



7

Edmonton

# THE INNOVATION OF EDMONTON

**TOP 7** INTELLIGENT  
COMMUNITIES OF THE YEAR

## THE INNOVATION OF EDMONTON

TEN YEARS AGO,  
THE FINANCIAL TIMES  
OF LONDON WROTE  
THAT EDMONTON  
HAS **“THE BEST  
ECONOMIC  
POTENTIAL OF ANY  
NORTH AMERICAN  
CITY.”** WHY?

We do have a young, highly educated population. What we now call Edmonton has evolved from an Indigenous trading centre to an agricultural hub, from an oil and gas city to what it is today: a city of unusual economic diversity.

But we have another theory. Our geographic isolation, once considered a disadvantage, has become one of our greatest strengths thanks to two repeating themes: culture and technology.

There is something about the people who choose Edmonton, something that reflects the city's evolution, something that was just waiting to be unleashed by the era of the Internet.

For a long time it was difficult to import solutions, to import entertainment. We had to create our own solutions, make our own fun. The city itself became a sort of workshop, a lab.

Edmonton is the birthplace of the North American Fringe Theatre movement because it's a city where anyone can put on a show. The first mosque and the first Food Bank in Canada launched here, on the banks of the North Saskatchewan River. In 1908, when we founded the University of Alberta, post-secondary education existed to maintain an elite, to educate the sons of doctors and lawyers and theologians. Our university was devoted to "uplifting the whole people."

There are almost no private schools in Edmonton because we invented a way for the public system to remove the need for them to exist. When we ran out of space for landfill we devised a new way to handle our garbage, moving from not only recycling and composting but now, creating power from it.

Some of Canada's largest corporations — in construction, in architecture, in telecommunications, in video games — launched with the same spirit as our social and artistic inventions. Risk-takers, people with ideas, thrive in a bizarrely cooperative city. Edmonton is a place without hierarchy. Five minutes after you arrive, you're one of us.

Edmonton is an extraordinary blend of entrepreneurship, in all realms, and cooperation. That is the core of our culture, and technology only increases the velocity. Our job, at the City of Edmonton, is to be an engine of encouragement.

Our experiments in open government, in expanding access to the Internet, in speeding it up, in education and equality, in action-based consultation and citizen engagement, in bottom-up economic development, and in carbon neutral communities are modern enhancements that reinforce what Edmonton is and has always been at its best: an unusually good place to take an idea to reality.

**Don Iveson**  
Mayor



POPULATION  
899,447

LABOUR FORCE  
550,000

AREA  
684.4 KM<sup>2</sup>

METRO POPULATION  
1,363,277





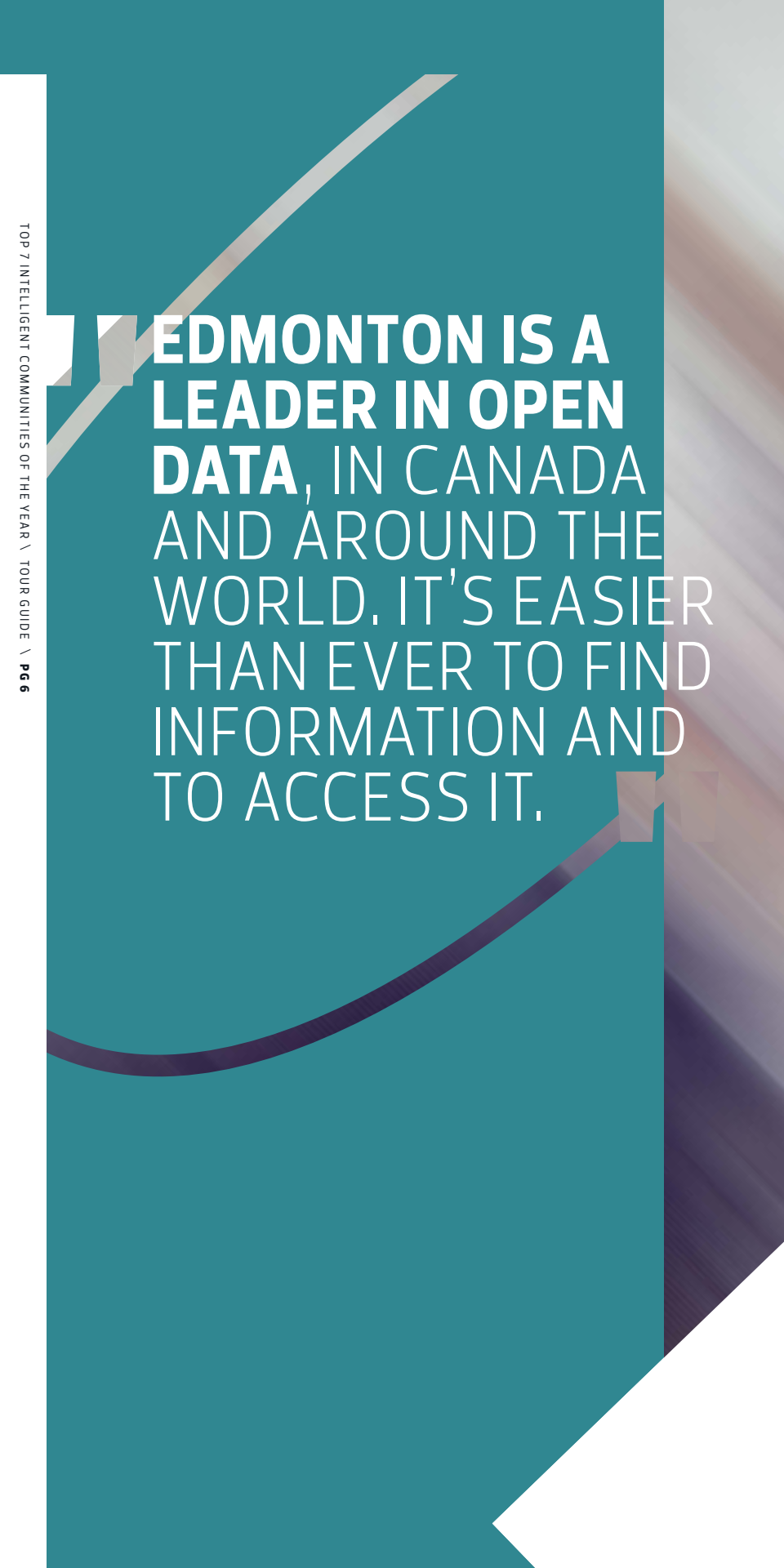
**CITY OF  
EDMONTON**



**AS THE GOVERNMENT CLOSEST TO  
CANADIANS, MUNICIPALITIES TOUCH  
ALMOST EVERY ASPECT OF OUR CITIZENS'  
DAILY LIVES. WE'RE CITIZENS TOO, 12,000  
EMPLOYEES WHO PROVIDE SERVICES TO  
OUR 899,000 NEIGHBOURS IN THE MOST  
OPEN AND RESPONSIVE WAY WE CAN.**

The City of Edmonton can't do it alone. We're part of a larger ecosystem of government, post-secondary institutions, the arts, not-for-profits, school boards, private business and citizens – integral partners in an intelligent community. Embracing the perspectives from individuals, industry and academic sectors of the community is how we can best achieve our goals, deliver programs and services and provide an exceptional quality of life for citizens.

Edmonton is a Smart City, known for using technology to turn garbage into biofuels, fight crime, move people around and design a carbon-neutral community. As a Smart City, we will find new strategies and solutions for the challenges and opportunities that face cities all over the world. It will enable us to build a city that is more resilient, livable, workable and altogether more uplifting.

The background is a solid teal color. It features several abstract geometric elements: a light grey diagonal line starting from the top left and extending towards the center; a dark purple curved line starting from the bottom left and curving upwards towards the right; and a vertical white strip on the far right edge. The text is centered in the upper half of the image.

**EDMONTON IS A  
LEADER IN OPEN  
DATA,** IN CANADA  
AND AROUND THE  
WORLD. IT'S EASIER  
THAN EVER TO FIND  
INFORMATION AND  
TO ACCESS IT.

## WHY DOES CRIME HAPPEN?



Why does crime happen? We have tried to figure this out for centuries. A simpler question might be, "Why does crime happen here?" The answer may be in new ways at looking at data.

Edmonton is a leader in open data, in Canada and around the world. Information is easier to find and to access than ever. There are also enormous opportunities to work with citizens and create something extraordinary with numbers.

Kris Andreychuk leads a partnership between social workers and police officers. Stephane Contre is a former police officer and current data cruncher. They've both seen the limitations in the ways we usually look at crime statistics. Traditional crime stats look backward. There's rarely any context and no real way to predict or prevent future crime.

When Kris and Stephane designed a new way to look at statistics, they broke Edmonton down into 11,000 grid squares and analysed negatives like litter, stolen automobiles, liquor stores, graffiti, public drinking, bylaw infractions, and pothole reports. They also analysed positives like front yards in bloom, libraries, street lighting intensity, green spaces, and playgrounds.

They found fascinating combinations, and broke grids down into high, moderate, and low crime areas. They developed 92 "significant rules" that impact crime positively or negatively. Noise complaints and picnic sites, for example, aren't just numbers. They're highly predictive.

Now that they have the data, the rules, and the context the next step is to engage with the community. Kris and Stephane are reaching out to community leagues, social workers, agencies, and business owners to bring them in to the strategy — so they can build it together, from the bottom up.

**#DATACRIMEFIGHTERS**



125-PLUS ACTIVE CLIENTS  
HAVE GENERATED \$310  
MILLION IN REVENUE

RAISED \$160 MILLION  
IN FINANCING AND  
FUNDING

INVESTED \$85 MILLION  
IN RESEARCH AND  
DEVELOPMENT

INCREASED REVENUE  
AND EMPLOYMENT BY 25%  
EVERY YEAR

EMPLOYED MORE  
THAN 1,800 PEOPLE  
IN THE REGION





# EDMONTON ECONOMIC DEVELOPMENT (EEDC)









**AS THE ARMS-LENGTH ECONOMIC DEVELOPMENT AGENCY OF THE CITY OF EDMONTON, THE PURPOSE OF EDMONTON ECONOMIC DEVELOPMENT CORPORATION (EEDC) IS TO CULTIVATE THE ENERGY, INNOVATION, AND INVESTMENT NEEDED TO BUILD A PROSPEROUS AND RESILIENT ECONOMY.**

EEDC is a unique model in Canada. We are a multi-divisional, multi-location conglomerate agency of the City of Edmonton, aligned through unified purpose, vision, and values. The unique operating and governance model is scalable, creating a platform for economic development initiatives that can be started, matured, and exited as required.

This unified approach, founded on principles of scalability, adaptability, and leveraging public assets, all for a single purpose of growing our economy, means that our city can move faster on new initiatives, take on bigger risks, and achieve more than anyone could have expected.



At EEDC, we know that economic development is a team sport, and our five divisions work in unison on initiatives that generate economic impact and build the brand and reputation of our city:

-  **Trade and Investment Division:** works with inbound foreign investors and outbound local businesses who choose to take a risk and grow their business in new markets, making the leap from local to global.
-  **Urban Economy Division:** works and collaborates with businesses, stakeholders, and partners locally and regionally to foster growth downtown, and from our four innovation and entrepreneur communities:
-  **Startup Edmonton:** an entrepreneurial campus and community hub that transforms ideas into tech-enabled products and companies.
-  **TEC Edmonton:** a joint venture partnership between EEDC and the University of Alberta, focused on accelerating the growth of emerging technology-based companies.
-  **Edmonton Research Park:** an incubator and accelerator space home to more than 1,500 members at 55+ companies in diverse fields from biotechnology to energy.
-  **Make Something Edmonton:** an award-winning open project platform for engaged citizens who are shaping our city to collaborate and showcase their ideas.

WE KNOW  
THAT **ECONOMIC  
DEVELOPMENT** IS A  
TEAM SPORT...





## GRANIFY READING DIGITAL BODY LANGUAGE



There is a cheque taped to the door in Granify's Edmonton headquarters. It's from Asher's Chocolates, in Pennsylvania — Granify's first paying client.

When you go online to buy Asher's Chocolates, you either place an order or you don't. Granify seeks to understand why you don't, and to encourage you to change your mind.

It's a technology company. They read "digital body language" to encourage shoppers. Founder Jeff Lawrence, a Stanford graduate, pitched the idea to venture capitalists in Silicon Valley — the most natural place to launch the company. He was told it couldn't be done.

Instead of giving up, Jeff came home to Edmonton — one of the top centres in the world for machine learning. He brought Granify to TEC Edmonton business advisors. They helped him improve his pitch and he sailed through the TEC Venture Angels' vetting process. At the final presentation, he secured a solid portion of his seed money from local investors.

TEC Edmonton is considered one of the finest incubators in the world thanks to its unique model: it is a partnership between the University of Alberta, Edmonton Economic Development Corporation, the Government of Alberta, and a number of private individuals. TEC works with Startup Edmonton as a social and cultural convenor to encourage, fund, house, and launch entrepreneurs like Jeff and Granify.

Granify hasn't given up on Silicon Valley. Now with a staff of 42 and growing, the company received a \$9 million investment in 2015 from a fund headed by legendary venture capitalist Peter Thiel.

**#DIGITALBODYLANGUAGE**

THE FIRST PHASE OF THE PUREFIBRE PROJECT DELIVERED FIBRE CONNECTIONS TO MORE THAN **25,000 PREMISES IN 4 NEIGHBOURHOODS** IN EDMONTON WITH NO OBLIGATION TO SUBSCRIBE TO TELUS SERVICES.

**THIS PROJECT IS BEING COMPLETED AT NO COST** TO THE CITY OF EDMONTON AS A MUNICIPALITY.

CURRENTLY OFFERING MAX SPEEDS OF **150 MBPS**





# TELUS



**TELUS IS CANADA'S FASTEST-GROWING NATIONAL TELECOMMUNICATIONS COMPANY. TELUS PROVIDES A WIDE RANGE OF COMMUNICATIONS PRODUCTS AND SERVICES, INCLUDING WIRELESS, DATA, INTERNET PROTOCOL (IP), VOICE, TELEVISION, ENTERTAINMENT AND VIDEO, AND IS CANADA'S LARGEST HEALTHCARE IT PROVIDER.**

In Edmonton, TELUS announced in 2015 that it would be making a generational investment and creating the first, significant urban gigabit society in Canada. TELUS' \$1 billion investment in Edmonton is targeting to connect 90% of homes and businesses directly to the TELUS PureFibre network, increase wireless speeds and capacity, enhance high-speed Internet and help deliver better healthcare solutions. TELUS is deploying the most advanced networks in the world in Edmonton, and remains committed to investing across the city and province, opening up exciting new possibilities in education, entertainment, healthcare and commerce.

With less than 10 per cent of North Americans currently connected to a fibre optic network, TELUS PureFibre is providing a distinct advantage to the City and its citizens who will ultimately have superior access to economic growth opportunities, critical healthcare solutions, world-class education programs and exciting social applications to enhance their fast-moving consumer lifestyles.

TELUS

WORKING WITH  
THE CITY OF  
EDMONTON,  
TELUS WAS  
ABLE TO MOVE  
QUICKLY. **CITIZENS  
IN EDMONTON  
ARE NOW BETTER  
CONNECTED TO ONE  
ANOTHER AND  
TO THE WORLD.**

## PUREFIBRE, AN EASY CHOICE



TELUS announced its first significant urban gigabit city in Edmonton. When it was looking for a partner city to launch its latest and best network, TELUS needed a cooperative city, a city willing to take some risks with new technology.

The choice was easy.

PureFibre allows symmetrical uploads and download speeds. It will give Edmontonians nearly ubiquitous access to the fastest and most consistent Internet connections in Canada. It's the most secure network possible and it enables the path to 5G and whatever comes next.

It will be easier and more fun to stream movies and television shows in Edmonton, but the real advantages are economic and social. PureFibre will fuel Edmonton's growth as a centre for artificial intelligence and machine learning, its Health City initiative, and its ambitions to connect citizens with government services through the Internet and the Internet of Things.

Working with the City of Edmonton, TELUS was able to move quickly. Citizens in Edmonton are now better connected to one another and to the world. TELUS has also linked hospitals, clinics, doctors, pharmacists, businesses, schools, libraries, and public servants in new and powerful ways.

**#PUREFIBRE**

A large, grey industrial robotic arm is the central focus of the image, set against a bright, cloudy sky. The arm is composed of several segments connected by joints, with various bolts and mechanical details visible. A white circular highlight is placed on one of the joints. The overall aesthetic is clean and modern, with a light blue and white color palette.

THE **37,830** STUDENTS  
FROM **143** COUNTRIES

**81%** UNDERGRADUATE  
STUDENTS, **19%**  
GRADUATE STUDENTS

**15,000** EMPLOYEES

**\$12.3 BILLION** ANNUAL  
IMPACT ON ALBERTA  
ECONOMY

**ONE OF CANADA'S  
GREENEST EMPLOYERS**  
FOR THE PAST 8 YEARS

**\$348.5 BILLION**  
ANNUAL REVENUE  
OF ORGANIZATIONS  
FOUNDED BY ALUMNI



# UNIVERSITY OF ALBERTA



**THE UNIVERSITY OF ALBERTA IN EDMONTON IS ONE OF CANADA'S TOP TEACHING AND RESEARCH UNIVERSITIES, WITH AN INTERNATIONAL REPUTATION FOR EXCELLENCE ACROSS THE HUMANITIES, SCIENCES, CREATIVE ARTS, BUSINESS, ENGINEERING, AND HEALTH SCIENCES.**

Home to 39,000 students and 15,000 faculty and staff, the university has an annual budget of \$1.84 billion and attracts nearly \$450 million per year in sponsored research revenue. The U of A offers close to 400 rigorous undergraduate, graduate, and professional programs in 18 faculties on five campuses—including one rural and one francophone campus. The university has more than 275,000 alumni worldwide. The university and its people remain dedicated to the promise made in 1908 by founding president Henry Marshall Tory that knowledge shall be used for “uplifting the whole people.”



UNIVERSITY OF  
ALBERTA

# MACHINE INTELLIGENCE, EMPOWERING HUMANITY

Amii, the Alberta Machine Intelligence Institute at the University of Alberta, is one of the world's top university-based groups conducting research and development in machine intelligence—a field that will continue to be at the forefront of technological and business innovation for years to come. Due recent advances in computing power and the proliferation of big data, machine intelligence has the potential to transform the world by empowering humanity and meeting the critical challenges facing a range of communities and societies.

Originally the brainchild of four researchers in the University of Alberta's Department of Computing Science, Amii formed in 2002 as a collaboration with the Government of Alberta with the goal of fostering innovation and driving world-class research in an area of computing science that was largely unknown to the world at the time. Now, with a fifteen-year history of producing high-quality science and technologies, Amii has grown to be one of the world's preeminent institutes in the transformative field of machine intelligence.

## DISCOVERIES MADE BY AMII RESEARCHERS ALSO **OPEN NEW AVENUES OF ACADEMIC KNOWLEDGE...**

Comprised of both professors and students at the University of Alberta, Amii's research team works to bring innovative technologies out of academia and into the broader community where scientific discoveries can have the greatest impact. Amii ensures that research can provide positive impact to society by collaborating with local and international labs and businesses to develop innovative solutions for difficult challenges. Students and researchers develop new methods and tools to provide actionable insights and understanding, to enable enhanced prediction and forecasting, to optimize and improve a variety of processes and to create an intelligent, adaptive workplace through automation.




Intelligent prosthetics help restore natural function to patients with upper-body limb amputations, and automated medical tools enable enhanced diagnosis of physical ailments like cancer and tuberculosis as well as mental conditions like ADHD, schizophrenia and depression. Amii has worked with local companies to develop cutting-edge solutions for water treatment control, for mapping and understanding social networks and for the automated identification and tracking of wildlife for environmental assessments.

**...AMII WORKS COLLABORATIVELY WITH BUSINESSES AND OTHER LABS TO DRIVE THE FUTURE OF MACHINE INTELLIGENCE FOR ALBERTA AND BEYOND.**


Discoveries made by Amii researchers also open new avenues of academic knowledge, spurring further advancements in scientific communities locally and around the world. Work that started at the University of Alberta developed the foundations for recent AI successes in Atari 2600 games as well as the game of Go, projects that further human understanding of intelligence and goal-directed behaviour. Additionally, Amii researchers are working with Alberta Health Services (the province's health authority) to develop novel ways of extracting useful data from medical texts, research that has potential to revolutionize a number of domains beyond healthcare.

With an ongoing commitment to academic research coupled with a desire to create real-world impact and improve local and international communities, Amii works collaboratively with businesses and other labs to drive the future of machine intelligence for Alberta and beyond.

**#AMII**



**MORE THAN 120 CREDIT PROGRAMS** LEADING TO DEGREES, APPLIED DEGREES, DIPLOMAS AND CERTIFICATES



**28,000 STUDENTS** ENROLLED IN CREDIT PROGRAMS



**38,000 NON-CREDIT** REGISTRATIONS



**ONE OF CANADA'S LARGEST APPRENTICESHIP TRAINERS,** WITH 34 PROGRAMS



**95 PER CENT** EMPLOYER SATISFACTION RATE



# NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY (NAIT)



**SINCE OPENING IN 1962, NAIT HAS  
MET ALBERTA'S NEED FOR SKILLED  
PROFESSIONALS TO HELP ENSURE THE  
PROVINCE'S LONG-TERM PROSPERITY.**

The polytechnic delivers technology-based education in science, technology and the environment; business; health and trades. Theory-based, classroom instruction is balanced with practical, hands-on experience using some of the latest equipment. Students leave NAIT with a keen understanding of – and familiarity with – the industries they trained for, and ready for rewarding careers. In addition to benefiting from well-prepared new hires, organizations and companies are also supported by the polytechnic's focus on applied research. A trusted industry partner, NAIT is a source of innovative solutions for emerging challenges, keeping the province globally competitive. It provides outstanding returns on investment for graduates, partners, the provincial government and the people of Alberta.



ONE OF  
**WESTERN  
CANADA'S  
TOP SOLAR  
CONTRACTORS—**  
IS NAIT GRADUATE  
CLIFTON LOFTHAUG,  
WHO LAUNCHED  
GREAT CANADIAN  
SOLAR **IN 2009.**



## ADVANCING ALTERNATIVE ENERGY TECHNOLOGY



Inventors in Edmonton came together to pioneer some of the most important techniques in energy today. Steam-assisted Gravity Drainage (SAGD), for example, transformed the oil and gas industry.

The next big advancements are coming out of one of the oldest buildings at NAIT, the Alternative Energy Technology facility. There, students learn the fundamentals of renewable energy systems and work on projects that demonstrate the powerful potential of these methods of generating energy. Some of these projects involve external clients. NAIT frequently works with industry partners to overcome technical challenges, making Alberta businesses more globally competitive.

A frequent collaborator with Alternative Energy Technology – and one of Western Canada's top solar contractors – is NAIT graduate Clifton Lofthaug, who launched Great Canadian Solar in 2009. The company has grown 300 per cent a year, and it and others will see further growth in the years ahead as the Government of Alberta is committed to adding 5,000 megawatts of renewable energy capacity by 2030.

The City of Edmonton partnered with NAIT to install a solar array atop a public school to teach children about the science of renewable energy. Edmonton is one of the sunniest cities in Canada, which is one of the reasons it has the most net zero homes per capita in the country.

NAIT is also working with the city on a study investigating ways to optimize solar power generation in this northern city. It's a natural partnership, as NAIT is a neighbour of Blatchford, the carbon-neutral neighbourhood the City of Edmonton is developing on the site of Canada's oldest airport.

**#ALTENERGYTECH**

**TERMINAL 605,436  
PASSENGERS**  
(1,721,702 YEAR TO DATE)

**DOMESTIC 459,380  
PASSENGERS**  
(1,293,231 YEAR TO DATE)

**TRANSBORDER 90,462  
PASSENGERS**  
(258,655 YEAR TO DATE)

**INTERNATIONAL 55,594  
PASSENGERS**  
(169,816 YEAR TO DATE)

**ROLLING 12-MONTH  
TOTAL 7,053,781**

# EDMONTON INTERNATIONAL AIRPORT (EIA)



**EDMONTON AIRPORTS IS A COMMUNITY-BASED, FINANCIALLY INDEPENDENT, NON-SHARE CORPORATION THAT MANAGES EDMONTON INTERNATIONAL AIRPORT, THE LARGEST (BY AREA) MAJOR CANADIAN AIRPORT, WHICH EXPERIENCED 100 PER CENT PASSENGER GROWTH IN A DECADE.**

Edmonton International Airport serves eight million passengers per year and offers non-stop connections to over 60 destinations across Canada, the US and overseas.

One of our core values, 'Dedicated to Sustainability', ensures EIA is always giving back to the community and helping to make it an even better place to live, work and play. One way we do this is by using our terminal building to highlight all the great things our region has to offer.

Spaces with seating feature art that invites people to relax, whereas art placed in corridors is designed to be enjoyed while in motion. In addition to our permanent art collection, we work with the Alberta Craft Council, to promote a variety of local artists through our rotational art displays. EIA is also proud to highlight art from local Northwest Territories artists and various locations through the terminal.



Our music program showcases local musicians throughout the airport, providing travelers with the experience of live music. The program showcases some of the region's up-and-coming musical talent. This includes young performers with chaperones, providing them with a public venue that is otherwise rarely available to minors. Special performances take place during the holidays.

EIA has even teamed up with the Pet Therapy Society of Northern Alberta in our terminal. Thousands of passengers a year experience calm nerves and fun when they stop to pet these lovely, friendly dogs.



DURING THE  
SECOND WORLD  
WAR, **EDMONTON**  
**WAS ONE OF**  
**THE BUSIEST**  
AIRPORT CITIES  
**IN THE WORLD.** 

## TRAINING OUR FUTURE FLYING ACES



One of Canada's most famous flying aces of the First World War, Wop May, returned to his hometown of Edmonton and, in 1919, opened Canada's first airport. He helped establish the city as a centre for aviation. It made sense, given Edmonton's location as a staging ground for northern development.

During the Second World War, Edmonton was one of the busiest airport cities in the world. The US Army ferried airplanes and equipment through the city to the Soviet Union. Just as important: Wop May established the city as a training centre.

Flight training is as much about technology today, as about facilities. We have both at Edmonton International Airport (EIA). The Alberta Aerospace and Technology Centre, at EIA, is a partnership between two airlines, two levels of government, and an industry association devoted to ensuring the pilots of tomorrow are ready for anything.

EIA hosts two simulators, one for helicopter pilots and the other for Boeing 737 series aircraft. The helicopter simulator is the first of its kind on the continent, where the technology so closely resembles actual flight conditions that trainees receive in-aircraft credit.

Flight training is going so well that the Alberta Motor Transport Association will soon begin construction on a 20,000 square foot education and simulation centre for commercial drivers. Between aviation and the future of commercial transportation, EIA is one of Canada's most important centres for the future of the way we move.

**#FLYINGACE**



**FREE WIFI** AT ALL  
20 EPL LOCATIONS



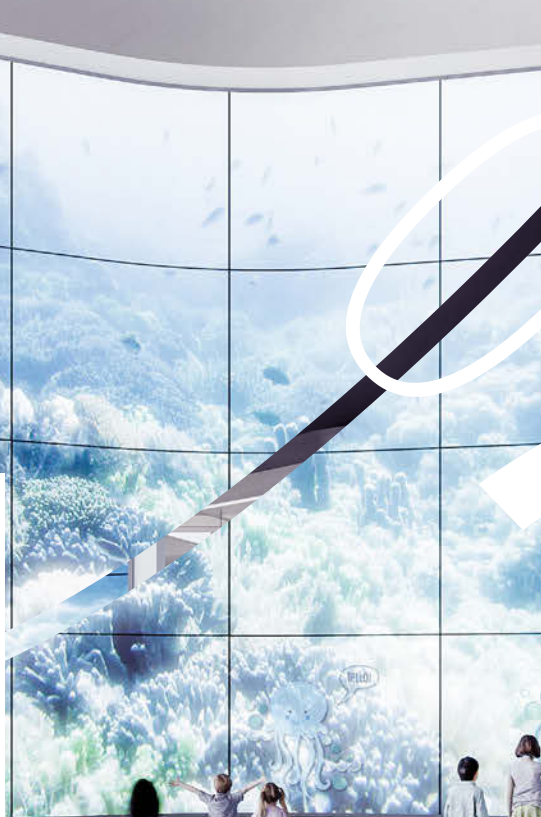
**3,341** DAILY  
WIFI SESSIONS



**20,813** FREE  
**PROGRAMS** ATTENDED  
491,572 TIMES



EDMONTONIANS  
DOWNLOADED OVER  
**3.2 MILLION**  
**eRESOURCES**





# EDMONTON PUBLIC LIBRARY (EPL)



**WITH MORE BRANCHES, MEMBERSHIPS  
AND PROGRAMS THAN EVER BEFORE,  
THE EDMONTON PUBLIC LIBRARY IS  
BUILDING THE BEST LIBRARY OF TODAY  
INTO THE BEST OF TOMORROW.**

Awarded Library of the Year in 2014, EPL has come a long way since 1913 when books were all you could find on our shelves... and we're just getting started!

In 2016, EPL hosted over 16.9 million in-branch and online visits, offered 20,183 free programs and loaned more than 11.9 million items. We deliver incredible content everywhere – in the library, at home and on your handheld device.

Unmatched access and unrivalled value – that is today's EPL.

## BRIDGING THE DIGITAL LITERACY DIVIDE

Digital literacy and the ability to use technology both personally and professionally is becoming a requirement to maneuver in today's world. Public libraries are often the first place people go to learn about and experience technology. Embracing our role as a community hub and home of life-long learning, EPL has made digital literacy and hands-on experiences with technology a core focus.

**EPL HAS MADE  
DIGITAL LITERACY  
AND HANDS-ON  
EXPERIENCES WITH  
TECHNOLOGY A  
CORE FOCUS.**





“What will you make?” That’s the question EPL asked our customers when we launched the EPL Makerspace. The EPL Makerspace – one of the first and largest public library makerspaces in North America – opened in 2014 with a variety of technology, equipment, hardware and software otherwise not readily accessible to many, such as 3D printers, an Espresso Book Machine, high-performance computers and design software, digital conversion hardware, gaming consoles, a green screen, a digital camera and more! In 2015, the central Makerspace grew to include two sound recording booths, and making equipment such as Lego robotics, snap circuits, and high-performance computers and design software, along with classes for customers, were added to all of our 20 branches. Much of the same technology and programming can also now be found in our four epl2go Literacy Vans that bring library services to underserved areas of our city.

In 2016, there were 6,018 sound booth sessions, 1,315 prints on the Espresso Book Machine and 6,500 creations on the 3D printers. We’ve helped children as young as four create and print digital models, assisted adults with DIY and décor projects, and been the starting point of podcasts, music albums and more. Beyond our walls, 22,660 attendees enjoyed 790 programs delivered throughout Edmonton by our four epl2go Literacy Vans.

The central EPL Makerspace is currently located at our temporary Enterprise Square Branch (10212 Jasper Avenue NW) while the Stanley A. Milner Library undergoes a three-year revitalization. When complete our new and improved Makerspace will be three times the previous size, and will include light fabrication equipment, a black box studio for video production and three sound recording booths, as well as a separate gaming center and dedicated children’s makerspace. Also planned for our revitalized downtown library is a multi-storey interactive digital display and simulation wall for immersive learning and large scale multimedia presentations.

**#EPLMAKERSPACE**





**FEEDSTOCK**

POST-SORTED MUNICIPAL  
SOLID WASTE (AFTER  
RECYCLING AND  
COMPOSTING)

**PRODUCTS**

METHANOL, ETHANOL

**CAPACITY**

38 MILLION LITRES /  
10 MILLION GALLONS  
PER YEAR



# ENERKEM



## **ENERKEM WAS CREATED FROM A REVOLUTIONARY IDEA: MANUFACTURING BIOFUELS AND RENEWABLE CHEMICAL PRODUCTS FROM NON-RECYCLABLE WASTE.**

Cities all around the world need ways to divert more municipal solid waste from landfills and incinerators. In addition to the environmental problems associated with these practices, it is becoming increasingly difficult to permit new landfills or incinerators due to more stringent regulations and considerable social acceptability issues.

By using municipal solid waste as a feedstock to produce biofuels and renewable chemicals, the Enerkem technology provides a sustainable alternative to the challenges associated with waste disposal. It equally answers the question of how to dispose of rapidly accumulating non-recyclable and non-compostable garbage, while avoiding methane emissions from its decomposition in landfills and creating value-added products from otherwise useless waste.

Today, Enerkem's Biofuels facility in Edmonton, Alberta, is the world's first commercial biorefinery of its kind to use municipal solid waste to produce methanol and ethanol. This facility is the result of more than a decade of efforts to scale up Enerkem's technology from pilot and demonstration, to full commercial scale.

Enerkem also operates an innovation centre in Quebec. Enerkem's facilities are built as prefabricated systems based on the company's modular manufacturing infrastructure that can be deployed globally. The company is developing several cellulosic ethanol and renewable chemicals production facilities in North America and globally, based on this modular manufacturing approach.



THIS 25-YEAR  
AGREEMENT  
WITH ENERKEM  
WILL ALLOW  
THE CITY OF  
EDMONTON TO  
DIVERT **90% OF**  
**ITS MUNICIPAL**  
**WASTE FROM**  
**LANDFILL.**



## BIOFUELS – HOW OUR CITY MANAGES WASTE



Like many communities in the 1970s and 1980s, Edmonton was running out of landfill space. The easiest option was to buy land far from the city and dump our waste there. We tried something else, to turn the city dump into a waste management centre.

At the time, there weren't many places to learn from. How does a city manage waste? We discovered our own way to run curbside recycling, with a pilot program in 1987 that quickly turned into a permanent solution. We handled the excess gas and found ways to dispose of hazardous chemicals. We composted, we re-used, all to answer a simple question: can we make an asset out of garbage?

Our latest partnership is with chemical and biofuel producer Enkema. Enkema has begun converting everything we cannot compost or recycle into low-carbon biofuel. This 25-year agreement with Enkema will allow the City of Edmonton to divert 90% of its municipal waste from landfill.

This initiative began a cooperative effort between Enkema, the City of Edmonton, Alberta Innovates, and the Government of Alberta.

The process converts non-recyclable garbage into ethanol that can fuel hundreds of thousands of vehicles. Not only does this process displace gasoline, it also avoids methane emissions that would otherwise be created from landfilling waste. Thanks to entrepreneurial thinking and brilliant science, the Enkema Alberta Biofuels facility in Edmonton draws on our energy heritage, create green jobs, and prevent harmful greenhouse gas emissions.

**#BIOFUELS**



**ALBERTANS CONNECTED  
TO CYBERANET**  
675,004 (STUDENTS  
OR EMPLOYEES -  
FULL-TIME EQUIVALENT)

**2016-2017 CYBERA  
MEMBERS NET BENEFITS**  
\$3.1 MILLION IN  
MEMBER BENEFITS

**CYBERA MEMBER  
ORGANIZATION BREAKDOWN**  
**22** POST SECONDARY  
INSTITUTIONS  
**49** K-12 SCHOOL DISTRICTS  
**17** GOVERNMENT/  
NOT-FOR-PROFIT  
**2** ENTERPRISE



# CYBERA



**CYBERA IS A NOT-FOR-PROFIT TECHNOLOGY-NEUTRAL ORGANIZATION RESPONSIBLE FOR DRIVING ALBERTA'S ECONOMIC GROWTH THROUGH THE USE OF DIGITAL TECHNOLOGY.**

Its core role is to oversee the development and operations of Alberta's cyberinfrastructure – the advanced system of networks and computers that keeps government, educational institutions, not-for-profits, business incubators and entrepreneurs at the forefront of technological change.

Cybera's team of experts work behind the scenes to manage Alberta's ultra-high-speed advanced research network – CyberaNet – which connects public sector organizations to over 100 research networks around the world. Working with partners in the public and private sectors, Cybera is also leading 'above the network' projects in Alberta to pilot emerging technologies that support the province's economic growth.

**cybera**



EDMONTONIANS  
WORKING IN  
**ARTIFICIAL  
INTELLIGENCE AND  
MACHINE LEARNING**  
HAVE HAD ACCESS  
TO GRAPHICS  
PROCESSING UNITS  
(GPUS) THROUGH  
CYBERA'S RAPID  
ACCESS CLOUD  
**SINCE 2016.**

# BUILDING OUR CYBER INFRASTRUCTURE



In 2015, when the City of Edmonton was digging tunnels for light rail transit, Cybera saw an opportunity. Why not place fibre optic cable in the tunnels to build connection speeds thousands of times faster than traditional networks?

The tunnels link university researchers, problem-solvers in the public sector, and thousands of entrepreneurs along the LRT line.

Once you have the fastest connections, you need a place to handle data. The Alberta Machine Intelligence Institute (Amii), at the U of A, is one of the finest of its kind in the world. But traditional computers can't keep up with its researchers and the inventors partnering with them, here in Edmonton and around the world.

Edmontonians working in artificial intelligence and machine learning have had access to graphics processing units (GPUs) through Cybera's Rapid Access Cloud since 2016. It goes beyond "super human" artificial intelligence.

University of Alberta astronomers have used the cloud to uncover highly unusual star systems. Entrepreneurs have used the cloud to make new businesses possible. Children in rural communities are connected for the first time.

Cybera is a typically Edmontonian solution: the not-for-profit sector cooperates with public and private enterprises to create something that no one could build alone.

**#CYBERINFRASTRUCTURE**

# THANK YOU

Thank you to all of our partners  
who are part of the City of Edmonton  
submission for the 2017 ICF  
Most Intelligent Community of the Year.

