

Calgary Advanced Tech

With Canada's only deregulated power market, a climate leadership plan and the will of the leaders in traditional oil and gas and agriculture sectors to innovate, Calgary is on the tipping point of being a global IoT, AI and blockchain industrial hub.

calgary economic
development
be part of the energy™



10 things you need to know about Calgary

- Calgary's industrial IoT opportunity is estimated to be \$45B.**
Source: Calgary Economic Development Analysis; Digital Transformation Initiative: Oil and Gas Industry, World Economic Forum, January 2017
95% of the assets in the energy sector are currently unconnected.
Source: Can technology transform the oil and gas industry again?, Houston Chronicle, April 7, 2017
- Innovation in Calgary is about **finding the lowest-cost way to access oil and new ways to reduce emissions.** Innovations like these have been happening by the hundreds in the oilsands, fuelling our country's economic engine.
- Let's talk about patents** as an indicator of innovation: Calgary has been steadily gaining ground. In 2015 — the most recent year for which we have reliable data — it overtook Waterloo as **having the most Canadian patents filed per capita. Innovators in Calgary are now filing patents at triple the rate** of the rest of the country.
Source: Benjamin Dachis & Jacob Kim, C.D. Howe Institute, Move over, Waterloo and Ottawa: Calgary is now out-innovating you, CBC News, May 31, 2018.
- Over the next six years Suncor Energy expects to deploy more than 150 autonomous haul trucks in the full program, which will be **one of the largest investments in electric autonomous vehicles in the world.**
Source: Suncor.com, 2018
- Calgary boasts a full **25% of all UAV, geospatial data collection and analysis, navigation and GPS firms in Canada.**
Source: Government of Alberta, 2017
- ATB Financial based in Alberta, sent one of the **world's first real-time payments from Canada to Germany using blockchain.** They continue to lead the country in banking innovation.
- Decisions are made here. Calgary has the highest head office concentration per capita in Canada.**
Source: FP500 2018 Database
- Calgary boasts the country's **highest number of millionaires per capita** – there is access to capital in Calgary.
Source: Statistics Canada, 2016
- Alberta is poised to lead the world's cannabis industry. Alberta-based Aurora is now the **world's largest cannabis company.**
- A single drilling rig can **generate over a terabyte of data daily**, but less than 1 per cent is ever **analyzed and used for decision-making.**
Source: Beyond the Barrel: How Data and Analytics will become the new currency in Oil and Gas, Cisco Canada Blog, June 7, 2018



Case Studies

Blockchain Royalty Contract

GuildOne and ATB executed the first royalty smart contract using a blockchain platform, making Alberta the first region globally to successfully complete an oil royalty contract settlement and payment transaction. This transaction has improved the process of a typically time intensive process and reduced costs for energy contracts.

VR and Pipeline Safety

Enbridge, Microsoft, and Finger Food Studio's created a digital twin for pipeline networks. Using VR, a digital twin of the pipeline was created by merging 132 separate pipeline data sets and terrain information, to help companies better identify potential hazards.

Labdroid

All-purpose humanoid for life sciences built to operate on a variety of standard lab equipment to perform wet lab experiments. Provides precision, predictability, and automation for Canada's first germ-free facility located at the University of Calgary.

IoT Rigs

Beaver Drilling, an Alberta drilling company operating in Alberta since 1965, integrated IoT into the drilling process by loading software that connects, controls, and optimizes the drilling equipment on the rig. By utilizing equipment parameters and utilizing AI and adaptive learning software they have increased performance by nearly 40%.

Largest Industrial Autonomous Fleet

After four years of testing a 400-tonne autonomous truck, Suncor announced it will build a fleet of more than 150 driverless trucks over the next six years, making it the first energy companies to adopt this technology. These trucks increase efficiency by operating 24 hours a day, only stopping for fuel and avoiding sudden acceleration and abrupt stopping.

AI and Predictive Maintenance

Interface fluidics is using microfluidic reservoir modelling technology to replicate a well-site. They are able to duplicate a 2000km wellsite onto a nano chip, allowing companies to test the fluids necessary to extract the oil on a microchip at a fraction of the price.

\$45B

IIoT MARKET OPPORTUNITY

Of all the devices in the energy industry in Calgary, only 5% are connected digitally. This results in a **\$45B market opportunity** to connect and analyze the remaining 95% of energy assets.

Source: Calgary Economic Development Analysis; Digital Transformation Initiative: Oil and Gas Industry, World Economic Forum, January 2017

Source: Can technology transform the oil and gas industry again?, Houston Chronicle, April 7, 2017

Highest

specialization in high-end services associated with the autonomous systems cluster in Canada.

Calgary Economic Development Analysis; Driving Tech Forward: An Overview of Calgary's Autonomous & Unmanned Technology Cluster, 2018

Largest

concentration of talent in UAV's across Canada.

Calgary Economic Development Analysis; Driving Tech Forward: An Overview of Calgary's Autonomous & Unmanned Technology Cluster, 2018



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