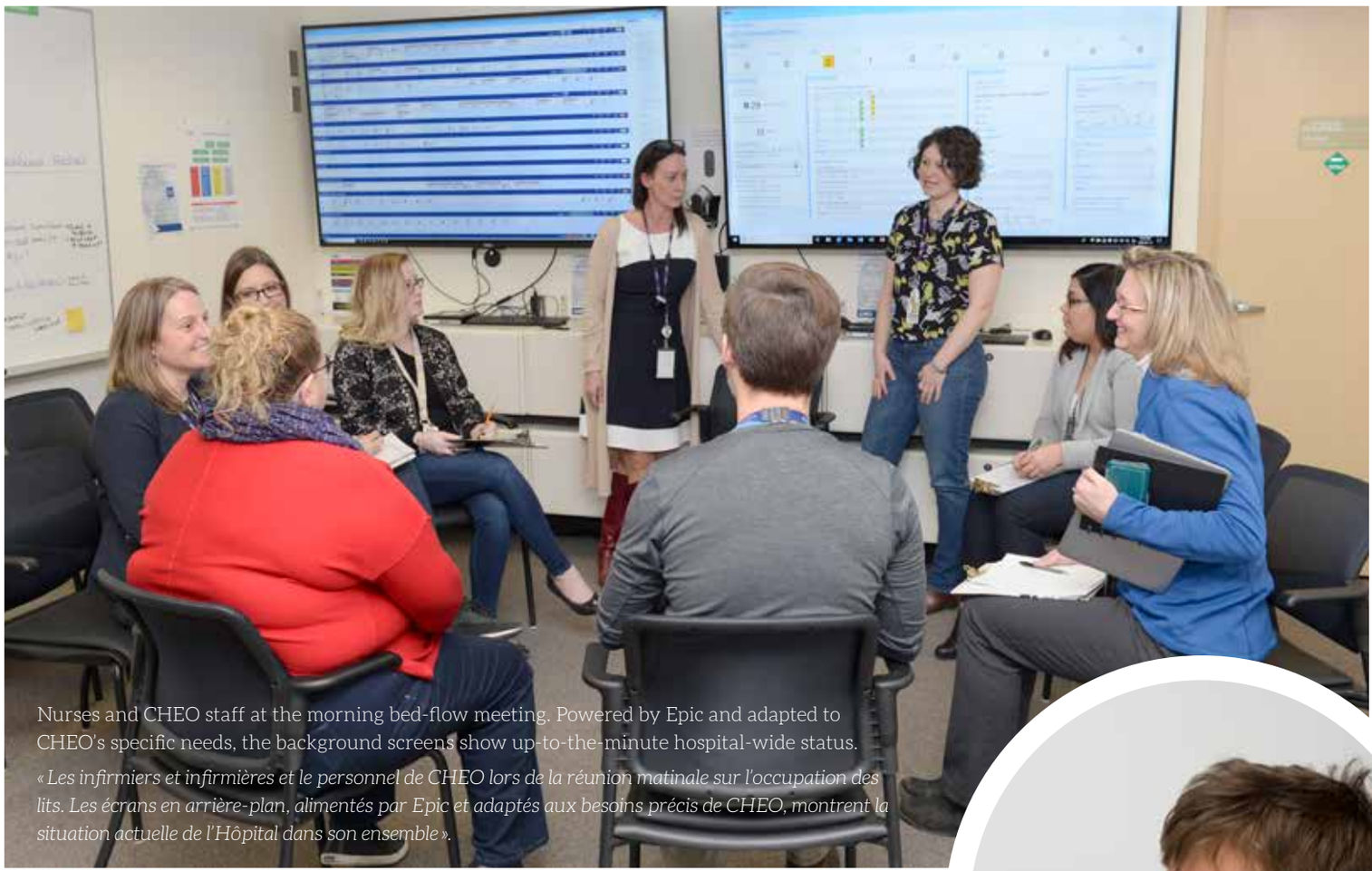
After years of integrating Epic with the Canadian health-care model, CHEO frequently lends its in-house expertise to other organizations. For example, in 2019, CHEO staff and physicians assisted other local hospitals launch Epic and even travelled to the Great Ormond Street Hospital in London, United Kingdom, to assist their Epic launch.

Always about children and youth

Back in 1992, understanding the importance of partnership, CHEO became the first hospital in Canada to adopt a family advisory council to ensure the voices of children, youth and families guide CHEO's care and the future of the organization. A youth forum was added in 2000—specific to the voice of young people.

In 2019, after broad consultation with families, CHEO launched its Partners in Health Toolkit which provides staff and physicians more tools to engage with children, youth and families in the right way.

"Embracing the best life for every child and youth compels our innovative research," says Munter. "Constantly challenging the status quo improves our care. And, partnering with kids and families at every step ensures not only that we are providing the care they need but delivering it in a way that addresses their stated needs."



Nurses and CHEO staff at the morning bed-flow meeting. Powered by Epic and adapted to CHEO's specific needs, the background screens show up-to-the-minute hospital-wide status.

« Les infirmiers et infirmières et le personnel de CHEO lors de la réunion matinale sur l'occupation des lits. Les écrans en arrière-plan, alimentés par Epic et adaptés aux besoins précis de CHEO, montrent la situation actuelle de l'Hôpital dans son ensemble ».

accessible. Epic permet non seulement de mettre toutes les informations médicales d'un enfant à la disposition de toute l'équipe soignante, mais il donne aux familles un accès électronique à distance au dossier de santé, car des familles informées deviennent de solides partenaires en soins.

Après des années d'intégration d'Epic au modèle de soins de santé canadien, CHEO prête fréquemment son expertise interne à d'autres organisations. Par exemple, en 2019, le personnel et les médecins de CHEO ont aidé d'autres hôpitaux locaux à lancer Epic et se sont même rendus à l'hôpital Great Ormond Street de Londres, au Royaume-Uni, pour assister au lancement de leur Epic.

Il est toujours question des enfants et des adolescents

En 1992, CHEO, qui avait compris l'importance du partenariat, est devenu le premier hôpital au Canada à adopter un conseil consultatif des familles afin de s'assurer que la voix des enfants, des adolescents et des familles donne une direction aux soins de CHEO et à l'avenir de l'organisme. Un forum des jeunes a été créé en 2000, précisément pour la voix des jeunes.

En 2019, après une large consultation des familles, CHEO a lancé sa boîte à outils, Partenaires en santé qui fournit au personnel et aux médecins davantage d'outils pour travailler avec les enfants, les adolescents et les familles de la bonne manière.



CHEO: The best life for every child and youth.

« CHEO : la meilleure vie pour tous les enfants et adolescents. »

« Notre recherche novatrice nous permet d'offrir à chaque enfant et à chaque adolescent la meilleure vie », a affirmé Alex Munter. « La remise en question constante de la situation actuelle permet d'améliorer nos soins. Et le fait de s'associer aux enfants et aux familles à chaque étape garantit non seulement que nous leur fournissons les soins dont ils ont besoin, mais aussi que nous le faisons d'une manière qui réponde à leurs besoins exprimés ».

cheo.on.ca

CANIMMUNIZE

Your immunization records on your smartphone.





CANImmunize

The Problem

Immunization is one of the greatest discoveries in public health. Unfortunately, we are seeing a global reemergence of vaccine preventable diseases. At the same time, countries are facing challenges in creating immunization information systems that can effectively and accurately track vaccinations. The migration of people across regional and national borders and the increasingly fragmented nature of immunization practice—with individuals receiving information from multiple different providers—are two of the major obstacles to having comprehensive immunization status.

The Answer

We believe the solution to these challenges is to place the individual at the centre of the system. The digital health revolution now makes this possible. By empowering people to digitally record and track their immunizations, their record travels with them and will be an accurate source of all immunizations received. By then connecting these individuals to hospital and government immunization systems, we can create a system that better protects everyone.

Digital technology can also help overcome concerns about vaccines by empowering people with information. Individuals can have the opportunity to see their immunization information in context, get accurate information on vaccinations, receive reminders about immunizations and alerts about vaccine preventable diseases. An informed public is more likely to be immunized on time.

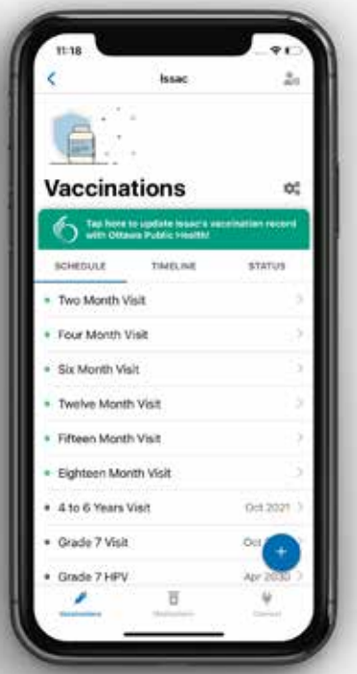
Our Vision

To transform immunization practice using digital technology by placing people at the centre.

Instead of using paper records to track your vaccinations that can be lost or forgotten, what if you could track them on your phone? A mother posed this question to Dr. Kumanan Wilson, a physician at the Ottawa Hospital, in a park one day in 2011. This sparked an idea for Dr. Wilson, who, along with engineering student Cameron Bell, made it a reality. A prototype for Ontario launched the following year. After a successful release, our team considered the prospect of creating an app that would help people across Canada stay up-to-date with their vaccinations. Led by Dr. Wilson and funded by the Public Health Agency of Canada, our team developed CANImmunize, a digital platform that connects Canadians to their own vaccination records.

A first-of-its-kind national digital immunization platform, available on iOS and Android devices and on the web, the platform permits individuals to track their own and their family's immunizations. CANImmunize also







provides vaccination reminders, accurate information on vaccines, vaccine preventable disease outbreak, including outbreak locations, and stores individuals' data to permit access across multiple platforms. We even include the digital comic Immunity Warriors: Invasion of the Alien Zombies! to teach kids about the importance of immunization.

CANImmunize can also enable reporting of immunization status to public health. We are currently working with governments to permit integration with their immunization information systems. This functionality will allow CANImmunize users to pull data that resides on immunization information systems and push data on new vaccinations to the information systems.

CANImmunize Accomplishments

- CANImmunize was identified as a top ten accomplishment of Canada's federal health minister in 2014.
- In 2015, awarded the Connected with the Community Award from the Canadian Wireless Telecommunication Association.
- The European Centre for Disease Prevention and Control identified CANImmunize as a model for consumer-facing immunization solutions.
- The Health Standards Organization accredited CANImmunize as a leading practice.
- Recognized by the World Health Organization's Vaccine SafetyNet as a trusted resource.
- Finalist in the 2019 Digital Transformation Awards

canimmunize.ca

SIEMENS HEALTHINEERS

As a leading medical technology company, Siemens Healthineers enables healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, improving the patient experience, and digitalizing healthcare.



Siemens Healthineers is continuously developing its product and service portfolio, with AI-supported applications and digital offerings that play an increasingly important role in the next generation of medical technology. These new applications will enhance the company's foundation in in-vitro diagnostic, image-guided therapy, and in-vivo diagnostics. Siemens Healthineers also provides a range of services and solutions to enhance healthcare providers' ability to provide high-quality, efficient care to patients.

Siemens Healthineers is also a leading manufacturer of clinical Point Of Care (POC) diagnostic products, including the epoc© Blood Analysis System. The epoc is a cost-effective POC testing solution to leverage Smartcard Technology and wireless communication to provide caregivers with real-time, lab-quality blood gas, electrolyte, and metabolite results at the patient bedside. This system, which is manufactured in Ottawa, is now a well-established tool of the medical profession available worldwide. Siemens Healthineers is committed to delivering high-quality products and services that patients and providers can rely on for consistently accurate and actionable information. We deploy unique innovative technologies that not only transform diagnostic products, but also expand into new platforms and solutions with proven health and economic outcomes.

SIEMENS Healthineers





The epoc© Blood Analysis System was acquired by Siemens Healthineers in November 2017. In late 2018, it was announced that the epoc manufacturing facility in Ottawa would be expanded by 5,000 square feet to support new manufacturing lines and accommodate the growth of the business. Our focus at Siemens Healthineers is to develop innovations that support better patient outcomes with greater efficiencies, giving providers the confidence they need to meet the clinical, operational, and financial challenges of a changing healthcare landscape. As a leader in medical imaging, laboratory diagnostics, and healthcare information technology, we have a keen understanding of the entire patient care continuum – from prevention and early detection to diagnosis and treatment.

For more than 100 years, Siemens Healthineers in Canada has helped healthcare providers achieve their goal of improving outcomes while reducing costs. From the Atlantic to Pacific oceans, more than 800 employees in Canada work together to deliver solutions for healthcare providers, resulting in 70% of medical decisions being influenced by the technologies we provide.









www.siemens-healthineers.com

aTouchAway™ by Aetonix

AETONIX SYSTEMS
Simplifying Complex Care

THROUGH REMOTE PATIENT MONITORING

Follow The Lines to See aTouchAway in Action >>>>>>>



Uploaded forms and documents are used to administrate the care plan. Educational materials are also uploaded for patient education.

Medication compliance, nutritional compliance, and all other types of compliances are ensured.

Healthcare professionals can intervene via e-visit if needed. The patient can also alert nurses of their situation, via single touch.

Workflows containing multiple protocols put the care plan on cruise control.

The Beginning

Healthcare is expensive, no matter who pays for it. When creating value in healthcare, merely providing a service does not cut it anymore. Even if that service is provided at a reasonable cost. The real challenge is in the quality of care received. Care quality remains healthcare's toughest obstacle, especially for those who need it most: complex care patients.

Complex care patients repeatedly cycle through multiple healthcare and social service systems without seeing any improvements in their health and well-being. Chronic care comes to mind. The definition can be stretched to include some acute care as well, where the needs can become very complex surrounding certain medical procedures. Aetonix came into existence to help hospitals, home care agencies, and private healthcare organizations address the needs of such complexcases. We simplify complex care through remote patient management.

What We Do

We developed our flagship product, the aTouchAway mobile platform, to enable remote patient monitoring. It allows hospitals, home care agencies, and private practices to remotely manage the care of complex patients at home.

It is a fully integrated platform that connects, monitors, and guides patients from the comfort of their own homes. Patients are connected to professional healthcare care teams, caregivers, and family members in what is known as The Circle of Care. Everyone is kept aware of changes in the care plan and the patient's vital signs, and guided using customized course of actions suited to that particular case.

With aTouchAway, it is possible to avoid hospital readmissions, decrease the length of hospital stays, increase outpatient care, and most importantly of all, improve patient outcomes.

CAPABILITY

aTouchAway ™

At a very basic remote care level, people can exchange vital patient signs like blood pressure, weight, glucose level, heart rate, steps, O^2 level, and body temperature. At a more advanced telehealth level, they can communicate securely in one-one or one-to-many settings over video or text. But what really sets us apart, is that we take a person-centered and team-based approach where every member of The Circle of Care can be coached and guided by established workflows containing clinical protocols. The software is user-friendly for all its end users, especially for the senior citizens as they often require complex care. It enables family communication and engagement helping to address social isolation.

With our aging population and the need for complex care management, multiple technologies are required, such as sensors technology for falls and wandering, alerts and reminders for medication adherence, one touch virtual visits, and many others. Through mobile technology like Aetonix's aTouchAway, we provide a connected environment where all of this is possible, plus more. Through mobile/tablets and devices/sensors, a patient can keep track of his or her health, inform the care team, and receive guidance on potential actions. Remote care is truly an exciting space to be in, and we hope our patient-centric approach serves us well in the years to come.

Proven Success

The aTouchAway platform has been used by healthcare organizations in Ontario to manage patients with multiple chronic care conditions and facilitate communication and care delivery amongst The Circle of Care. As an example, aTouchAway has been used by the Lennox & Addington County General Hospital (LACGH) for the BREATHE program that addresses Chronic Obstructive Pulmonary Disease (COPD). It has reduced the COPD 30-day readmission from 23% to 3%, and saved patients over 8,000 km in travel time.





Fitted with all relevant measurement devices & tablet (if needed). Vital signs monitored from the comfort of their homes.

Patient discharged from hospital post chronic care /acute care episode.



Michel Paquet, Founder & CEO

"Since the beginning, the vision has been to connect people. Today I am really proud that we help healthcare professionals remotely manage patients with complex needs and strive for better patients outcome." **–Michel**



Chandler Newman-Reed, Tech Lead

"I like to make life a little easier for those with complex needs. This keeps me going when working with healthcare professionals to create the workflows they desire." **–Chandler**



At the Aetonix workspace. Where all the magic happens.

All members of the care team can collaborate efficiently, putting the patient at the center.

Clinical and hospital performance metrics are improved due to superior remote care optimization.

First and foremost, patients are happy due to greater clinical outcome. Physicians and hospitals are equally happpy as such outcomes translate to better care at lower cost.



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Aetonix

aetonix.com

NEUROVINE

An evidence-based health technology company that is optimizing patient brain health.

The company was founded by Dr. Ashleigh Kennedy, a neuroscientist from Stanford University, and Dr. Matthew Kennedy, an Ottawa based family physician. Neurovine has developed proprietary deep tech software that leverages data from wearable technology and artificial intelligence to empower patients to take control of their brain recovery and to equip caregivers to support this process.

Neurovine was created out of personal experience and professional need. Co-founders Ashleigh and Matthew, approach the issue of concussion from different perspectives. As an elite athlete, Ashleigh had personal experience with friends and family members suffering from the negative impact of concussions. She focused her schooling on the study of the brain and human performance but felt that the years of research were stuck in the laboratory.



As a physician, Matthew was frustrated that he did not have the tools to help his patients recover from lingering concussions. The problem is that concussions are highly complex injuries that are nearly impossible to measure. They are invisible. The patient appears the same to their loved ones, work colleagues, and networks surrounding them, and so, they often suffer in silence. They are confused about their recovery process and become socially isolated, dealing with anxiety and depression.

Neurovine is setting out to empower the patient by measuring brain health and optimizing their recovery process. This data collected by Neurovine allows doctors to track improvement, identify triggers and prescribe appropriate treatment in a way that has not yet been possible.









Over the first year, Dr. Kennedy and her team at Neurovine have worked with Canada's leading experts in the MedTech space, conducted trials in the Digital Health program at the Elizabeth Bruyère Research Institute, and worked with individuals diagnosed with post-concussion syndrome to refine the technology. In a space that has been long neglected by the advancements of technology, Neurovine strives to be a trailblazer in bringing brain health into the hands of Canadians.

Email: admin@neurovine.ai
Neurovine | neurovine_ai
www.neurovine.ai

Fullscript™

At Fullscript we look at the North American healthcare system and see opportunity. Specifically we see the opportunity to build something that creates positive change and solves problems that no other company or organization is solving. Both care providers and patients need and want a shift from volume to value, from pharmacology to the incorporation of supplements and lifestyle changes. That's why we built an online platform that enables healthcare providers and patients to work together to produce better patient outcomes.



Treating Causes, Not Symptoms.

Originally launched as an online storefront to dispense supplements, in 2013 we rebuilt our original platform to connect the entire patient workflow, unifying fragmented systems that made it difficult for providers to develop care plans and equally difficult for patients to follow the plans. There was a need to change the way health is prescribed, and we wanted to make that change.

We knew integrative health practitioners would be critical to a paradigm shift, but saw that compared to conventional practitioners, integrative healthcare practitioners—Medical Doctors, Osteopaths, Nurse Practitioners, Chiropractors, Nutritionists, Naturopaths—face unique challenges. They spend more time with any given patient, have more non-billable hours per patient, and earn less money for their efforts. By connecting fragmented systems, Fullscript makes it easy to develop and e-prescribe protocols, gather patient insights and help patients stay adherent to their plans via simple notifications.

Beyond connecting fragmented systems, the Fullscript platform also simplifies integrative healthcare for providers and patients, giving clinics with limited in-office inventory the ability to ensure patients get the supplements they need.

Integrative health practitioners who use the Fullscript platform have more time to focus on what matters most—patient care—because Fullscript:

- Complements physical inventory
- Streamlines workflows with industry-first EHR (electronic health record) integrations
- Includes efficient e-prescribing via protocols, recommendation templates, and favourites
- Enables patient adherence management

That's the true value of the Fullscript platform: making healthcare easier for both patients and healthcare providers by eliminating frustrating, time-consuming guesswork.

It's About More Than Supplements

Supplements are widely available both online and in traditional retail settings. The sheer volume of supplements on the market can be overwhelming for the average consumer. Fullscript partners with the most trusted manufacturers to ensure healthcare practitioners and patients get what they need, when they need it, without pouring hours of their own time into research. And because the Fullscript platform provides a comprehensive patient view, care providers can formulate protocols that take all pharmaceuticals, supplements, and physical and spiritual practices into account.

FAST FACTS:

Stage
Expansion / Maturity

Employees
350

Founded
2012

Funding received:
$25 MILLION US Series-B (2019)







Kyle Braatz, President and Chief Revenue Officer
Kyle (left) co-founded Fullscript in 2011 and led the company through massive growth as CEO before merging with Natural Partners in 2018. Under Kyle's leadership, Fullscript was named Fastest Growing Company in Ottawa two years in a row.

Brad Dyment, Co-Founder and Chief Product Officer at Fullscript (below) , is enthusiastic about the immediate and long-term potential of Fullscript. "Fullscript continues to invest in making our platform accessible via EHR integrations, and we're already planning to launch with some of the largest EHR partners powering North American health systems."

"At the same time, our evidence-based decision support tools will help practitioners make smarter prescribing decisions," he said. "Supplements are often prescribed alongside pharmaceuticals, so providing practitioners with point-of-care decision support can help improve prescribing habits and patient safety."

The Fullscript platform has maintained a triple-digit growth rate since launching in 2012. "In May 2019 we closed a $25million series B to accelerate our lead position in the market." With more than 350 teammates, and offices in Ottawa, Arizona, and Pennsylvania, there is no sign of slowing down.

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fullscript.com

SIMPLICITY IS OUR CUTTING EDGE

Big problems don't always require big solutions. Sometimes the best ideas are those that are the most subtle and nuanced. That's exactly the approach that TryCycle Data Systems took when CEO John MacBeth of Ottawa, decided to tackle the huge problems associated with Mental Health and Substance Use disorders.

Deconstructing a traditionally reactive behavioral health system to reimagine and reconstruct a proactive solution, was TryCycle's first test. Early analysis suggested that front line health professionals needed new ways to help improve their decision-making processes. MacBeth knew that data would be the catalyst.

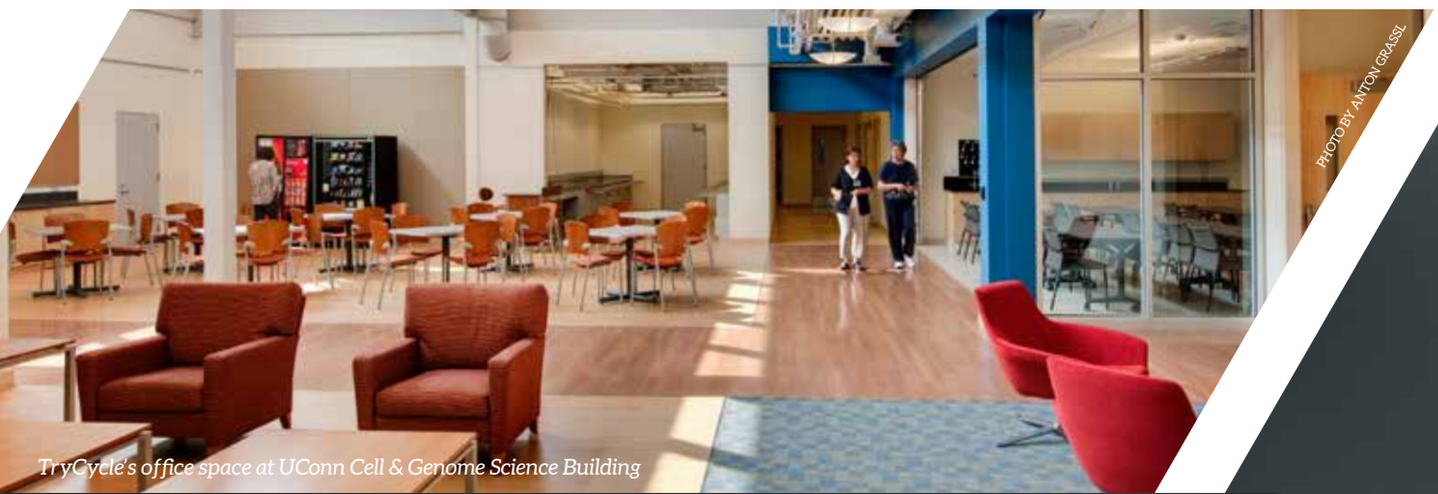


PHOTO BY ANTON GRASSL

TryCycle's office space at UConn Cell & Genome Science Building

Out of this inspired need for 'shaking things up.' TryCycle Data Systems was born, a next-generation, cloud-based, data-driven, clinical decision support platform. TryCycle's own 'Digital Compassionate Tether' provides unprecedented real-time insights by connecting the patient to the practitioner between in-person visits.

TryCycle has painstakingly worked to keep its technology platform simple, effective and accessible. Counterintuitively much of their early success can be credited to the company's principal approach of using data to support health professionals and practitioners, rather than putting all emphasis on patients alone. The original hypothesis being, it is absurd to ask a person with a brain disease to be responsible for self-help. And from here, TryCycle as both a technology and a coordinated care model began to take shape.



PHOTO BY MARK HOLLERON

TryCycle's office space at UConn Cell & Genome Science Building

TRYCYCLE
DATA SYSTEMS

TryCycle Data Systems CEO, John MacBeth



The Ottawa team imagined what would happen when the ownership of care shifted from the patient to the practitioner, and the early results at TryCycle have been nothing short of amazing. For the first time in the life of many patients, they are receiving calls from their healthcare providers based on their state of risk. The simple and elegant act of trying to catch a patient before a relapse has had profound and life-changing impacts for many TryCycle subscribers.

Access to the TryCycle platform was an early concern for us, so we looked at the most egalitarian ways of ensuring that everyone would be able to utilize it. We resisted the idea of tying our system to anything that wasn't consumer-grade electronics. From the patient's perspective, all that's required is a smartphone, access to the internet and fifteen minutes for onboarding with their practitioner. For health professionals, all they require is a smart device, (smartphone or tablet), or computer, and access to the internet. It's that simple. No proprietary wearable, no expensive gadgets, and no complicated registration process. In our world, disruption is a byproduct of our work, not the goal.

In the spaces between scheduled visits and in-person appointments, TryCycle increases communication and improves engagement. Patient insights, trends, and patterns can be transformed into actionable responses by health providers. TryCycle extends treatment and can strengthen the client-clinician relationship. This on-demand access to stratified patient data allows providers to action targeted resources, and deliver the right interventions, to the right patients, at the right time.

The innovation behind TryCycle is at work in hospitals, clinics, and treatment centers across Canada and the United States. Together, we are increasing human connection during and after treatment hours, helping patients stay engaged in all stages of their recovery. These simple gestures in healthcare, such as asking more questions, are forging a much-needed connection with patients, and Trycycle is bridging this gap.



PHOTO BY JANINE CHENEAU/UCONN HEALTH PHOTO

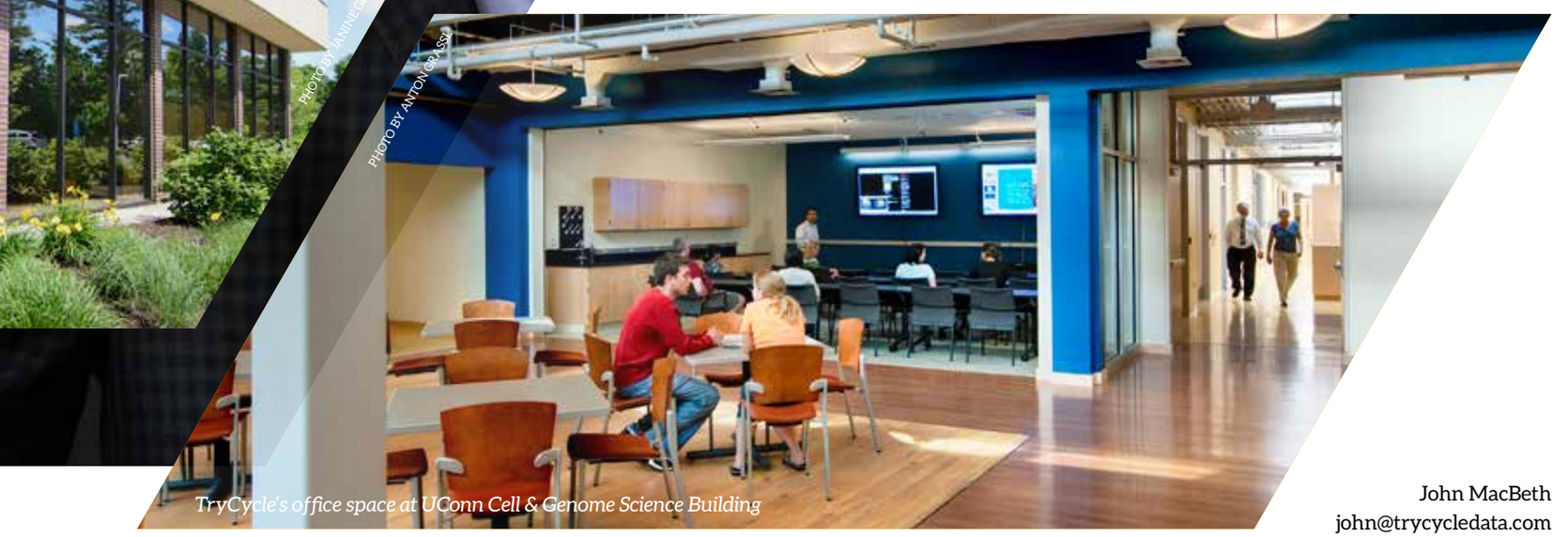
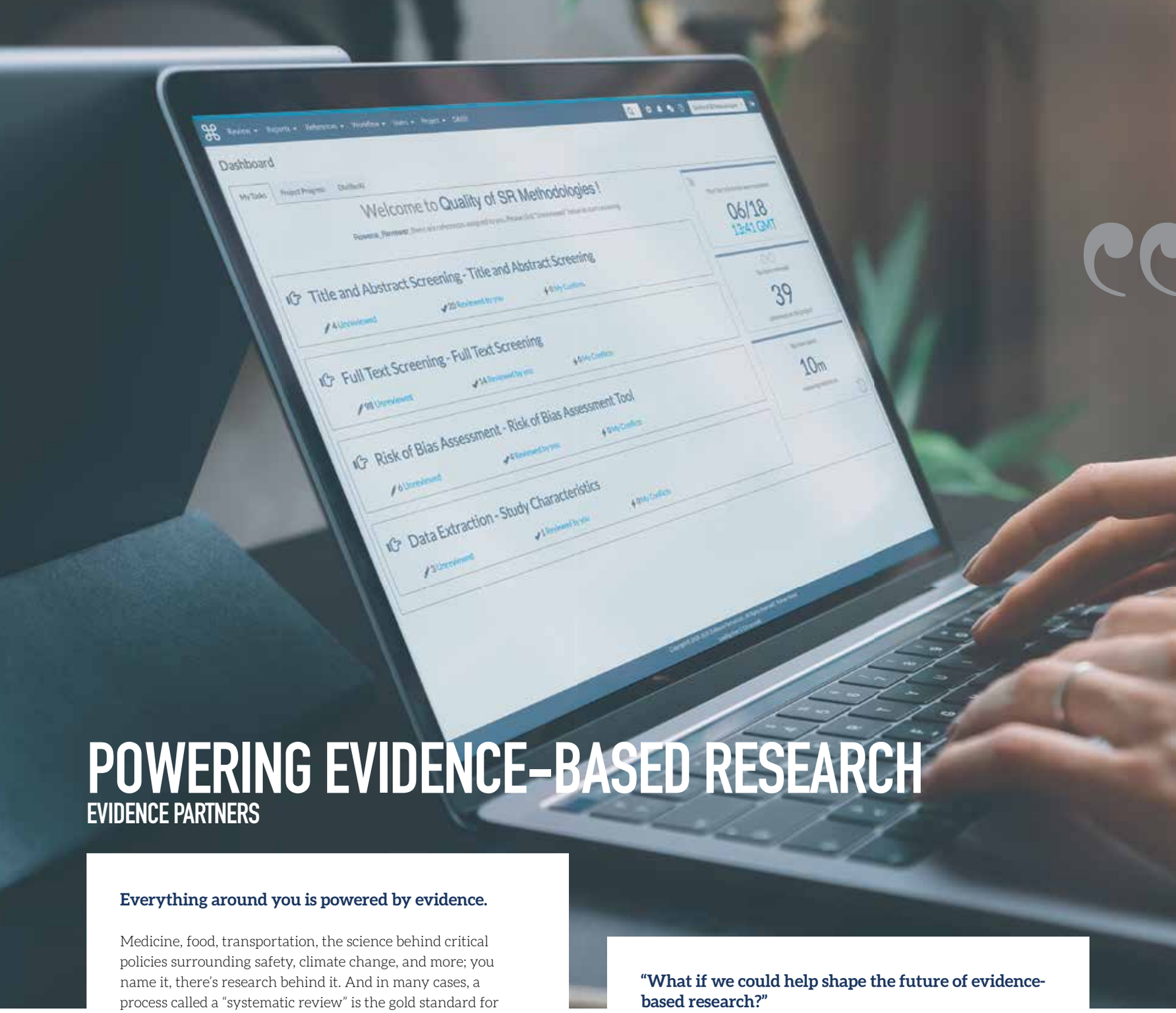


PHOTO BY ANTON GRASSI

TryCycle's office space at UConn Cell & Genome Science Building

John MacBeth
john@trycycledata.com



POWERING EVIDENCE-BASED RESEARCH

EVIDENCE PARTNERS

Everything around you is powered by evidence.

Medicine, food, transportation, the science behind critical policies surrounding safety, climate change, and more; you name it, there's research behind it. And in many cases, a process called a "systematic review" is the gold standard for providing evidence-based results to guide policies. It involves systematically collecting, screening, and reporting on all available literature on a specific topic to answer a targeted research question. In the past, researchers would manually screen references for relevance, copy and paste data into spreadsheets, and create reports by hand. The process was arduous and error-prone. Today, the increasing demand for evidence-based research requires software that can distill large amounts of information into usable data. Systematic reviews are standard practice for some of the most important research organizations on the planet -- and DistillerSR by Evidence Partners is the world's leading software to do the job accurately and efficiently.

"What if we could help shape the future of evidence-based research?"

In 2001, EP's three founders were working on data management software for clinical trials and developed the first systematic review software in collaboration with the CHEO Research Institute. In the years that followed, Evidence Partners was born, based on the vision of a highly configurable systematic review platform that could be used across a broad variety of research protocols. That platform eventually became DistillerSR. The role and use of systematic reviews in evidence-based research has continued to grow rapidly, driving exponential growth in Evidence Partners' global customer base. What started as a dream to help researchers complete their work more efficiently has turned into the leading software in the systematic review community.

WE HELP SMART PEOPLE MAKE IMPORTANT DECISIONS.

PETER O'BLENIS, CO-FOUNDER & CEO, EVIDENCE PARTNERS

Ottawa is a hub for the development of systematic review best practices.

In addition to being home to many of the world's thought leaders in systematic reviews and healthcare research, Canada, and specifically, Ottawa has also long been a driving force in Evidence-Based Medicine, which involves the use of current best evidence in making decisions that impact individual patients. Prominent researchers in Ottawa have been pivotal in the global effort to increase transparency, validity, and integrity in research, and they have been key in developing tools that have been adopted worldwide to help enhance modern research. Additionally, Ottawa-based researchers have advocated for and increased equity in research and worked towards developing the best methods to take evidence and put it into practice for patients. Their goal is to provide the best information available to guide decision-makers, including policy-makers, physicians, and patients, which is something we can all get behind.

The future of systematic reviews lies in artificial intelligence.

In 2009, DistillerSR was a game-changing software that enabled researchers to put down their pen and paper, retire the time-consuming and error-prone spreadsheet method, and produce transparent, high-quality research in a fraction of the time it used to take. Evidence Partners is now going further by integrating artificial intelligence into the mix. With these innovations, researchers can quality check their work and perform their systematic reviews much faster, which is critical in today's ever-advancing world of medicine and regulatory affairs. The need for evidence is growing at an unprecedented rate, and DistillerSR continues to raise the bar and ensure today's researchers are supported in all of their essential, often lifesaving, research.



Johnathan Barker, Peter O'Blenis, and Ian Stefanison, Co-Founders



We like to party, and by party we mean help researchers conduct systematic reviews

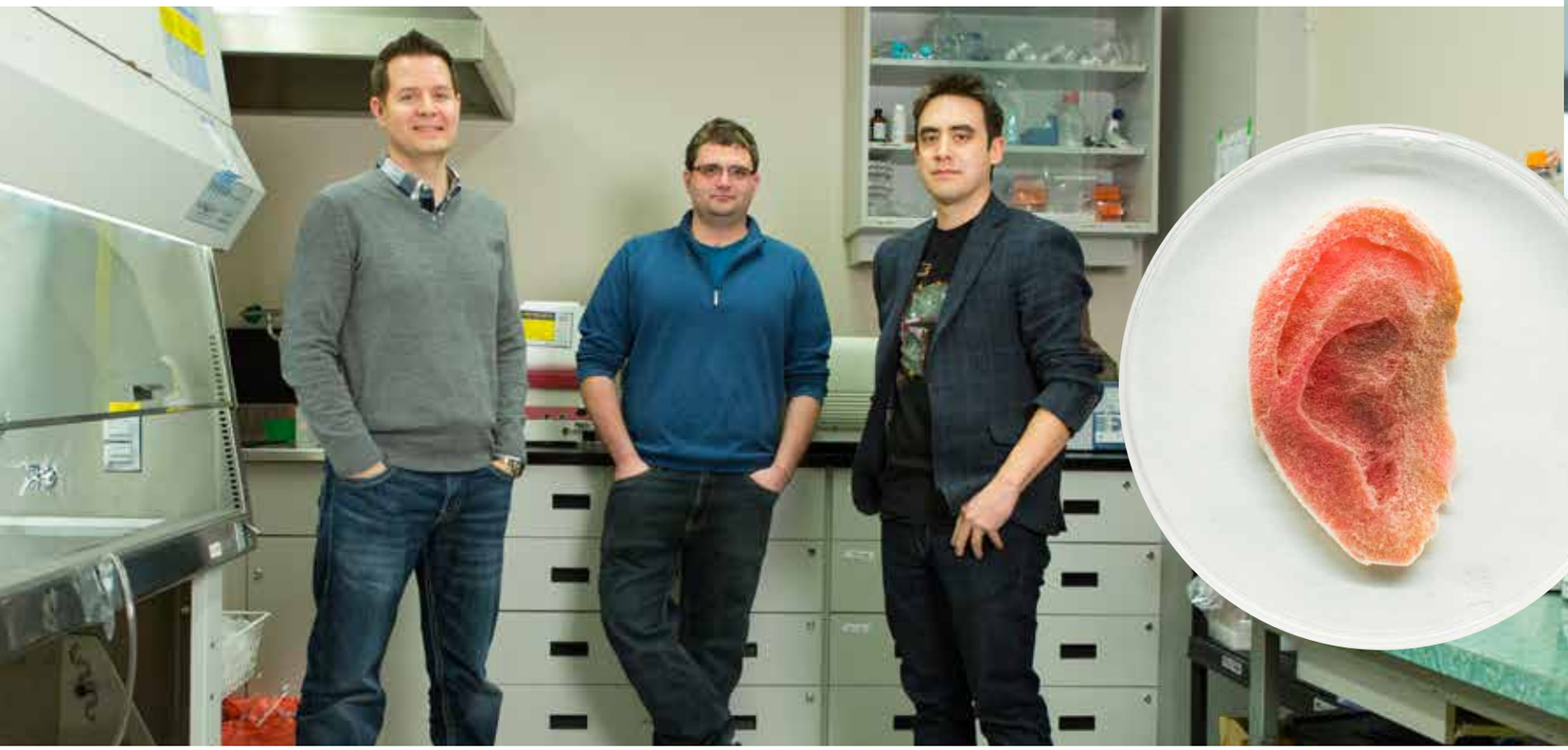
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Evidence Partners

www.evidencepartners.com

SPIDERWORT INC.

Sometimes the most remarkable breakthroughs come from the most improbable places.



Such was the case with the Ottawa biomaterials startup, Spiderwort Inc., who can trace its origins back to something as simple as an apple.

While researching biomaterials at the University of Ottawa, Spiderwort co-founders Andrew E. Pelling, Charles M. Cuerrier, and Daniel Modulevsky created a human ear using material from an apple. This demonstration spawned the idea of using plant-based biomaterials to help repair the human body, and Spiderwort was born.

Spiderwort has a mission that goes far beyond the humble apple; the startup hopes to one day be able to treat everything from a broken bone to a severed spinal cord by using its plant-based biomaterial technology to provide a scaffolding for human cells.

Spiderwort's plant-based biomaterial enables the human body to heal damaged tissues by providing structural support while also being highly inert and biocompatible. Due to its unique characteristics, Spiderwort's biomaterial is being tested in many areas, including the repair of bones to the reconstruction of soft tissues. These biomaterials have the potential

SPIDERWORT

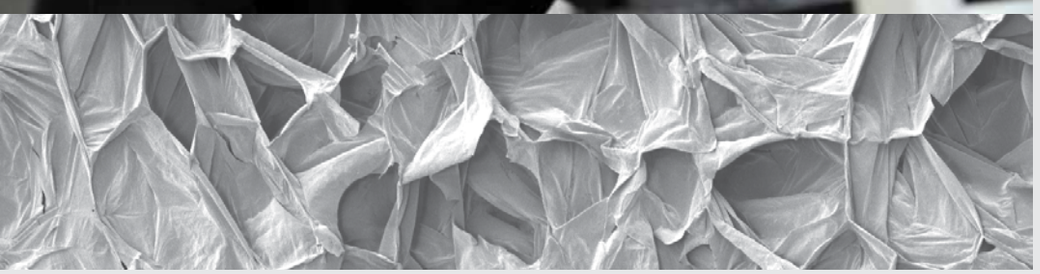


Dr. Charles M. Cuerrier, PhD
Chief Executive Officer



Dr. Andrew E. Pelling, PhD
Chief Scientific Officer





to transform the long, painful recovery following an injury into something much faster with fewer potential complications. Of course, the headlining application of the technology is its potential to treat spinal cord injuries. Spiderwort hopes to one day be able to guide the regrowth of spinal cord structures in paraplegic and quadraplegic patients, something that remains a major unsolved medical challenge.

The biomaterials industry is highly competitive and full of large incumbents but Spiderwort has an edge that could lead this small Ottawa company to shock the world. While most similar materials in the field are either made from synthetic plastics or harvested from cadavers, Spiderwort's plant-based biomaterial is more natural and studies to date suggest it is less prone to rejection. This "biocompatibility" is a significant hurdle as other biomaterials are sometimes toxic to the human body after long-term exposure, and rejection can significantly complicate the healing process. Spiderwort's biomaterial has other potential applications as well, from reconstructive surgery to helping artificial meat companies shape the perfect burger.

The early results have been positive and both Cuerrier and Pelling, along with their dedicated team at Spiderwort, hope to channel their curiosity and unique approach to solving complex problems into products with the potential to transform human lives.



Dr. Stephen Hanson, PhD, MBA, Business Development Director







SpiderwortBio

spiderwortbio.com

Macadamian designs and develops digital health software for medical devices, medical software, and digital therapeutics. Our goal is to create solutions that are simple and meaningful, prioritizing the experience of the patient, the clinician, and the business needs of our clients.

Improving quality of life is Macadamian's North Star.

Macadamian offers digital solutions for the medical device and life-science industries with the ultimate goal of improving patient engagement, adherence, and overall health. Macadamian is to its clients what ignition is to an engine; however powerful the engine, its use, and utility must first be clear. That knowledge is what Macadamian can create through its digital solutions, which ensure patients everywhere are getting all the benefits a medical device has been designed to provide.

By increasing the patient experience in this way, patients have better adherence and thus better outcomes, and Macadamian's clients—the companies that provide these health tools—also have a means of demonstrating their products' efficacy. Macadamian helps them harness the data their products generate and then make it meaningful for patients and for the hospitals that serve them.

Each Macadamian-designed solution is an answer to the question, How can we augment the patient experience, and decrease the cost of patient care while also augmenting the population's health?

As patients and healthcare providers alike look increasingly to preventative care to ensure good health, data like the kind Macadamian helps its clients to capture becomes invaluable—even if a more general population might not yet realize it.

"We're finally getting to this place where healthcare, in general, is starting to move faster, and it's because data is becoming accessible," Fred Boulanger, Macadamian's Founder and CEO, explains. "That data enables AI, and AI is access to care. It is the ability to be treated or diagnosed or coached when you're not just in front of a doctor."

While such means of monitoring are not unfamiliar—FitBits come to mind, as do other body-metric apps—we're only just scratching the surface of what that data can do—mostly because we're only just scratching the surface of how much data we can collect. But Macadamian sees that future clearly. Fred likes to illustrate it with an anecdote involving a Formula One race.

"A single one of those races generates 30 terabytes of data for McLaren," Fred says. "The equivalent of the data a patient gathers on themselves, using the devices available, is 100 megabytes per year."

Human metrics have some catching up to do, but Macadamian is—as it were leading the race. It has been for some time—since 1999, in fact, when the company got its start in the telecommunications industry. Fred knew he was onto something when he checked his email one Saturday morning to find a message praising Macadamian's coding knowledge and experience and requesting help



> *"In 2011, we shifted our focus to life science and medical devices because I wanted to make a dent in the universe, and I thought this was a worthy North Star to have."*
>
> **— Frederic Boulanger, CEO, Macadamian**

on an upcoming project. Fred was excited to have a sales lead—and then floored to realize it was from Ray Ozzie of Lotus Notes and (more recently) Microsoft fame.

Ray Ozzie might have been the first to notice Macadamian's value, but he wasn't the last. At some point, it was Macadamian's code inside the White House's Red Phone.

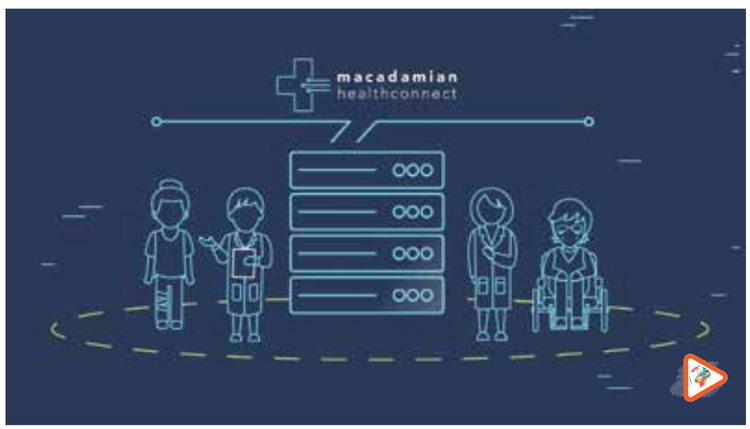
Honored though Fred was, neither of those instances is the most meaningful to him in Macadamian's journey.

"In 2011, we shifted our focus to life science and medical devices because I wanted to make a dent in the universe, and I thought this was a worthy North Star to have," Fred says.

Macadamian had been working with a customer for several years on a product that was only released in 2018. A standard-of-care product, it enables population management for the hospital as well as giving better care so that, plainly put, fewer people die.

"Within three months of the product going to market, we were on the phone with our customers and they could tell us that, at that year's end, 45 people were able to celebrate Christmas because of this product and because of the software we had put in place," Fred says. "It's a powerful story for me."

Thanks to Macadamian's software—in this product and others—many more people have had that chance, too.



macadamian.com

eMURMUR

eMurmur ID – AI powered heart murmur detection

Seeing a healthcare provider usually means having your heart listened to with a stethoscope, a procedure called cardiac auscultation. But what are they actually hearing? Unlike a blood test, you don't receive documentation with the findings from auscultation. eMurmur ID takes the guesswork out of the process. Our decision-support algorithm identifies and classifies heart murmurs, yielding expert-level accuracy within seconds.

As one of the world's leading causes of death in men and women, heart disease is often foreshadowed by a heart murmur, an abnormal heart sound that is usually first identified by a healthcare provider using a stethoscope. Even so, the accuracy rate of detecting a heart murmur is low among primary care providers, and, because of this, patients with suspected pathological heart murmurs are referred to a cardiologist for an echocardiogram—which often shows that the patient either has no murmur, or an innocent one. Inappropriate referrals are common and are accompanied by long, often stressful wait times, emotional distress, and the burden of having to take time off of work and school. We created eMurmur ID to address that problem.



eMurmur®

eMurmur ID uses advanced machine learning to identify and classify pathologic and innocent heart murmurs, the absence of a heart murmur, the heart rate, and S1/S2 markers. The end-to-end solution is comprised of AI-based analytics, a mobile app, and a web portal—all FDA cleared, HIPAA compliant, and CE marked. eMurmur ID is designed to seamlessly integrate into a healthcare practitioner's workflow and in addition to being an effective screening tool, it is an innovative method of confirming a healthcare provider's clinical diagnosis. This disruptive technology has been proven through many clinical trials and validation studies to be highly accurate at identifying and classifying heart murmurs.

The story of eMurmur dates back to 2012, when the founder, Andreas Schriefl and co-founder (and name twin) Andreas Reinisch were studying Biomedical Engineering together in their homeland of Austria. Their field of research was right at the intersection of Engineering and Medicine, which is where they saw an opportunity to make a difference in the area of cardiac auscultation by developing machine learning algorithms for the automated interpretation of heart sounds.

In 2018, Ottawa was chosen as eMurmur's North American hub because it is home to two world-renowned institutions that would prove to be instrumental in carrying out eMurmur's clinical research: CHEO (the Children's Hospital of Eastern Ontario) and the Ottawa Heart Institute. Over the years, eMurmur ID's algorithm was built out and validated through several clinical studies on heart sounds from patients of all ages. During the FDA submission process, the eMurmur team began receiving feedback from instructors that teaching heart murmur identification to students was challenging, and it became clear that the thousands of clinically verified heart sounds amassed over the years could in fact serve as an invaluable resource for both students and practitioners in medical and health care fields.

The eMurmur team developed two innovative teaching and training apps called eMurmur University and eMurmur Primer, both available for iOS and Android devices. eMurmur University is a tool for instructors that are using the app to teach and test the recognition of heart sounds and murmurs to students. eMurmur Primer is a self-testing app meant to refresh the learner's ability to hear and distinguish heart sounds and murmurs.

eMurmur is expanding quickly and will start rolling out the clinical product eMurmur ID across the US and EU during its next go-to-market phase in 2020. It is the company's vision to provide highly accurate heart-health screenings to millions of people around the globe.







CHAPTER TEN
TELECOMMUNICATIONS



TELESAT

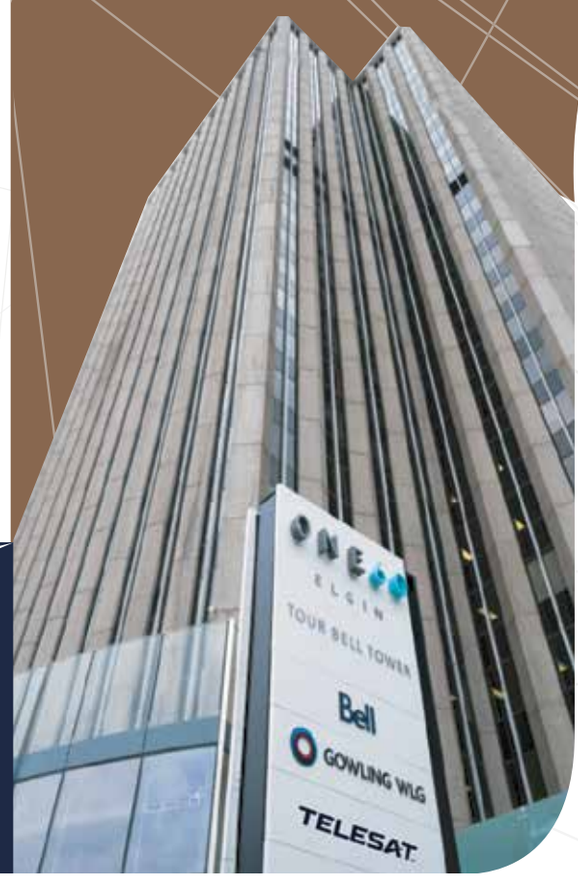
Igniting the Future of Connectivity, Today.

Ottawa residents are justifiably proud that our nation's capital is attracting major technology companies who are helping transform the culture and vibrancy of our community. One of these industry disruptors is Telesat, a company formed 50 years ago when government and business came together at the height of the space race to assure that Canada would have a leading role in the rapidly developing field of satellite communications.

The Telesat Canada Act was signed in 1969, just weeks after the Apollo 11 mission landed humans on the Moon for the first time and then safely returned them to Earth. It was a period of great excitement and expectation for the commercial space industry and Telesat went to work to fulfill those expectations, hiring the best engineers and scientists available. Three years later, Telesat launched Anik A1, the world's first domestic communications satellite in geostationary orbit.

Telesat is now one of the largest, most successful providers of satellite communications in the world. Headquartered at 160 Elgin Street in Ottawa's downtown core, Telesat owns and operates a global fleet of 16 geostationary satellites along with a robust teleport and terrestrial infrastructure that is integrated with its fleet. Through its state-of-the-art space and ground assets, Telesat provides reliable and secure communications solutions – nationally, regionally and globally – to hundreds of broadcast, telecom, corporate and government customers around the world.





50 YEARS Creating Connections Telesat

The global space industry is hugely important, not only for keeping people connected and secure but for its economic role as it generates US$360 billion annually with satellite communications services accounting for one-third. Telesat specializes in satellite communications which are at the center of TV distribution, Internet access, broadband to ships and planes, and a host of other services. In fact, nearly all TV programming in the world is carried by just a few hundred satellites orbiting above the earth. This is true even for viewers that rely on cable, over-the-air, or fibre-delivered TV services.

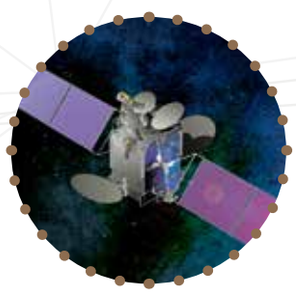


Telesat's Allan Park Teleport in Allan Park, Ontario

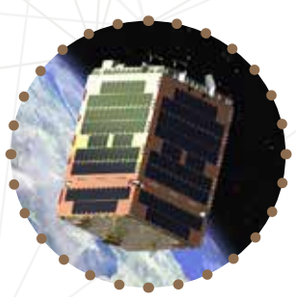
Telesat has grown by leveraging its deep technical expertise and customer-oriented culture which are backed by an industry leading consultancy and R&D Lab. Relying on these capabilities, Telesat has built a long and established record of innovation, both technical and commercial – a record that has been at the core of the company's growth since its inception. Here are a few highlights:



- 2004 –Telesat launched the first satellite to successfully commercialize consumer Ka-band broadband services. Within two years of its launch, Anik F2 was serving 100,000 subscribers in North America and bringing broadband to many homes and businesses for the first time. Consumer broadband by satellite is now forecasted to exceed 5 million global subscribers by 2025.



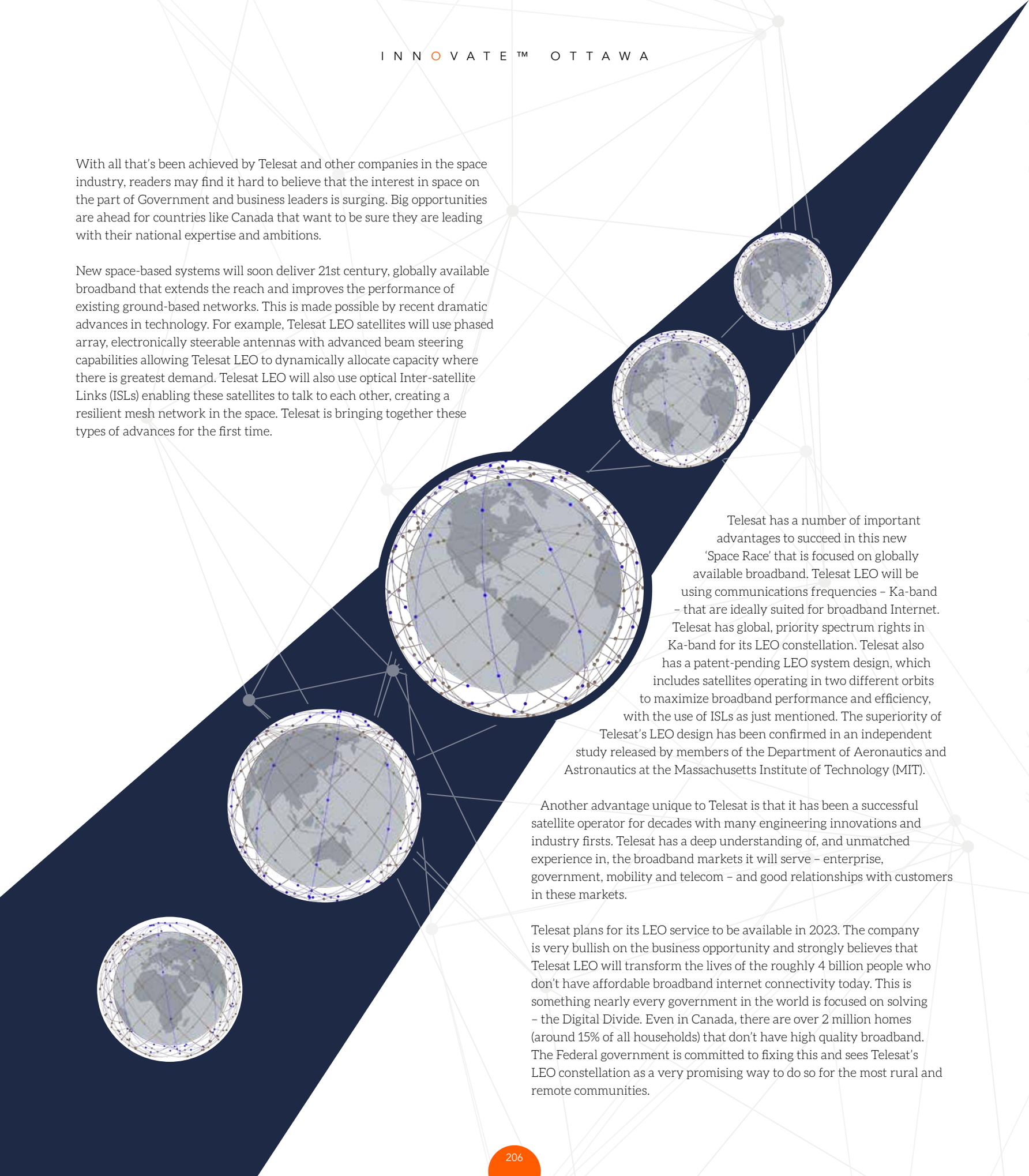
- 2009 – Telesat launched Telstar 11N, the first satellite to provide full Ku-band coverage of the North Atlantic Ocean from the Arctic Circle to the Equator. The success of this payload contributed significantly to a global boom in mobile broadband for both aeronautical and maritime markets.



- 2018 – Telesat launched its Phase 1 LEO satellite: the start of a new global constellation that will revolutionize the delivery of high capacity broadband by leveraging Telesat's patent-pending orbital architecture and global priority spectrum rights. Telesat's LEO system will use Ka-band, just as the company did with its Anik F2 last decade, and bring a new level of broadband performance to commercial and government customers worldwide.

With all that's been achieved by Telesat and other companies in the space industry, readers may find it hard to believe that the interest in space on the part of Government and business leaders is surging. Big opportunities are ahead for countries like Canada that want to be sure they are leading with their national expertise and ambitions.

New space-based systems will soon deliver 21st century, globally available broadband that extends the reach and improves the performance of existing ground-based networks. This is made possible by recent dramatic advances in technology. For example, Telesat LEO satellites will use phased array, electronically steerable antennas with advanced beam steering capabilities allowing Telesat LEO to dynamically allocate capacity where there is greatest demand. Telesat LEO will also use optical Inter-satellite Links (ISLs) enabling these satellites to talk to each other, creating a resilient mesh network in the space. Telesat is bringing together these types of advances for the first time.



Telesat has a number of important advantages to succeed in this new 'Space Race' that is focused on globally available broadband. Telesat LEO will be using communications frequencies – Ka-band – that are ideally suited for broadband Internet. Telesat has global, priority spectrum rights in Ka-band for its LEO constellation. Telesat also has a patent-pending LEO system design, which includes satellites operating in two different orbits to maximize broadband performance and efficiency, with the use of ISLs as just mentioned. The superiority of Telesat's LEO design has been confirmed in an independent study released by members of the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT).

Another advantage unique to Telesat is that it has been a successful satellite operator for decades with many engineering innovations and industry firsts. Telesat has a deep understanding of, and unmatched experience in, the broadband markets it will serve – enterprise, government, mobility and telecom – and good relationships with customers in these markets.

Telesat plans for its LEO service to be available in 2023. The company is very bullish on the business opportunity and strongly believes that Telesat LEO will transform the lives of the roughly 4 billion people who don't have affordable broadband internet connectivity today. This is something nearly every government in the world is focused on solving – the Digital Divide. Even in Canada, there are over 2 million homes (around 15% of all households) that don't have high quality broadband. The Federal government is committed to fixing this and sees Telesat's LEO constellation as a very promising way to do so for the most rural and remote communities.



This prompted the Federal government last year to enter a partnership with Telesat where the government will contribute $85 million that will go towards some of the development costs associated with the project as well as $600 million over 10 years to help ensure rural Canadians have access to affordable, very high quality broadband delivered by Telesat LEO.

Telesat is convinced that they will bring fast broadband to those that lack it, here in Canada and throughout the world and create hundreds of high tech, high quality jobs, most of which will be right here in the National Capital Region. Suffice to say they are very focused on this significant opportunity – another great Telesat innovation that will improve the lives of so many Canadians very soon – and running hard to get there.

Given what Telesat has already achieved in its 50-year history, we can expect Telesat LEO to be another transformational innovation from Canada's leader in satellite services.

"Telesat LEO is the most ambitious global broadband infrastructure program ever conceived and will revolutionize how Canadians, and everyone else in the world for that matter, experience and leverage the Internet.

Telesat LEO will help achieve Canada's goal of universal connectivity, ensuring that Canadians, regardless of where they work or live, have affordable, high quality, and high-speed Internet."

DAN GOLDBERG, TELESAT'S PRESIDENT AND CEO

TELESAT™

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40 YEARS OF INNOVATION AT BLACKBERRY QNX

The Trusted Software Foundation for Safe, Secure and Reliable Systems





Founded as Quantum Software Systems by Dan Dodge and Gord Bell in 1980, BlackBerry QNX has been providing a safe, secure, and reliable software foundation for the world's most critical systems for the last 40 years.

Like many tech companies, the story of BlackBerry QNX started in a basement, in this case the basement of Gord Bell's parents' home. Early on, Dan and Gord designed and developed their own hardware and all of the software required to make things work. When the IBM® PC was released in 1981, they saw the potential of computer technology and made a conscious decision not to pursue 'trivial' desktop computer software, opting instead to take on the much bigger challenge of building safe, secure, and reliable software for embedded systems. They enjoyed the challenge that restricted computing power and size brought to the table as it pushed them to build a lean and reliable operating system (OS). They started to grow the company, moved into some office space in Ottawa's west end and success followed soon thereafter. Ottawa (Kanata) has been home to the company ever since.

The QNX® operating system, along with the rest of the QNX software product portfolio is now the foundation of many of the world's mission-critical embedded systems including ones found in nuclear power plants, wind turbines, the International Space Station, surgical robots, life-critical medical devices, autonomous and connected vehicles, trains, traffic lights, and many more. These systems have to operate safely, securely, and reliably, 24 hours a day, 365 days a year, and with a long list of design wins under its belt, BlackBerry QNX has no shortage of clients who rely on them to keep their systems running.

BlackBerry | QNX











With cutting-edge technology and a drive to solve the really hard problems, BlackBerry QNX has steadily grown and cemented its legacy in the Ottawa technology landscape.

Acquired by Harman International in 2004, Harman opened more doors in the auto industry, helping QNX to become the premiere operating system (OS) and foundational software platform for today's cars, not to mention the connected and autonomous vehicles of the future. As of mid-2019, BlackBerry QNX's software can be found in well over 150 million cars on the road.

BlackBerry (then Research In Motion) also saw the potential in QNX's technology and acquired the company from Harman in 2010. Since then, BlackBerry has been helping expand the dominance of the QNX RTOS in the automotive sector, as well as in industries like medical devices, transportation, robotics and industrial controls. In turn, BlackBerry QNX has helped power the growth of BlackBerry and its transition from a hardware to a software and services company focused on securing the Internet of Things.





BlackBerry QNX is deeply invested and active in the Ottawa technology community:

- Founding member of the Invest Ottawa-led Ottawa L5, one of the nation's largest and most technologically advanced connected and autonomous vehicle proving grounds.
- Provides the core operating system software for the City of Ottawa's traffic light systems.
- Helped found the Canadian Autonomous Vehicle Technology and Innovator Directory to foster collaboration and partnerships among the AV industry.
- Launched accelerator programs with Canada's largest SaaS accelerator, L-SPARK, with the goal of bringing new products to market using BlackBerry QNX technology.
- Has committed to investing $310.5 million (with $40 million provided by the Government of Canada) with plans to hire more than 1,800 of the brightest engineers and scientists over the next 5 years, the bulk of whom will be based in Kanata, to help further the advancement of safe and secure software systems for connected and autonomous vehicles.
- Ongoing investment and collaboration with Ottawa area colleges and universities to help encourage and grow STEM programs.
- Have attracted companies such as Ford Motor Company and others to establish high technology facilities here in Ottawa.

BlackBerry QNX has the technology, the talent and is trusted the world over as a leading supplier of safe, secure, and trusted operating systems, middleware, development tools, and engineering services for mission-critical embedded systems. And while the impact of its innovations has been significant over the last 40 years, its best and most important work still lies ahead—to secure a connected future you can trust.



Learn more about BlackBerry QNX at
blackberry.qnx.com

ERICSSON IS CREATING GAME-CHANGING 5G TECHNOLOGY







Ericsson enables communications service providers to capture the full value of connectivity. Through Networks, Digital Services, Managed Services, and Emerging Business, Ericsson helps customers go digital, increase efficiency and find new revenue streams.

Now, with a focus on 5G, the growth opportunities in mobile traffic are huge, growing eight times between 2017 and 2023.

With older technology generations predominantly addressing consumers (for Voice and Text in 2G to browsing in 3G and Higher speed data and Video in 4G), 5G will serve consumers AND multiple industries, and open new business opportunities across industries.

Driving 5G development, Ericsson sees the industry being propelled in three areas: Massive machine type communications, Critical machine type communications and Enhanced Mobile Broadband.

Through these use cases, we'll see incredibly diverse applications, including: Haptic Healthcare, driverless buses, fiber-equivalent residential access, and connecting billions of devices with very low energy consumption and low cost to ultra-reliability and very low latency.



Ericsson Ottawa is one of the top R&D firms in Canada

Ericsson Ottawa is a top employer and strategic R&D center for wireless communications, with one of the largest, most advanced R&D labs in North America. The Ottawa R&D center has supported game-changing technology that is easy to use, adopt and scale, enabling the wireless industry to capture the full value of connectivity.

This includes its support with ENCQOR (Evolution of Networked Services through a Corridor in Québec & Ontario for Research and Innovation), which is a $400 CDN Million industry-driven partnership which brings together global leaders, SMEs (small and medium enterprises), the public sector, innovation centres and universities to focus on disruptive technology research and innovation, market initiatives, and applications that use next generation digital networks and systems.

With 1,500 employees at the Ottawa site, it's the largest Ericsson R&D centre in North America, sharing over 2,000 patents, driving the industry forward through innovation.





Through an entrepreneurial spirit, Ericsson continuously strives to expand new business opportunities to support global customer needs, while working with educational institutions to develop transformative 5G technology and to prepare the next generation of leaders in wireless communications.

Ericsson provides and fosters a diverse and inclusive culture, growth and innovation opportunities, a sustainable environment and is an active contributor in the community

Located in the heart of the Kanata North Technology park, Ericsson Ottawa focuses on developing products for 5G plug-ins and 5G products, as well as maintaining existing 4G/5G products.

ERICSSON

www.ericsson.com

We create the technology to connect the world.

NOKIA

Only Nokia offers a comprehensive portfolio of network equipment, software, services, and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide.

Adhering to the highest ethical standards, we transform how people live, work, and communicate.





5G, Next Generation Networks and the Internet of Things (IoT)

Ottawa possesses a deep expertise and a long history of global achievements in telecommunications, advanced networks, IoT and related technologies. Today, 90% of Canada's industrial telecommunications R&D takes place in Canada's Capital.

Bolstered by engineering and R&D labs established by Nokia and Ericsson and the rapid growth of Ciena, the region is spearheading 5G innovation, next-generation networks, and communications that will revolutionize the future.

They are also fueling novel applications and solutions in public safety, security, defence, connected communities, intelligent transportation (including CAVs) and precision agriculture—to name a few.



For our latest updates, please visit us online **nokia.com** and follow us on Twitter @nokia



CHAPTER ELEVEN

TECHNOLOGY & MANUFACTURING





GIATEC

Giatec is driving breakthrough innovations in the concrete industry, bringing real-time data on concrete performance to the forefront of every construction jobsite. Their suite of hardware and software products, including nondestructive testing technologies, IoT solutions, and wireless sensors, analyze data throughout concrete's life cycle, helping to build structures faster, safer, and more economically.

Concrete is the second most consumed material in the world next to water. As its ingredients are readily available and can be easily formed into any shape, concrete has been the preferred material for building high-rise structures, bridges, roads, dams, and more. Throughout its life cycle, concrete's properties and performance need to be closely monitored. This is to ensure critical decisions can be made by different stakeholders, including concrete producers, contractors, engineers, and owners of infrastructures. Construction companies are continually looking for solutions to increase efficiency on their jobsites as margins continue to tighten and skilled-labor shortages increase. This is where Giatec Scientific Inc. comes in as the recognized world leader in innovative concrete-testing technologies.

Headquartered in Ottawa, Giatec was co-founded in 2010 by Dr. Pouria Ghods of Carleton University and Dr. Aali Alizadeh of the University of Ottawa, to bring knowledge-based solutions to the concrete industry. Initially starting out at Invest Ottawa with a handful of products, the pair left this incubator space in 2012 and continued to grow quickly thereafter. Today the company has almost 50 employees and over a dozen new positions looking to be filled. Not only that, but they have added more concrete-testing products and solutions to their suite of technologies.



What drives this team? Revolutionizing the concrete industry!

Unlike other industries, the construction world is known for being slow to adopt new technological advancements. As a result, current processes for testing concrete properties are quite primitive and do not fully leverage innovative solutions and methods that have been developed over the past decade. Giatec's mission is to bring long-overdue change to the concrete and construction industries by identifying current challenges and developing easy-to-use and intuitive solutions that can be widely adopted on jobsites.

Giatec's smart solutions measure and analyze data throughout concrete's life cycle during design, production, delivery, placement, and service. This includes award-winning nondestructive testing (NDT) technologies, lab equipment, IoT solutions, artificial intelligence, and wireless sensors that are designed to improve speed and accuracy in monitoring concrete properties. Compared to conventional methods, Giatec's solutions empower stakeholders to make informed and immediate decisions, allowing them to accelerate their project schedules. These products measure rebar corrosion, concrete permeability, moisture content, and temperature, as well as concrete strength. In a relatively short period of time, Giatec has successfully developed these products and solutions, where they have been adopted globally in a wide range of concrete construction projects.









Wireless Concrete Sensors

Giatec's flagship product, SmartRock™, which was awarded *Concrete Construction* Magazine's Most Innovative Product in 2019, is the leading wireless concrete sensor on the market. These sensors leverage the latest technologies in hardware and software. They are placed within the formwork and secured on the rebar before concrete is poured. The sensor is fully embedded, making its application maintenance- and hassle-free. As concrete goes through curing and hardening during the first few days after pouring, its temperature and strength data is recorded by the SmartRock sensors.

The SmartRock app analyzes the data automatically and sends notifications to project team members in real-time. This data can be accessed wirelessly and remotely on any mobile device within the SmartRock app and on the Giatec 360 cloud dashboard. This allows for project schedules to be optimized for critical operations, such as formwork removal, applying loads on the structure, and opening roads to traffic.

Having this data at their fingertips for proactive planning was not possible in the past as project managers and superintendents were relying on time-consuming methods, such as breaking concrete cylinders, in order to measure strength, resulting in frequent delays. Now with the ability to have access to real-time data, they know when they can move on to subsequent construction operations. This allows productivity to improve onsite.

Bringing Artificial Intelligence to the Jobsite

Leveraging millions of data points collected from the SmartRock sensors across the world, and in collaboration with Mila (Montreal's World-Renowned Artificial Intelligence Institute), Giatec developed Roxi, the first AI program for the concrete industry. Roxi's sophisticated algorithms analyze concrete sensor data in real time to generate new insights into concrete performance, create smart notifications, and detect anomalies at various stages of the concrete life cycle. The accurate real-time assessment and prediction of concrete performance during these stages is nearly impossible for humans.

Giatec's concrete sensors have been used in over 5,200 construction projects across 80 countries (such as the Encore Boston Harbor Resort and the 100-storey Vista Tower in Chicago) and are currently accessed by more than 7,000 active monthly users. Giatec's exponential growth has been recognized through various national awards, including MacLean's Growth 500, and Canada's Top 400 Growing Companies by *The Globe and Mail* where they placed #1 in Ottawa in 2019. They have also received the Best Ottawa Business Awards (BOB) for Best Performance in Sale and Best Performance in Exports.

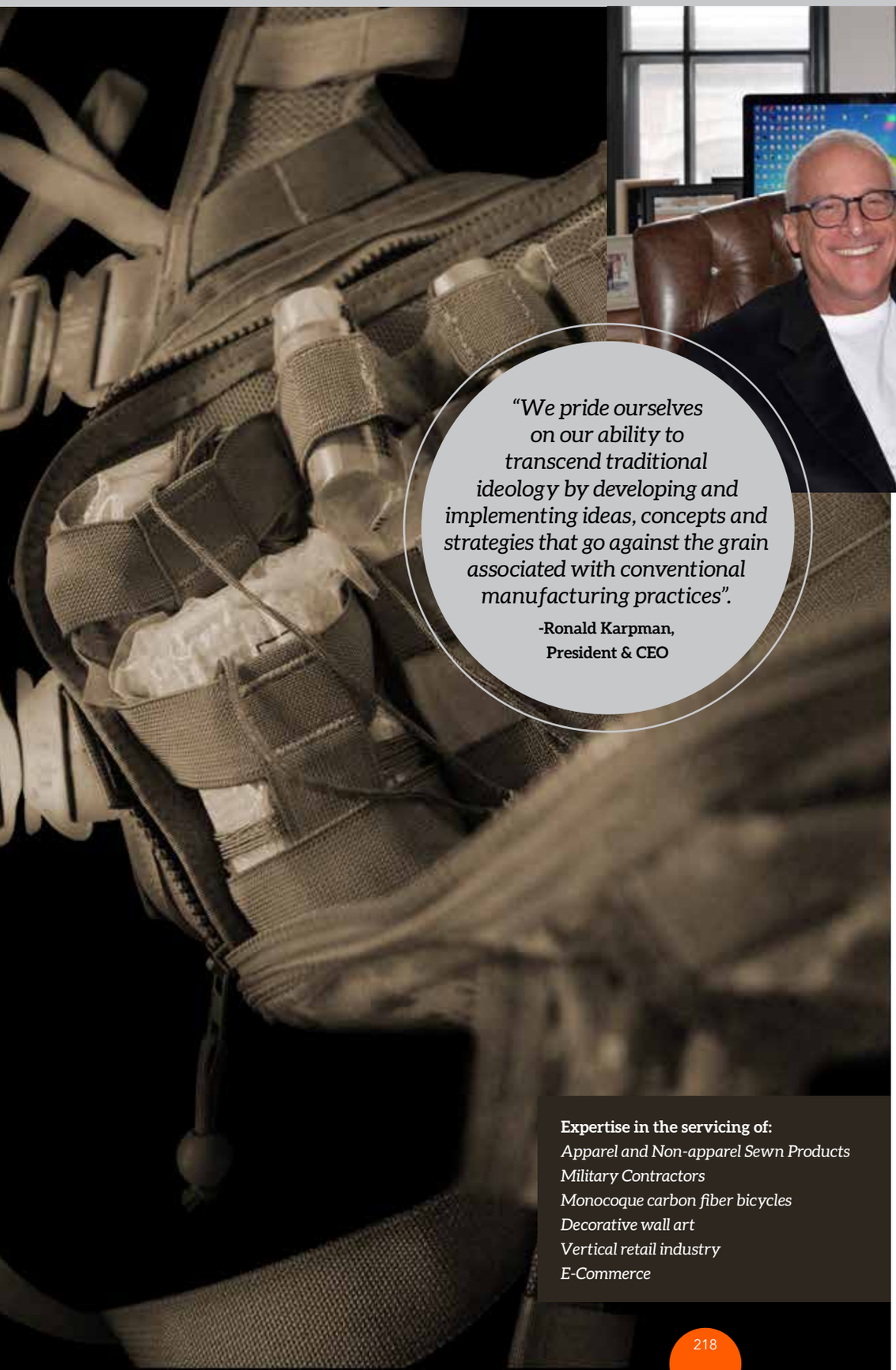
Giatec's vision extends beyond revolutionizing the concrete industry. They want their innovations to completely transform the way we build smart cities, connected buildings, and infrastructures. With a team of experts with in-depth experience and knowledge in every department, from engineering and R&D, to software, sales, and marketing, their company culture strives on the creativity, passion, and integrity each member brings to work every day.

GIATEC



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karpmanconsulting





"We pride ourselves on our ability to transcend traditional ideology by developing and implementing ideas, concepts and strategies that go against the grain associated with conventional manufacturing practices".

-Ronald Karpman,
President & CEO

Specializing in Lean manufacturing implementation and warehouse & order-fulfillment automation.

Karpman Consultant Inc., established in 1989, is an international boutique-consulting firm providing dedicated services in the area of *lean manufacturing* and *productivity improvement* to a limited and select list of elite clientele across North America, and around the world. Since we manage only a limited number of clients at any one time, we are capable of developing and implementing strategic manufacturing solutions within a very short period of time, allowing our clients to realize the full benefits of our efforts including their expected return on their investment (ROI) with the absolute minimum disruption to their production line.

In addition to the aforementioned, we provide our clients with the dedicated attention and accessibility that they deserve, providing them with the comfort and confidence of knowing that our team of seasoned consultants is there to walk them through the sometimes-difficult challenges that result in implementing change to ingrained management strategies.

Expertise in the servicing of:
Apparel and Non-apparel Sewn Products
Military Contractors
Monocoque carbon fiber bicycles
Decorative wall art
Vertical retail industry
E-Commerce

strategic manufacturing & distribution solutions

What differentiates Karpman Consulting from other consultants is our "Outside of the Box" approach to developing alternative manufacturing solutions as compared to the "Cookie Cutter" solution approach that other leading large consulting firms take. We pride ourselves on our ability to transcend traditional ideology by developing and implementing ideas, concepts and strategies that go against the grain associated with conventional manufacturing practices. In addition, our firm offers their clients diverse and unconventional remuneration/compensation packages including a fully guaranteed "client satisfaction" package which is unheard of within the realm of consulting services, which further demonstrates the confidence we hold in our ability to live up to our clients expectations.







In advance of engaging in any mandate, Karpman Consulting will provide to their prospective client a complimentary audit of their operation (less travel expenses), including a full written report outlining the strategies that will be implemented, and the full benefits that will be realized through our direct intervention.

Although a majority of our clients have been in the apparel/non-apparel sewn products sector, we have successfully migrated our strategies and ideas to other industrial sectors such as high performance recreational bicycles, decorative wall art, mattresses, furniture warehousing, and more. Furthermore, our expertise expands beyond the manufacturing environment. We have also developed and overseen the implementation of cutting edge warehouse/order fulfillment solutions for wholesale and e-commerce applications as well.

It is our experience, expertise, and imagination that have brought Karpman Consulting over thirty years of global success.

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RAVEN

Manufacturing productivity has stagnated over the past 10 years in spite of massive investment in new technology.



RAVEN IS PIONEERING A NEW APPROACH, HELPING MANUFACTURERS TO UNITE OPERATIONS, ENGINEERING, AND FINANCE TO ACHIEVE OPERATIONAL EXCELLENCE.



These technologies have failed to deliver for many manufacturers because the digital tools meant to support operations either ignore critical context or overwhelm their users with data. In each case, the result is that they do not help people identify opportunities or take actions that will result in meaningful improvement.

Raven is pioneering a **new approach**, helping manufacturers to unite operations, engineering, and finance to achieve operational excellence. Through our augmented management platform, Raven guides teams to take actions that reduce costs and increase throughput in their business.

Augmented Management is the **empowerment of people** using technology to guide decision making, support action, and provide meaningful feedback on the results. Raven helps manufacturers solve their biggest operational problems by combining the best of modern technology (Ai, IoT, Mobile, Cloud) with the expert knowledge of their teams to identify the most important actions to improve operations, then guide team members to work on those opportunities at the right times. Raven augments our customers' existing expertise using modern technology on the shop floor to drive a step change in their performance.

This approach has helped Raven's customers - ranging from small independent manufacturers to globally recognized brands - to achieve major ongoing improvements in their operations, often increasing output by more than 20-30% with the same people and equipment.

Based in Hintonburg, in the heart of Ottawa, Raven is able to draw on a vibrant ecosystem of tech talent, advisors, and partners from a range of industries to bring innovation to our customers. Raven requires a broad set of capabilities and expertise to ensure that our mission-critical manufacturing solutions - encompassing hardware, software, and services - exceed the expectations of our customers. Being based in Ottawa allows us to access leading innovators in these areas.

Our diverse team is made of passionate individuals with backgrounds ranging from engineering to biology and deep manufacturing experience from some of the world's best manufacturers. With a total of 8 languages spoken among team members and a fully bilingual customer service, Raven benefits from its diversity to create a fun, inclusive and dynamic workplace

The global manufacturing industry continues to work toward improved sustainability and efficiency in a world where the products they make and the tools they use are constantly changing. Raven allows our customers to maintain focus on what is important in their operations. Raven's augmented management platform is the backbone for continuous improvement in the constantly changing landscape of manufacturing.





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GOFOR

CONSTRUCTION MATERIALS DELIVERED. ON-DEMAND.

Like many great start-up ideas, GoFor started as a napkin sketch. Having spent 10 years in the construction industry after a career in technology, co-founder Brad Rollo recognized a common problem faced by people like him while out for drinks one night.

"I was out with a couple of construction buddies, and we were all complaining about the same issue — spending all day in our trucks picking up materials." says Rollo. "One of them was like, 'Man, you have a tech background. Why don't you solve it?' And that's how GoFor started."

GoFor launched in 2016 with a small offering of cars, pickups, and cargo vans through a marketplace model. They quickly added specialty vehicles like Moffett trucks, boom trucks and other heavy duty options as the company responded to market demand.

Since then, GoFor has further expanded its offering to fill the need for same day and last mile logistics support for distributors and suppliers. "Everything that sits above delivery, also has issues. And that was the insertion point." says Rollo.

FROM GOFER TO ENTERPRISE-GRADE LOGISTICS PLATFORM

"Our sole business focus is solving for efficiency in last mile logistics. Merchants are continually moving the needle on customer experience — but the last mile delivery experience has most often been ignored."

As GoFor becomes embedded in its partners' ecosystems it can help them scale and drive efficiencies in last-mile logistics so they can exceed their customers expectations on the frontend." This has all allowed GoFor to scale to the next stage of its evolution — an Enterprise SaaS suite which includes dispatch, fleet management, and logistics reporting.

www.gofordelivers.com



GoFor's dedication to innovation has helped it secure funding from some of the best VC's in the world focused on construction tech including Builder's VC, Panache, Plug & Play, Mucker, CEMEX Ventures, and I2BF. The company also has an impressive leadership team composed of three other co-founders with extensive experience building successful business across logistics, supply chain, construction, and technology verticals. This expertise combined with the company's iterative approach to innovation has allowed it to expand quickly.

"We'll solve for a set of basic problems for merchants, then we build on our relationships and provide additional solutions to more complex challenges by asking, 'what opportunities are here? How can we help?'" says Rollo. "The expertise level on our team expedites this process — and we're able to get innovations to market quickly."

As on-demand becomes the new standard, GoFor is developing the next level of last mile logistics that will change the way the home improvement and construction industry operates.



42,000
DELIVERES COMPLETED

1,137,835 KMS
TOTAL DISTANCE COVERED

111 MINUTES
AVERAGE DELIVERY TIME

FOUNDATIONS FOR A TRUSTED DIGITAL WORLD

Crypto4A is a cybersecurity company developing quantum ready cybersecurity foundations for a trusted digital world. Since 2017, the company has worked on developing innovative technology that addresses the cybersecurity challenges of today while preparing for the future. Crypto4A wants to provide companies with solutions to secure themselves in a growing digital world.



Bringing Together Cybersecurity Experts

Crypto4A was created by Ottawa cybersecurity veterans Bruno Couillard, Jean-Pierre Fiset, Brad Ritchie, and Jim Goodman. They met while working on the design of the first and second generation of Hardware Security Modules (HSM), an appliance that underpins the security of today's internet. Through their careers they maintained a friendship, working together at different points. Crypto4A formed from many hours of brainstorming on the current and future state of cybersecurity in a hyper connected world, and in 2017 Crypto4A began development with four founders and two employees.

CRYPTO4A

The QxEDGE™: Reimagining the HSM as a Platform

Crypto4A's flagship product, The QxEDGE™, is an innovative hyper converged cybersecurity platform based on the idea of an HSM as a platform. At the heart of the QxEDGE™ is Crypto4A's next generation Quantum Assured Security Module (QASM) which delivers cryptographic agility and adaptability while ensuring quantum computing readiness. The QxEDGE™ has been developed to be simple, scalable, and sustainable.

Quantum Ready

Quantum computers will have the ability to factor prime numbers, breaking the cryptography today's digital world is built on. Although it is unknown when quantum computing will be advanced enough to do this, it is predicted to be in the next decade. Cybersecurity is a major investment

Simplifying and Integrating Security

Simple

Cybersecurity shouldn't be complicated and overwhelming especially when most organizations just want to know their data is safe. The QxEDGE™ is easily configured, simply deployed, is capable of trusted remote/patch management, and one button deployment.

Scalable

In addition to being scalable in the traditional sense our platform also allows organizations to deploy solutions at scale without the need for an extensive team of cybersecurity experts. The QxEDGE™ can meet the increased demand of 5G networks and the IoT and is easy to scale with your growing infrastructure while having a very low impact on a scarce skilled workforce.

Sustainable

The hyper converged design of the platform can replace eight or more machines and security devices in a single hyper converged security platform. This means less rack space, less cooling, and less power consumption.



and Crypto4A is determined to keep quantum advances from disrupting client's commitment to long term cybersecurity solutions. The QxEDGE™ is built to handle changes to cryptographic standards over the next decade as new quantum safe encryption standards are ratified, allowing companies to plan for the long-term.

The Root of QAOS™: Entropy for Stronger Cryptography

In June 2019 Crypto4A released their first product, the Root of QAOS™, built on the QxEDGE™ Platform. The Root of QAOS™ is an entropy generation appliance that produces large quantities of high-quality entropy in a timely fashion. It ensures clients get maximum performance from their infrastructure and devices while also ensuring strong cryptographic keys for all of an organization's cyber security requirements.

Mentoring the Next Generation of Innovation

Crypto4A works with local universities to provide co-op opportunities for students interested in the cybersecurity industry. One of the biggest challenges facing the industry in the next ten years is a lack of talent to fill jobs. Current solutions are complex and require specialized people to manage them- which is why Crypto4A prioritizes solutions that are simple to implement and maintain.

Securing the Future

Today Crypto4A is a 28-person strong team working out of offices in Ottawa and Gatineau. They aim to be a leader in solutions that address the challenges facing the cybersecurity industry, like a talent shortage and quantum computing. With their sights set on finding cybersecurity solutions that are innovative and quantum ready, Crypto4A is dedicated to imagining cybersecurity that's as vibrant as our digital world.



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Crypto4A | **crypto4a.com**

GBATTERIES

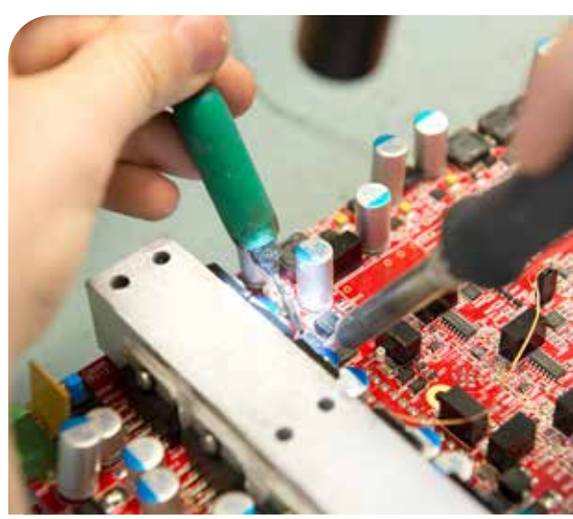
GBatteries is an advanced battery technology company, revolutionizing how batteries are charged.



Operating at the intersection of artificial intelligence, electrochemistry, signal processing, and high-power electronics, we are pioneering an alternative way to charge lithium-ion (Li-ion) batteries. Our charging method uses adaptive pulses instead of the conventional charging protocol – CCCV – used as the standard Li-ion charging method. Our technology enables ultra-fast charge without compromising the health of the battery.

How GBatteries is disrupting the charging process

The demand for better batteries that can charge faster, live longer, and cost less, has never been higher. While most solutions have focused on creating or modifying the underlying chemistry and materials of batteries, we are focused on optimizing their charging process.



GBatteries

Our approach works with unaltered, off-the-shelf Li-ion batteries produced by the world's top battery manufacturers. We are simply charging the batteries differently. The technology consists of two parts: 1) our proprietary algorithms, designed to generate unique charge pulse profiles; and 2) novel hardware that delivers the precise pulses at high frequency.

By monitoring the battery in real time and adapting to the ever-changing conditions internally, charging is optimized based on battery response signatures as they occur. This results in a drastic reduction of irreversible chemical reactions, while also minimizing battery cell temperature rise. This process allows for ultra-fast charging without reducing the lifespan of the battery. In fact, in many cases, our technology increases the usable life of the battery.

When fast charge isn't actually fast

Most batteries can be charged fast, but the quicker a battery is charged, the faster it degrades. To avoid irreversible damage, manufacturers limit the charging rate of the batteries. Although fast charging solutions are available for a wide range of devices, they can still take upwards of an hour. Additionally, due to the potential damage fast charging causes, these methods are not recommended for everyday use. With our technology we've demonstrated charging off-the-shelf batteries to 50% capacity in five minutes and 100% capacity in approximately 10 minutes. That's true fast charge!

Technology applications: fast charge, long life, and state-of-health analysis

Speed of charge is often cited a one of the biggest barriers preventing the mass adoption of electric vehicles. This applies to individuals, businesses and fleet managers. For drivers, when you compare the current charging rates of electric vehicles to filling a tank of gas, the convenience of getting gas in a few minutes is simply more appealing. For businesses and fleets, charge time is downtime, which equals money.

For many battery-powered devices, fast charge and increased battery lifespan would decrease downtime, maximizes productivity, and reduce the inventory costs associated with extra batteries and chargers. True fast charge would change the way robotics are used in warehouses, how drones are deployed for humanitarian efforts, and the way cordless tools are used on construction sites.

Most importantly, we're on the cusp of a major revolution in transportation: electrification.







Everything from our personal vehicles to aircrafts are transitioning to fully electric. In the coming decades, there will be millions of used electric vehicle batteries available for less demanding energy storage applications. Before electric vehicle batteries can be used for second life applications, their state-of-health needs to be safely and accurately determined. GBatteries' proprietary methodology allows for fast and accurate measurement of the state-of-health of the battery. This process will extend the lifespan of batteries that would otherwise have been disposed of.

Want to learn more about GBatteries?
Visit **www.gbatteries.com** or follow us on social media.



Hexagon | AutonomouStuff provides engineering services, fleets of automated research and development platforms, and a portfolio of products and solutions that serve as the foundation for innovative projects across the autonomy spectrum.



The company's growth and evolution has mirrored the autonomy industry as a whole, with expansions beyond the automotive sector into fields such as mining, agriculture and other off-road applications, and a sharper focus on the deployment of full fleets and technology ready for production and deployment. Bobby Hambrick founded AutonomouStuff in his home in 2010 and has since grown the company on an international scale, with offices on three continents. In 2018, Hexagon acquired AutonomouStuff and made Bobby the Chief Autonomous Officer of its Autonomy & Positioning division, strengthening the company's ability to meet growing and diversifying

HEXAGON | AUTONOMOUSTUFF





demand in the industry and around the world. The expansion continued in 2020 with the debut of a research facility in Ottawa to take advantage of the city's talent and unique strengths in connected autonomous vehicle technology, particularly the Ottawa L5 test track powered by Invest Ottawa.

AutonomouStuff clients reside in broad categories: industry, academia, technology. AutonomouStuff provides engineering services and integrated solutions in such diverse areas as agriculture, the automotive sector, artificial intelligence, robotics, and mining, to universities, established enterprises and tech startups alike. The expansive nature of those markets speaks to the scope and breadth of AutonomouStuff's offerings. In the most basic sense, AutonomouStuff's solutions jump start customers' automated projects. The tailored mix of hardware, software and know-how provide a springboard for clients to launch their own products or services.

Automated research and development platforms from AutonomouStuff help customers clear the most complex barrier to beginning research for autonomous projects. The vehicles offered by AutonomouStuff since 2016 have proven to be reliable, robust, safety-oriented platforms in the arenas of advanced driver assistance systems (ADAS), advanced algorithm development and automated driving initiatives. Since the launch of the original platform, a drive-by-wire automated Lincoln MKZ, the AutonomouStuff integration team has built hundreds of automated vehicles and worked with outside regulatory agencies to enhance the safety of automated driving mechanisms. AutonomouStuff engineers also create custom platforms, automating virtually anything with wheels to allow customers to focus on their projects from day one.



AutonomouStuff can boast a number of global firsts and other superlatives. More automated research and development platforms have come from AutonomouStuff than any other provider in the world. AutonomouStuff is a senior in a field still in its infancy, with the experience and influence to help shape an industry not yet fully formed. That stature derives from a unique skill set, created by compiling expertise in components, in-house software development, engineering, fabrication, data intelligence, and automated platforms. No other company brings all that together under one roof—and to the table to meet clients' needs.



AutonomouStuff.com



BROKRETE

The 1st real-time delivery marketplace for the concrete industry



"Concrete is in Jordan Latourelle's blood. Since his grandfather's era, his family has made its living working in the concrete industry. It's a tradition he's proudly maintained: Latourelle started his own company at the age of 19.

All the while, Latourelle harboured a love for technology and programming – passions that, for the longest time, didn't seem to mix readily with concrete. The Gatineau-Ottawa based entrepreneur lamented a seeming lack of innovation in the industry and wondered about ways to improve the traditional approaches to concrete supply.

It wasn't until a few years ago when Latourelle was faced with a cancer diagnosis that he realized the nagging thoughts in the back of his mind couldn't wait any longer. While undergoing treatment, he sold his company to his brother and, seeing the rise of the sharing economy apps such as Uber and Lyft, set to work on a mission to simplify the delivery of concrete materials.

"I told myself that there could be that application that would improve and completely change the dynamic of my industry," he says. "I got better, I got healthy and I decided not to look back and build this company."

Now Latourelle has fully thrown himself into his startup, Brokrete. The firm develops an end-to-end solution for the order and delivery of concrete, stone, sand, gravel and other raw materials in the construction industry."

Source : https://obj.ca/article/concrete-delivery-startup-brokrete-sets-foundations-growth-500k-funding BY: Craig Lord

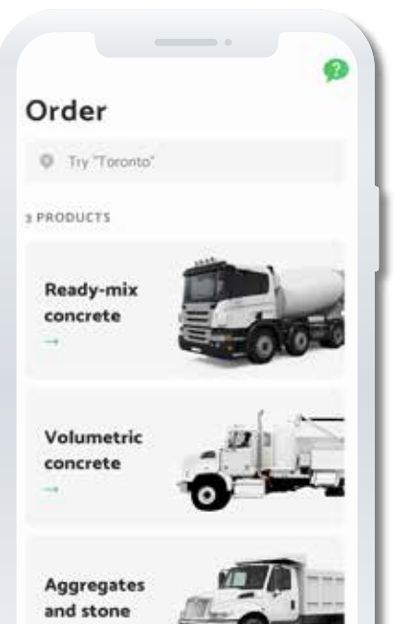
"It's an industry that has never evolved at the rate of other industries. The delivery process has always been the same since my father and grandfather," he says.

In 2018, Brokrete was selected to be a part of the Ottawa L-Spark accelerator. In 2019, the firm won a Bootstrap Award for disruptor of the year awarded to a company boldly trying to turn a business paradigm on its head for self-funded companies. Later in the year, it closed a funding round with angel investors from Ottawa, Toronto, San francisco and Ontario venture firm MaRS IAF. The company also got selected for the most prestigious tech accelerator in the world in Silicon Valley, Y combinator.

Disrupting the industry of the most used man-made product in the world.


Brokrete sales team @ Toronto Building show

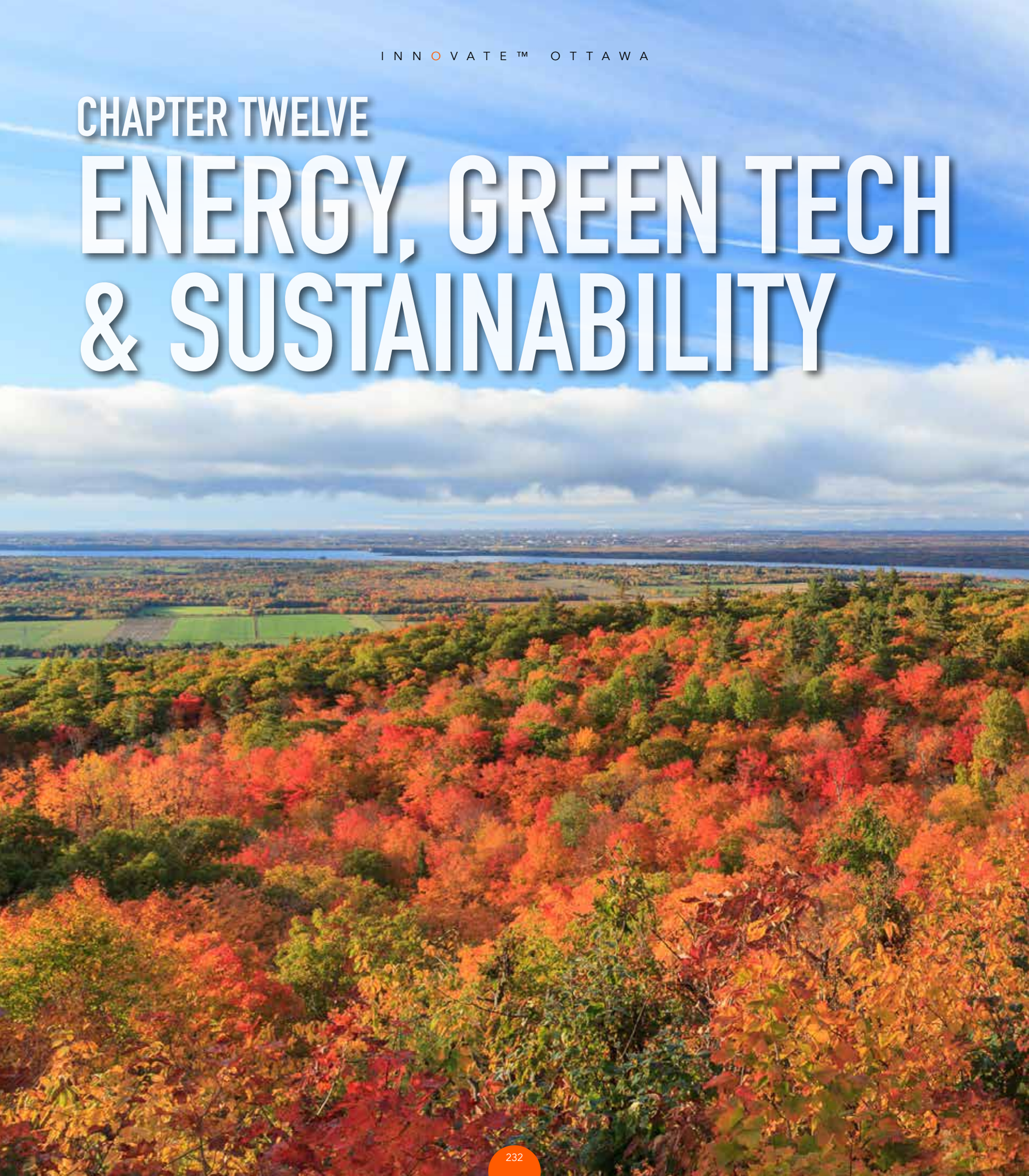
Certainly, Brokrete is tackling a big industry with big problems where innovation has always been put on the side in favor of maintaining the status quo since the 90's. It's a huge task to try to disrupt the industry of the most used man-made product in the world, but the company seems to be on the right path with impressive backing from high profile tech entrepreneurs.



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CHAPTER TWELVE
ENERGY, GREEN TECH & SUSTAINABILITY





SMART PROSPERITY INSTITUTE
FOR A STRONGER, CLEANER ECONOMY

Building a high performance, low-carbon economy is the economic opportunity of our time.

— Stewart Elgie, Executive Chair of Smart Prosperity Institute



Climate change, plastic pollution, wildlife extinction. Today's most pressing environmental challenges call for urgent policy innovation by Canadian governments and businesses.

Smart Prosperity Institute, a clean economy think tank at the University of Ottawa, has been fueling that kind of innovation since 2008. Its goal: to drive new thinking for the environment and the economy.

Backed by an international network of 100+ world-leading experts, and partnered with 30 of Canada's best-known CEOs and community leaders, Smart Prosperity Institute is not your average think tank. Its cutting-edge creativity has been at the forefront of environmental policy innovations like putting a price on carbon pollution to fight climate change, using market-based instruments to protect more of Canada's nature, and measuring the hidden costs of urban sprawl for Canadian cities.

Struggling to find an environmental solution that is economically responsible and rewarding? There's an innovation for that, and Smart Prosperity Institute has it.

Visit our website to discover videos, policy briefs and reports that chart the way to a stronger, cleaner economy.

Smart Prosperity Institute

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INSTITUT POUR L'INTELLIPROSPÉRITÉ

POUR UNE ÉCONOMIE PLUS FORTE ET PROPRE



Bâtir une économie performante et sobre en carbone est l'opportunité économique de notre temps.

— Stewart Elgie, président exécutif de l'Institut pour l'intelliProspérité

Changements climatiques, pollution plastique et extinction de la faune. Les défis environnementaux les plus pressants de nos jours exigent une innovation politique urgente de la part des gouvernements et des entreprises au Canada.

L'Institut pour l'intelliProspérité est un groupe de réflexion sur l'économie propre de l'Université d'Ottawa qui fait avancer ce genre d'innovation depuis 2008. Son objectif: stimuler une nouvelle réflexion pour l'environnement et l'économie.

Soutenu par un réseau international de plus de 100 experts de renommée mondiale et en partenariat avec 30 dirigeants d'entreprises et des milieux communautaires les plus connus du Canada, l'Institut pour l'intelliProspérité n'est pas un laboratoire d'idée comme les autres. Sa créativité de pointe a été à l'avant-garde des innovations en matière de politique environnementale. Il a ainsi permis de mettre un prix sur la pollution carbone pour lutter contre les changements climatiques, à utiliser des instruments fondés sur les marchés pour mieux protéger la nature au Canada et à mesurer les coûts cachés de l'étalement urbain pour les villes canadiennes.

Avez-vous du mal à trouver une solution environnementale économiquement responsable et valorisante? Des solutions innovantes existent à l'Institut pour l'intelliProspérité.

Visitez notre site Web pour découvrir des vidéos, des exposés politiques et des rapports qui ouvrent la voie à une économie plus forte et propre.

Institut pour l'IntelliProspérité

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institut.intelliprosperite.ca

Avivagen

Avivagen's discoveries of the natural existence and biological activity of oxygen-rich polymers formed by spontaneous air oxidation of ß-carotene represent a significant scientific advancement in understanding ß-carotene's activities, independent of it being a source of vitamin A (**avivagen.com**).

The industrial manufacture of oxidized β-carotene (OxBC), rich in polymers, allows the harnessing of their immunological activities for commercial use. Studies show that OxBC benefits the immune systems of fish, birds and mammals, and is anticipated to make a significant contribution to the health and welfare of animals and humans alike.

A Next Generation Antibiotic Alternative

Antibiotic resistance in humans is considered to be this century's single greatest global health threat [1]. An Oxford Journals' Clinical Infectious Diseases article states "The ongoing explosion of antibiotic-resistant infections . . . could mean a literal return to the pre- antibiotic era for many types of infections." Antibiotic resistance is already responsible for killing more than 700,000 people each year and the toll is projected to rise to 10 million by 2050.

The principal causes of antibiotic resistance [2] include the common and widespread use of antibiotics in animal feeds to produce meat consumed by humans, as well as over-prescription by physicians for therapeutic treatment of human infections.

The goal to substantially reduce and even eliminate antibiotic use requires innovative new products offering better consistency and a defined mode of action, while being both effective and easy to use.

Avivagen's discovery of the immunologically active polymeric compounds in OxBC offers a compelling solution. The immune system plays a vital role in maintaining animal health and productivity. In field tests and from commercial usage, the polymeric compounds in OxBC have been shown to be a very effective alternative to antibiotics for maintaining health and productivity in swine, poultry, and dairy cows.



OxBC has been found to beneficially modulate immune function. There are two main actions:

1) priming innate immune function and
2) reducing prolonged and overzealous inflammatory responses.

The priming actions centre upon an ability to increase the animal's capacity to detect invading bacterial pathogens and mount an effective immune response. Importantly, heightened innate immune activity only occurs in the presence of an actual pathogen. Modulation of innate immune function is a compelling and natural strategy for replacing the prophylactic application of antibiotics, because the innate immune system is capable of providing broad protection against multiple pathogens.

The second action relates to a reduction in background or excess immune activity.

The OxBC polymers, found naturally in β-carotene-rich forages such as alfalfa, have been thoroughly evaluated for their utility in maintaining animal health and productivity in broiler chickens and swine. Studies in dairy cattle and fish indicate they also help to support optimal immune function in these species.

The trials carried out with hogs, broilers and dairy cattle have been conducted under commercial production environments in a variety of geographic locations and production systems, in Canada, the US, China, Vietnam, the Philippines, Thailand and New Zealand. In each case, the use of the commercial OxBC product, OxC-beta™ Livestock, led to meaningful improvements in growth performance and/or clinical health.



Companion Animals

Products containing OxBC have demonstrated broad utility in providing health benefits to companion animals, particularly to canines. Benefits include support of dogs' skin, joints and gut health, helping to maintain healthy hip and joint function, promoting normal mobility, and helping dogs with occasional stiffness. The products also promote healthy skin and soothe skin-related issues associated with seasonal allergies. Avivagen markets Vivamune™ Health Chews to pet owners in retail settings and veterinary clinics and Dr Tobias All-in-One Dog chews to online customers primarily through Amazon.com and also DrTobias.com.

References

1. https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf
2. https://academic.oup.com/cid/article/46/2/155/452327







CHAPTER THIRTEEN
BIG DATA & ANALYTICS





Klipfolio®

Why data literacy is the next big thing.

Facebook and Google and the other giants of the knowledge economy don't own great factories, and they don't produce objects you can touch, such as bicycles, radios or lipstick. What they do own (whether we like it or not) is a lot of data about the millions of people who use their services.

Strange thing, data. There's so much of it these days. So many facts. So many figures.



10 million datasource refreshes a day

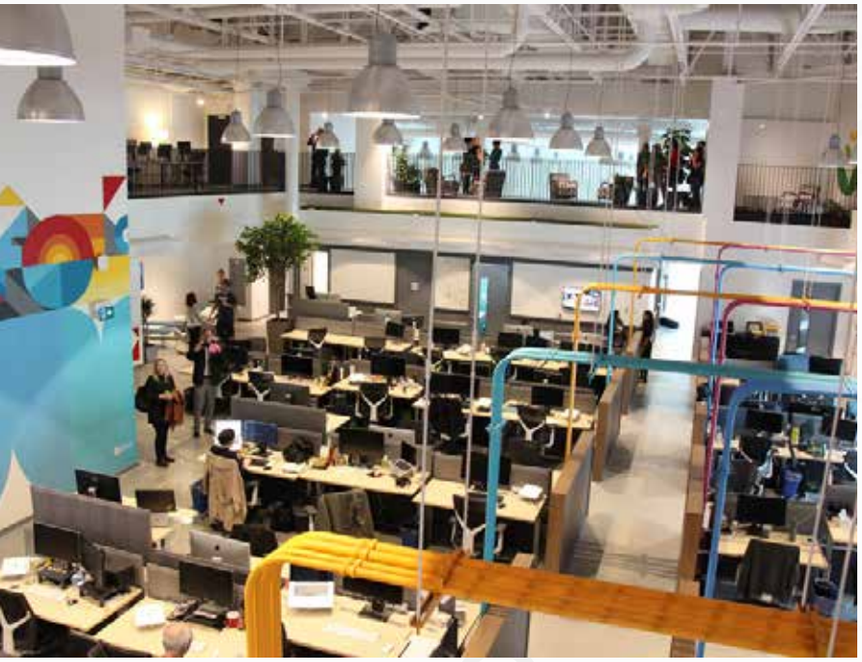
220 billion formulas executed every 24 hrs

Average user rating **4.8/5**

12'000 sq.foot office

625 automated quality tests run every day

73,000 unique website visitors per week



Everybody collects data. The knowledge economy, everyone says, runs on data.

Yet the reality is that data is gobbledygook until you can arrange it so that meaning emerges.

We worked hard in the not-so-distant past to make our societies literate, to teach people to read and write.

The next phase of literacy is about making people and companies data literate.

Klipfolio is in the data business. Our mission is to help people succeed with data. That puts us on the front lines of data literacy.

Not enough people are there yet. By some estimates, only one-third of people today can confidently extract meaning from data. Imagine trying to run a business in which two-thirds of your employees can't read or write!

Businesses today have no shortage of data. They know who clicks on their ads. They know what it costs to acquire a customer. They collect data on page views, page likes and page unlikes.

But even as businesses collect this information, they struggle with two fundamental things.

First, they want to figure out which facts and figures are going to be most useful to them. Do website visits really matter to the sales manager? Or would that person get more value from monitoring the number of qualified leads available for follow-up?

And second, businesses struggle with extracting meaning from data. Meaning that will help them make smart, quick decisions while minimizing risk.

What, for example, does it mean when a business's Click to Open Rate changes? Or when their Net Dollar Retention Rate changes over the course of a year?

Every day, we see people wrestle with questions like these. Every day, we help them learn.

There is no direct path to data literacy. It's not as easy as learning your A-B-Cs. Data literacy grows through experience, curiosity and a dose of healthy skepticism about what you're seeing.

It arises out of knowing the context for the data, having basic math skills to figure out things like ratios, and the ability to see and interpret patterns, trends, correlations and gaps in information.

The reward is insight.

Gaining that insight should be front and centre for every business owner.

Becoming data literate will change your life.

You will be able to read the signs. Literally.

75,123
people using our software

Employees represent 20 countries or origin



Klipfolio is an Ottawa-based company of data-minded people with thousands of customers around the world. Our mission is to make people successful with data.

111 Albert St suite 300, Ottawa, ON K1P 1A5, Canada
Phone: +1 613-233-6149 | **klipfolio.com**

NAPKYN ANALYTICS

BRINGING DIGITAL ANALYTICS TO THE EXECUTIVE BOARDROOM

Enterprises are investing in marketing and analytics technology at a rate never before seen in the industry, but many top executives are still grappling with how to drive business value from digital data they're collecting.

According to a 2019 Boston Consulting Group report commissioned by Google, only 2% of large enterprises are successfully executing and achieving business outcomes from dynamic digital marketing programs - ones that leverage machine learning, automation, and personalization across multiple channels and touch points. Executives cite infrastructure costs, a lack of trust in the digital data they collect, decentralization of digital data across multiple siloed departments, a shortage of specialized talent, and lack of internal capabilities to report on performance and capitalize on insights as key challenges. Napkyn Analytics is a leading analytics consultancy based in Ottawa that partners with marketing and IT executives at global enterprises to help them overcome these challenges. As one of Google's top partners for digital analytics, Napkyn has carved out a name for itself as a Fastest Growing Company in Canada for three consecutive years.

Napkyn has been at the forefront of its industry for over a decade, and the company plans to stay there. As the industry matures, Napkyn is moving with it, innovating ahead of the curve to continue to be a key contributor to boardroom decisions.

2009 — Napkyn launches as a pioneer of Digital Analysis as a Service

2012 — Napkyn commits to proper data foundations as a requirement for insights, adding technology capabilities in data layer development and tag management

2015 — Analysis Engine launches, automating data imports and exports to enrich executive dashboards with more robust data sets

2016 — Napkyn specializes in the Google Marketing Platform, helping large enterprises like Lucky Brand Jeans compete using analytics

2017 — Named one of Google's top Partners for analytics in North America

2018 — Hat Trick as a Fastest Growing Company in Ottawa & Canadian Growth 500 for third consecutive year

2019 — Napkyn wins Google Partner Summit Award of Excellence for highlighting the emergence of digital analytics in financial services

2020 + — Napkyn breaks new ground in enterprise Cloud services

> *I see a significant difference in our attitude towards analytics and huge value in establishing this baseline of trust in the accuracy of the data and insights: no more caveats to key questions."*
>
> *Executive Sponsor, Online Investment Firm*

Here's what Napkyn's executives recommend to every enterprise looking to succeed with digital analytics:



Jim Cain, Founder & CEO

"Data has to stop being the 'waste product' of business activity and start being a high value output. Especially for Marketers and Salespeople, the data that they create should be owned, managed and properly used. By taking an ethical approach to consent, collection, ownership and use of data, businesses can make sure they are futureproofing their capabilities against changes in legislation, technology and methodology."

> *Your team stood out on understanding the business requirements, asking the right questions, and educating internal stakeholders on analytics capabilities."*
> *Executive Sponsor, North American Bank*



Jen Batley, President

"Get excited not just about the potential for digital analytics to transform your business; but for the opportunity to apply a multiplier to that power. Digital has proven its worth, and what ten years ago were experimental teams or arms-length business units are now integrated with or even becoming drivers of entire enterprises. As siloes break down and marketing and IT converge, lessons from digital are increasingly being applied across not just marketing but all business analytics. Engage with key stakeholders within your company and reach out to your agency network. Collaborate with an eye to leveraging all sources of data to drive better decisions and business results."



Nick Bennett, Chief Technologist

"When it comes to driving value from new technology, many enterprises are hyper-focused on arriving at a particular destination - like personalization or predictive analytics. What they fail to realize is that the journey is just as important, and properly is always superior to good enough. By taking the time to deploy reliable and trustworthy data foundations, companies position themselves to win. The journey toward their end goals becomes rich with opportunities for near-term successes and helps teach their leaders how to leverage the advanced capabilities they desire once they achieve them."



ASSENT COMPLIANCE IS THE GLOBAL LEADER IN SUPPLY CHAIN DATA MANAGEMENT



ASSENT COMPLIANCE FAST FACTS

- Incorporated in 2010 by founders Matt Whitteker, Jonathan Hughes and Rob Imbeault.
- In 2014, Andrew Waitman joined Assent Compliance as CEO.
- From 2016–2018, Assent closed three funding rounds, totaling $221 million CAD.
- In 2019, named to annual Narwhal List by the University of Toronto's Impact Centre, which ranks firms by their ability to scale up and reach world-class status. The list identifies young Canadian companies that have the potential to become "unicorns" — those with a billion-dollar-plus valuation.
- Ranked 313th on Deloitte's 2019 Technology Fast 500 list of the fastest-growing tech companies in North America, and 48th on its Technology Fast 50 Canada list of the fastest-growing tech firms across the country.
- Headquartered in Ottawa, Assent employs over 600 people worldwide.
- Assent has offices in the United States, the Netherlands and Malaysia, with operations on four continents.

Companies face an ever-growing number of regulatory and business requirements in order to put their products on the global market. These range anywhere from product composition rules (think BPA or lead in paint) to responsible sourcing (conflict minerals) and human rights (trafficking). You may have never heard of the Restriction of Hazardous Substances (RoHS) Directive, for example, but it's a big reason the smartphone in your pocket isn't giving you cancer. Companies must prove to government agencies, and in many cases their customers or business partners, that they meet these requirements — and this involves leveraging data.

Gathering and validating that data, however, is a challenge. Suppliers may not understand what is required of them, and unintentionally provide inaccurate data. Despite this, companies must ensure they get the data they need, because the consequences of non-compliance are significant. Contract loss, denied market access, reputational and brand damage, and, in some cases, legal penalties and fines are all real possibilities for companies that fail to properly perform due diligence.

The supply chain is one of the most immediate sources of risk for companies today, but Assent can help them manage it. Combining leading-edge technologies



Ottawa mayor Jim Watson joins members of the Assent team for the opening of the company's Amsterdam office.





At Assent, we're driving digital transformation in the supply chain through innovation and visionary product development. We will continue to do that in 2020 and beyond."

— Andrew Waitman, CEO

with extensive supply chain expertise, Assent provides a software-as-a-service (SaaS) platform that manages third-party data to protect corporate brands, increase market accessibility, and reduce operational and financial risk.

Driving Transparency in the Supply Chain

Assent Compliance was incorporated in 2010 with a simple goal: to help companies automate some of these highly manual (and, therefore, error-prone) data processes. However, Assent quickly identified an opportunity to go beyond simple automation and disrupt the supply chain data space.

In 2014, with a new CEO at the helm, Assent began its journey into supply chain data management. The company has invested heavily in research and development, resulting in an innovative and disruptive SaaS supply chain data management platform.

The Assent platform's data-agnostic nature is what makes it so innovative. The software automates the collection and validation of data for a broad range of supply chain compliance and business requirements, manages all of that data in a central database, and delivers actionable insights into supply chain risks. The platform also outputs the necessary reports to comply with requirements across a variety of industries, including aerospace and defense, medical devices and electronics.

Assent is working with some of the world's largest companies and most complex supply chains to help them:

- Identify human trafficking and slavery risks in supply chains.
- Measure and eliminate harmful substances from products.
- Manage customs and trade compliance data requirements to streamline the import/export of products.
- Ensure responsible sourcing of materials, with consideration of environmental impacts and conflict.
- Design sustainable products.

In short, the Assent platform is providing clean data and clear insights to drive transparency across the supply chain, exposing risks and empowering companies to make effective decisions that improve their business.



Assent

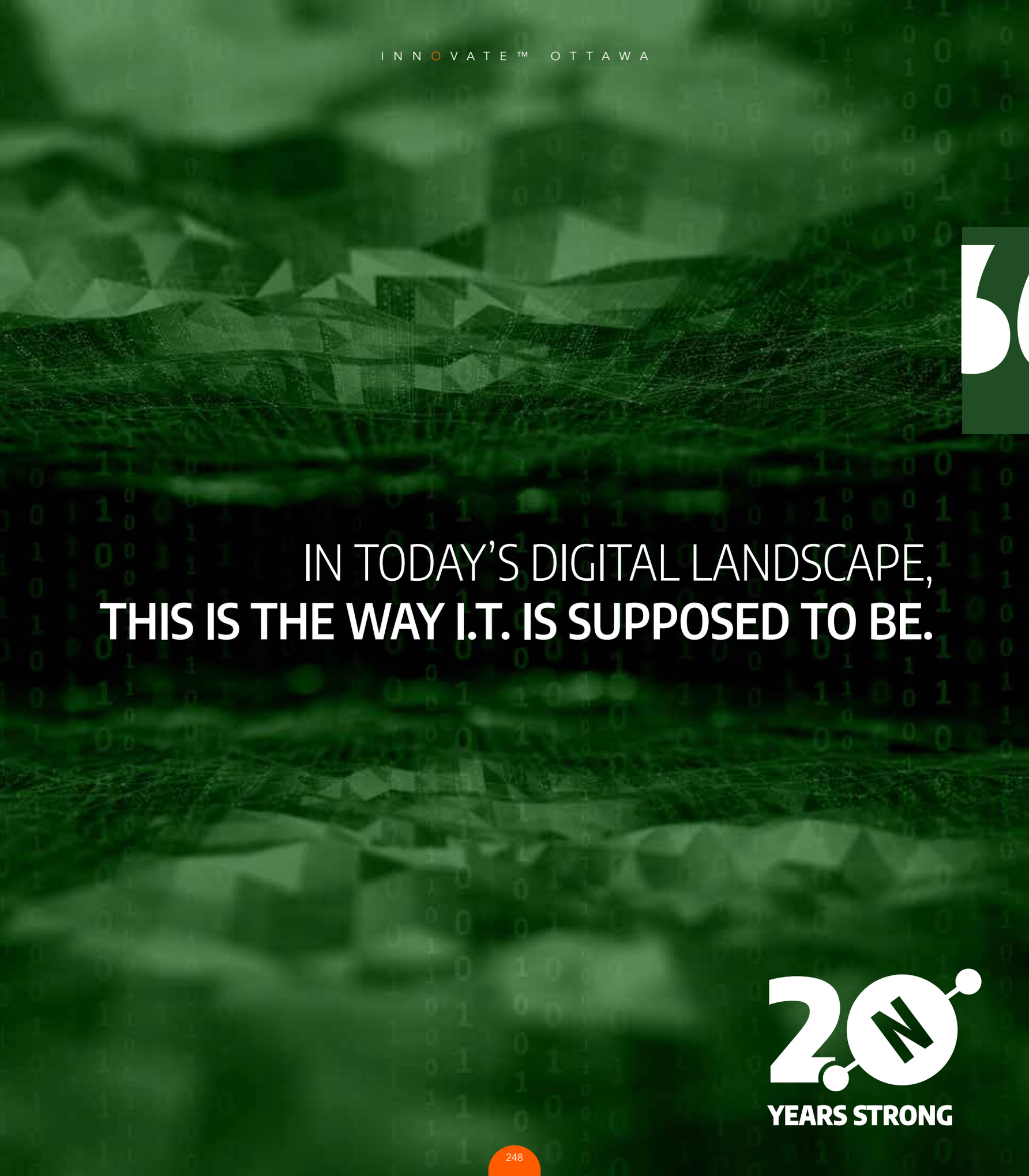
assentcompliance.com


NEOLORE
NETWORKS INC.
THE WAY I.T. IS SUPPOSED TO BE



CHAPTER FOURTEEN

IT OUTSOURCING & MANAGED SERVICES



IN TODAY'S DIGITAL LANDSCAPE,
THIS IS THE WAY I.T. IS SUPPOSED TO BE.

20
YEARS STRONG

NEOLORE NETWORKS INC.

AN EXCEPTIONAL AND RELIABLE SOURCE FOR IT MANAGEMENT AND CLOUD SOLUTIONS FOR TWO DECADES!

> Never trust a computer you can't throw out a window.
>
> —Steve Wozniak

TECHNOLOGY IS CHANGING RAPIDLY THESE DAYS. WHAT WAS ONCE CONSIDERED RELEVANT IS NOW LONG FORGOTTEN, AND CUTTING-EDGE TENDS TO BECOME YESTERDAY'S NEWS. HOW TO AFFORD AND BEST LEVERAGE THE LATEST TECHNOLOGY TO ADVANCE AND GROW IS NOT ALWAYS A SIMPLE QUESTION TO ANSWER FOR MOST SMALL TO MID-SIZED BUSINESSES IN CANADA. YET THE CORE UNDERPINNINGS OF IT IN MODERN BUSINESS, SUCH AS OPTIMIZATION, MANAGEMENT, AND SECURITY—STILL REMAIN A PRESSING NEED OF MOST ORGANIZATIONS STRIVING TO THRIVE IN TODAY'S COMPETITIVE DIGITAL LANDSCAPE.

HISTORY OF NEOLORE

Electronics and Technology has always been a passion for Jim Stackhouse. After a brief time in the AirForce as an Aviation Electronics Technician, Jim pursued his love for IT at Algonquin College. In April 2000, Jim decided to start NeoLore Networks Inc., a superior service-based IT company. Since then, he has successfully consulted for the Federal Government several times, helped *Orange County Choppers* (American Choppers TV Show) move from US-based e-commerce to worldwide, and provided top-notch RFP and Consulting services for the federal government, nonprofits, and the private sector.

Over the last 20 years, NeoLore has consulted, architected, and built hundreds of networks in the Ottawa area. During that time Jim also went back to Algonquin College to teach the next generation of technicians for a short period of time. Today, NeoLore is a very fast-growing IT Managed Service Provider with offerings in Private Cloud Hosting and Cyber Security.

EXPERIENCE THE NEOLORE DIFFERENCE

NeoLore Networks Inc. is a Canadian company that helps small to mid-sized businesses realize increased profits, reduced risk and encourage "peace of mind" for IT Infrastructures. NeoLore is 100% locally owned with local staff. By unleashing the power of innovative technologies, NeoLore closely aligning to your corporate strategy and business goals. Our team of experts ensure that your information technology investments give you the positive, secure outcome you need and deserve.

Don't settle for anything less that great service.



> Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without talking about the other.
>
> —Bill Gates

OUR CORE VALUES

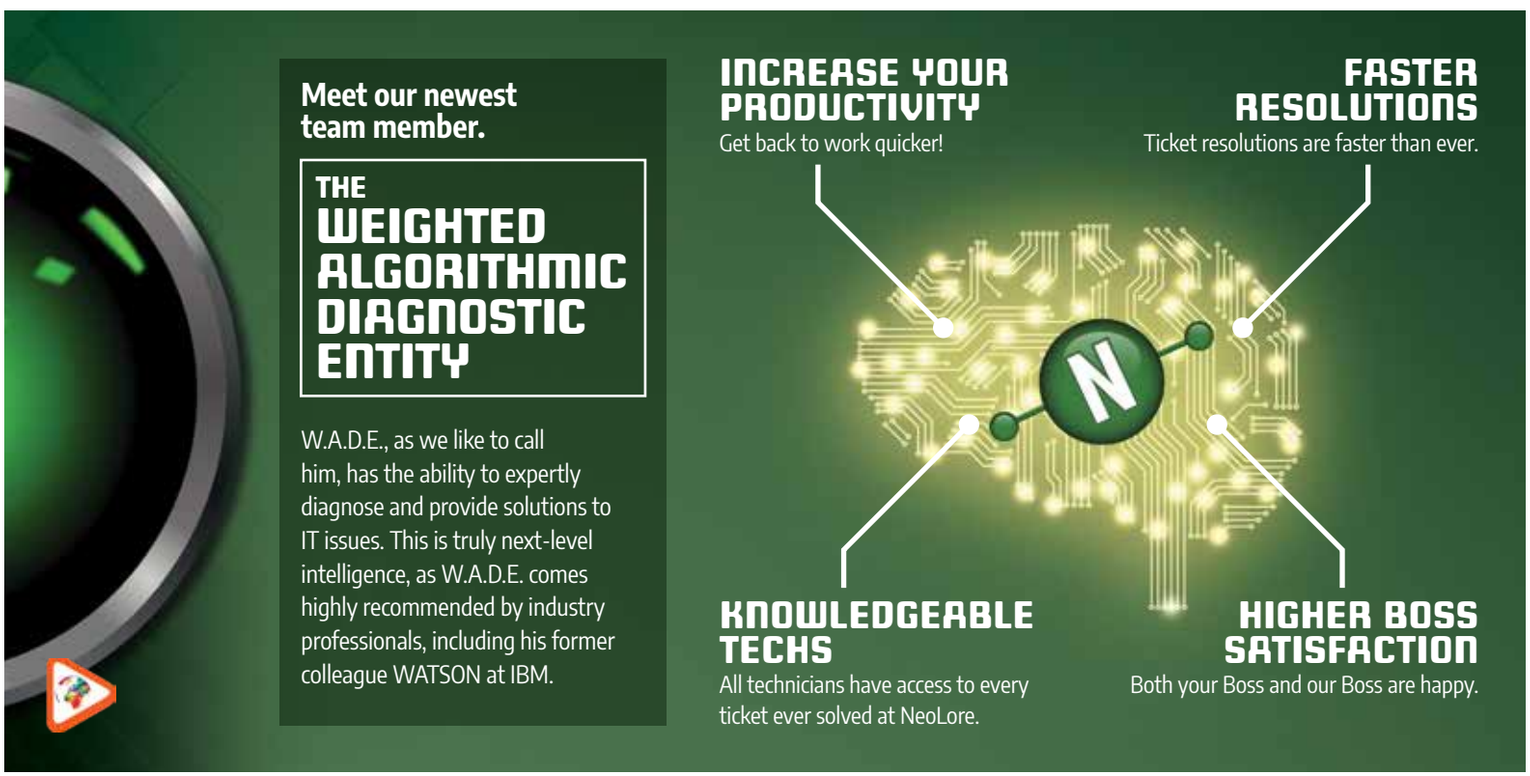
We live and respect our values every day:

- Outstanding customer experience
- Exceptionally motivated and enthusiastic staff
- Dedication to consistency and attention to detail
- Early adopters—we are leaders not followers
- Integrity and transparency in all facets of our business
- Continuous improvement

SUCCESS BACKED UP BY NUMBERS

- NeoLore's client retention is 98% every year
- The client satisfaction rate is around 97-98%—as shown by the past 100 surveys (this ensures we are constantly providing the best support) with a 3-year average of 97.84%
- At just under 10 minutes, our average time to resolve issues is among the best in the industry
- We have been going strong in the industry for 20 years
- We are proud of our amazing team of 28 IT professionals. We participate in team events like axe-throwing competitions, go-karting, breakfast club, escape rooms, poker, etc.
- Because of our people-centric attitude, we have seen fantastic growth in staffing numbers by 44% in 2019
- We truly love our clients. We invite them multiple times a year to movie premieres as a sign of our appreciation

UNIQUELY INTUITIVE DIAGNOSTICS WITH ARTIFICIAL INTELLIGENCE





MANAGED IT AND NETWORK SERVICES

With the onset of mobility, big data, and the Cloud, the modern requirements for IT managed services in the country are compounding at a rapid rate. The achievement of mission-critical business goals has become heavily dependent on the performance of IT infrastructure. Whether your organization has tales of substantial downtime brought on by network or computer issues, or you don't like how much your business is paying to keep your IT up and running, consultants at NeoLore Networks Inc. are here to produce unmatched results.

JOIN HANDS WITH NEOLORE NETWORKS INC.

Imagine what it is like to instantly have an excellent and professional IT team working closely for you at predictable and reasonable costs. That is exactly what you get with NeoLore Networks Inc. Everything NeoLore does challenges the traditional way most companies feel about IT support and the way providers deliver it. This is what sets us apart from others because we believe companies should not settle for mediocre support in long-term contracts. These contracts also lack the flexibility that most modern businesses need so we deliver service agreements that stabilize, secure, and improve our clients' environment.

WE CAN HELP

If you're tired of poor or slow support and are looking for innovative, secure, and efficient help at affordable prices, reach out to us today.

NEOLORE
NETWORKS INC.

THE WAY I.T. IS SUPPOSED TO BE

+1-613-591-9199
sales@neolore.com
NeoLore.com



Kivuto®

Kivuto has been transforming the way schools distribute digital resources to students and faculty for over 20 years. Today, Kivuto streamlines the management and delivery of academic software, eTextbooks, cloud licenses, and all other types of digital resource for educational institutions.

OUR PAST

Kivuto evolved from the vision of its founder, Ram Raju. While running the University of Dalhousie's computer store, Ram saw a need for a less manual, more efficient way to provide students with course software. So he created one.

In 1997, Ram founded PowerKnowledge Technologies (later renamed e-Academy). He began as his only employee, with software distributed on burnt discs using elaborate vending machines. From this modest start, the company evolved fast. Digital downloads replaced delivery by disc. Partnerships with software publishers like Minitab, VMware, and Microsoft allowed the company to provide more value to its rapidly expanding client base of academic institutions.

By the time the company relocated to Ottawa and rebranded to Kivuto Solutions, it had international reach and partnerships with some of the world's top schools and software publishers. The goal, according to Ram, was: "To build a global company that reduces and eliminates barriers for distributing digital learning tools to students."

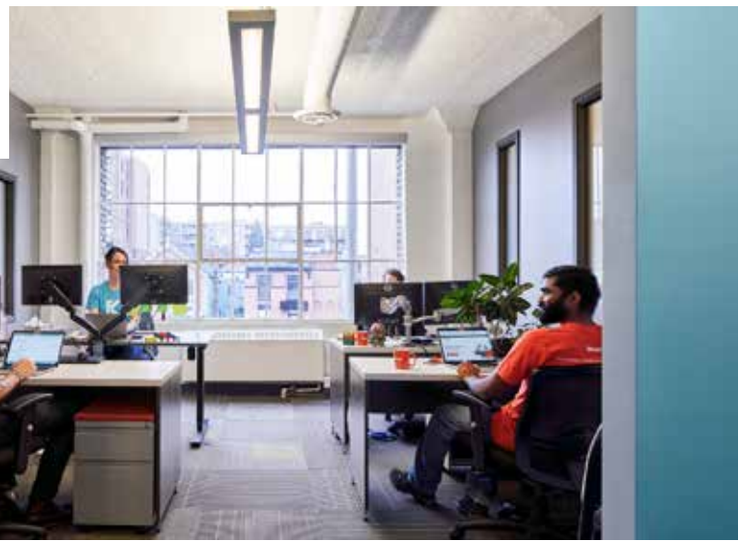
> *"Though the tools used in classrooms are changing, Kivuto's mission remains basically the same – to make it as easy as possible for schools to distribute those tools and for students to access them."*
>
> **– Carlos Meza, CEO, Kivuto**



Kivuto's Leadership Team







OUR PRESENT

Today, Kivuto streamlines the management and delivery of digital resources for thousands of schools around the world with their new flagship product – Kivuto Cloud.

Kivuto Cloud is an online platform through which schools distribute digital resources to their students, staff, and faculty. One of the platform's top strengths is its ability to automate the management and provisioning of cloud licenses – an otherwise complex and costly burden on school IT teams. However, Kivuto Cloud can also be used to distribute software, eTextbooks, and any other type of digital product. And with on-demand reporting, advanced security features, and an intuitive user interface, Kivuto Cloud's a big step up from the CD vending machines it evolved from.

And Kivuto Cloud is just one way that Kivuto helps schools and students. The company's OnTheHub eStore — a website through which any student can access free or discounted software —was identified as a top source of student savings in 2019 by Global News. Since 2014, the company has also operated Texidium, an end-to-end solution for schools that want to go digital by introducing eTextbooks into their curricula.

Through all this change, plus an acquisition by Legado Capital in 2018, the company's core goal hasn't strayed far from Ram's initial vision. "The way students learn is transforming as technology becomes more integral in education," says Carlos Meza, Kivuto's current CEO. "Though the tools used in classrooms are changing, Kivuto's mission remains basically the same – to make it as easy as possible for schools to distribute those tools and for students to access them."

OUR FUTURE

Higher education is changing. Students need practical skills and certifications to complement their degrees in order to be competitive in the workforce. These needs will only grow along with technology's role in education, and managing the necessary tools will become more complex as more software moves to the cloud. To support this, curricula will need to evolve to incorporate a broadened set of teaching and learning materials, including digital assets like cloud services and software.

As this evolution in education continues, Kivuto will continue to facilitate all aspects of the academic digital resource environment – bringing vendors, schools, educators, and learners together, while reducing costs for all and contributing to student success.

Kivuto®

kivuto.com



DO BILLING RIGHT:

Empowering Businesses with Innovative Subscription Billing Solutions to Ignite Growth

Fusebill Founders Tyler Eyamie, CEO, and Greg Burwell, CTO

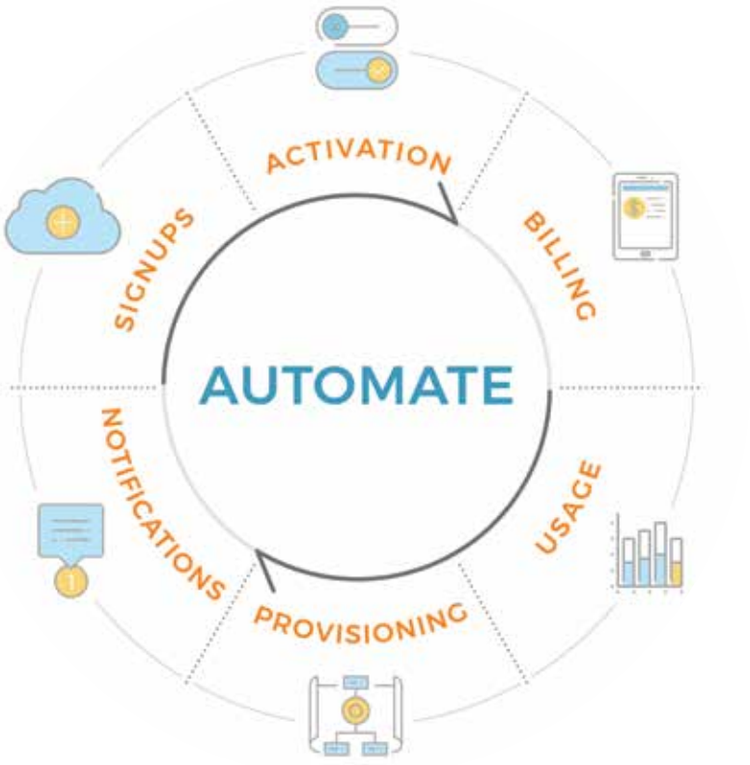
Fusebill co-founders Tyler Eyamie and Greg Burwell experienced firsthand the struggles and labour-drain of working with an archaic billing system during their time at Ottawa tech's early success story, Protus. When Protus was acquired in 2010 and their jobs were made redundant, the two of them decided to combine their entrepreneurial ambitions and find a better way to do subscription billing. Not only would such a venture create a solution to a problem they knew existed for many businesses, but also there was a real opportunity to create a disruption in the market.

Investors agreed, and Fusebill successfully brought in $2 million in revenue from venture capitalists within its first two years of business and another $6 million just a few years after that.

"Our software integrates with general ledgers and supports standard accounting principles, and even though this foundation was complicated for us to develop, it was a priority from the beginning. We knew it would be the key to solving compliance and recurring billing challenges for companies of all sizes." **—Tyler Eyamie, CEO**

This innovative accounting integration—as well as Fusebill's ability to connect seamlessly with many everyday software solutions such as Salesforce, Netsuite, and Hubspot—enables businesses to streamline and simplify their billing processes and ensure a better customer experience. These integrations also create efficiencies, which grant businesses more time and resources to capacitate growth.

Fusebill simplifies all its clients' recurring invoicing, payment management, revenue recognition, and reporting and analytics, regardless of how complicated the payment model. This enables its clients to decrease the amount of time they spend on billing, reduce their failed and late payments, and comply with accounting standards.



Driving innovation with automated billing

FROM REVOLUTIONARY ROOTS TO SUPPORTING AND FOSTERING INNOVATION BEYOND

In under a decade Fusebill has experienced explosive growth, quickly claiming a market hold within the subscription as a service (SaaS) space. SaaS is offering a modern way for customers to access services and it's bringing new approaches to the traditional business model—even replacing the traditional model entirely in some markets. Helping to foster this innovation, Fusebill's software is supporting an impressive roster of cutting-edge SaaS clients in a wide range of industries, from content development and healthcare, to fundraising and fleet management.

Over the last year, Fusebill has increased its annual recurring revenue 110% year-over-year and its customer count by more than 155%. As a result of its continued growth and success, it welcomed an increase in its employee count of over 40% and expects to increase that number again by more than 50% in the coming year. Additionally, for nearly three years the company has been growing its ideal customer cohort 20% month-over-month from a monthly recurring revenue perspective.

Fusebill is currently gaining a lot of attraction in the Internet of Things (IoT) and connected devices space—one of the fastest-growing markets today. Embracing this technological evolution and the resulting interest in billing solutions to accommodate it, Fusebill has welcomed new clients such as Avionica—a leading software and connected device provider in the aviation industry—and ClearPathGPS—a commercial fleet management solution provider.

Various billing models, from usage, consumption, and storage to user licenses, one-time fees, and recurring fees can all be handled elegantly with Fusebill. This means even the company's most complex clients can attain differentiation over their competition.

Fusebill has also formed new integration partnerships to support growth in the IoT space, such as with GeoTab Inc.—a global leader in the world of telematics. This is Geotab's first and only billing integration, and it powers agile monetization of GO devices through real-time billing communications with the Geotab cloud.

One of Fusebill's main goals has always been to support businesses through all phases of their growth and development. But in order to evolve and scale, businesses need to have a solid foundation; that includes efficient billing, consistent customer experience, and reliable cash flow. Fusebill is helping cutting-edge companies in the SaaS and IoT markets—as well as in many other market segments—implement agile fintech monetization solutions to enhance their recurring billing and subscription management capabilities and ensure scalability and success.



fusebill

+1-888-519-1425
sales@fusebill.com

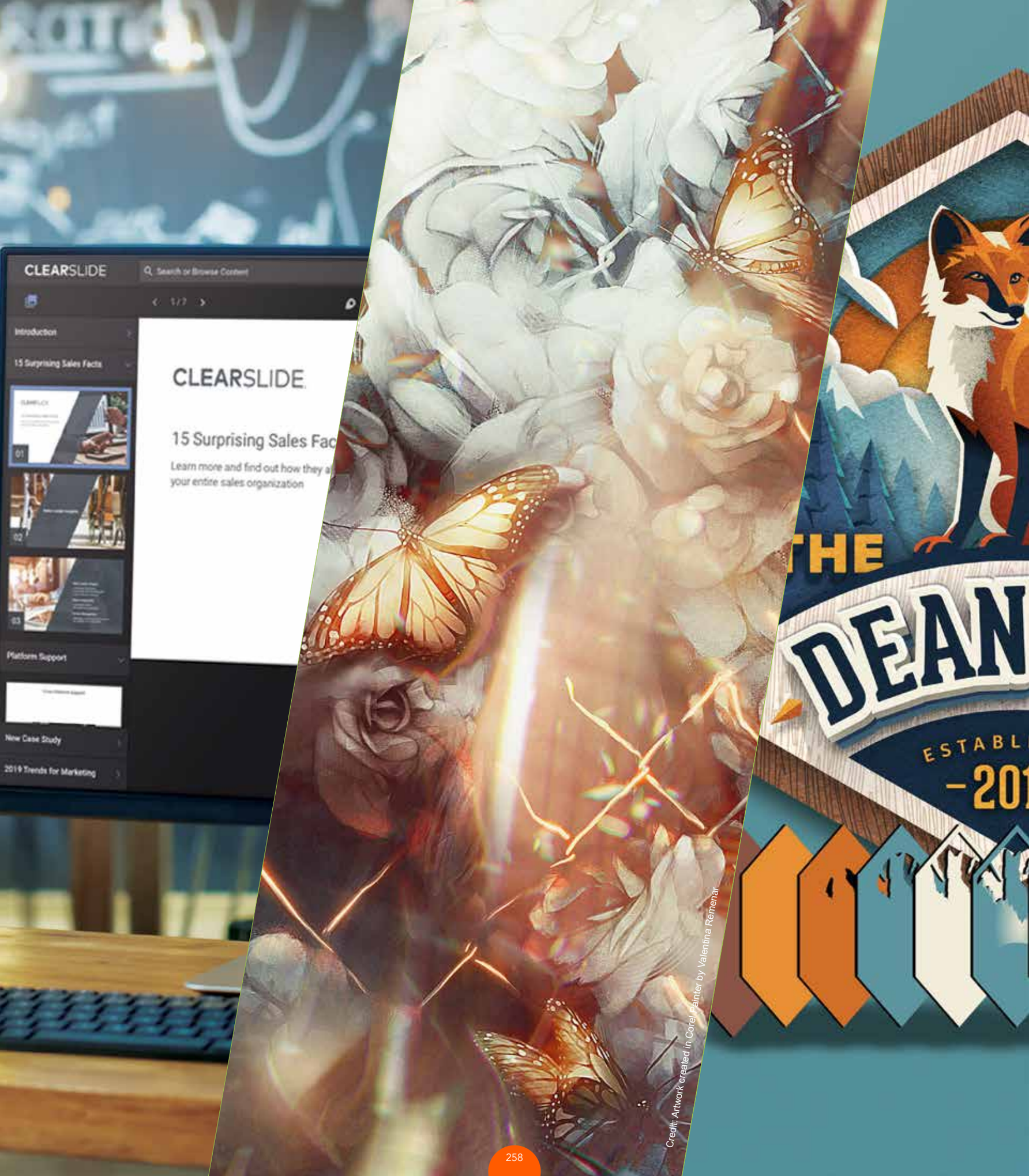
fusebill.com



CHAPTER FIFTEEN
INNOVATION IN DESIGN

Created in Corel Painter by Jesus Viveros





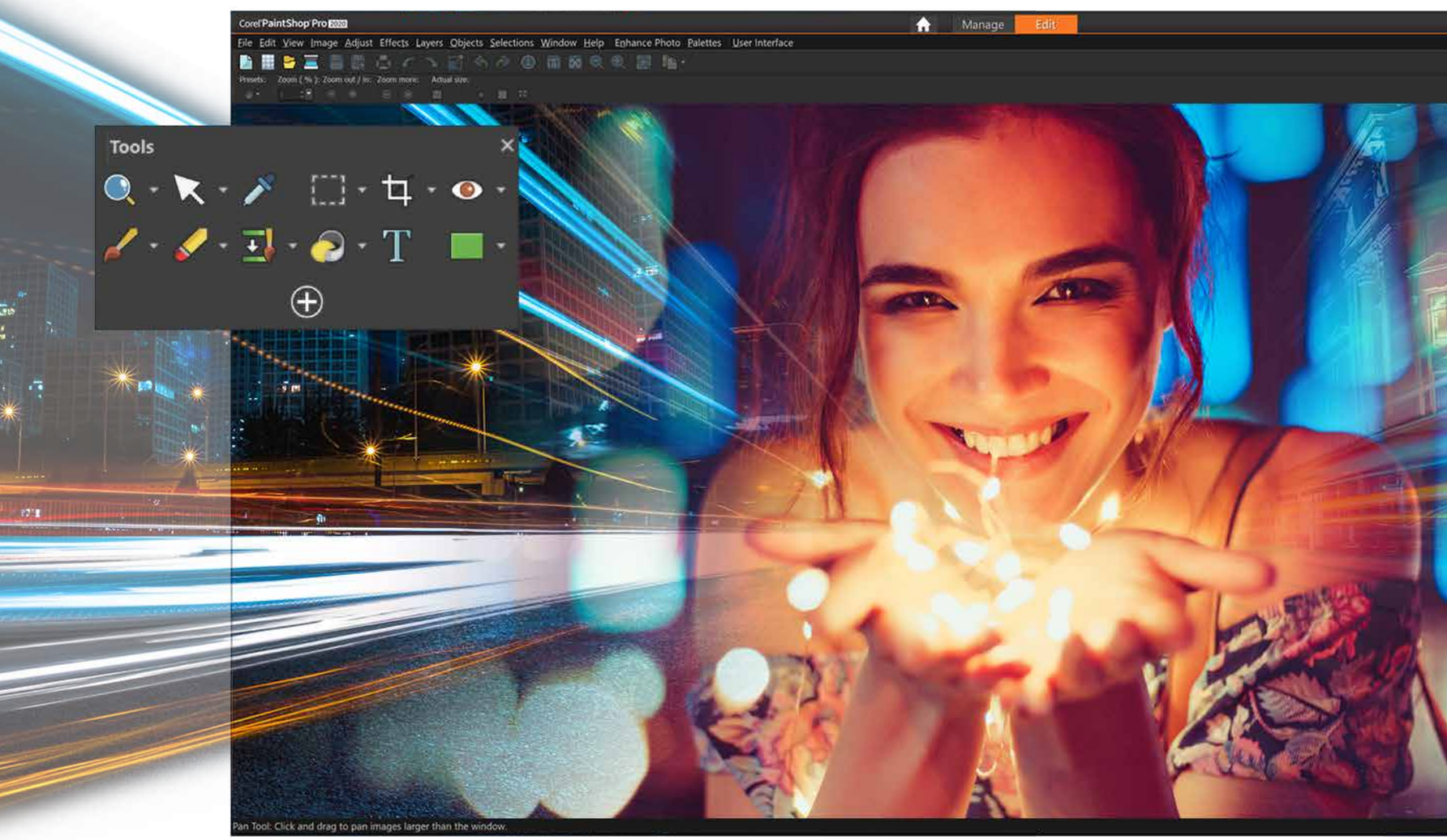
Credit: Artwork created in Corel Painter by Valentina Remenar



Credit: Artwork created in CorelDRAW Graphics Suite by Joseph Diaz.

Credit: Artwork created in CorelDRAW Graphics Suite by Firman Hatibu

SPARKING MEANINGFUL COMMUNICATION & CONNECTION.



Tools for the way we work today.

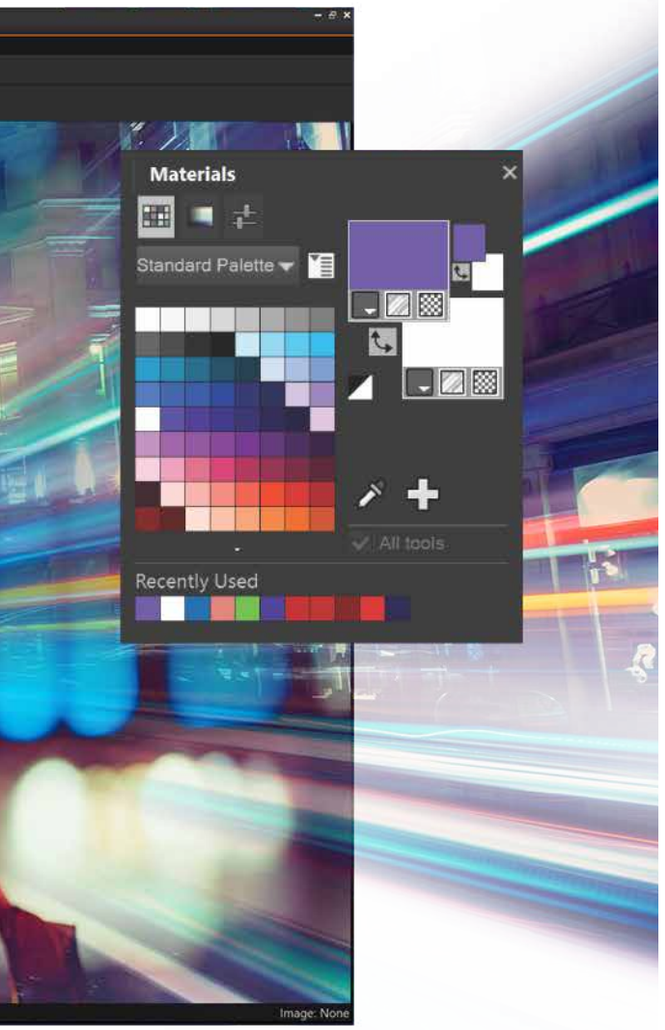
When we introduced CorelDRAW in 1989, we knew we had something special on our hands. With the first graphics software for the Windows platform, our team changed the way people express and share ideas.

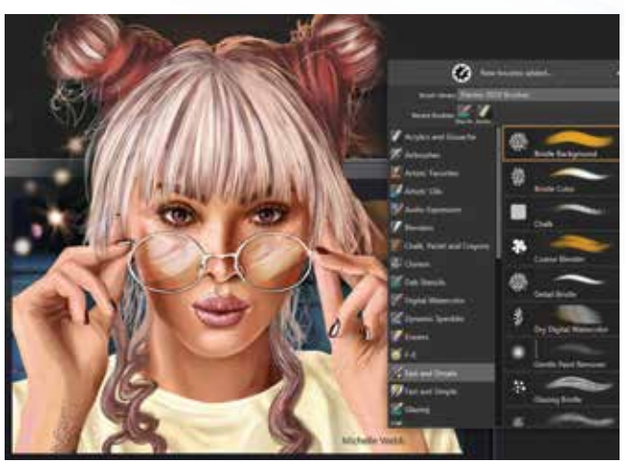
Amazing graphics software put us on the map as one of the original trailblazers in Ottawa's tech scene. Today, we're a global company offering one of the broadest software portfolios in the industry. With a commitment to innovation, excellence, and a constant drive to do better, we're leveraging the latest tech, including artificial intelligence (AI), to offer best-of-breed applications that challenge the status quo. Although our business now operates around the world, we're proud to have maintained our strong presence in the nation's capital where the original Corel team started it all.

Across our impressive collection of industry-leading brands, including CorelDRAW, Painter, MindManager, Parallels, ClearSlide, and WinZip, there's a shared truth that unites them all. Whether our users are creating persuasive designs, running Windows on a Mac, or using our software to

COREL®

www.corel.com





Artwork created in Corel Painter by Michelle Webb



Artwork created in CorelDRAW Graphics Suite

visualize and take control of their projects and data, millions of people around the world choose our products because we help them do great work faster.

From individual freelancers to entire corporate teams, connected knowledge workers rely on our constant innovation because it empowers them to achieve their goals. This focus is reflected in everything we do, and on every platform we develop for, whether it's Windows, macOS, web, or mobile.

Leveraging the latest in software design, we're using the power of AI to boost productivity and achieve results that may have been previously virtually impossible. In the world of design, CorelDRAW, Painter, and PaintShop Pro offer tools that intelligently respond to users' needs to deliver beautiful, eye-catching, and unprecedented results. While in the B2B space, ClearSlide is ushering in a new era of sales enablement by delivering insights and empowering meaningful conversations in exciting new ways.

Make no mistake. This isn't AI for AI's sake. We're leveraging AI where it can make the biggest impact, remove barriers, and deliver the biggest returns. As we look to our next generation of applications, AI will continue to spur exciting new opportunities for innovation.

A unique Ottawa success story, our company has grown significantly over the last few years, adding a number of industry leading products and companies to our portfolio. And along the way, we've solidified our reputation for creating, acquiring, and nurturing amazing software brands. With this momentum behind us, we see more exciting opportunities to grow both organically and through M&A, thanks to the support of KKR, one of the world's top global investment firms, who acquired Corel in the summer of 2019.

From graphics and productivity to sales enablement and project management, we're working to harness the power of AI and the latest tech to reshape how today's workers collaborate, communicate, and connect. More than three decades since Corel first made its mark on the technology scene, this unwavering focus on innovation and outstanding customer value is as central to our DNA today as it was on day one.

CorelDRAW® Parallels® MindManager® WINZIP®

CLEARSLIDE™ Painter® PaintShop® Pro pinnacle® ROXIO®



Rob Villeneuve, CEO Rebel

Rebel.com

Ottawa born and raised, but global in reach.

Headquartered in the Byward Market, the tech company's mandate is both bold and simple: enable contribution in the world's bravest communication space – the internet. Their suite of products range from web-design services and hosting solutions to domain names and custom email.

Ever growing, Rebel.com stands apart from even their largest international competitors thanks to stellar support, a brand swagger, and a deep commitment to serving their clients and community.



That commitment has landed them numerous awards, a celebrated corporate culture, and astonishingly positive client reviews (one customer even claims to have proposed marriage to a support agent).

Rebel staff lead some of the city's most innovative and globally led events – from Random Hacks of Kindness, where Ottawa's technologists and ChangeMakers 'hack for good', to Fuckup Nights YOW, the always-sold out monthly soiree where entrepreneurial and life failure is vulnerably shared and genuinely celebrated (often accompanied by a few beers).

Rebel.com supports numerous local non-profit and cause-driven groups with event space free of charge. The company's commitment to enabling others to contribute doesn't stop there.

Their mission to give everyone the tools required to contribute online means removing barriers and providing a thoughtful and accessible user experience along with collaborating to help people



power their ideas. Rebel.com matches all staff donations to charitable organizations and runs a ChangeMaker program that gives low or no cost technology and guidance to non-profits, students and social entrepreneurs.

Through their community-focused initiatives and world-class customer support and product suite, Rebel.com is making the world of tech feel a little more human.

rebel.com

LINEBOX

A progressive architecture studio for people who love and respect design.





Linebox provides a fresh and progressive outlook on how people live, work, and play in the architectural context, and we believe that the client is at the centre of the design-build process. Our mission is clear: collaborate with clients, builders, trades, craftspeople, and suppliers to create great design that truly reflects the client's character.

Launched in 2007, Linebox has always set out to disrupt norms and approach design differently. Our initial work was in residential design, and our first office was a few desks in the storage room of another architect's office in Toronto. After a few years, we started to grow up and moved out, expanding into commercial work for restaurants, retail, and offices and eventually adding an office in Ottawa and most recently in Montreal.

Today, we have 30 architects, designers and support staff in 3 cities, working on projects all over the place. Our goal is to continue to deliver designs that disrupt norms, astound our client partners and challenge us to try new things and to do better. We offer end-to-end architectural services that include interiors. In both our residential and commercial design, we focus on delivering something we call Quality of Space™.

This is the notion of designing a space to its best potential considering those who will be using it. We always ask ourselves: how can we design to create the best possible Quality of Space? Everything that affects the "Quality of Space" is taken into account in our designs: light, acoustics, materiality, context, and flow—because good design is never just about one thing.





linebox
STUDIO



It's about achieving an ideal balance between the need for efficiency, beauty, and sustainability with the ability to inspire and demonstrate true character and identity of the client.

That's why our design process begins with listening intently to their needs. It allows us to connect them, or their brand character, to their space through great design. At the start of a project, we assemble the best team for the job, involving them early on to best leverage their experience. We've spent years developing strong relationships with the consultants, contractors, trades, craftspeople, and suppliers we call upon.

We love transparency and simplicity, and so we do everything in-house, including all design work: architectural, interior, lighting, millwork, acoustics, furniture design and procurement, landscaping, and LEED/sustainability—which we see as inherent in good design. It's something that is considered from the outset of any project and applied throughout the entire design/build process. We're an environmentally conscious studio and have several LEED-certified architects on our team.

Design is sometimes viewed simply as a necessary corporate expense. When done properly, however, good design can have a critical impact on a business' success. We have seen that the right space can positively affect corporate revenues, increase staff retention, and encourage innovation and performance, while also contributing to better customer experiences.

But we're not just about good design; we're about good people. We're a genuinely curious bunch and are always looking to learn more, improve our skills, and build relationships. At Linebox, we're very proud of the amazing group that makes up our team. They're skilled, experienced, and really like what they do. We think you'll really like it, too.

www.linebox.ca

You.i TV

Building the Future of TV



From the heart of Ottawa's Kanata North technology park, the team at You.i TV is helping the world's biggest brands innovate and build the future of media and entertainment. You.i TV's flagship product, You.i Engine One, enables the design and development of video apps across screens of all shapes and sizes, including mobile phones, tablets, gaming consoles, streaming devices, set-top boxes, and Smart TVs.

You.i TV believes there's a better way to innovate in the fragmented world of digital TV. Consumers now have the option of streaming any type of content with the push of a button. Netflix was the first disrupter in this space: its streaming service now boasts 135 million subscribers on over 100 platforms. Companies aiming to achieve Netflix-like reach and compete in the new digital media landscape face a difficult task.

That's where You.i TV comes in. Taking inspiration from the video game industry, You.i TV's approach to cross-platform development uses a unified codebase to deliver high performance, consistently rich experiences across any screen. This fast-growing company has already helped global brands like NFL, A+E Networks, DirecTV, WarnerMedia, NBA, Twitch, and Fox power their direct-to-consumer strategies with You.i Engine One.



you.i TV

307 Legget Dr, Kanata, ON K2K 3C8
613.228.9107 | **www.youi.tv**







You.i TV's co-founder and CEO, Jason Flick, understands better than anyone that to win today, it's all about reach. "In 2020, our goal is to reach further with all aspects of our business. For one, we're reaching further with our physical space, having just expanded into the third and final floor of our building. We also plan to reach further with our continued international expansion, including new customers in Europe and Asia. 2020 will also see You.i TV grow our product and solutions teams to help our customers reach more platforms and get their content everywhere."



Like their tech, You.i TV has designed an office space and culture that is both flexible and welcoming, creating an open environment for employees to express themselves at work. Their state-of-the-art facility is the work home for over 200 employees, with more staff in offices worldwide.

It's an employee-centric culture, where meeting rooms are named after staff favourite video games; yoga, fitness, and meditation classes are offered weekly; and their award-winning mental health programming has been recognized in the community.

The company is proud to be a leader in the Kanata North technology park and show other Canadian startups what's achievable when art and science are combined.



CHAPTER SIXTEEN
MARKETING, EVENTS & MÉDIA



THINKOTTAWA

BRING YOUR CONFERENCES & EVENTS HOME TO CANADA'S CAPITAL



ThinkOttawa is a joint initiative managed by Ottawa Tourism, the Shaw Centre, and Invest Ottawa. The program launched in April 2019 and exists to increase local conference hosting through support to local industry, academic, government, and nonprofit leaders looking to raise the international profile of their industry, association, or research by championing a bid to bring a global, national, or regional conference to Ottawa. Expertise and tools available to local leaders include bid development, marketing and promotional materials, venue and accommodation selection, partnership support, and financial aid for eligible events.





Faran Mirza, Program Manager ThinkOttawa

BE A LEADER. LEAVE A LEGACY.

Are you a trailblazer in your industry? An expert in your field?

Hosting a national or international conference in your hometown is a powerful opportunity to showcase the pride you have for your city on a global stage.

Regional, national and international organizations rely on the influence and connections of local "host city" leaders and organizing committees to leverage sponsorships, speakers, programming content and social events.

As a business, academic, or community leader, you can play a direct role in bringing events to your home, Canada's capital city.



Annika-Rautiola, Meetings Researcher Ottawa Tourism

HOST AN INTERNATIONAL CONFERENCE

As a leader in your field, hosting a conference in Ottawa will not only raise the profile of your own work, but that of your entire industry. Ottawa puts conventions on a national and international stage. Events held here have easy access to policy makers, diplomatic communities, media members, industry experts, and innovators from a variety of sectors. Ottawa is Canada's tech hub, home to over 1900 tech firms employing over 75 000 people with decades of innovation, R&D and technological expertise. With over 400 associations calling Ottawa home, it's here that international conferences and events offer professionals an opportunity to make a significant contribution to their industries and share their knowledge on the global stage.

Become a ThinkOttawa ambassador and benefit from the program's support services for conferences and events. The meeting professionals and destination experts at ThinkOttawa will assist you in the bid and planning process working together to ensure your bid stands out from the crowd. ThinkOttawa will guide you every step of the way.

THINKOTTAWA



Raed Abdullah, Ambassador, IEEE Fusion 2019 Conference

PENSEZOTTAWA

AMENEZ VOS CONFÉRENCES ET ÉVÉNEMENTS DANS LA CAPITALE CANADIENNE

PensezOttawa est une initiative conjointe menée par Tourisme Ottawa, le Centre Shaw et Investir Ottawa. Lancé en avril 2019, le programme a pour but de renforcer l'organisation de congrès locaux en offrant un soutien complémentaire aux chefs de file de l'industrie, des universités, du gouvernement et des organismes sans but lucratif qui cherchent à améliorer la visibilité de leur industrie, de leur association ou de leurs recherches dans le monde en proposant la tenue d'un congrès mondial, national ou régional à Ottawa.

L'expertise et les outils mis à la disposition des chefs de file locaux comprennent l'élaboration de propositions, du matériel de marketing et de promotion, le choix du lieu et de l'hébergement, le soutien aux partenariats et de l'aide financière pour les événements admissibles.

SOYEZ UN LEADER. LÉGUEZ UN HÉRITAGE.

Vous êtes à l'avant-garde de votre industrie? Une sommité de votre domaine?

Il n'y a rien comme un congrès international pour partager au monde entier la fierté que vous inspire votre ville.

Les organisations provinciales, nationales ou internationales font confiance à l'influence et aux contacts des leaders et des comités d'organisation des villes hôtes pour exploiter le plein potential des commanditaires, des conférenciers, de la programmation et des activités sociales.

Les leaders des milieux d'aaires, universitaires et communautaires ont maintenant la possibilité de faire un geste concret pour attirer conférences et salons chez nous, dans la capitale canadienne.



Dr Donna Johnston, Ambassador, International Society of Pediatric Oncology Congress 2020

PARRAINER UN CONGRÈS INTERNATIONAL

Pour un expert comme vous, organiser un congrès à Ottawa est l'occasion de mieux faire connaître votre travail et celui de votre industrie. Les congrès organisés à Ottawa jouissent d'un rayonnement national et. Les événements organisés ici profitent de la proximité avec les décideurs, la communauté diplomatique, les médias, les experts et les personnalités influentes d'une foule de secteurs. Ottawa est le centre technologique du Canada avec plus de 1900 entreprises technologiques employant plus de 75 000 personnes dans la région.



Michael Crockatt, Ottawa Tourism, Minister Lisa MacLeod, Wahab Almuhtadi, President IEEE Consumer Electronics, Nina Kressler, Shaw Centre

Ça veut dire des décennies d'innovation, de recherche et développement et d'expertise technologiques. Plus de 400 associations sont établies dans la capitale et c'est ici que les professionnels font une différence dans leur industrie et se servent des congrès et événements internationaux comme d'un tremplin pour disséminer leurs connaissances dans le monde entier.

Devenez ambassadeur de PensezOttawa et bénéficiez du service d'assistance du programme pour l'organisation de vos congrès et événements spéciaux. Les professionnels du congrès et experts de la région de PensezOttawa vous aideront à préparer la demande et à organiser l'événement pour une candidature qui se distingue. PensezOttawa est là pour vous guider à chaque étape.

Vous connaissez Ottawa comme personne et c'est l'occasion partager au monde entier la fierté que vous inspire votre ville.

- ***Notoriété*** – Pour un expert comme vous, organiser un congrès international à Ottawa est l'occasion de mieux faire connaître votre travail et celui de votre industrie, ce qui pourrait générer du financement pour la recherche pour vous et votre domaine.

PENSEZOTTAWA

As a local, this is a powerful opportunity to showcase the pride you have for your city on an international stage.

- **Raised Profile** – As an expert, hosting an international conference in Ottawa will heighten the visibility of your work and that of your industry's – while potentially aiding in the generation of additional research funding.
- **Impact an Industry** – Many international events only ever visit a city once, so winning the bid for a worldwide conference will forever leave a legacy in your industry.
- **Networking** – Leading an international bid will provide opportunities to expand your network, develop relationships, and build research partnerships not just locally, but worldwide.
- **Recognition** – Be recognized for your efforts in championing an event at an annual awards gala attended by your peers, government leaders, and other industry experts.
- **Build Connections** – Partner with three of Ottawa's leading organizations working to attract conferences and events to Canada's Capital.
  - » **Ottawa Tourism** provides destination development and marketing, strategic direction, and leadership in cooperation with its members and partners, welcoming leisure travelers, business travelers, group tours, and conventions to Ottawa and Canada's Capital Region.
  - » **Shaw Centre** is an architectural icon and modern, spacious, centrally located event facility. It features state-of-the-art meeting spaces, leading-edge technological infrastructure, and environmentally sustainable features and practices lauded industry wide.
  - » **Invest Ottawa** is the lead economic development agency for knowledge-based industry in the Capital. Invest Ottawa aims to help realize Ottawa's full potential as a globally recognized, innovative, and future-ready city.



Victor Dillabaugh, Ambassador, International Association of Firefighters Convention 2022

ACQUIRE THINKOTTAWA EXPERT GUIDANCE

ThinkOttawa is here to help you navigate the process of hosting a conference or meeting with a number of support services at your disposal. With these ThinkOttawa partners by your side, you'll have the keys to the city and certainty for event success. The ThinkOttawa team supports each ambassador by providing ready access to a comprehensive set of resources, experts and support services. These complimentary services include:

- **Bid Development: ThinkOttawa** works with you to prepare a customized and polished bid document and presentation.
- **Top Notch Conference Venues and Accommodation: ThinkOttawa** works with you to develop the specifications for the right conference venue and accommodations, and source proposals that meet these requirements.
- **Government, Community and Partnership Support: ThinkOttawa** helps to facilitate testimonials and letters of support from key stakeholders, partners and municipal government when required.
- **Marketing and Promotional Materials: ThinkOttawa** provides access to promotional photos and videos that showcase the city, its many attributes and conference advantages.
- **Financial Support: ThinkOttawa** has funding programs available to assist organizations with exhibit and meeting space rental costs or in a manner that best suits your event. (Certain criteria needs to be met in order to qualify)
- **Conference Hosting: ThinkOttawa** offers complimentary expert consultations and strategies that address the objectives of your organization.

- ***Retombées industrielles –*** *La plupart des congrès internationaux ne passent qu'une seule fois par une ville. Remporter l'appel d'offres d'un événement de cette envergure laissera une marque indélébile sur l'industrie.*

- ***Réseautage –*** *Participer à l'organisation d'un événement mondial à Ottawa vous donne la chance d'étendre votre réseau, de nouer des relations et de rencontrer de nouveaux partenaires de recherche de votre ville, mais aussi du monde entier.*

- ***Reconnaissance –*** *Obtenez de la reconnaissance pour vos efforts en contribuant à l'organisation d'un événement à l'occasion du gala de votre industrie où vos pairs, des délégués gouvernementaux et d'autres experts seront présents.*

- ***Relations –*** *Faites équipe avec trois organisations importantes d'Ottawa pour attirer les congrès et événements dans la capitale canadienne.*

    - ***Tourisme Ottawa*** *offre des services de développement et de marketing touristique, de l'orientation stratégique et du leadership en collaboration avec ses membres et partenaires en accueillant les touristes, les voyageurs d'affaires, les groupes organisés et les congrès à Ottawa et dans la région de la capitale nationale.*

    - ***Centre Shaw*** *est un symbole architectural et un espace moderne et spacieux en plein cœur du centre-ville. On y trouve des salles de réunion avant-gardistes, une infrastructure de pointe et des caractéristiques et pratiques écoresponsables reconnues dans toute l'industrie.*

    - ***Investir Ottawa*** *est la principale agence de développement économique de l'industrie du savoir dans la capitale. Son rôle est de réaliser le potentiel d'Ottawa en faisant d'elle une ville réputée sur la scène internationale, innovante et prête pour l'avenir.*

BÉNÉFICIEZ DE L'AIDE DES EXPERTS DE PENSEZOTTAWA

PensezOttawa est là pour vous aider à naviguer le processus d'organisation d'un congrès ou d'une réunion en mettant à votre disposition une gamme de services. Avec les partenaires de PensezOttawa à vos côtés, vous détenez les clés de la ville et d'un événement réussi.

L'équipe de PensezOttawa appuie les ambassadeurs en leur donnant accès à une foule de ressources, d'experts et de services de soutien. Ces services gratuits sont :

- ***Développement de candidature:*** *PensezOttawa vous assistera dans la préparation d'un document et d'une présentation de candidature personnalisée et soignée.*

- ***Centre des congrès et hébergement hors pair:*** *PensezOttawa vous aide à déterminer la bonne salle et les bons hôtels pour vous et à obtenir des devis qui répondent à vos exigences.*



- ***Soutien du gouvernement, de la communauté et de partenaires:*** *PensezOttawa vous aide à obtenir des témoignages et des lettres d'appui d'acteurs importants, de partenaires et de la municipalité, au besoin.*

- ***Matériel de marketing et de promotion:*** *PensezOttawa met à votre disposition des photos et vidéos de promotion pour faire connaître la ville, ses nombreuses attractions et ses avantages.*

- ***Aide financière:*** *PensezOttawa a des programmes de financement pour vous aider en couvrant la location de la salle ou d'autres frais, selon vos besoins. Certaines conditions s'appliquent pour être admissibles.*

- ***Organisation de congrès:*** *PensezOttawa o.re une consultation gratuite avec des specialists de l'événementiel qui vous proposeront des stratégies pour réaliser vos objectifs.*



Ambassadors Recognized at Inagural ThinkOttawa Gala, November 2019



SAAS NORTH

Our home in Ottawa helps celebrate a true entrepreneurial spirit that has become so uniquely Canadian.



SAAS NORTH, Canada's largest technology conference for SaaS (software-as-a-service) companies scaling up, was founded in 2016 in Ottawa by Cube Business Media Inc. and L-Spark Corporation. The conference brings together the entire Canadian SaaS ecosystem under one roof.

Despite pressures to launch SAAS NORTH in other cities, the Founders saw the potential of Ottawa as a host to the growing cloud-based software market.

Industry leaders from startup CEOs to enterprise-level tech executives and investors gather to learn, connect and grow around the most pressing issues for entrepreneurs building companies in the cloud-based software industry.

Some of North America's most successful entrepreneurs have graced the stages of SAAS NORTH such as Bruce Croxon and Michele Romanow of Dragon's Den fame; e-commerce trailblazers Tobias Lütke and Harley Finkelstein of Shopify; small business accounting software pioneer, Mike McDerment, Founder & CEO of Freshbooks; David Ossip, CEO & Chair of Ceridian, one of the fastest growing global Human



cube business media inc.
CONNECTIONS CONTENT COMMUNITIES

Capital Management technology companies; unicorn builders, Bruce Linton, formerly of Canopy Growth Corporation and now Co-Chair of Martello Technologies and Dax Dasilva, Co-Founder & CEO of Lightspeed.

Over 400 SaaS experts have delivered thought-leading insights to nearly 5000 attendees since the conference began and the conference has doubled in size from 2016-2019.

SAAS NORTH has become a hub for VCs and other investors looking to deploy capital. The conference is regularly attended by Canada's leading and most active investors including iNovia Capital, BDC Capital, OMERS Ventures, Georgian Partners, MaRS, IAF and many, many more.

The conference has led to investments by Wesley Clover, iNovia Capital, TIMIA Capital, Surepath Capital, BDC, OMERS Ventures, 500 Startups, Round13 Capital, and many more. Canada's abundance of capital and its growing economy with relatively low unemployment, has kept us on pace with both an increase in the value of deals being done and a rise in the volume of transactions.

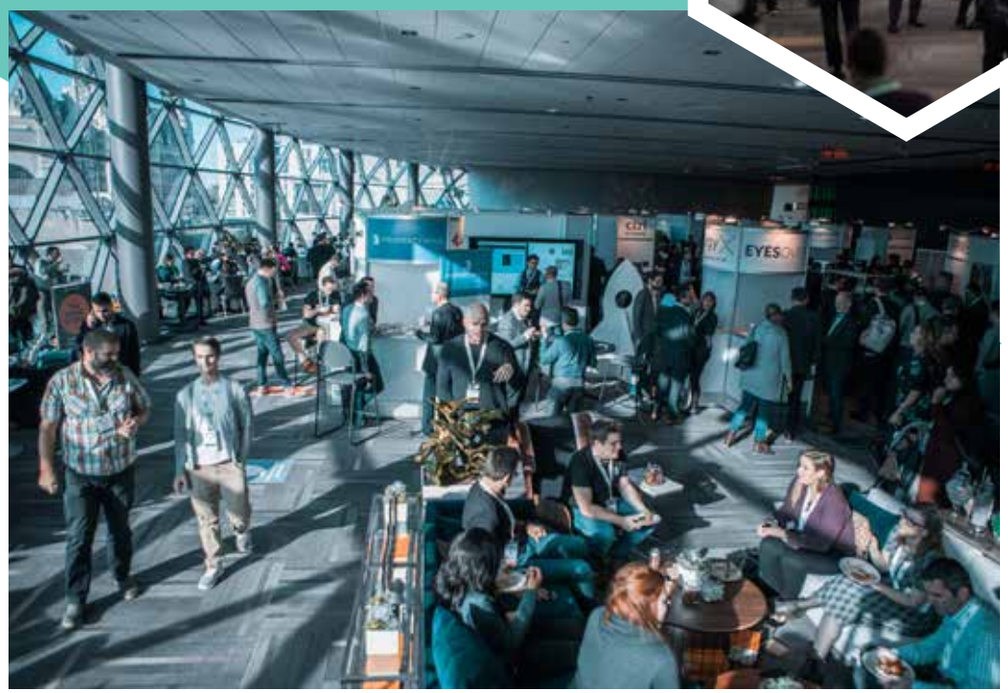
SAAS NORTH has played a role in fueling the engine of our nation's economy.

Although there are multiple paths we can take to build global giants of the SaaS variety, SAAS NORTH will continue to galvanize the tech ecosystem in Canada as we bring the depth and breadth of experience from those who have built billion dollar successes together year over year. It is with this that we celebrate the true entrepreneurial spirit of Canadians.













cubebusinessmedia.com

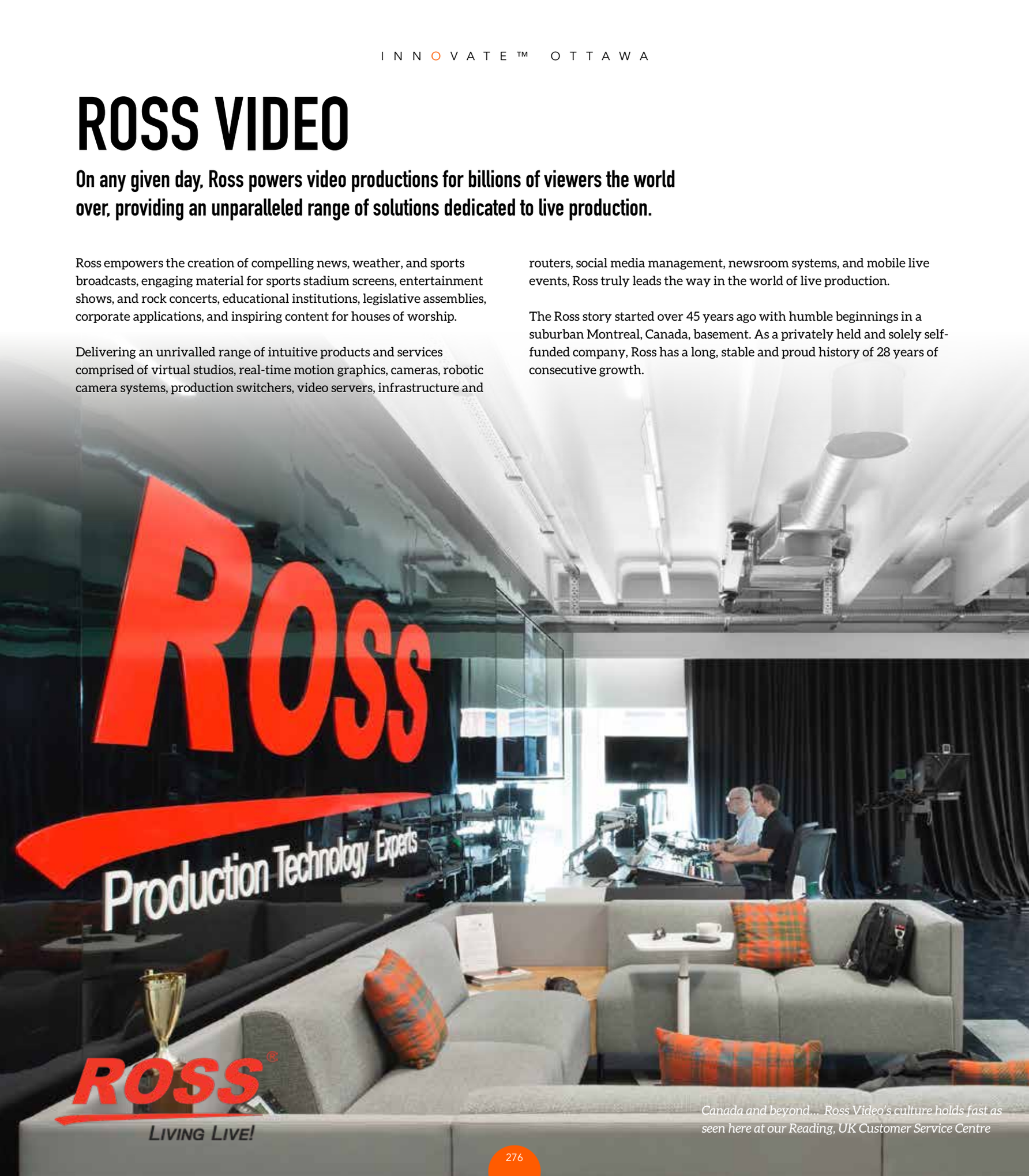
ROSS VIDEO

On any given day, Ross powers video productions for billions of viewers the world over, providing an unparalleled range of solutions dedicated to live production.

Ross empowers the creation of compelling news, weather, and sports broadcasts, engaging material for sports stadium screens, entertainment shows, and rock concerts, educational institutions, legislative assemblies, corporate applications, and inspiring content for houses of worship.

Delivering an unrivalled range of intuitive products and services comprised of virtual studios, real-time motion graphics, cameras, robotic camera systems, production switchers, video servers, infrastructure and routers, social media management, newsroom systems, and mobile live events, Ross truly leads the way in the world of live production.

The Ross story started over 45 years ago with humble beginnings in a suburban Montreal, Canada, basement. As a privately held and solely self-funded company, Ross has a long, stable and proud history of 28 years of consecutive growth.



Canada and beyond... Ross Video's culture holds fast as seen here at our Reading, UK Customer Service Centre



Ross CEO, David Ross, addressing a local audience about scaling up Canadian business



Always on the hunt for the very brightest and best talent

Impressing audiences and marketing partners alike, such as NBC Sunday Night Football, Eurosport, BBC World, Google, YouTube and China's eSports powerhouse VSPN, Ross Video's client portfolio continues to inspire.

Without the constraints of external financiers, Ross controls its own destiny by owning its manufacturing facilities, performing all primary research and development in-house, and marketing its products worldwide via a global sales force and network of business partners.

Ross now occupies corporate offices in North America, Europe, Asia, and Australia, with supporting sales and service operations strategically located globally.

Ottawa, Canada's 'Silicon Valley' is home to the company's marketing and research and development teams, as well as its North American product training and demonstration center. The company's manufacturing operations and headquarters for administration and finance, are located in Iroquois, Canada.

Ross Video's state-of-the-art factory in Iroquois is run by experts in high-tech manufacturing with the company's engineers incorporating only the most advanced high precision components and techniques.

Ross Video's high impact, high efficiency production solutions power video productions for billions of global viewers daily with the industry's widest range of high impact, high efficiency production solutions. Ross makes it easy to create compelling news, weather and sports broadcasts, engaging material for sports stadium screens, entertainment shows and rock concerts, educational institutions, legislative assemblies, corporate applications and inspiring content for houses of worship.



Ross proudly powers the Jacksonville Jaguars



Experiential learning leads the way at Ross

In-house research and development allow Ross to facilitate maximum creativity, not only to breakthrough products but also to the long-term evolution and support of all the company's products and technologies. Ross Video's engineers develop deep industry knowledge through front-line exposure to customer requirements with development-level support implemented to solve all customer issues whenever necessary.

Ross Video's customer base is both global and diverse, thus providing the revenue stability to enable the company to navigate all challenges, to continue its growth trajectory and, very importantly, invest in the future. Impressively, Ross Video's highly knowledgeable global sales force enjoys substantial product training each and every year. Our corporate goal is to provide added value with every interaction and deliver a superior customer experience every time, all the time.

At Ross, it's all about Living Live!—it's what we do.

www.rossvideo.com

seoplus+



seoplus+ partners with world class organizations to deliver exceptional marketing campaigns. The dynamic team of in-house experts leverages prestige partnerships, uses state-of-the-art tools & technology, and undertakes proven digital marketing tactics to achieve maximum results.



A GAP IN THE MARKET

seoplus+ is a full-service digital marketing agency headquartered in Ottawa. Founded in 2012 as a web design agency, co-founders Eddy Abounehme and Brock Murray started by designing websites from scratch for local businesses. They quickly realized there was a gap in the market - established businesses already had websites but had trouble generating traffic and leads.

From this revelation, seoplus+ was born. The company pivoted to provide recurring digital marketing services for clients with existing and new websites alike, strategizing and executing effective ways to get visibility in the search engines, drive more traffic, and increase sales.

DIGITAL MARKETING DEMYSTIFIED

Today, the team of 30 in-house experts works to illuminate the black hole of digital marketing with transparent, results-focused service. They offer world-class services in SEO, paid ads, web design & development, digital PR, content marketing, social media, and more. They cater primarily to three main verticals: local businesses, national organizations, and e-commerce stores.

Their mission is to make life better, whether it is creating a worry-free experience that results in clients achieving their goals, or proactively helping a new hire maximize their professional development with a yearly training program.











POWER OF PARTNERSHIPS

They maintain several prestige partnerships, including the Google Premier Partner designation, reserved for the top 4% of Google Partners globally. They are also a Facebook Marketing Partner and are a Shopify Partner.

As a result of their continued success, seoplus+ was a finalist for the Google Premier Partner Awards in the category of Growing Business Online, has been recognized as one of Canada's Top Digital Agencies (Clutch.co), was named to the 2017 STARTUP 50 as a leading growth company in Canada (Canadian Business/PROFIT), placed #3 on Ottawa's Fastest Growing Companies list (Ottawa Business Journal) and CEO Eddy Abounehme was a 2017 Top 40 Under 40 recipient in 2017.

seoplus+ has been proud to partner with clients like Panasonic, Mobile Klinik, Bluenotes, AIR MILES INCENTIVES®, Robillard Hearing Centres, University of Ottawa, Government of Canada and more.

seopluscanada
seoplus
www.seoplus.ca

MAXBOUNTY

For MaxBounty, innovation has always been an integral part of the company's DNA.



Founded in 2004 and located in Ottawa's east end, MaxBounty is one of the longest-running cost-per-action advertising networks in the performance marketing space.

Performance marketing is a truly unique marketing channel that specializes in maximizing the return on investment for both advertisers and their affiliates. Whether the goal is selling products, capturing email addresses, or increasing app installs, MaxBounty's team connects advertisers with online specialists such as bloggers, media-buyers, and social media experts (all known in the industry as "affiliates") to help increase their business.

Advertisers utilize MaxBounty's ever-growing base of nearly 30,000 affiliates to reach a wide variety of online audiences. All messaging is specifically targeted, carefully tracked through their proprietary technology platform and advertisers only pay for the actions that have delivered their desired outcome.

Uber, American Express, McAfee and Microsoft are just some of the globally recognized names that use MaxBounty to help grow their brand.

Originating an Industry

MaxBounty was created by the same people that have propelled its success since—online affiliate marketers.

In the early 2000s, the performance marketing industry was still in its infancy. This created an online environment where rules and regulations were severely underdeveloped. People could take advantage of others financially because there were little to no repercussions or monitoring. All parties, from advertiser to affiliate to consumer, were in uncharted digital waters.

MaxBounty's goal was to create a network that not only connected brands to affiliates, but also provided each party with security, stability, privacy, and support. This was the catalyst for their ongoing dedication to finding new ways to evolve both their network and the industry as a whole.

Evolving the Expectations of Performance Marketing

Although a lot has changed online since 2004—technology, society, and the rise of social media just to name a few

—MaxBounty's philosophy of continued innovation has not. The company strives to stay on top of trends and technologies to adapt quickly to their clients' needs.

Brands that work with MaxBounty have access to a robust proprietary software that provides them with instant laser-focused campaign data. These advertisers know how and where users are interacting with the online campaigns being promoted by their affiliates. This eliminates the need for advertisers to spend additional money on third-party tracking systems, leaving a greater budget for actual advertising.

Affiliates who work with MaxBounty have access to a separate proprietary software that provides detailed statistical breakdowns for each active advertising campaign, allowing affiliates to select the campaigns that best suit their business.

MaxBounty has increased its collaboration capabilities by engaging with more app developers with mobile campaigns, tracking in-app events and key performance indicators at in-depth levels.

Recently, they introduced a Pay Per Call platform to their network that allows phone calls originating from online advertisements to be tracked through unique phone numbers. This has opened the performance marketing arena to a large group of advertisers that have typically relied on traditional offline methods with little ability to track their return on investment.





The Power of Forward Momentum

MaxBounty has been named the No. 1 Cost-per-Action Network in the world on three occasions by mThink's Bluebook Top Network Survey, the most reputable network ranking in the performance marketing space. In 2019, MaxBounty was voted the Best Network for Advertisers By Advertisers by the same publication.

CEO Matt McEvoy was selected as one of Ottawa-Gatineau's 2019 Top Forty Under 40 recipients. Forty Under 40 is a joint initiative of the Ottawa Board of Trade and the *Ottawa Business Journal* that recognizes accomplished and rising business leaders under the age of 40 in the National Capital Region. These awards are a testament to the unwavering vision for innovation that remains an ongoing company-wide focus.

MaxBounty has recently migrated to a larger, modernized office space to accommodate their expanding team and allow them to thrive.

As their client base keeps growing, so does the need to meet new demands in an industry that can transform quickly from one month to the next. MaxBounty has positively influenced the performance marketing industry for almost two decades and their future looks to be no exception.

MaxBounty.com



CHAPTER SEVENTEEN

PRODUCT & SERVICE INNOVATIONS



hoppier

Hoppier makes it easy for offices to order snacks, supplies, and more that employees love. Many of the fastest-growing companies and best places to work like TripAdvisor, Uber, Ryerson University, ProCorp Financial, and more make work happier with Hoppier.



Hoppier was founded in Ottawa in late 2016 by brothers Cassy and Emil Aite. The idea started while Emil was working at Shopify as a software developer and recognized that purchasing for large groups of people can be difficult. "When we started, we didn't realize how purchasing for companies could have an impact on the happiness of employees, but as we did more research we found it was impossible to find solutions that were simple and allowed a company to make intelligent decisions while scaling and providing consistency in the way they order snacks, supplies, and more," says Emil, co-founder and CTO.

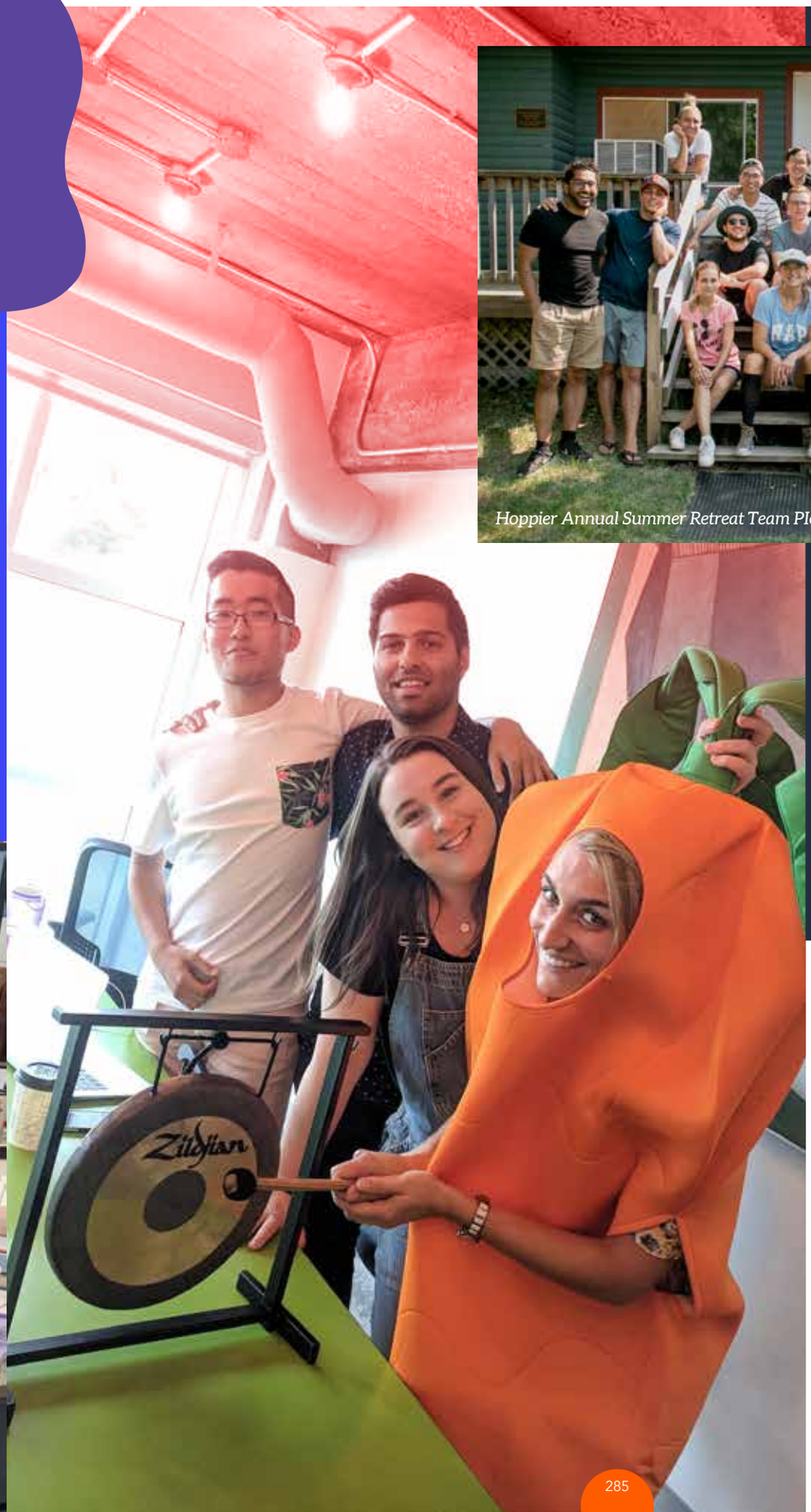
The company was originally founded under the name Desk Nibbles, focused on making it easy for companies to purchase healthy snacks. They quickly grew to serve 100s of offices in their first year of business and expanded to the United States. After successfully becoming the leading snack and beverage provider to offices, they expanded to begin offering supplies and more to companies, rebranding as Hoppier in 2019.

At the ripe age of three years old, today Hoppier is used by organizations across North America in a wide variety of industries and employs over 20 people. The company bootstrapped for its first two years before raising an angel round of financing. Having outgrown its first office at the Bayview Yards Innovation Centre as part of the Invest Ottawa Accelerator, Hoppier is now located in their own office in the Hintonburg area of Ottawa—still a short walk from the innovation centre.





Hoppier Annual Summer Retreat Team PIcture at Camp Hoppier.





The Hoppier team has a vision to make work happier for people all over the world and while the team recognizes that making workplace culture great goes far beyond perks, they are committed to bringing thought leadership to organizations through publishing free content and being an example of best practices in the city.

Hoppier has also committed to be an active member in the community, supporting causes such as the Make A Wish Foundation, local food banks, and more.



+1-855-964-2253
hi@hoppier.com





canvaspop

For over a decade Canvaspop has been the leading provider of personalized photo art, however we do much more than just print photos on canvas, we empower the world to create.

Our team of experts specialize in turning your personal photos and digital creations into high quality wall art. With delivery across North America and Europe, our specialized services allow anyone to print their personalized artwork at any size.

Not only are we known for our amazing customer experience, we're also constantly seeking new and innovative ways to create personalized art, using the latest technologies.



6 Hamilton Avenue N, Suite 004 | Ottawa, ON K1Y 4R1
canvaspop.com

FOKO RETAIL

Keeping retail teams on-task, for more brand consistent stores.







Stand-out shopping experiences start with excellent in-store execution. But many major retailers and brands struggle to ensure directives get carried out in their stores due to a lack of communication and visibility into day-to-day operations. And with e-commerce continuing to take sales away from brick-and-mortar, it's now more important than ever for physical retailers to deliver memorable in-store experiences at every location and stay brand consistent across every point of sale.

Retail moves fast, and the changing day-to-day needs of each store mean that HQ often has a hard time keeping up with who has done what, and holding teams accountable for carrying out their carefully laid plans. Of course, there's no shortage of apps and platforms out there that claim to solve problems at the store-level. The trouble is that most software wasn't designed with retailers in mind, and those that were are woefully stuck in the 90's, resembling the unengaging intranets, shared drives, and top-down communication tools of old.

Foko Retail

Foko Retail is different. Our mobile-first platform is totally intuitive, and, thankfully, doesn't look like other retail software (think of it like Instagram-meets-Slack as opposed to a boring old intranet). Instead of digging through email threads or logging into the company computer in the back room to access directives and company files, Foko Retail allows store teams to access and complete tasks straight from their mobile devices, so everyone is aligned and accountable about what needs to get done each day. That way, store teams are more able to deliver on the retail vision designed at HQ, and get back to





what matters most—providing great shopping experiences for customers.

Our platform helps retailers get stuff done by streamlining and centralizing internal communication. Headquarters can send tasks, surveys, training materials, product guides, messages, and more down to stores and field teams to ensure compliance. (And store-level employees can communicate back up the chain to clarify directives and send visual proof that tasks get carried out correctly, and on time.) Because Foko Retail has native apps for iOS, Android and Web, you can access it from anywhere and connect with your team in real time.

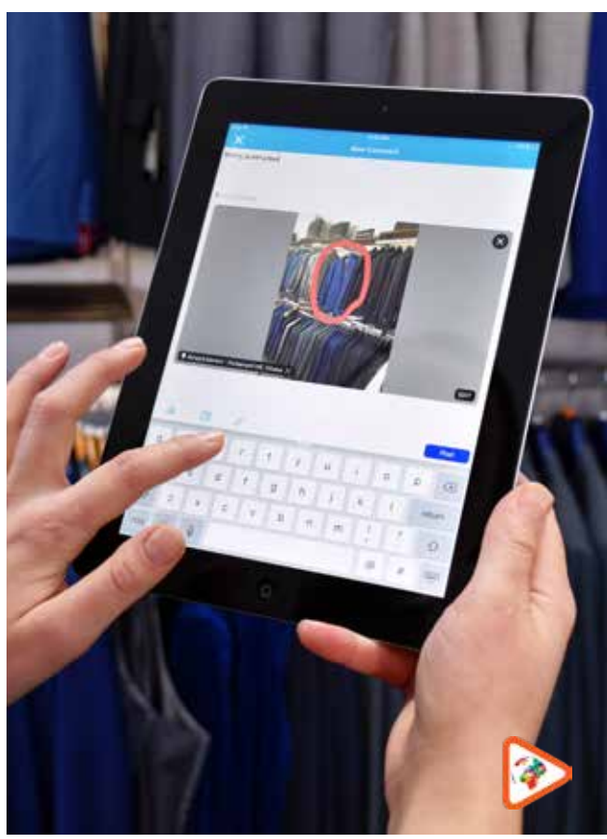
Foko Retail also gives retailers insights into store compliance and performance through advanced reporting and in-depth analytics. That way, retailers and brands can identify problem areas and make changes, helping guarantee that all stores look their best.

Foko Retail wasn't always a mainstay on the sales floor. Initially, cofounders Eric Sauve and Colin McDonald envisioned Foko as a private and secure photo-sharing app for employees. As services like Facebook and Instagram became more prevalent in day-to-day life, businesses discovered that staff were sharing work-related posts, and even using platforms to send directives, on social media—a big no-no for any business trying to prevent corporate information from falling into the wrong hands. Foko—whose name was originally conceived of as a play on "photos for companies"—allowed employees to engage with one another and share visual proof of task completion on a private platform.

But retail in particular, with its lackluster legacy systems and notoriously disconnected frontline, was ripe for disruption.

Under the leadership of CEO Marc Gingras (serial entrepreneur, angel investor, and philanthropist), Foko Retail continued to expand its scope and ambition, adding direct messaging, document storage, reporting, and more to its list of capabilities.

Today, it's used by 60+ of the world's leading brands and retailers—including Whole Foods, Nike, Club Monaco, Five Below, Converse, Hermès, Acne Studios, Victoria's Secret, and more—to improve brand consistency and deliver better customer experiences across their stores.



To learn more about Foko Retail visit **fokoretail.com**

reDock

reDock is an Ottawa-based start-up shaking up the way people search for and find information. Their product of the same name is an AI-powered search engine that cuts the time typically required to find reusable internal content for proposals, RFP responses, and other business documents by 50 per cent or more.



The idea of reDock first came about while founder Pierre-Olivier Charlebois was running his own consulting company in Ottawa. He provided consulting and technology services to mostly government clients, but found he was spending an inordinate amount of time searching for the right content while responding to RFPs. The electrical engineer by training had already built AI systems for other uses, and soon realized automated content search was the key.

Fast forward a few years and reDock, an Invest Ottawa accelerator company, now has a growing, passionate team, working together to better the bidding landscape. It mainly sells its solution to engineering, consulting and other professional services firms around the world who rely on proposals to win business.



reDock

Indeed, anyone who has endured the proposal content search process knows just how time-consuming and tedious it can be. For organizations without a dedicated proposal team, finding reusable yet vital internal content like company descriptions, project descriptions, or CV snippets across multiple content management systems (CMSs) can be a massive distraction. Even for organizations with proposal specialists, speeding up manual content search can lead to huge productivity gains and better proposals – not to mention a boost in morale.

reDock is a software-as-a-service (SaaS) software platform that turbocharges internal content search through the power of AI and machine learning. It automates mundane content search tasks such as manual tagging and organizing, allowing users to quickly find and add the most relevant and timely internal knowledge required to support winning proposals.

And maybe the best part? Because it's underpinned by AI and machine learning, reDock becomes smarter and more attuned to every aspect of your content every time it's used.

The software offers optional out-of-the-box, no-code integrations with many of the most popular CMS platforms on the market, including SharePoint and Google Drive, allowing clients to sync reDock with their internal content systems. That means no uploading of documents and no worries about content duplication or version issues between systems.

reDock also allows organizations to set rules around which internal content is searchable, and by whom, so employees don't mistakenly stumble upon sensitive HR or company information.

What reDock does, and does very well, is work like an internal search engine to quickly find the most relevant and up-to-date answers or corporate information (often buried under mountains of other internal documents) for specific proposals or RFP responses. It can help save countless hours of manually locating, copying, and adding bits and pieces of internal content from various content management systems into proposal documents.

reDock's expanding customer base has been especially impressed by the software's extreme ease of implementation and use, as well as the immediate impact on their business. The growth and positive influence reDock has achieved by helping to solve an undeniable, universal problem has the team excited for what is to come.



"As a proposal writer specialist I manage and write proposals for the public and private sectors. With reDock, I have been able to save at least 50% of my time searching for content in past proposals versus searching directly in SharePoint."

Erin Hopkin – Proposal Writer Specialist
Colliers Project Leaders

"I've been managing proposal teams for 15 years and writing proposals for 20. The consistent challenge across all the companies I supported was drawing on corporate knowledge to pull together past proposal examples to use as a boilerplate for developing new proposals. I looked into content management systems over the years, but they all required a significant amount of front-end work and ongoing maintenance. We recently implemented reDock and, considering the productivity, quality, and consistency benefits we've already achieved, we've been able to demonstrate significant return on investment."

Rebecca Rollison – B.A., CF APMP, Corporate Manager, BD & Risk
Autopro Automation Consultants

251 Laurier Ave W, Suite 900, Ottawa, Ontario, K1P 5J6 | 1.888.338.3448
redock | redockai | **redock.com**



COLLAB SPACE

It takes a community to raise a successful business.

Collab Space is that community, supporting aspiring and professional entrepreneurs to overcome the many business challenges faced on the road to success. Collab Space is more than a physical place to work; it is the backbone of the small business community in Ottawa.

The Story Begins

Collab Space founders Emile Salem and Blair Kilrea noticed a gap in the Ottawa-Gatineau community. Below the surface of a quiet government city, many exciting, unique, and groundbreaking ideas were being conceived. Yet, the minds behind these ideas were facing a mountain of challenges to make them a reality. To make matters worse, they were facing these challenges alone.

Salem and Kilrea, successful entrepreneurs and small business owners themselves, saw the need for a space where the entrepreneurial spirit could thrive. Collab Space was born—a collaborative space where businesses can learn, grow, and succeed together. A place where mentorship, networking, and practical support could allow the most innovative ideas to become business reality.



More Than A Space

Collab Space is a phenomenal place to work, yes. With a number of flexible options, Collab Space is home to entrepreneurs, small business owners, freelancers, remote workers, and more. The space is modern, professional, and high-class. Co-working hubs, private offices, a variety of high-quality meeting rooms, educational spaces, and a large event venue with a dedicated event team provide options for every type of business need. Abundant onsite amenities—including a restaurant and even a blockchain hub—ensure that everything one could possibly need is no more than a few footsteps away.



However, the true innovation of Collab Space lies in its community. We don't simply provide our members with a place to work; Collab Space offers a wide range of tools













and support to help small businesses thrive. In a landscape where many brilliant ideas lose their business legs after only a few short years, Collab Space aims to provide long-term success to the world's future innovators. A team of mentors and advisors, themselves leaders in the Canadian business community, provide hands-on coaching, consulting, and ongoing education. Finally, in an environment where all walks of business are welcomed, our members themselves create a vast support network.

Collab Space has delivered the solution to Ottawa's entrepreneurial needs: a one-of-a-kind business community that nurtures success.

Future Innovations

Collab Space continues every day to explore new ways to provide support for both existing and promising new businesses. We continue to enrich our education program, provide new sources of mentorship and guidance, and provide new amenities and services at our two current locations in the Ottawa area, in Nepean and Kanata. Collab Space plans to expand to more locations in the Ottawa area, and eventually scale to multiple locations across North America, fostering the entrepreneurial spirit in every place we go!





COLLAB SPACE

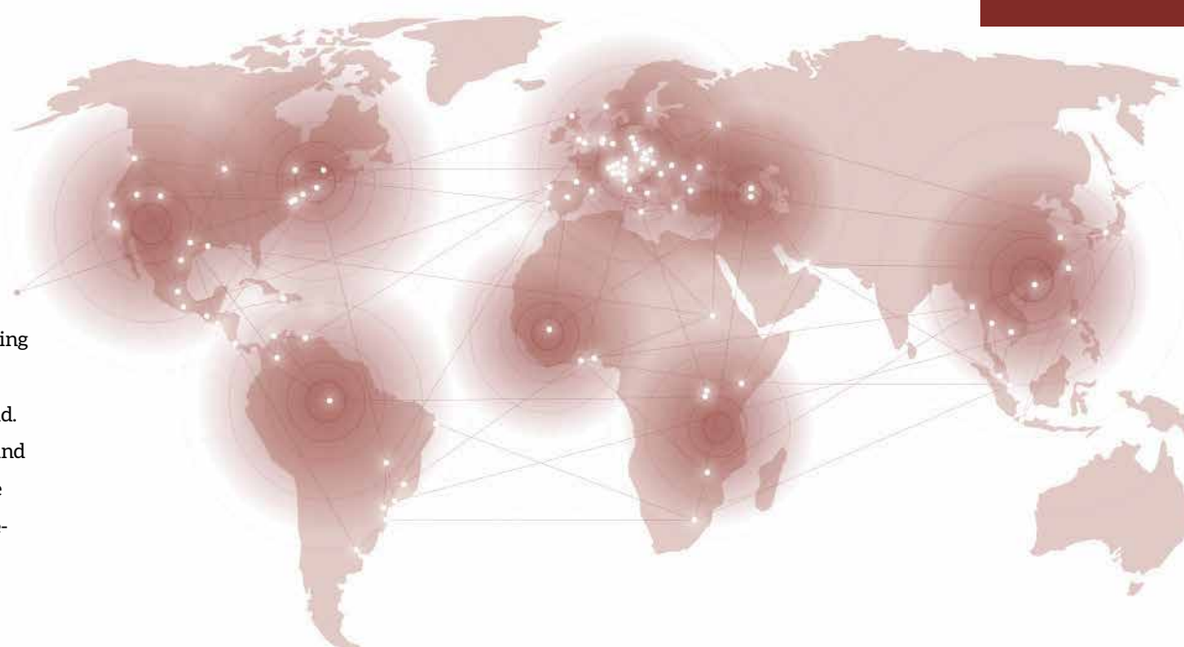
CollabSpace.ca

IMPACT HUB OTTAWA

OTTAWA'S HOME FOR SOCIAL INNOVATORS



IMPACT HUB



ELEVATOR PITCH

IMPACT HUB OTTAWA is a collaborative coworking space and community that inspires, connects and enables action for a more just and sustainable world. Part of a global network of over 100 Impact Hubs and 16,000 members, Impact Hub represents one of the world's largest networks focused on building entrepreneurial communities for impact at scale.





OUR STORY

Since its launch in 2012, Impact Hub Ottawa has established a community of more than 350 local members and supported over 150 early-stage social enterprises to launch and grow.

Impact cannot happen in isolation, it requires collective action. With this in mind, the uniquely hosted workplace environment is designed to foster collaboration. With a focus on supporting purpose-driven organizations to *do good better*, Impact Hub Ottawa members include a diverse range of entrepreneurs, intrapreneurs, artists, activists, investors and funders that range in size, stage and scale.

Members have access to coworking, drop-in consulting services, weekly member programs and events, as well as special perks and discounts with local businesses. As a result of these offerings, 88% of Impact Hub Ottawa members say that the programs and training opportunities they access support them in gaining new knowledge and skills. Additionally, 95% of members cite Impact Hub as instrumental in expanding their networks across disciplines and sectors.

A local highlight of this impact-driven community is the launch of the region's first Social Impact Awards in partnership with the City of Ottawa, bringing visibility and awareness to the social enterprise sector.

In 2017, the Impact Hub global network adopted the Sustainable Development Goals (SDGs) as a lens through which to view their collective impact on the world and to foster and extend efforts to tackle the SDGs through entrepreneurial and innovative solutions. In the past year alone, the network has created over 200 programs and incubated over 1800 ventures across the globe. As an acknowledgement of their work as a driver of community engagement, the Impact Hub global network has been endorsed by the United Nations Office in Geneva.

TEAM

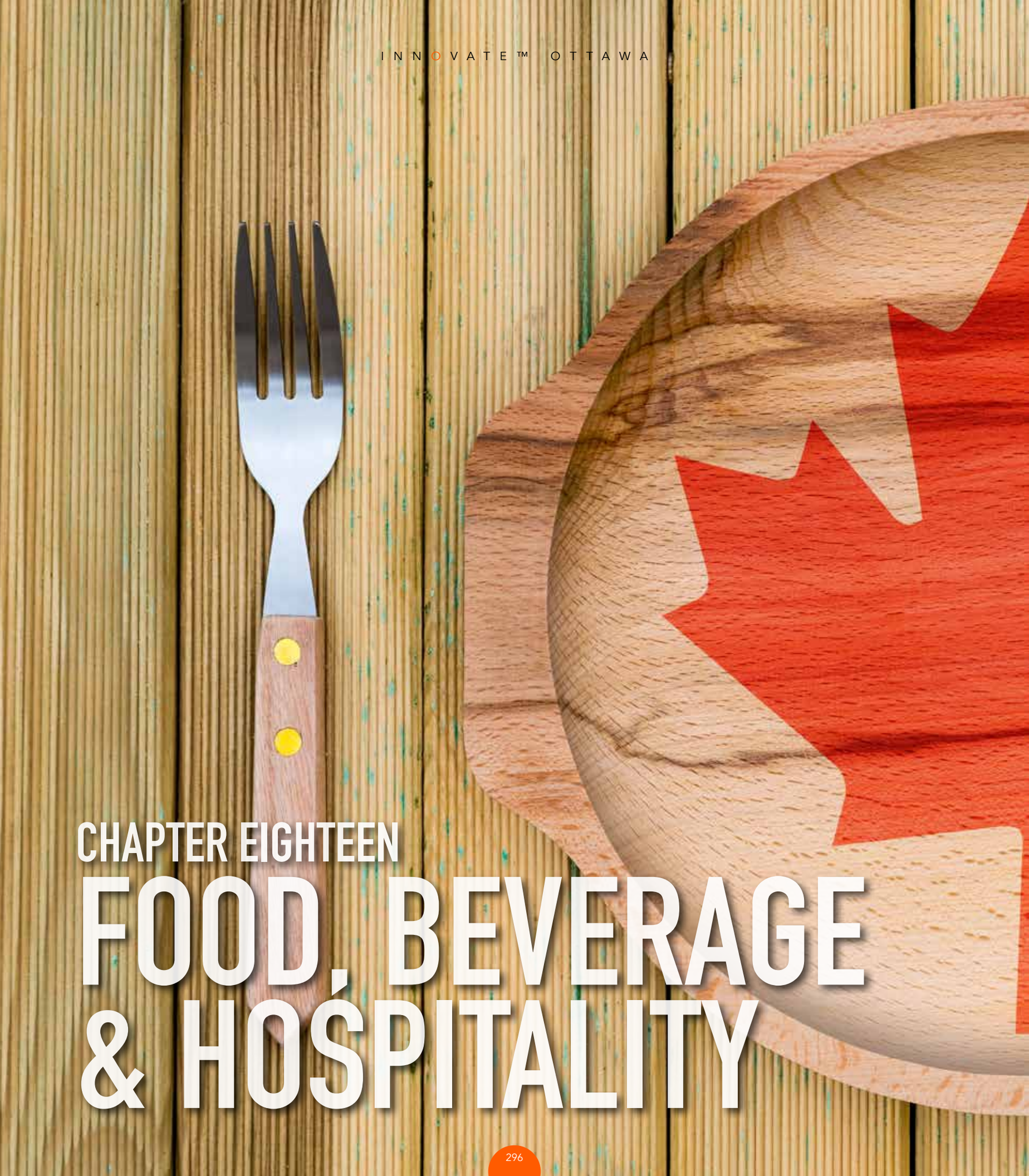
Katie Miller
Managing Director
Elizabeth Cleland
Community Experience Lead
Gina Babinec
Programs Lead
William El Khoury
Head Host & Space Rentals Lead
Nicole Vidal-Hernandez
Host & Communications Lead

IMPACT HUB Ottawa

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Ottawa, ON K1R 5T2
Phone: +1 (613) 680 3506

HubOttawa

ottawa.impacthub.net



CHAPTER EIGHTEEN

FOOD, BEVERAGE & HOSPITALITY



TEASE TEA

Tease Tea believes every sip counts. The little things we do every day can have a big impact on ourselves and the people around us. That's why they make all-natural, loose-leaf tea blends that aren't just good for you; they're good for our planet.







They're more than just a tea company, they want you to feel good from the inside out. Tease Tea's blends support your lifestyle goals, whether you need to power through a busy week or feel calm, cool, and collected, they have a tea for that. They're changing the way the world thinks about tea.

Tease empowers the people who support their supply chain, every step of the way. Sourcing ingredients only from members of the Ethical Tea Partnership. This ensures that workers at every step of their tea-making process are paid a living wage and that their tea is grown in ways that are safe for the environment. Tease Tea works with importers who source from the top 10% of sustainably managed tea gardens from around the world.



Serving up great taste with less waste. 5x the traditional material cost of your average tea bag, Tease Tea's new pyramid bags are made from unbleached and biodegradable materials and all packaging is made from recycled materials in Ontario. They also lighten their carbon footprint by hiring local businesses to support their co-packing, blending and product manufacturing needs whenever possible. Adopting a new way of better serving their customers while maintaining their commitment to the environment.

Tease Tea wholeheartedly believes that empowered women; empower women. Through their Charitea Program, a portion of the proceeds from every purchase supports programs that are dedicated to women's empowerment. From shelters to startups, they've contributed over $150K in product and financial support to date. This give-back model has been with Tease since day one and will continue to be the backbone in which they operate; empowering women one cup at a time.

Lastly, they don't just talk the talk at Tease. They walk the walk. Their team creates their own working hours, supports each other's side hustles, and makes sure everyone on the team has the chance to attend professional and personal development events that will help them be their best selves, both in work and life. Why? Because Tease believes if you're supported as an entrepreneur; you can have entrepreneurial empathy in every decision you make at the company you work for, and the teams you work with.

tease tea Founders Fund

teasetea.com



WOLF DOWN

Ottawa's hottest new eatery offering something few of us had ever heard of: Berlin Street Food.



Joelle Parenteau, Owner

Run by third-time entrepreneur, first-time restaurateur Joelle Parenteau, the German döner didn't take long to catch—rapidly going viral, thanks to raving fans claiming their "new addiction" to "the best sandwich they've ever had."

It starts with a boy. A German boy. My fiancé Daniel came to Ottawa over a decade ago to help his friend Tobi with a little startup called Shopify. He loves Ottawa, but there's one thing he really missed from home: döner—Germany's No. 1 street food we've somehow never heard of.

The first time he took me to Germany, he hyped it up so much I thought it couldn't possibly live up. But then I had my first taste: mind blown. I wolfed it down. Back in Ottawa, I had a problem: I craved it. Like bad. Real bad.

One night, we had dinner with Tobi (Shopify founder). Tobi is also a döner-loving German. "We need this in Ottawa," we kept repeating. Tobi and Daniel joked that they'd invest whatever to make it happen: "Someone just needs to do it!"

One day it hit me: what if that someone was me? So, here I am running a restaurant. With zero experience. And yes, they kept their promise. Daniel, Tobi, even Harley (Shopify









COO) invested. We also added three of the top German poker pros to our investor lineup. We play poker with these guys and when they heard about our döner shop, they were all in.

Okay, so I had no idea what I was doing. A little R&D was in order.

Step 1: Berlin. Daniel, Brooke (my partner), Matt (her boyfriend), and I ate three döners per day for four days straight. We were on a taste test mission: carefully analyzing every element—bread, meat, veggies, sauce—and taking notes to design our own ultimate döner.

Step 2: Los Angeles. Why LA? Years ago I discovered a place called Berlin's. It was the first time we found good döner outside Germany. We were very excited and even got an intro to the owner Mathias. Fast-forward to opening Wolf Down and guess who the first person I call is? Mathias not only agreed to consult, he even suggested we come to LA for hands-on experience. And so, off we went to California for a crash course in the döner business.

Now you may be wondering: what is döner anyway? A focaccia-like, sesame-crusted flatbread, stuffed with perfectly seasoned beef or chicken and loads of crisp refreshing veggies, topped with our secret sauces.

We have döner salad for a lighter, keto-friendly, gluten-free option and even halal meat. We also created our own unique vegan döner: marinated tofu stacked and grilled on the vertical skewer.

I called it Wolf Down because, from a young age, my parents often remarked, "You really wolfed that down." I was a hungry child. It seemed fitting.

We do things a little differently at Wolf Down. For one, our menu is small. Like tiny. This is part lean-startup mentality and part my belief in doing one thing really well. Everything is the same price. We want you to choose with your gut, not your wallet. We don't believe vegans should pay more. We don't think salads should cost more. We're cashless to protect against theft and to streamline operations. Finally, we pay more than minimum wage, because I don't do minimum.

Wolf Down is now six months old and we just hit our half year/half million goal which is pretty cool. From the feedback so far, it sounds like many are now just as addicted as I am. Welcome to the pack.

Wolf Down
380 Bank Street | Ottawa, ON K2P IY4
wolfdown.com

TopSavings

Grocery price comparison made easy.

TopSavings is an Ottawa based startup that has developed a price comparison app that makes it easy to find the best deals on groceries, saving consumers time and money.

Our app compares prices and calculates where users can save the most.

It couldn't be easier.

Smart List

Compares across brands and sizes to find the best prices and highest savings on user generated shopping lists.

It's effortless.

Bill Splitting

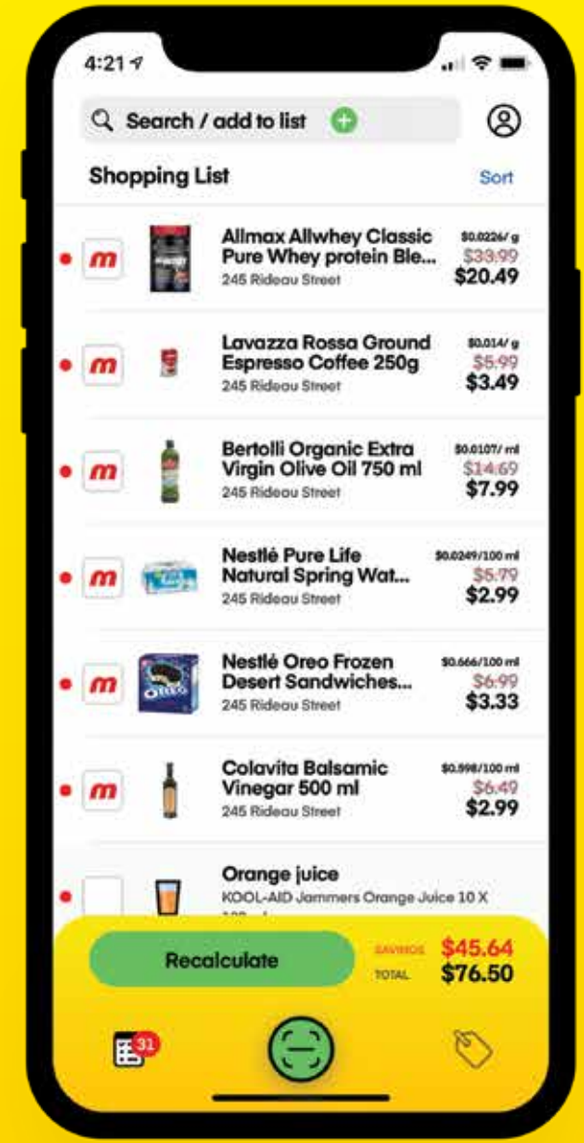
We make it easy to see which store to shop & save the most at based on the shopping list. Split a bill between stores for even more savings.

No math required!

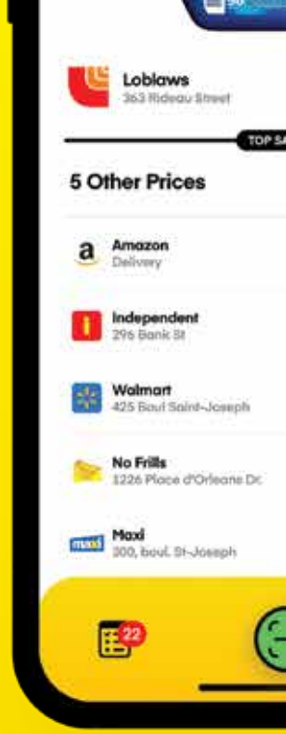
Daily Deals

With the aid of crowd sourcing, geolocation, and artificial intelligence our savings engine curates hundreds of daily deals based on user preferences and location.

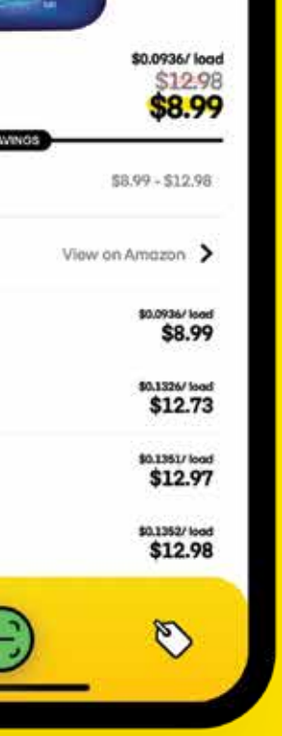
Personalized bargains, updated often.

















Our Story

With consumer debt at record levels and food prices on the rise, most shoppers want to find the best prices on groceries, personal care products, and household supplies. In order to get the most bang for their buck many consumers spend hours comparing flyers, clipping coupons, browsing websites, and using shopping apps. Life is too short to waste time bargain hunting. Our goal is to make it fast, easy, and delightful to find which stores will save shoppers the most money.

When we started TopSavings we knew our app had to be smart. We developed a price checking feature that uses machine learning and computer vision to quickly identify products and prices sitting on a store shelf, at home, and anywhere else.

The app uses artificial intelligence to quickly compare the best prices on products at shoppers' favourite local and online stores, and puts them on a single screen. Our technology saves users time and money.

Available for iOS and Android devices, the app's main features are:

SMART SHOPPING LIST - Users can create custom shopping lists that track prices on their favourite products and let them know which stores save them the most money.

DAILY DEALS - The app features hundreds of excellent deals on products at nearby stores and are updated throughout the day.

SEARCH - Users can search for their favourite groceries, personal care products, and household supplies. The app will find the best priced results at local and online stores.

PRICE CHECK - With the aid of machine learning and computer vision, users can price check products by simply pointing their mobile device at store shelves or products. The app quickly identifies products & prices, and returns the best deal nearby or online. Our platform provides manufacturers, marketers, and merchants new and innovative ways to promote their products to an audience that is actively seeking deals. Using augmented reality, computer vision, and geolocation, marketers can push creative boundaries.

As of Q4 2019, the TopSavings app is available in the App Store and on Google Play for residents of Ottawa, Canada. Availability will be expanded across Canada and into the United States in 2020.

www.TopSavings.com
info@TopSavings.com
613-724-6240

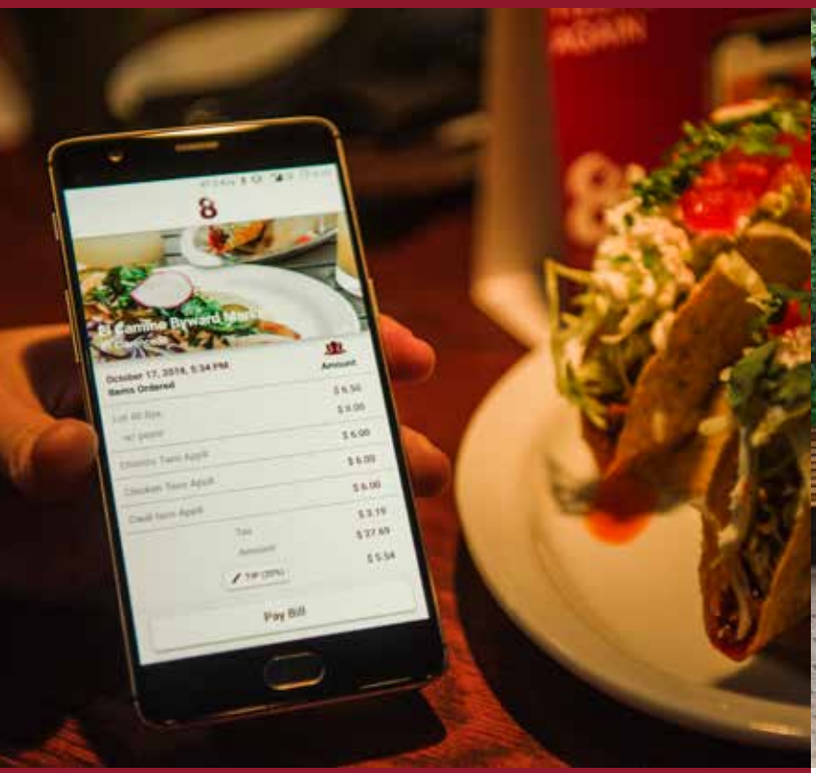
APP8

App8's solution enables restaurant and bar guests to pay from their phones without waiting for the bill or the machine. This eliminates payment processing for staff and increases table turnover for the restaurant.

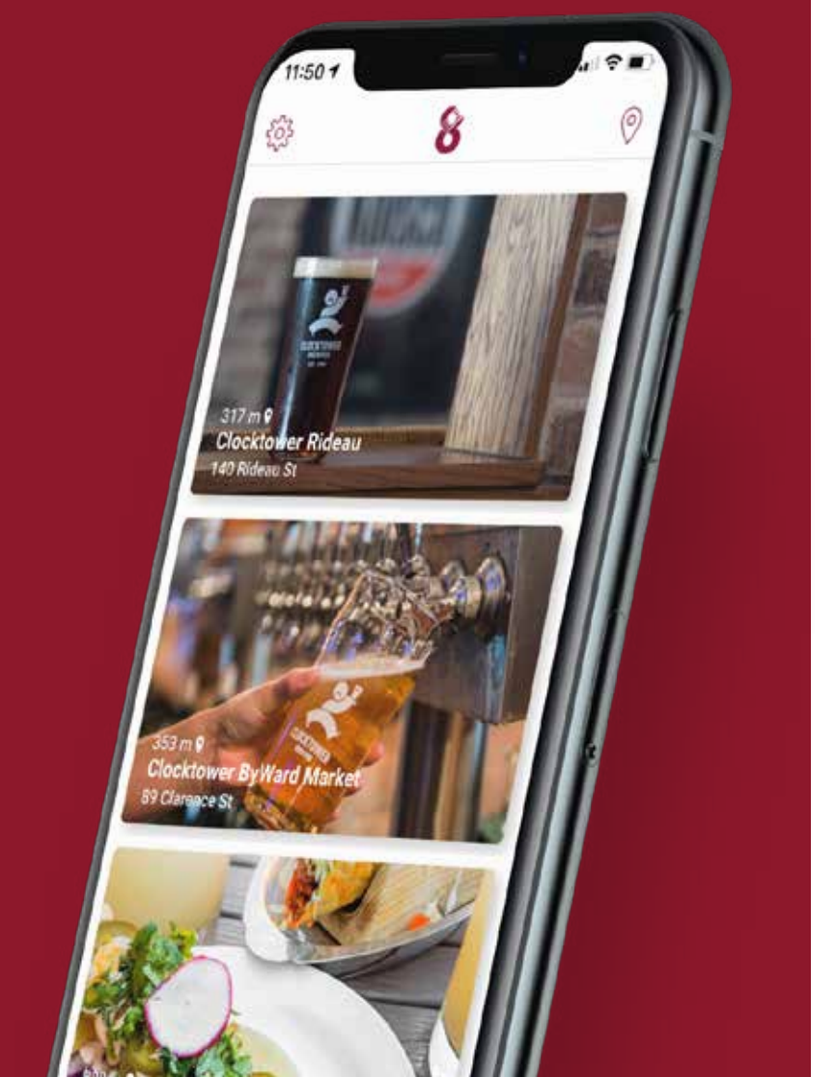


Picture the last time you went out for dinner on a busy Friday night. You and your friends are at your favourite restaurant, you've had a great time and are ready to go, but all the tables are full and your server is busy tending to other guests. You finally get the bill but all the payment machines are in use. You notice that there's a line out the door of people ready to take the table that you want to leave.











Elias Hage, CEO



Hani Jabbour, CTO

App8 CEO Elias Hage was having this very experience when he realized that there had to be another way; a way to improve the dining experience for the guests, the servers, and the establishments. With App8, guests are able to pay from their phones without waiting for a bill or machine, and leave when they're ready. By skipping payments, servers save time and are able to focus on providing a great guest experience. Establishments see an increase in table turnover and an increase in revenue. App8 is committed to elevating the dining experience for everyone involved, and they look forward to growing in Ottawa and beyond.

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COFFEE BOOSTER™



Coffee Booster was founded with one simple goal in mind: to give consumers the nutritional benefits of vitamins and minerals they need without altering the taste of their beloved coffee.



We created the first line of flavourless, liquid health boosters designed for daily use in coffee. Coffee Booster offers people an easy, convenient and effective way to increase daily nutrient intake without having to swallow a pill or chew sugar-filled gummy.

Innovation Story

Coffee Booster was started by a passionate health and fitness enthusiast, Chris Tester. The light bulb moment struck while Chris was working on a marketing plan for an international smoothie chain. “I was at a coffee shop, trying to figure out how we could increase our revenue by selling more boosters for smoothies. Then the idea just hit me - why aren’t there boosters like this for coffee?” Growing dissatisfied with the pill-popping nature of nutritional supplements, Chris knew there had to be a better, easier way for people to get the nutrient boost they were after. Coffee Booster was born.





Innovation Enabler Story

Our big innovation at Coffee Booster is in our flavourless, nutrient-dense formulas that can be added into one's coffee without changing the drinking experience. Our products have created an entirely new category to add incremental value to the coffee category in grocery stores, health food stores, supplement stores, coffee shops, and office spaces.

Our newest creations are the vanilla and mocha flavoured, non-dairy keto creamers. With Medium-Chain Triglyceride fats as the central ingredient, these creamers were developed to offer a healthier alternative to the typical sugar-laden flavour syrups seen in stores and coffee shops nation-wide. If we can shift consumers to adding vitamin and mineral formulas to their coffees, along with our non-dairy keto creamers that actually benefit and improve your body, then we've done our job.



Vision of our Industry

The supplement industry has been growing steadily with not much game-changing innovation. The basis of the product offerings is: powders, pills, and gummies. For Coffee Booster, we are starting to shape a new category of additives for coffee, just like Mio Squirts did for water. There are similar products that consist of dried-coffee with powered-vitamins in K-cups, but nothing in liquid-form that allows the user to enjoy their boosted coffee without sacrificing taste.

Challenges

Coffee Booster's challenges have been creating a new story for how people prep their coffee. When people think coffee, they usually think, cream, milk and sugar; not vitamins, minerals, and fats. The Coffee Booster concept is to provide an easy way from coffee-lovers to get the health benefits of vitamins and minerals, i.e.; healthier skin, hair, and nails, cognitive function and performance, an energy boost. We have created a new way to take vitamins!

The startup environment can be a challenge. Working with limited resources - both manpower and financial - to try to build a brand requires lots of creativity. But three years into this journey, our customers love it. Getting the message out to the masses is priority number one.

Motivation

Being an entrepreneur has been a grind. It has its ups, and it has its downs. That all comes with the job, but I love it. Every day presents a new challenge, and being able to overcome these challenges and keep moving forward is always rewarding. Having support from family and friends always helps, along with having a great team of investors, advisors, and employees, but the end of the day, I wouldn't have come this far if I didn't believe in myself.

HEALTHY LIVING MADE EASY™





Team

Chris Tester, Founder & CEO
Brad Bell, Sales & Marketing
Advisors: James Maxwell, Cyril Leeder, Gordon Cudney, Ted Boyd, Craig Adams, Tucker Wright, Andrew Garvin

Fast Facts?

- Date Incorporated: July 2017
- Stage: Startup Growth-Funding Received



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INDEX

Adrian Salamunovic (Earned.co) 40
Aetonix 186
Alan Forster (The Ottawa Hospital) 32
Algonquin College 34, 110
App8 304
Assent Compliance 244
Atlee Clark (Shopify) 30
AutoGuardian (SmartCone Technologies, Inc.) 162
AutonomouStuff 228
Avivagen 236
Bayview Yards 126
Benoit-Antoine Bacon (Carleton University) 27
BlackBerry QNX 208
Brokrete 230
Bruyère 172
Canada Foundation for Innovation (CFI) 78
Canada Mortgage and Housing Corporation (CMHC) 74
Canadian Advanced Technology Alliance (CATA) 86
CANImmunize 182
Canvaspop (Fresh Founders) 286
Capital Angel Network 144
Carleton University 27, 96
CHEO 176
Claude Brulé (Algonquin College) 34
Coffee Booster 306
Collab Space 292
Collège La Cité 31, 104
Corel 38, 258
Crypto4A 224
Deloitte 70
eMurmur 200
Ericsson 210
Evidence Partners 194
Foko Retail 288
Founders Fund 134
Franco Varriano (Fresh Founders) 42
Fresh Founders 42, 138
Fullscript 190
Fusebill 254
GBatteries 226
Gérard Métrailler (Corel) 38
Giatec 216
GoFor 222
Herzing College Ottawa 118
Hoppier 284
Impact Hub Ottawa 294
IMSRV Data Labs 158
Invest Ottawa 10, 26, 46
JA Ottawa 140
Jamie Petten (Kanata North Business Association) 24
Jason Burke (Positve Venture Group) 39
Jim Stackhouse (NeoLore Networks) 35
Kanata North Business Association 24, 54
Karpman Consulting 218
Kivuto 252
Klipfolio 240
L-SPARK 122
Linebox 264
Lise Bourgeois (La Cité) 31
Macadamian 198
Mark Cooper (NAV CANADA) 20
MaxBounty 280
Mayor Jim Watson 4, 18
Michael Tremblay (Invest Ottawa) 26
MindBridge 152
Mistral Venture Partners 148
Mitacs 130
Namir Anani (ICTC) 36
Napkyn Analytics 242
NAV CANADA 20, 62
NeoLore Networks 35, 248
Neurovine 188
Nokia 212
Ottawa L5 154
Positive Venture Group 39, 146
Raven 220
Rebel.com 262
reDock 290
Rima Aristocrat (Willis College) 28
Ross Video 276
SAAS NORTH 274
seoplus+ 278
Shopify 30, 88
Siemens Healthineers 184
Smart Prosperity Institute 234
SmartCone Technologies, Inc. 160
Spiderwort Inc. 196
Sven Boermeester (GlobalVillage.World) 43
Tease Tea 298
Telesat 204
The Ottawa Hospital 32, 166
The Ottawa Information and Communications Technology Council (ICTC) 36, 82
ThinkOttawa 270
TiE Ottawa 136
TopSavings 302
Trycycle Data Systems 192
Willis College 28, 112
Wolf Down 300
You.i TV 266

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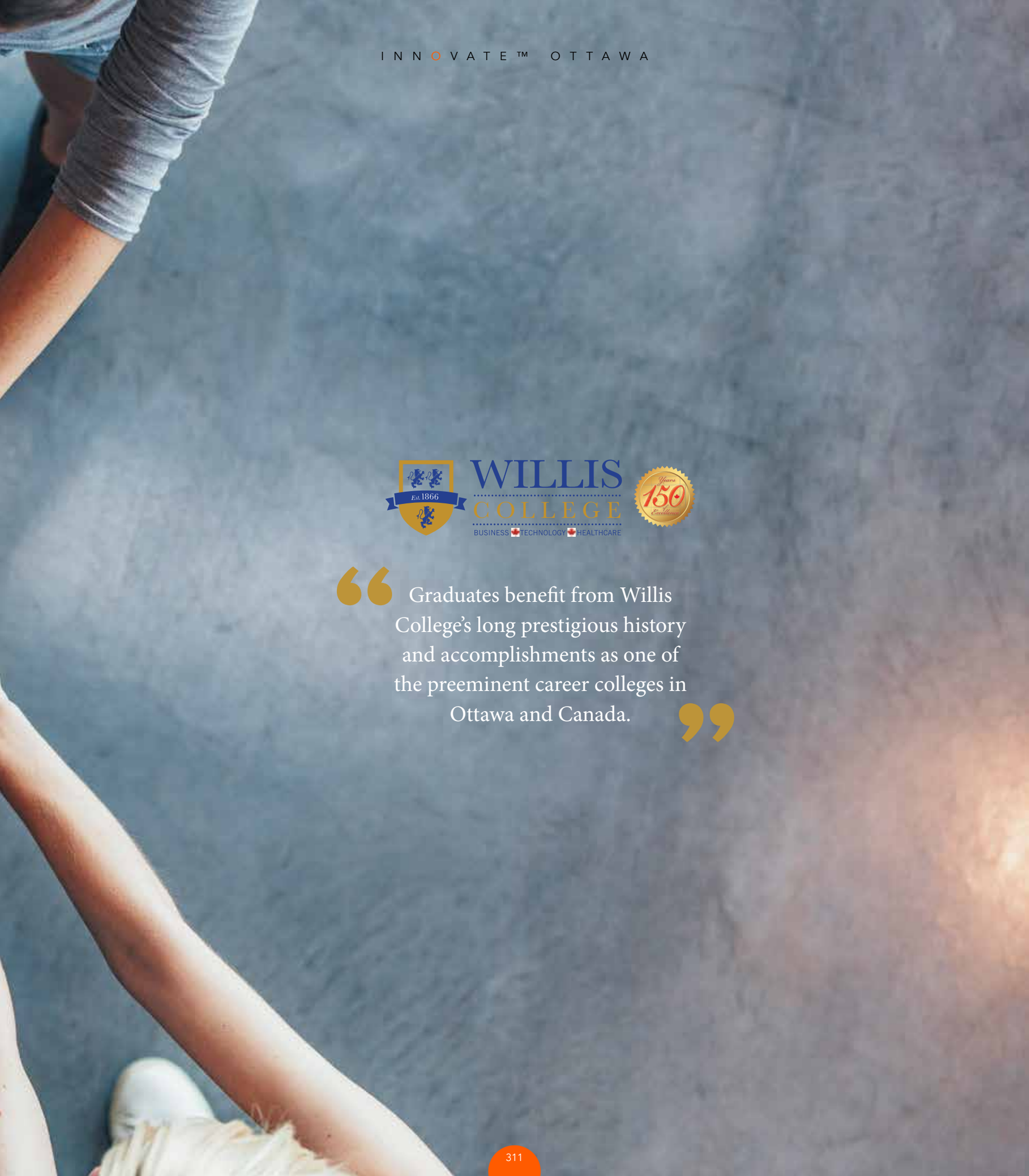
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