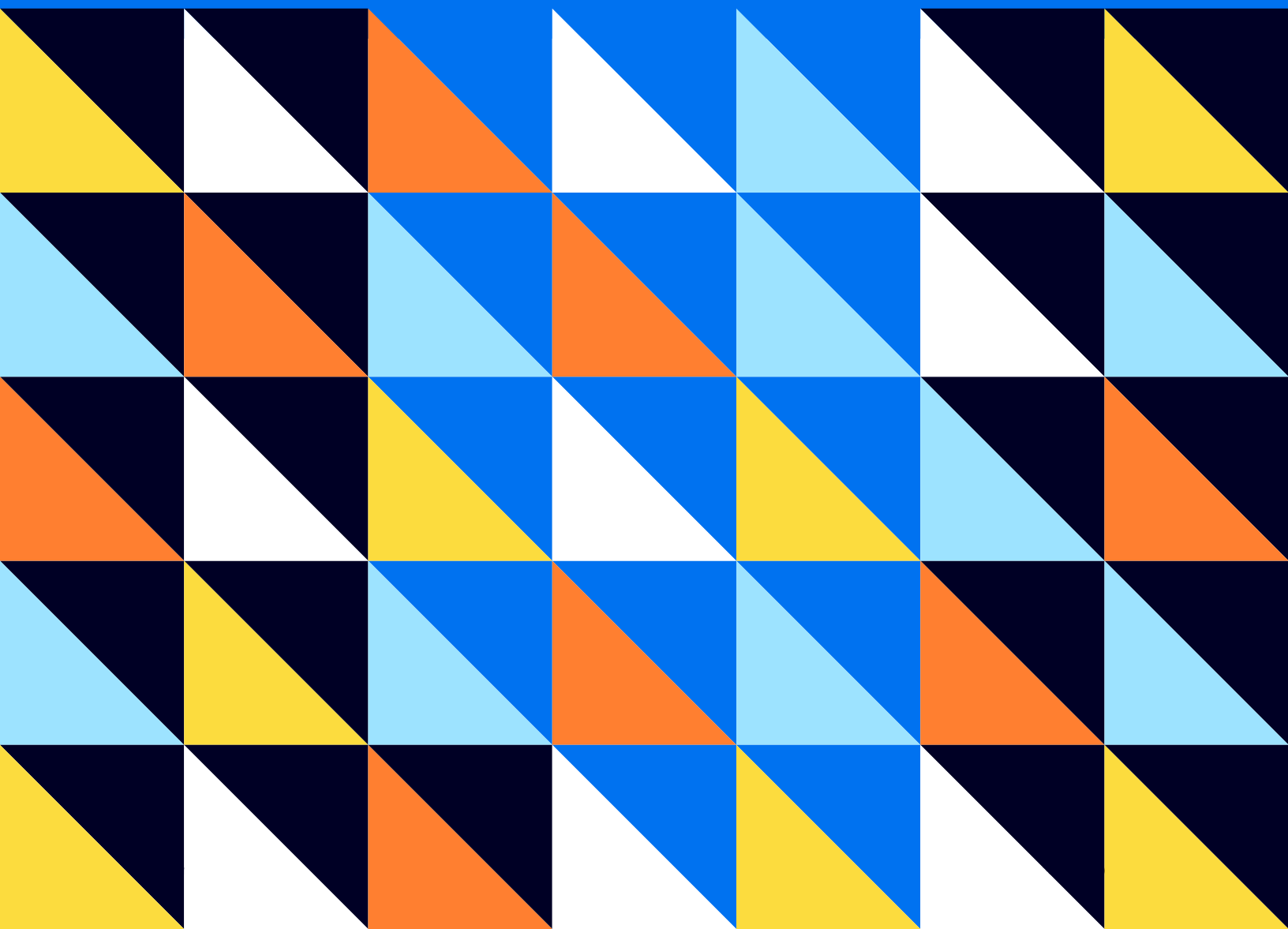
ATB

AN INNOVATION REVOLUTION:

How Alberta is Building the Future of Tech



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INTRODUCTION

A note from ATB Financial's Chief Economist

APRIL 2025

Alberta quickly emerged as a major player in Canada's technology sector. How did this happen? And what's next? That's the focus of ATB Financial's latest study.

The tech sector emerged from an economy that has weathered a series of shocks over the past decade: the 2015–16 recession following the oil price crash, stagnation in 2019 following pipeline constraints and a pandemic that hit Alberta particularly hard.

The economy adjusted and, in the process, showed remarkable resiliency. Oil and gas investment is much lower now, but production continues to rise. Growth has broadened to emerging sectors like petrochemicals, aviation, food manufacturing, film and tourism.

Central to Alberta's diversification story is talent. The technology sector serves as a perfect case study. Alberta has attracted record numbers of migrants from the rest of Canada and internationally, many of them young, lured by the lower cost of housing, jobs and quality of life. Alberta's high concentration of scientists and engineers from the energy sector created an additional pool of workers to draw from, while Alberta's post-secondary institutions provided the necessary research capacity. Venture capital followed suit. A virtuous circle of talent and capital created a tech ecosystem in Alberta.

Our research suggests the tech sector's success is no accident. It's the result of a concerted effort starting prior to the 2000s by government, industry and academic institutions to foster a thriving tech ecosystem. Entrepreneurial commitment to the province has also played a crucial role, as has the leveraging of core competencies and expertise developed in other key Alberta industries.

This comprehensive report, prepared by Miranda Mantey, Product and Research Lead, ATB Ventures, tells Alberta's tech story through three periods of history. It examines the early seeds of innovation sown during the oil boom from 2000-2010, the pivotal period of diversification and resilience in the face of economic hardship and the recent explosion of growth that has positioned Alberta on the global tech map.

Mark Parsons
Vice President and Chief Economist, ATB Financial

SNAPSHOT OF ALBERTA'S TECHNOLOGY SECTOR

Alberta's tech sector has experienced rapid growth, with an increasing number of workers across an array of tech occupations, economic expansion of tech industries and surging venture capital investment. To better understand this trend, we collaborated with the Business Data Lab (BDL) at the Canadian Chamber of Commerce to develop an economic snapshot of the sector.

Defining the 'tech sector' is challenging, as technology and tech talent is deployed across all industries. For this analysis, BDL defined the tech sector based on the concentration of tech workers in specific industries. In particular, the sector includes industries with a share of workers in tech roles that is at least four times the overall industry average.*

This approach reveals impressive growth. Between 2013 and 2023, the output (real GDP) of the tech sector grew three and half times faster (+38%) than the overall Alberta economy (+11%). Similarly, the number of employees in the high tech sector grew at nearly four times the rate (+23%) of all industries (+6%) over this period. The tech sector was resilient through economic cycles, growing during the 2015-16 economic downturn and outperforming during the pandemic period. More recent data show that this rapid growth continued last year, with a 4.2% increase in tech sector employees in 2024. The BDL analysis aligns with CBRE's findings that Calgary had the fastest-growing tech talent market among large North American cities between 2018 and 2023, with Edmonton ranking fourth among smaller markets (Figure 11).**

This growth is particularly significant because it offers a productive path to economic diversification. While previous ATB research indicated a potential tradeoff between diversification and productivity (given the high productivity of Alberta's oil and gas sector), the tech sector proves to be a valuable exception.

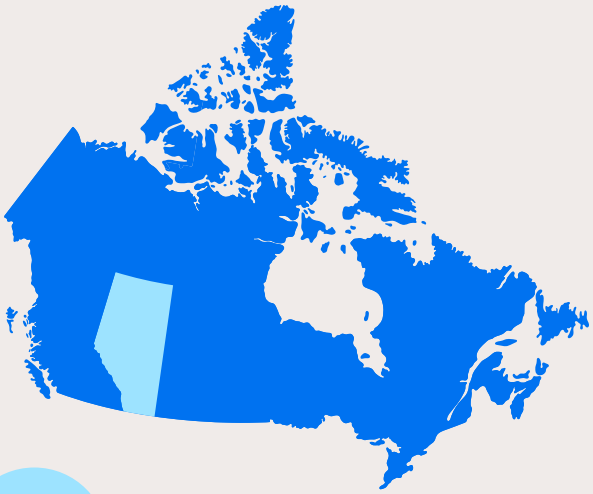
The sector has productivity levels about 25% higher than the provincial average, resulting in high average wages of $63/hour-exceeding all industries except the utilities sector and the mining and oil and gas sector. Furthermore, the tech industry leads the province in research and development (R&D) spending, accounting for 30% of the total.

This tech sector is attracting significant investor interest, with venture capital funding in Alberta's tech sector increasing by 24% between 2021 and 2024.

*Includes Commercial and service industry machinery manufacturing [NAICS 3333], Computer and electronic product manufacturing [334], Software publishers [5112], Telecommunications [517], Data processing, hosting, and related services [518],Financial investment services, funds and other financial vehicles [52A], and Computer systems design and related services [5415].

**CBRE looks at tech occupations in all industries. This producers a larger employment number than BDL's industry based estimate, as it captures tech employees across all industries.

OVERVIEW OF ALBERTA'S TECH SECTOR



$13B Gross Domestic Product (GDP, $2017)

$96
GDP ($2017) per hour

$63
Compensation per hour

$664M
Research and Development (R&D spending) (2021 Data)

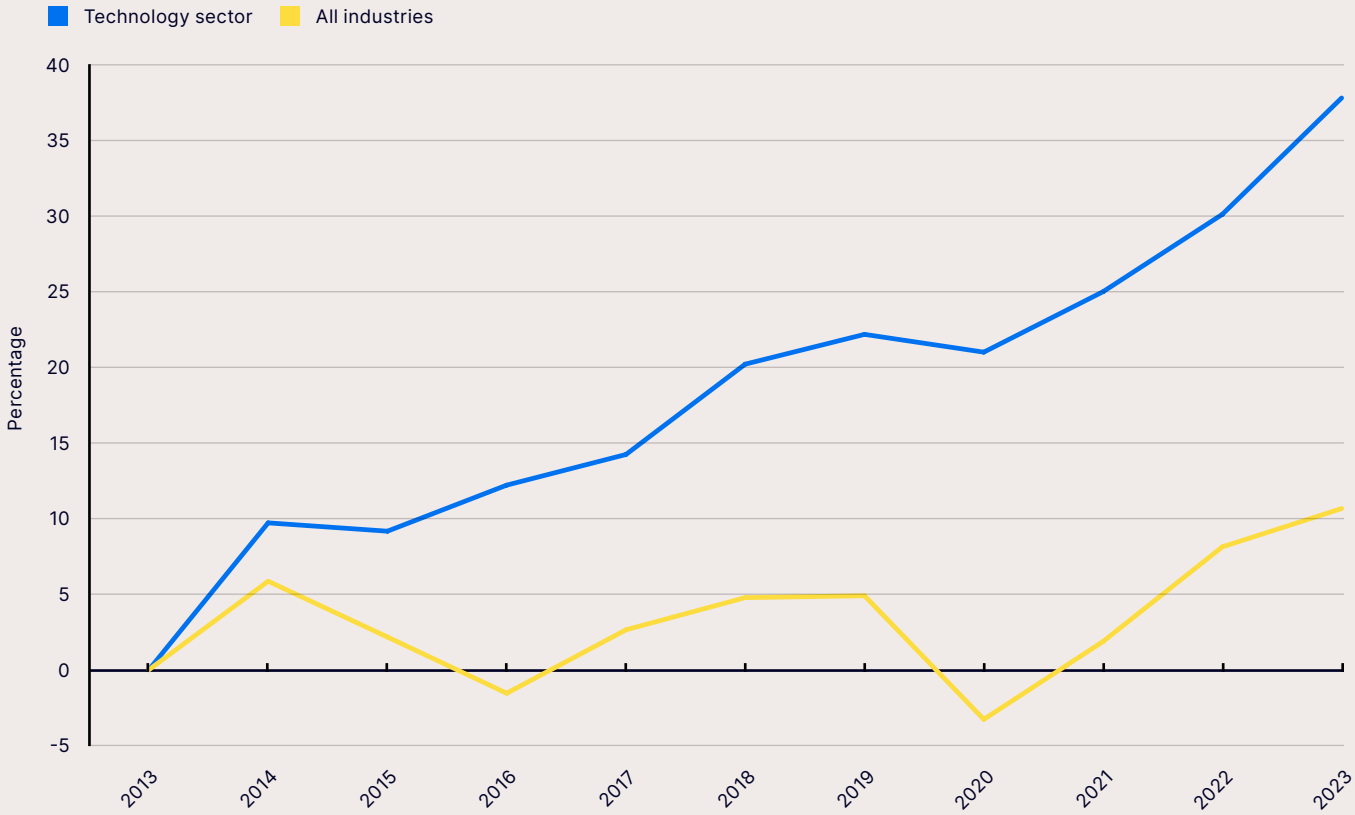
50,100
Employees 2024 Data

Source: Statistics Canada, Canadian Chamber of Commerce Business Data Lab, and ATB Economics. All data based on 2023 unless otherwise noted.

Figure 1

Growth in Alberta's Technology Sector

Cumulative growth in real GDP since 2013



Source: Statistics Canada, Canadian Chamber of Commerce Business Data Lab, and ATB Economics

EXECUTIVE SUMMARY

The latest data paints a compelling picture of Alberta's burgeoning tech scene.

Calgary and Edmonton, the province's two largest cities, secured impressive rankings as North American tech talent hubs, placing 20th and 49th respectively. Furthermore, Alberta boasts a five-year compounded average growth rate for venture capital funding that surpasses the Canadian average threefold.

These, along with other data points, are undeniable signs of a healthy tech ecosystem within a province traditionally known for its oil and gas industry.

How did Alberta achieve such major milestones?

This report explains the growth of Alberta's tech economy by delving into how four key indicators have changed over time.

These indicators are:

- **Ideas:** What conditions foster ideation within the province? This includes the presence and impact of research institutions, as well as the potential for ideas to cross over from traditional industries.
- **Beneficial business environments:** What conditions exist within the province to support the growth of companies of all stages? This looks at the availability of funding, overall business environment and the support of the tech industry through government programming.
- **Talent:** Does the province possess the skilled workforce needed to build and operate technology companies? This looks at whether the right skills are present in Alberta, the availability of skilling and reskilling agencies and the migratory patterns of aligned talent.
- **Mentorship and support:** Are there programs and resources available to founders to increase their likelihood of success? This evaluates the presence and quality of incubators and accelerators, whether successful founders are actively mentoring and sharing their expertise and how robust and interconnected the technology ecosystem is across various geographic hubs.

By employing both qualitative and quantitative research methods to examine these four key indicators over an approximately 20-year period, a compelling narrative of growth in Alberta's tech industry emerges. The intentional investments into technology early in this period positioned Alberta for the accelerated growth and attention it's experienced in recent years.

The three eras of growth for Alberta's tech sector are:

HUMBLE BEGINNINGS: THE FOUNDATION OF ALBERTA TECH (2000 TO 2014)

At the start of the 21st century, Alberta's nascent tech scene was nurtured and inspired by the province's booming oil and gas industry, while simultaneously finding its own footing.

Resource-driven prosperity fostered a pro-growth environment, leading directly to oil and gas innovations like steam-assisted gravity drainage. Crucially, the oil and gas boom attracted a large, adaptable workforce that would later prove invaluable to the emerging tech sector.

During this period and the years prior, many future Alberta-born tech success stories emerged, such as RS Energy, Solium, StumbleUpon and Benevity. Long-term investments in computer science education were creating a skilled workforce ready for the technology industry.

The provincial government, recognizing the impact of small businesses and entrepreneurs on the province, invested in strategic plans to address key concerns such as funding gaps. The onset of future tech leaders, entrepreneur-led organizations and research hubs such as Amii (Alberta Machine Intelligence Institute), combined with the foundations laid by the oil and gas boom, set the stage for Alberta's technology sector to flourish in the years to come.

RIDING THE ROLLERCOASTER: TECHNOLOGY READY FOR DIVERSIFICATION (2015 TO 2019)

Between 2015 and 2019, lower oil prices and market access constraints forced Alberta to confront economic hardship. The technology sector, already showing great promise, presented a key opportunity. Despite job losses and a decline in energy sector investment, energy technology and clean technology experienced significant growth. Access to capital continued to be a challenge at various points of this period, but 2019 ended on a high note, with record venture capital investment.

Reskilling programs for displaced oil and gas workers proved successful, and new tech ventures like AltaML and Neo Financial emerged alongside support organizations such as Alberta Innovates, Rainforest Alberta and the Hunter Hub for Entrepreneurial Thinking.

This period of transition, while turbulent, solidified the foundations of Alberta's future tech ambitions, emphasizing the need for diversification and a skilled workforce to fuel a thriving technology sector.

BEYOND THE STEREOTYPE: ALBERTA'S TECH ECOSYSTEM BLOSSOMS (2020 TO PRESENT DAY)

Alberta's tech sector continued to expand during the pandemic recovery, with rapid growth in EnergyTech and CleanTech. Venture capital investment reached new heights, and the Government of Alberta launched its Alberta Technology and Innovation Strategy.

While Alberta is experiencing the ramifications of a worldwide tech talent shortage, the province is actively reskilling its workforce, attracting young talent and fostering a robust and global support network for local companies through programs like Plug and Play and organizations such as The A100. These combined efforts are propelling Alberta's transformation into a major technology player.

In the final section, we explore what might be next for the province's tech industry. Alberta's long-term investment in technology is yielding impressive results, positioning the province as a rising force. With its strength in EnergyTech, artificial intelligence and machine learning, we believe Alberta will continue to develop strong ecosystems in additional industries, such as AgriTech, FinTech and HealthTech, with RuralTech also presenting a unique opportunity.

However, this future growth is also dependent on how well Alberta can address barriers, including ecosystem navigation, funding gaps and entrepreneur mental health. Responding to these challenges is critical to maximizing Alberta's tech potential and ensuring its long-term prosperity.

Alberta has laid a strong foundation and proven its capacity for innovation. Now is the time to amplify our successes and attract global talent and investment. By embracing collaboration, boldness and a commitment to excellence, Alberta can truly solidify its position as a global tech powerhouse.

Note: Unless otherwise specified, all currency referenced in this report is CAD.

HUMBLE BEGINNINGS: THE FOUNDATION OF ALBERTA TECH (2000 TO 2014)

Introduction

Alberta's technology sector in the 2000s and early 2010s benefited from the economic conditions driven by the prevailing oil and gas boom. The resource-driven prosperity fostered a pro-growth environment and a culture of innovation, exemplified by groundbreaking inventions and the establishment of Amii, a leading AI research institute that became one of three national AI centres.

During this economic boom, a parallel narrative was unfolding: Alberta's tech scene was advancing although it remained a relatively small player in the overall economy. Decades of investment in computer science education, from high schools to post-secondary institutions, were laying the groundwork for a future beyond oil.

Even during economic downturns, laid-off workers demonstrated remarkable resilience, with most finding new jobs within a year, often pivoting to different sectors. This inherent adaptability would later prove invaluable as the tech sector gained momentum, providing a skilled and experienced talent pool ready to embrace new opportunities.

While dedicated tech resources were less prevalent than they are today, this period witnessed the emergence of future unicorns like RS Energy (acquired by Enervus in 2020) and Benevity, and the founding of entrepreneur-led organizations like Startup Calgary and Startup Edmonton. These developments, coupled with the foundations laid by the oil and gas boom, set the stage for the rapid growth of Alberta's technology sector in the years to come.

Ideas outside the pipeline

At the dawn of the 21st century, Alberta's economic engine roared with the power of oil and gas. In 2000, the sector contributed 26.6% to the province's GDP, solidifying its position as the economic powerhouse. Yet, even within this established industry, there was a clear recognition of the vital role of innovation. As W.D. MacFarlane, President of the Canadian Heavy Oil Association, states in the association's *2007 Heavy Oil and Oilsands Guidebook*, "This is an industry that has been developed, and will continue to be sustained, through technological innovation."

At this time, Alberta's commitment to innovation in oil and gas was bearing fruit. SAGD, a revolutionary extraction process pioneered in Alberta with partial funding from the provincial government, became a global success story. The world's first commercial SAGD operation opened in 2003 at EnCana's Foster Creek site, showcasing Alberta's ingenuity. Other homegrown oil and gas technologies, like cyclic steam simulation and cold heavy oil production with sand, were being adopted internationally, reaching markets in Russia, Albania and China.

By the mid-2000s, Alberta had earned a reputation as the leader in "unconventional oil technologies." As Maurice Dusseault, an Alberta-born geological engineering expert, aptly put it, "The only argument is 'Who's in second place?'" Later in this period, Alberta actively encouraged the convergence of energy and technology through CleanTech investments, exemplified by Emissions Reduction Alberta's launch in 2009 to support clean technology development.

However, the seeds of a broader technology ecosystem were also being sown. In 2002, the Alberta Ingenuity Centre for Machine Learning (now Amii) was established through a collaboration between the University of Alberta and the Government of Alberta. This forward-thinking initiative aimed to capitalize on the nascent field of artificial intelligence. In 2003, Amii hired Richard Sutton, an internationally renowned pioneer in reinforcement learning (a subset of machine learning that empowers AI systems to learn from experience) to serve as Amii's Chief Scientific Advisor.

This further solidified Amii's position as a centre for AI excellence. Amii and Sutton would go on to play a pivotal role in Alberta's rise as a global AI hub, a story explored further in subsequent sections.

The venture capital struggle

Alberta's economic performance from 2000 to 2014 was undeniably impressive, fuelled by a worldwide commodity boom. The province boasted a 3.7% average annual real economic growth rate, surpassing all other Canadian provinces and most energy-producing US states.

However, a common growing pain of any new industry emerged: despite overall regional economic success, entrepreneurs faced hurdles in accessing capital. This challenge was concerning given Alberta's vibrant entrepreneurial spirit. Research at the time revealed that Alberta had the second-highest number of small business startups in Canada over the previous decade, with a remarkable growth rate of nearly 19%. This entrepreneurial activity, however, was struggling with limited funding. If left unaddressed, this lack of availability threatened to create challenges for future growth.

Recognizing the crucial role entrepreneurs play in a healthy economy and the potential consequences of this funding gap, the Alberta government developed the 2014 Small Business Strategy. As part of the strategy, the "enhance and accelerate entrepreneurship" pillar adopted a multi-action approach, including:

- **Action 1:** Creating an entrepreneurship index to measure challenges
- **Action 2:** Integrating entrepreneurship into the education system
- **Action 3:** Partnering with entrepreneur-led organizations
- **Action 4:** Improving access to capital
- **Action 5:** Better supporting rural entrepreneurship

This approach aimed to address the funding gap by bolstering venture capital through the Alberta Enterprise Corporation (AEC). By 2014, AEC had effectively deployed most of its initial funding. This investment aimed to not only support existing entrepreneurs but also to attract new talent and investment.

A workforce built for transformation

The oil and gas boom during this period fuelled significant job growth in Alberta. Between 2000 and 2014, the province's total employment grew at twice the national average, largely driven by direct employment in the resource industry (Figure 2). Gail Powley, President of Technology Alberta, notes that although the technology economy was already strong prior to this period, it "was competing with stronger financial salaries provided by the energy industry."

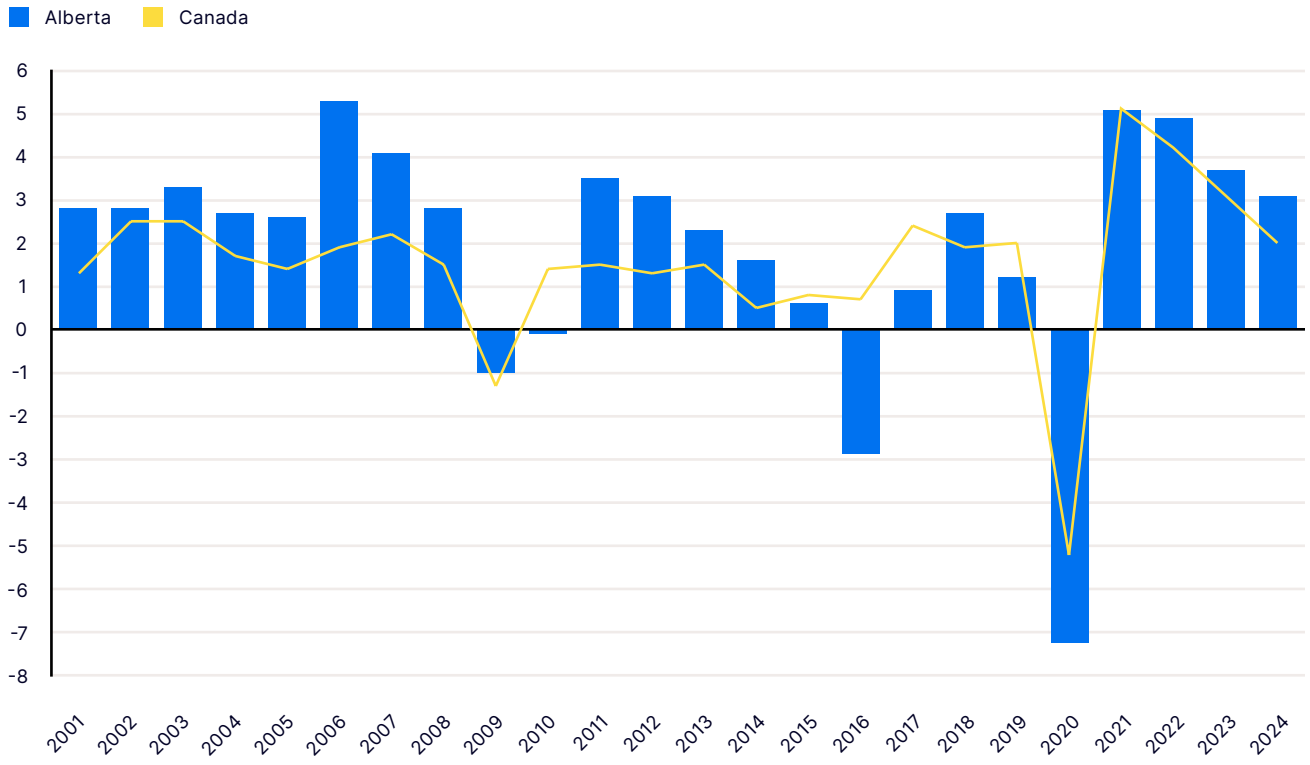
The quick uptake of oil and gas workers in the wake of industry layoffs demonstrated the province's strong technology industry. "The growing technology industry was positioned to advance quicker—providing jobs to this well-educated workforce," Powley shares.

The data supports her perspective. A Statistics Canada study tracking workers laid off from oil and gas between 2005 and 2015 revealed that 73% found new employment within a year. Remarkably, 80% of those jobs were created in industries outside of oil and gas. This historical precedent demonstrates that, despite concerns, Alberta's workforce has significant potential to successfully transition to new sectors, including technology. The study also highlights the willingness of oil and gas workers to explore new career paths and their strong employability across various fields. Furthermore, research on workers displaced after the 2009 recession found that, while they initially earned less in their first year outside of oil and gas, their median salary after three years surpassed their previous earnings in the resource industry.

Figure 2

Annual Employment Growth

% change, 2001-2024



Source: Statistics Canada

Although the focus during this period was primarily on oil and gas skills and employment, Powley states that technology was core to Alberta's skills ecosystem even prior to 2000. "In the 1980s, computing science was taught in Alberta high schools. The University of Alberta had one of the first Computing Science departments in Canada," Powley shares. She believes that provincial funding of post-secondary programming early on in the technology space has been key to developing and attracting the highly skilled workforce Alberta has today.

The 2014 Small Business Strategy also signalled a growing recognition of the need to upskill Alberta's workforce through a focus on workforce training. The strategy highlighted the success of various student entrepreneur-led organizations established around that time, such as The PUSH Network at the University of Calgary, THINC at the University of Lethbridge, the Entrepreneur Work Term at Medicine Hat College and eHUB and the Entrepreneurship CLUB at the University of Alberta.

The genesis of mentorship

While innovative ideas were percolating in traditional industries, this era, and the years immediately preceding it, witnessed the birth of several future Alberta-based tech giants. RS Energy (1998), Solium (1999), Parvus (2007) and Benevity (2008)—all destined to become unicorns.

The decision of these founders to build their companies in Alberta proved pivotal, as their eventual success would attract attention and pave the way for further industry expansion. Another impactful Alberta-born technology company, StumbleUpon (2001), reached a significant milestone in 2009 by experiencing more traffic than any other social media site, including Facebook, YouTube, Twitter, Reddit and Pinterest. Garrett Camp, who founded the company while still in post-graduate studies at the University of Calgary, later went on to cofound Uber.

The latter part of this period saw the emergence of more powerful Alberta tech companies, such as GeologicAI (2013), which has raised over $30 million as of 2024, and ZayZoon (2014), which has raised over $80 million.

The emergence of these pioneering companies, along with a growing number of startups, spurred the development of more formalized support organizations. Startup Edmonton and Startup Calgary, both grassroots initiatives, were founded in 2009 and 2010, respectively. The Venture Capital Association of Alberta and The A100 also launched during this phase, providing crucial resources and networks for the burgeoning tech community. Technology Alberta, established in 2006, fosters knowledge sharing, community building and talent acquisition through programs that have been supported by the Government of Alberta and PrairiesCan.

This period also marked a shift from for-profit to nonprofit models for founder support organizations, as noted by angel investor Jade Alberts. "Thankfully, most of the for-profit companies are gone," he observes. These nonprofit organizations would continue to play a vital role in supporting the growth of Alberta's tech sector, providing invaluable services to the community as the industry matured.

In 2010, the provincial government also transitioned the Alberta Research Council and other Alberta research and innovation organizations into four corporations, which ultimately became Alberta Innovates. Founded in 1921, the research council—originally named the Scientific and Industrial Research Council of Alberta—was the first entity of its kind in Canada. The initial focus was to support industries in developing new research and commercializing Alberta-produced products. The creation of these four new corporations set the basis for continued technological development in the province.

Amii stands as a powerhouse in artificial intelligence (AI) research and development. Founded in 2002 by four University of Alberta researchers and originally named the Alberta Ingenuity Centre for Machine Learning, Amii has grown to become one of three national AI centres, as named in the Pan-Canadian AI Strategy, and a global research hub for reinforcement learning. With nearly 50 researchers and a network of approximately 500 graduate students, Amii advances the science of AI, fosters talent within the field and drives AI adoption in industry.

Over the past two decades, Amii has consistently ranked among the world's top AI and machine learning (ML) research institutions. As a designated Centre of AI Excellence under the Pan-Canadian AI Strategy, Amii drives Canada's AI leadership through groundbreaking research and impactful commercialization.

While research forms the bedrock of Amii's work, its approach extends beyond the laboratory. Amii is committed to growing AI capacity through exceptional educational offerings and strategic business advice. "We're developing a core talent group here," says CEO Cam Linke. "By pairing that talent with deeper knowledge and leading-edge technology, we're creating a direct pathway to industry impact."

In 2023, Amii collaborated with almost 100 startups and over 175 companies, forging vital connections within the industry and accelerating the adoption of AI within businesses. It is also deeply invested in educating Alberta's business leaders about the power and potential of AI. "We developed AI Everywhere, a course initially designed for the University of Alberta to help business leaders understand and leverage AI," explains Linke. This course has evolved into a three-credit non-technical course available to all undergraduates across disciplines, making the University of Alberta one of the first top 100 universities to offer such a program. "AI literacy is crucial," Linke emphasizes.

Photo: Ampersand Grey

Photo: Ampersand Grey

"We want our programs to produce graduates who are bilingual—fluent in both business and AI."

Amii may be headquartered in Edmonton, but its influence resonates throughout Alberta. "The talent nurtured at Amii is incredibly transferable," says Chelsea Hallick, Director of Business Development at Calgary Economic Development. "Amii works with numerous Calgary-based clients, and we see a direct pipeline of skills flowing from Amii into Calgary. The University of Alberta is a tremendous asset to the entire province."

Amii firmly believes that Alberta's tech industry isn't emerging—it's already arrived. "We've done ourselves a disservice by focusing on what could happen," states Linke. "The reality is, it is happening. Companies here are attracting hundreds of millions of dollars in venture capital. Tech is a core component of our economy. The ability to solve complex problems and build incredible companies isn't aspirational—it exists."

Linke's advice to organizations hesitant about AI is simple: get started. "Canadian companies often follow the lead of their US counterparts, and we see this with AI adoption. While 72% of US companies utilize AI in some capacity, only 35% of Canadian companies do the same," he observes. Linke stresses this doesn't have to be the case. "We're global leaders in AI research, home to top talent in the field. We have a significant competitive advantage that we need to leverage."

He believes there's a stark difference in success between companies that embrace emerging technologies and those that hesitate. "That's why we created programs like AI Everywhere," Linke explains. "Technology is a major industry and a critical part of Alberta's future. We're here to help fuel its growth. This is an incredibly exciting time to be involved in tech in our province."

RIDING THE ROLLERCOASTER: TECHNOLOGY READY FOR DIVERSIFICATION (2015 TO 2019)

Introduction

Plummeting oil prices triggered a major slump in Alberta's economy between 2015 and 2020. This period saw three years of economic contraction, sluggish growth and substantial job losses in the oil and gas sector. While energy remained the key anchor industry, growth opportunities emerged in other sectors including the already impactful technology industry.

Despite an earlier dip in overall investment, the information and communications technology (ICT) sector thrived. The surge in venture capital signalled Alberta's expanding appeal as a hub for innovation and a promising future for its startup ecosystem.

With significant job losses in the oil and gas industry, reskilling for the tech sector became crucial. Programs like EDGE UP, launched in 2019, demonstrated the feasibility of training displaced workers, with over 70% of program participants finding tech jobs or pursuing further education within a year.

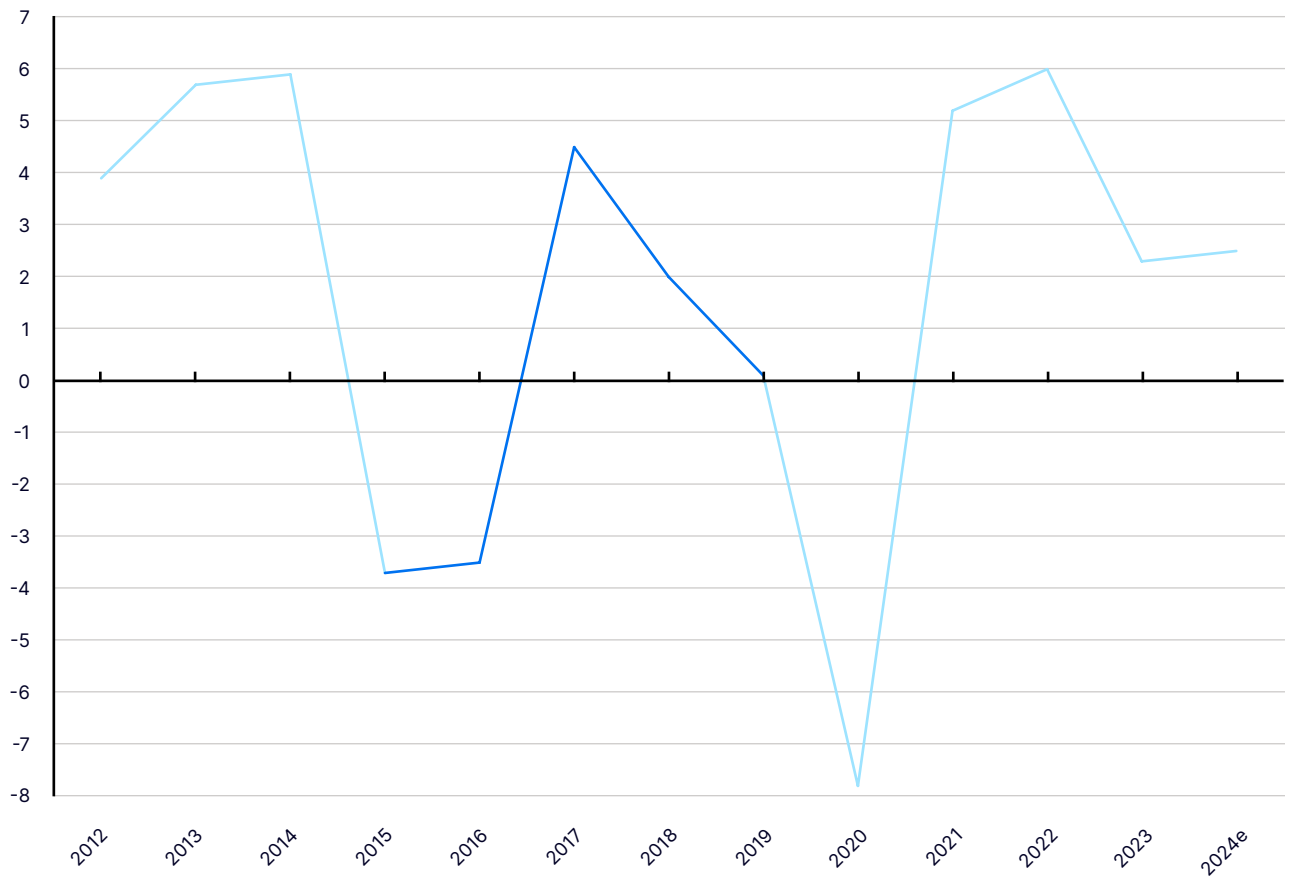
This period also saw the rise of homegrown tech success stories. Benevity attracted significant venture capital, Solium achieved unicorn status with its acquisition by Morgan Stanley, and innovative ventures like AltaML and Neo Financial were founded. A robust support network for this new tech ecosystem also began to take shape.

These years, marked by economic turbulence, furthered the growth of Alberta's tech scene.

Figure 3

Alberta Real GDP

% change, annual



Source: Statistics Canada

Ideas rooting in shifting times

Between 2015 and 2020, Alberta's economy grappled with a significant downturn, primarily driven by plummeting oil prices and market access challenges. Following a period of robust growth from 2010 to 2014, the province's economy contracted by 3.7% in 2015 and by 3.5% in 2016. The recovery was interrupted by pipeline constraints, which led to large discounts on Alberta crude oil and curtailment of production starting in January of 2019 and then COVID in 2020 (Figure 3).

This slump triggered a sharp rise in unemployment, surging from 4.3% in July 2014 to 8.9% in July 2016. Employment within the oil and gas industry decreased by more than 50,000 positions, resulting in the unemployment rate reaching its highest point since 1994.

As highlighted in "Follow the Money" in the July/August 2015 issue of *Oilsands Review*, low oil prices presented significant challenges for the industry, prompting many companies to slow or defer projects and focus on "back to basics" operations. "A lot of people are starting to recognize that there is a huge amount of money that is going to be invested in the sustaining side of our business," said Chris McInnis, Cenovus Energy's Christina Lake field development manager at the time.

This shift was reflected in the 55% decrease in capital expenditures in crude oil, natural gas and oilsands in Alberta between 2014 and 2016, with projections indicating that spending would not return to 2014 levels even by 2033 (Figure 4).

This economic pressure forced companies to innovate and reduce costs, with a growing focus on technology. Although direct investment from oil and gas companies may have slowed, EnergyTech and CleanTech began to gain momentum, demonstrating the powerful influence of Alberta's resource economy on its emerging tech sector. Between 2012 and 2016, energy technology companies experienced 110% growth, representing 9% of all technology companies, while CleanTech companies grew by 57%, representing 8%. By 2018, these figures had risen to 10% and 11%, respectively (Figure 5).

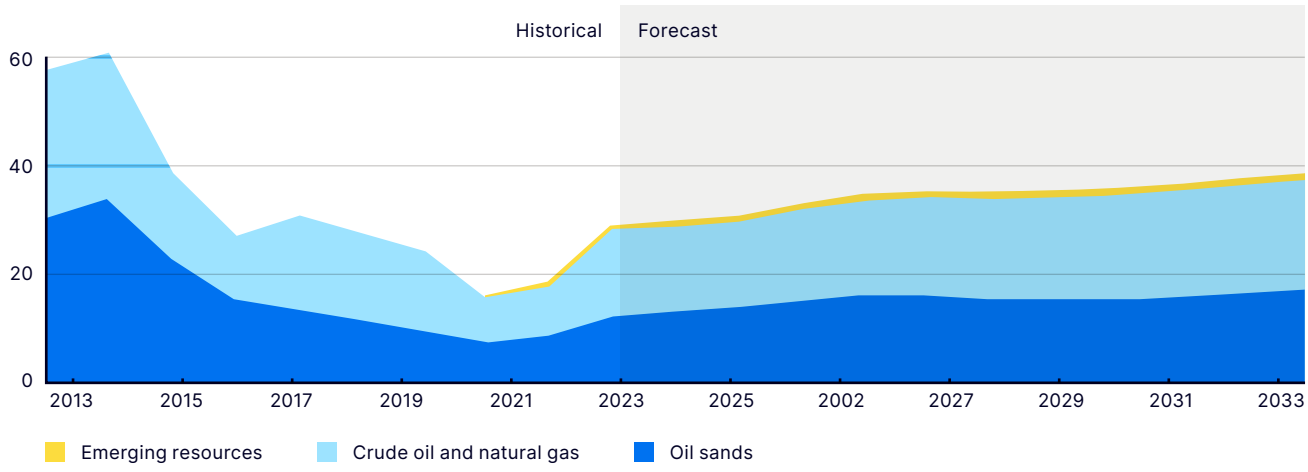
The Government of Alberta introduced a number of changes to corporate taxes in 2019, lowering the corporate tax rate while eliminating a number of tech-specific tax credits. It then brought in a new refundable tax credit called the Alberta Innovation Employment Grant.

Universities played a key role in fostering innovation during this period. The University of Calgary launched the Hunter Hub for Entrepreneurial Thinking in 2017. That same year, the federal government introduced the Pan-Canadian AI Strategy, the world's first national AI strategy. This strategy named Amii, supported by the University of Alberta, as one of three national AI centres tasked with unlocking and accelerating Canada's full AI potential. In 2019, Amii exemplified the potential for impactful collaboration between the resource industry and artificial intelligence, when it partnered with Imperial to enhance the company's in-house machine learning capabilities.

Figure 4

Alberta Oil and Gas, Oil Sands, and Emerging Resources Capital Expenditure

Capital expenditures (billions of Canadian dollars)



Oil sands, crude oil and natural gas historical values from CAPP. 2023 values are estimated.
Emerging resources include geothermal, hydrogen, helium, and lithium. Historical figures are estimated.

Source: Alberta Energy Regulator

The rise of venture capital

Through the Alberta Enterprise Corporation (AEC), the government became more involved in attracting venture capital.

AEC's investment portfolio grew significantly, from $79 million across eight companies in 2013 to $375 million across 30 companies by 2017, indicating a growing appetite for investment in Alberta's innovative companies. Notably, 11 AEC-backed ventures had already achieved profitable exits by 2017. A 2017 AEC report suggests that every $1 invested by AEC leveraged $4 for Alberta businesses.

While overall venture capital investment in Alberta experienced a dip between 2015 and 2018 (Figure 5), likely influenced by the economic downturn and uncertainty regarding the energy sector, the ICT sector remained a bright spot, attracting 80% of the province's venture capital funding. The turning point for venture capital investment in Alberta came in 2019, with a record-breaking $227 million across 39 deals. This led to Alberta having a higher average deal size compared to the Canadian average: $5.8 million vs. $5.6 million, signalling that Alberta was becoming a more attractive destination for venture capital, both domestically and internationally. This began a sustained period of record-breaking venture capital investment in the province.

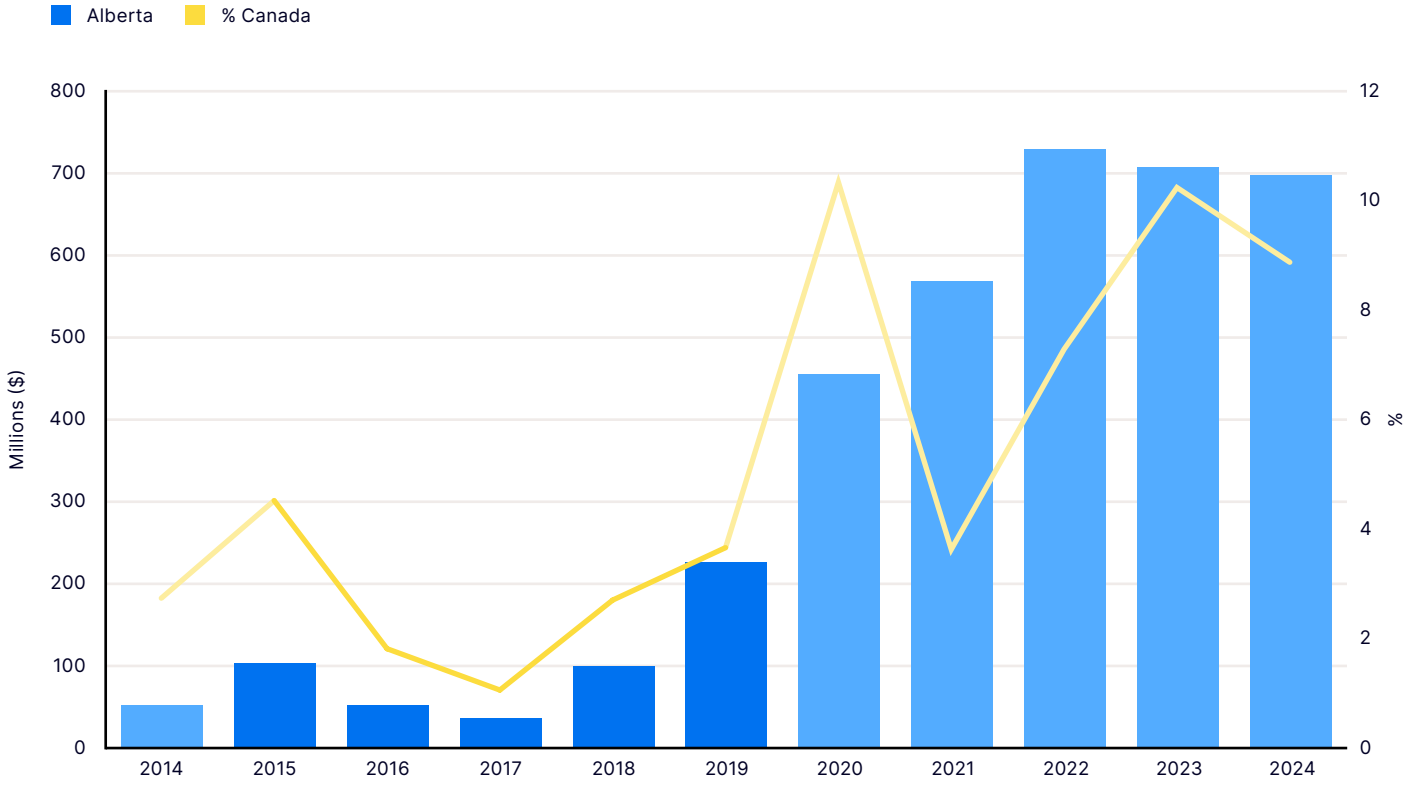
Economic indicators tell only part of the story. Experts emphasize the crucial role of entrepreneurial spirit in driving innovation and growth. A study spanning 2015 to 2020 revealed that Alberta boasted a more dynamic business environment than the rest of Canada. New firms launched at a rate of 5.5% per year in Alberta, exceeding the national average of 4.9% (Figure 6). Similarly, Alberta's firm exit rate of 5.7% surpassed Canada's 4.9%. The higher entry and exit rates suggest a greater willingness to take risks, embrace both success and failure and constantly adapt—all hallmarks of a healthy entrepreneurial ecosystem.

Grant Sanden, President and CEO of GeologicAI, echoes this sentiment, highlighting Alberta's "can-do" spirit. "We're full of exploration and excitement," he says. "There's an innovative atmosphere here and a 'get stuff done' ideology that is infectious." This inherent drive to experiment, create and persevere fuels Alberta's evolving economic landscape.

Figure 5

Alberta Venture Capital Investment

$ million

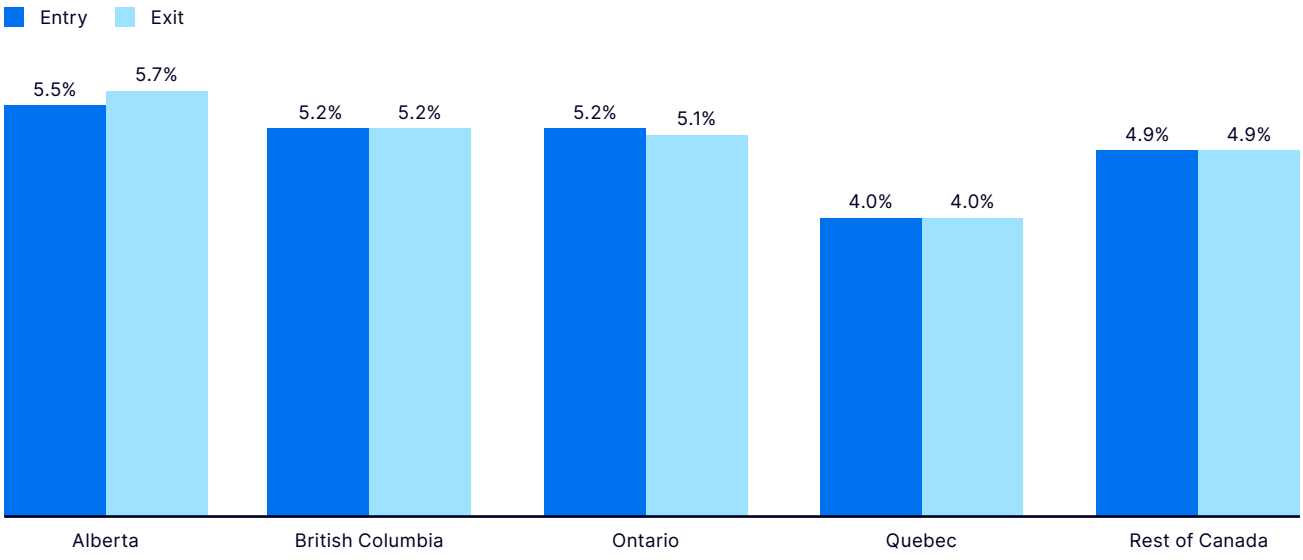


Source: Canadian Venture Capital and Private Equity Association, Market Reports and Intelligence Data, ATB Economics

Figure 6

Firm Entry and Exit Rates

By province, as a % of existing firms, 2015-2020 annual average



Statistics Canada Table 33-10-0270-01

Reskilling for a technology tomorrow

The sharp decline of Alberta's oil and gas sector ignited a crucial conversation: reskilling Albertans for the burgeoning technology sector. This conversation was timely, coinciding with a global surge in tech industry growth and Alberta's own nascent tech scene gaining momentum.

A 2018 study provided much-needed optimism, revealing a surprising degree of skills overlap between oil and gas roles and those in tech. This challenged the perception of a stark skills gap, highlighting the often-overlooked transferrable skills present in seemingly disparate industries. The study found the following skill alignments:

- Geoscientists to data analysts: almost 60% alignment
- Petroleum engineers to QA testers: over 50% alignment
- Engineering managers to project managers: around 50% alignment
- Electrical engineers to software developers: over 50% alignment

Furthermore, the study highlighted the transferable value of technical software proficiency (like MATLAB) common with engineers, which translates well to coding languages like Python. The study suggested that upskilling could be a viable and relatively quick solution, with transitions achievable within a year.

The EDGE UP pilot program, launched in 2019 by the Information and Communication Technology Council (ICTC) and Calgary Economic Development, provided concrete evidence to support this theory. This initiative, specifically designed to reskill former energy professionals, achieved remarkable success: over 70% of the 255 participants secured tech jobs or pursued further education within a year.

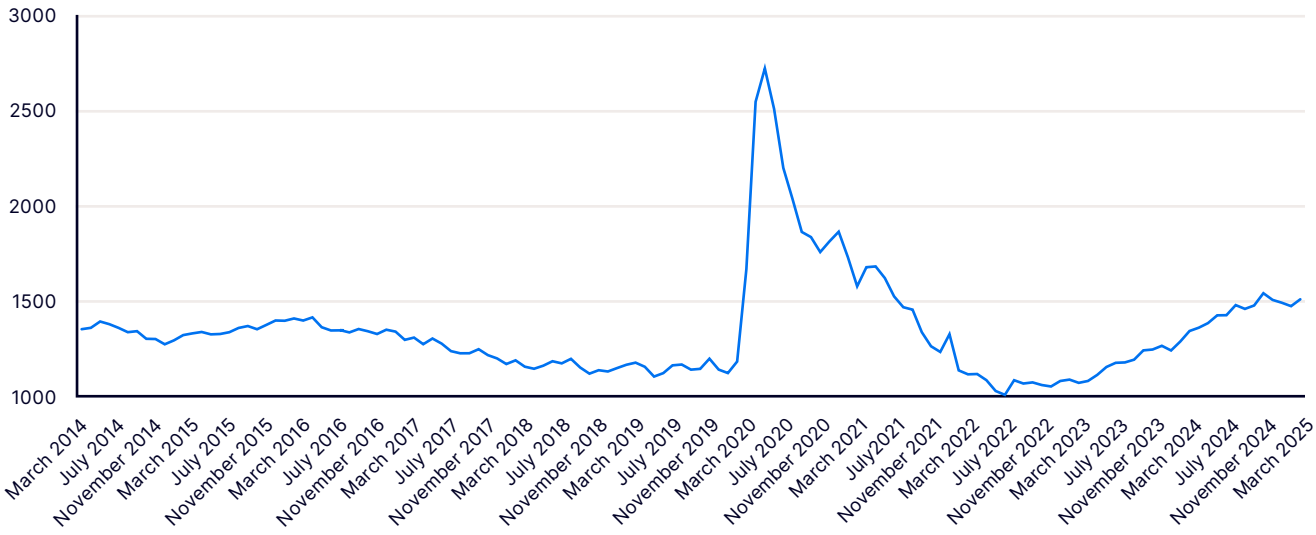
Coinciding with that success was a growing demand for tech talent in Alberta. ICTC research in 2019 projected a need for over 11,500 digital and technical professionals by 2023, representing nearly 5.5% of the province's total employment demand.

The financial incentive was also clear: the median annual salary for core digital occupations in Alberta in 2018 was nearly $83,000, a 55% premium over the average provincial wage.

Figure 7

Alberta Unemployment

Thousands



Source: Statistics Canada

Overall, this period demonstrates the need for reskilling in both the energy and technology sectors. With this in mind, pilot programs began with a focus on adapting to the evolving nature of work and equipping their workforce with the skills needed for the jobs of tomorrow.

Homegrown triumphs propel further support

Alberta's tech sector continued to demonstrate success between 2015 and 2019.

- Benevity secured significant funding, raising $38 million in funding in its 2015 Series A round and a further $40 million in its 2019 Series C round.
- Solium achieved unicorn status with its acquisition by Morgan Stanley for over $1 billion in 2019, marking the sixth largest FinTech deal in the Americas that year. Morgan Stanley subsequently rebranded Solium as Shareworks.
- AltaML, launched in 2018, quickly became a leader in applied AI, partnering with organizations across various sectors to deliver impactful solutions and advance responsible AI development.
- Neo Financial, established in 2019 by the founders of SkipTheDishes, went on to raise one of the largest Series A rounds in Western Canada the following year.

This era was also marked by the rise of entrepreneur-driven organizations. Rainforest Alberta, founded in 2015, aims to connect various players within the ecosystem, fostering a culture of trust and collaboration to fuel innovation and new ventures.

Launched in Calgary in 2018, InterGen provides local entrepreneurs with education, talent matching services, and networking opportunities. InterGen's commitment to Calgary's tech scene was solidified in 2019, when InterGen Capital, their scale-up venture capital fund, received a $1 million contribution from the Calgary Chamber of Commerce, bringing its total raised for its investment fund to $7 million.

This period also saw the launch of Platform Calgary, an organization dedicated to supporting startups from ideation to scale. By coordinating resources within Calgary's tech ecosystem, Platform Calgary has become a vital hub, supporting over 1,300 entrepreneurs annually and representing a network of more than 600 member tech companies.

Academic and government institutions further bolstered the entrepreneurial landscape. In 2016, Alberta Innovates was officially established, amalgamating four provincial corporations into one provincial corporation and two subsidiaries: C-FER Technologies and InnoTech Alberta. (Today, Alberta Innovates is the province's largest research and innovation organization.) Complementing this, the University of Calgary launched the Hunter Hub for Entrepreneurial Thinking in 2017, bridging the gap between research and commercialization.

This confluence of factors—a vibrant entrepreneurial spirit, growing organized support, and successful homegrown companies— was laying the groundwork needed for continuing support of the next generation of founders.

GEOLOGICAI

"Our mission at GeologicAI is simple: elevate mining to the efficient frontier," says Grant Sanden, President and CEO. Founded in 2013, the company delivers on this mission through a powerful combination of novel core-scanning technology, advanced machine vision and AI-powered analytics. This enables exploration companies to delve beneath the surface with unprecedented clarity, gathering data quickly and efficiently. The result? Reduced risk, optimized efficiency, improved emissions and accelerated execution for mining operations.

These days, this technology is critical. As the world embraces clean energy solutions, demand for minerals like lithium, cobalt and nickel has skyrocketed. According to the International Energy Agency, the demand for critical minerals doubled between 2017 and 2022.

GeologicAI, with its 200-strong team, is rising to the challenge. Its 2023 $30 million USD Series A funding round, led by Bill Gates's Breakthrough Energy Ventures and Export Development Canada, underscores its position at the forefront of this flourishing sector. And its impact is already being felt:

- **Greener mining:** At one of the world's largest mines, responsible for more CO2 emissions than the entire global transportation sector, GeologicAI's technology has achieved a 5.2% reduction in CO2 emissions.
- **Faster time to market:** "The average mine runs a 16.7-year cycle to mine a resource," Sanden explains. "GeologicAI is able to reduce that cycle by a year and a half." This accelerated timeline means critical metals reach the market faster.

"It's hard not to be excited about this," Sanden shares. "This idea that our technology creates efficiencies that could be the most impactful thing the globe does for carbon dioxide emission reduction is incredibly motivating."

The market is taking note. GeologicAI is projected to double its revenue in 2024. "We're getting put on the most important clients and their most important problems," says Sanden. This recognition is particularly significant given GeologicAI's Alberta roots. "I don't think that, traditionally, mining companies would have looked to Alberta for a solution for next-generation technology," reflects Michael Kelly, Director and Chairman of the Board. "That's completely changed in recent years."

Kelly attributes this newfound attention to a decade-long transformation within Alberta's tech sector. "Alberta has developed technical capabilities that are very strong, both academically and industry-wise."

Both Sanden and Kelly see immense potential for Alberta to become a leader in industrial efficiency and sustainability, particularly through collaboration between the maturing tech sector and the province's established oil and gas industry. "If we're running coal plants, we should be running the most efficient coal plants on Earth," Sanden suggests. "If we're running oilsands mining operations, they should be the most efficient mining operations on Earth. We should be flagships for the rest of the world."

So how can Alberta tech entrepreneurs achieve that flagship status? For Kelly, it boils down to talent: "Hire smart people, give them the best tools you can and get out of their way."

"You're not always going to be headed in the right direction," Sanden acknowledges. "But by taking a step, whether it's forward or sideways, it's still a step worth taking."

ALBERTA INNOVATES

Established in 2016 through the merger of four provincial organizations, Alberta Innovates is focused on catalyzing research and innovation, positioning the province as a regional and global leader.

“Our support for business is about more than grants,” explains Doug Holt, Former Associate Vice President of Capital Development. “We help people navigate the bigger community, connect with important players, guide and coach them to their full potential.”

Alberta Innovates offers programs and services to support tech businesses at every stage, including:

- **Non-dilutive grant funding:** Targeted funding programs across various verticals, including agriculture, health and life sciences, clean technology and emerging technology
- **Technology development advisors:** Expert mentorship, community connections and guidance on funding opportunities, leveraging a network of 132 member organizations through eight Regional Innovation Networks
- **Academic research support:** Bridges the gap between research and commercialization through subsidiaries like InnoTech Alberta and C-FER Technologies and partnerships with academic institutions
- **Workshops and courses:** Provide entrepreneurs with educational resources and skill development opportunities
- **Alberta Scaleup and Growth Accelerator Program (Scaleup GAP):** A collaborative program with local and international accelerators, offering tailored support to businesses at all stages of growth

Between 2016 and 2023, the organization reported the following impacts:

- Invested $98 million in over 1,200 projects across 45 programs, reaching 615 Alberta-based companies.
- Helped create over 4,500 jobs, with 91% being full-time positions.
- Enabled companies to attract nearly $35 in private investment and generate $9 in revenue for every $1 of funding received.

Alberta Innovates reports the following impacts for Scaleup GAP:

- 575 companies, including over 400 from Alberta, have participated in the program’s five accelerators
- Over $320 million raised in capital investment
- 249 new jobs created
- $58 million generated in company revenue growth
- $22.2 million contributed to provincial GDP
- $28 million in export sales created
- 146 global companies introduced to Alberta

Despite these achievements, Alberta Innovates acknowledges the challenging nature of startups. “Only half of startups survive past the five-year mark, and just 0.1% of small firms become even mid-sized, and only 2% of mid-sized companies become large,” says Holt. To address this, the organization is focused on initiatives like Scaleup GAP and its annual Inventures conference, while advocating for increased angel investment, greater recognition of Alberta’s successes and more experienced tech entrepreneurs joining the mentorship ecosystem.

Holt is optimistic. “We can continue to focus on creating the environment where businesses want to stay and grow,” he says. “We want to help companies scale and become unicorns based right here in Alberta.”

BEYOND THE STEREOTYPE: ALBERTA'S TECH ECOSYSTEM BLOSSOMS (2020 TO PRESENT)

Introduction

Unlike the 2015 recession, the recovery from COVID saw a swift rebound in resource sector employment, along with rapid growth in the tech sector.

By 2024, Alberta propelled ahead of British Columbia in venture capital funding for the first time, while also fostering the growth of alternative funding sources.

However, like much of the world, Alberta faces a tech talent shortage. Helping address this gap wered record inflows of migrants of t from other countries and provinces, many drawn by the province's affordability and homeownership opportunities.

Beyond attracting talent, Alberta is cultivating a robust support network for local companies. International entrepreneurial programs like Plug and Play and Alchemist Accelerator provide global access to resources and connect Alberta's ecosystem to the world. Homegrown initiatives like The A100 have expanded outside provincial borders.

Alberta is getting recognition for its intentional and successful approach to growing the technology industry. Through strategic government initiatives, an expanding talent pool and a supportive ecosystem, the province is emerging as a tech force to be reckoned with.

The rise of xTech

THE TURNING POINT

The downturn in 2015-16 forced the energy sector, and those in related industries, to adopt quickly. Companies embraced automation and technological integration to streamline operations and enhance efficiency. This resulted in greater productivity but also a reduced reliance on traditional employment models.

AMPLIFICATION OF ENERGYTECH AND CLEANTECH

Thanks to the expertise of Alberta's workforce, the energy industry continues to be a key driver of technology within the province.

Many of the province's most promising tech companies have roots in the energy sector, leveraging their expertise to develop cutting-edge CleanTech solutions:

- E3 Lithium is pioneering Direct Lithium Extraction technology to produce high-purity, battery-grade lithium products.
- Eavor Technologies is harnessing geothermal energy using existing oil and gas drilling technology.
- Qube Technologies is leading the way in real-time emissions monitoring for the oil and gas sector, with its technology being the first in North America to receive regulatory approval for continuous methane emissions monitoring.
- GeologicAI is increasing efficiency of some of the world's largest mines through its improved core-scanning technology.

By 2023, CleanTech represented almost 10% of Alberta tech companies, solidifying its position as the third-highest subsector. This growth has been propelled by government initiatives like the Digital Innovation in Clean Energy (DICE) program through Alberta Innovates, which supports the commercialization of energy-related technologies. DICE has already invested $6.1 million, which was leveraged 3.3 times for a total project value of $26.2 million.

ACADEMIA FUELLING THE TRANSFORMATION

Alberta's robust higher education system is also playing a pivotal role in this transformation. The University of Alberta and the University of Calgary, both ranked among Canada's top 10 research institutions, are producing a highly skilled workforce and driving groundbreaking discoveries.

The University of Calgary's ambitious University Innovation Quarter (UIQ) project is a testament to the province's commitment to fostering a thriving tech ecosystem. This 76-acre hub is designed to be a melting pot where researchers, startups and established companies converge and collaborate, accelerating the commercialization of ideas and stimulating economic growth. UIQ's 2024 partnership with the Global Institute on Innovation Districts further strengthens its reach and impact, connecting it with a network of leading innovation districts around the world.

DIVERSIFICATION THROUGH XTECH

As seen throughout this report, there are many varieties of "tech": CleanTech, EnergyTech, HealthTech, FinTech and AgriTech, for example. Collectively, these are referred to as xTech. These labels indicate technology's pervasive reach, both across and within sectors. As Gail Powley, President of Technology Alberta, notes, "Technology functions both vertically and horizontally. Vertical technology refers to specialized applications within a specific industry, such as energy, agriculture or life sciences. In contrast, horizontal technology transcends industry boundaries, offering applications across various sectors."

In this period, Alberta has built off the EnergyTech vertical and the horizontal focus driven by academic research institutions in technologies such as artificial intelligence. As a result of its efforts, the province has begun to see both targeted support for and the formation of technology companies in new verticals, including AgriTech, HealthTech and AerospaceTech.

All this xTech activity is changing the narrative that Alberta is a one-industry province. "Being in Alberta, you might assume we are energy-dominated," says Cam Linke, CEO of Amii. "It certainly isn't that way." In fact, the Fraser Institute ranked Alberta as the fourth most diversified provincial economy in 2020, with the most diversified employment in the country. Alberta Innovates notes that a staggering 82% of the over 4,500 jobs created through its funding of 615 companies between 2016 and 2023 were outside the energy sector.

Strong investment fuels tech growth

PROVINCIAL AND MUNICIPAL INVESTMENTS INTO TECHNOLOGY

Recognizing the immense potential of its tech sector, the Alberta government launched two programs since 2020, Invest Alberta and the Alberta Technology and Innovation Strategy (ATIS).

In an effort to continue to attract investment, Invest Alberta was founded in 2020. The organization is dedicated to promoting, identifying and pursuing high-value investment opportunities. To date, Invest Alberta has facilitated nearly $20 billion in investment, supporting over 23,000 jobs.

Launched in 2022, ATIS aims to establish Alberta as an internationally recognized technology and innovation hub, with goals of creating 20,000 jobs and generating an additional $5 billion in annual revenue by 2030. This strategy has already created millions of dollars in focused efforts on expanding the Alberta technology ecosystem and has seen success through increased investments, international partnerships and the opening of global firms in Alberta. Find out more about this in ATIS's impact.

On a municipal level, in 2018, the City of Calgary launched the Opportunity Calgary Investment Fund (OCIF) with the goal of diversifying the local economy. As of July 2024, the fund has yielded over $900 million in economic activity, showcasing a 10x return on funding committed.

"This fund has done a lot to attract technology companies to Calgary," says Gail Powley, President of Technology Alberta.

RECORD-BREAKING VENTURE CAPITAL INVESTMENT

While Canada as a whole saw a 51% decline in venture capital investment between 2021 and 2023, Alberta bucked the trend, hitting $707 million in 2023, a 26% increase from 2021. In the first half of 2024, for the first time ever, Alberta raised more venture capital than British Columbia, placing it behind only Ontario and Quebec.

"Over the past three years, Alberta has generally outpaced both national and US venture capital growth," says Martin Toner, Managing Director, Institutional Research, Growth and Innovation at ATB Capital Markets. "We've also witnessed a significant increase in the number of Alberta companies successfully raising funds."

Cory Janssen, CEO and Co-Founder of AltaML, agrees. "Alberta boasted the largest per capita investment in Canada.... We've seen strong signs of great momentum in Alberta's tech sector over the last five years, and we continue to build on that momentum."

Alberta's tech sector is attracting increasingly specialized funding, with a growing focus on specific verticals. In 2024, HaloHealth, a Toronto-based angel investment firm specializing in HealthTech, received over $250,000 to establish an Alberta office. The firm, known for its investments in companies like Clinify, Felix and Wisedocs, offers tailored investment and advisory services to HealthTech startups. This move underscores not just the province's burgeoning HealthTech sector but HaloHealth's commitment to supporting its growth.

This success is partly attributed to the trailblazing efforts of earlier Alberta tech companies. "Capital is easier now," says Darcy Tuer, Co-Founder and CEO of ZayZoon. "Companies like Benevity and Solium Capital raised before us. They helped put the province on the map." Calgary is now home to five unicorns—companies valued at over $1 billion: Benevity, Solium Capital (now Shareworks by Morgan Stanley), RS Energy Group (now Enverus Intelligence Research Inc.), Parvus Therapeutics and Neo Financial. These success stories serve as powerful magnets for investors, demonstrating Alberta's potential for generating significant returns.

However, Toner cautions against relying solely on headline-grabbing figures. “Large funding rounds by a single company can easily skew the overall picture,” he explains. For example, Jobber’s $100 million USD Series D round in 2023 accounted for nearly 19% of Alberta’s total venture capital investment that year. In the first half of 2024, Calgary’s ClearSky Global raised $230 million, accounting for 60% of the funding during that time frame.

Jordan Pinkster, Former External Relations and Communications Officer at Platform Calgary, echoes Toner. “Alberta’s overall deal volume compared to more established markets such as Toronto and Silicon Valley is still pennies on the dollar. We’re doing amazing, but this is a long game.” Nevertheless, Janssen points to the total number of deals as a more accurate indicator of growth. “Alberta experienced a 2.5% year-over-year increase in the number of deals—a stark contrast to the declines seen in the rest of Canada and the U.S.”

THE RISE OF ALTERNATIVE FUNDING

A vibrant ecosystem of alternative funding is also taking root in Alberta. Angel investor Jade Alberts has witnessed this shift since 2015. “We’re seeing a significant evolution in non-venture capital funding.” He highlights two key developments:

Local angel investors and funds

“While still early, local angels and funds are injecting significant capital into Alberta companies, and their investments are steadily increasing,” Alberts notes. This trend offers a crucial advantage beyond capital: mentorship. “Founders gain access to advice and guidance from experienced local entrepreneurs who have navigated similar challenges.” Grant Sanden, President and CEO of GeologicAI, agrees. “We have a unique group of community members who are giving back and who are passionate about supporting businesses like ours to grow.”

Toner highlights that this offers a significant advantage for the province. “Alberta boasts a particularly active family office and angel investor community that seems willing to make swift investment decisions.” This streamlined approach stands in stark contrast to other ecosystems.

“It is common to do 5 to 10 meetings with one angel investor just to secure a $100,000 cheque. That’s incredibly draining when you need to engage with 30 different investors to close a deal,” says Toner. “To be in a geography with an entrepreneurial, decision-oriented group of angel investors, I believe, is helpful.”

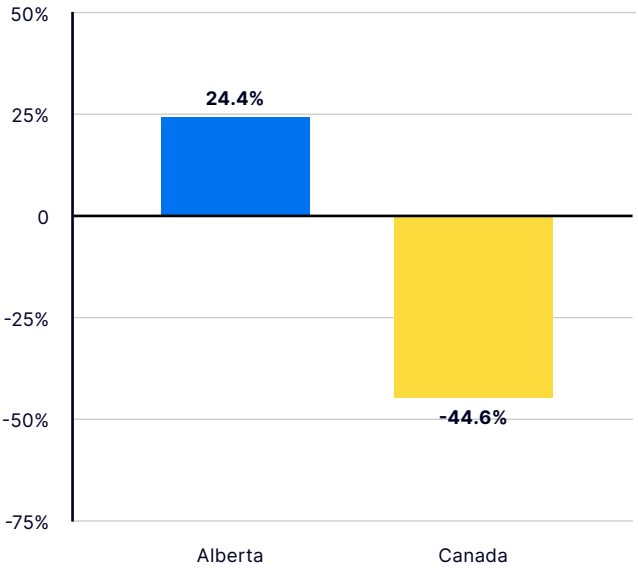
Increased availability of non-dilutive funding

Organizations like Alberta Innovates are playing a vital role by providing non-dilutive funding options, such as grants. “This allows companies to invest more freely in product development, R&D and overall growth without sacrificing equity,” Alberts explains. Furthermore, these organizations are supporting accelerators like Global 500, Plug and Play and SVG Thrive, expanding their reach and connecting Alberta startups with valuable global networks.

Figure 8

Venture Capital Investment

% change, 2024 vs 2021



Canadian Venture Capital and Private Equity Association (CVCA)

This shift toward diversified funding models signifies a maturing tech ecosystem. By embracing both traditional and alternative funding avenues, Alberta is creating a more supportive and sustainable environment for its startups to thrive on the world stage.

Federal funding is also giving a boost to Alberta tech and supporting organizations. As of October 2024, PrairiesCan has invested over $21 million in AgriTech and CleanTech initiatives within the province.

Alberta's tech talent magnet

A CONCERTED EFFORT TO CULTIVATE HOMEGROWN SKILLS

Securing access to a skilled tech workforce has been a top priority for Alberta. A 2021 estimate projected a demand for an additional 250,000 jobs in the Canadian digital economy by the end of 2025. Chelsea Hallick, Director of Business Development at Calgary Economic Development, recalls, "Even back in 2017, ensuring we had the necessary skills in the province for the tech sector was our biggest challenge."

Since then, Alberta has witnessed substantial investments in skilling and reskilling initiatives from post-secondary institutions, upskilling agencies and the provincial government. Upskilling programs have made a significant impact. For instance, EDGE UP has trained over 320 professionals displaced from the resource industry.

ALBERTA TOP-RATED FOR TECH TALENT

These efforts have yielded impressive results. Calgary placed 20th and Edmonton 49th on the CBRE Tech Talent 2024 Scorecard for North America, highlighting Alberta's growing appeal to tech professionals.

Other metrics from CBRE's *Scoring Tech Talent 2024 Report* highlight both cities' success in the tech market.

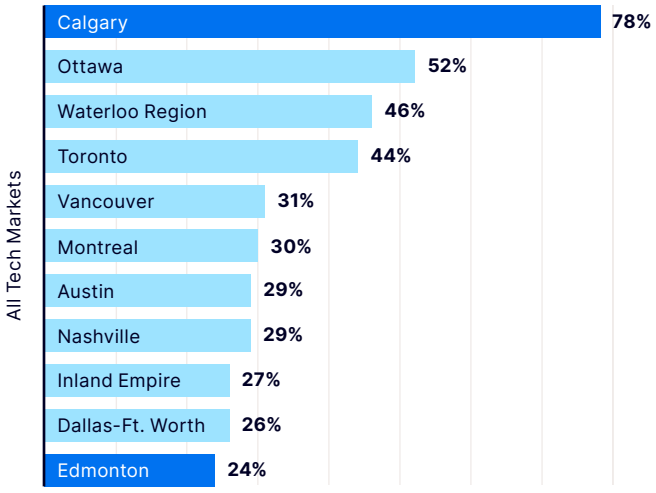
CALGARY: A LARGE TECH TALENT MARKET ON THE RISE

- Calgary boasts nearly 60,000 tech professionals, making it a "large tech talent market."
- Between 2018 and 2023, Calgary had the highest job growth rate (78%) among all cities analyzed (Figure 9).
- Despite a surge in tech-related degrees, Calgary still faces a talent shortage, ranking in the top three for cities that created more jobs than tech graduates.
- The city ranks 6th in North America for the concentration of software engineers working in technology (65%), exceeding the Canadian average (58%).
- Calgary is the second most diverse large tech market in Alberta.
- Calgary has seen a five-year average wage growth of 7.7%, reaching an annual salary of almost $105,000.

Figure 9

Technology Job Growth Rate

% change, 2018-2023

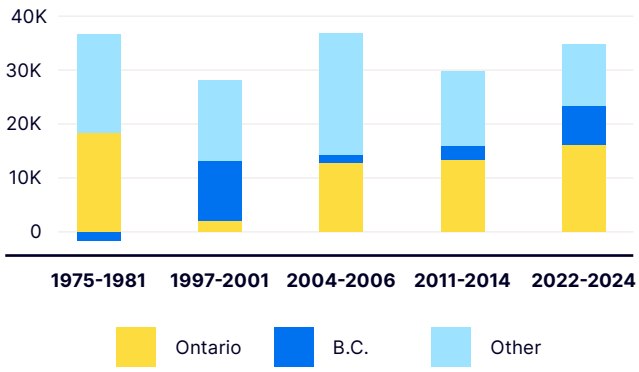


Source: CBRE

Figure 10

Periods of High Net Interprovincial Migration to Alberta*

Annual Average



*Consecutive years with greater than 20,000 of net interprovincial migration
Source: Statistics Canada Table 17-10-0020-01 and ATB Economics

EDMONTON: A SMALL TECH SECTOR WITH BIG POTENTIAL

- Edmonton, with over 33,000 tech workers, is classified as a "small tech sector."
- The city has seen nearly a 25% growth in tech positions over a five-year period.
- Edmonton has seen significant increases in computer engineering and other tech-related degree completions.
- The city ranks 12th among small tech sectors for its concentration of software engineers working in technology, aligning almost exactly to the Canadian average (58%).
- Edmonton boasts a five-year average wage growth of 12.7%, with an annual salary of almost $94,000.

Calgary's ranking as having the highest job growth rate for large tech talent markets in North America shows the impressive traction the province has had with technology in the last five years. However, the high ranking of the city for creating more jobs than tech degrees indicates that the employment gap is still creating challenges that need to be met.

Across Alberta, companies face this same challenge. For instance, angel investor Jade Alberts points to a shortage of highly experienced tech professionals, while Gail Powley, President of Technology Alberta, identifies a lack of sales talent. Liz Elliott, Career Product Market Leader of Western Canada at Mercer, concurs: "We consistently hear from tech companies that Alberta, like many regions, isn't producing technical skills at the pace required to meet demand."

This, Elliott emphasizes, is a worldwide issue, not specific to Alberta. "Tech talent is in global demand, and many graduates are attracted to opportunities in other regions." Hallick echoes the sentiment: "No mid to senior levels of tech talent are sitting on the sidelines."

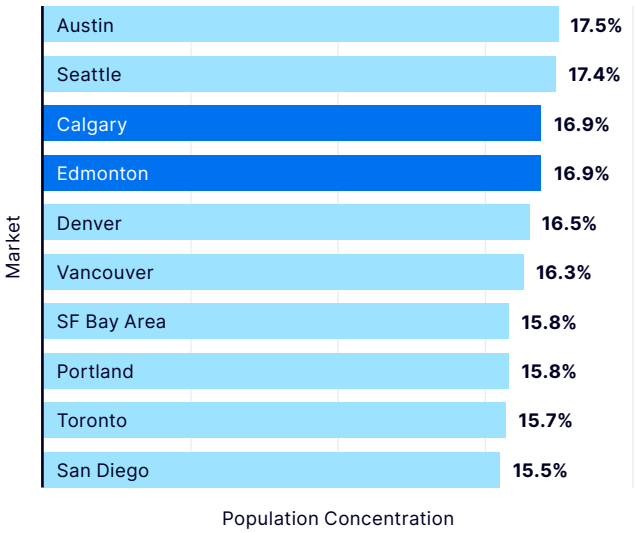
NAVIGATING ONGOING SKILL CHALLENGES

With a global tech talent shortage, Elliott advocates for innovative hiring practices. "Think of hiring the first astronauts. How did they find them? They sought out highly skilled pilots." By recognizing and upskilling individuals with adjacent skills, Alberta can strengthen its tech workforce.

Figure 11

Population Concentration

% share of residents in their 30s vs total population, by top 10 markets, 2022



Source: CBRE

Emerging solutions are helping to fill that void. In particular, both Alberts and Powley point to platform-based approaches that connect companies with specific skillsets. Alberta Innovates, for example, offers a platform for fractional C-suite expertise, while Technology Alberta's platform provides guidance on recruitment for startups.

ATTRACTING TALENT: A MULTIFACETED VALUE PROPOSITION

With the province's compelling combination of affordability, high quality of life and a thriving tech ecosystem, it's attracting tech professionals from other regions.

Alberta gained more than 78,000 people through interprovincial migration in 2023 and 2024, many of whom were young professionals seeking affordable housing and career opportunities in tech (Figure 12). This recent wave differs from previous energy-boom-driven trends, with housing affordability and the rise of remote work playing significant roles. The affordability factor alone could have a lasting impact on Alberta's tech workforce. But there's more to it than economic considerations. As Hallick says, "Being a city known for its high quality of life helps attract and retain top talent from other regions."

This influx of young talent aligns perfectly with the tech industry's demographics. CBRE research into North American tech talent found that Edmonton and Calgary tied for the third highest concentrated market for residents in their 30s.

Will they stay? While the commitment to home ownership is a strong signal of intentions to stay, Alberta boasts several advantages that encourage long-term residency. "We have so much to offer—the mountains, the entrepreneurial climate, the tax environment," says Powley. "Alberta has a good track record of retaining people after the oil and gas boom."

THE ARTIFICIAL INTELLIGENCE APPEAL

Amii provides a compelling example of tech talent retention. Respected for its leading-edge research, business advisory services and industry upskilling in AI and ML, Amii enjoys high demand for its programs. Securing a spot at Amii is highly competitive—at one point, only 4% of applicants were accepted. The institute's success goes beyond attracting top talent: it excels in retaining that talent within Alberta. "We are training the top people in the world in AI and keeping them in the region," says CEO Cam Linke. "Amii is one of the best recruitment tactics for the province."

While challenges remain, Alberta's tech sector demonstrates strong employment and compensation figures, driven by a concerted effort to address the skills gap. By continuing to invest in developing talent, fostering innovation and attracting global talent—as exemplified by Amii—Alberta is well-positioned to solidify its place as a thriving tech hub.

Alberta's tech mentors go national

THE COLLABORATIVE POWERHOUSE OF THE ALBERTA TECH ECOSYSTEM

Alberta's tech ecosystem experienced another turning point in 2021. This is when the province strategically attracted key players, bridging the gap between local startups and the international stage and ushering in an era of unprecedented connectivity and collaboration.

A prime example is the coordinated investment in the Alberta Innovates Scaleup and Growth Accelerator Program (Scaleup GAP), designed to help Alberta businesses scale and attract international investment. This program received funding from federal, provincial and municipal programming and brought in Silicon Valley giants such as Plug and Play and Alchemist Accelerator. These accelerators injected instant credibility and

global reach into Alberta's tech scene. With their vast networks and expertise, these renowned organizations opened doors and created invaluable opportunities for Alberta startups.

This multipronged strategy recognized the diverse expertise each accelerator brings to different industries and stages of development. As Gail Powley, President of Technology Alberta, emphasizes, "It wasn't about bringing an accelerator to the province, it was about bringing multiple accelerators."

What truly sets Alberta apart is the unprecedented level of collaboration. Federal, provincial and municipal programs have converged with private funding to create a particularly supportive ecosystem. Angel investor Jade Alberts observes, "Alberta is unique across North America…Nowhere else has the cross-collaboration we see in this province." Grant Sanden, CEO and President of GeologicAI, reflects a similar thought. "There's a huge structural advantage to being from Alberta. Alberta is relatively efficient at its innovation deployments, and it's quite straightforward compared to the rest of the country."

SCALING UP SUPPORT

Alberta's support network has evolved beyond its initial reliance on self-organizing entrepreneurs. These individuals, now seasoned experts, are extending their reach into other provinces. The A100's expansion in 2023 to include members from Saskatchewan and British Columbia demonstrates Alberta's leadership in the tech ecosystem.

Alberta Innovates has also noticed a distinct increase in demand for its coaching services. "Our Technology Development Advisors worked with over 1,400 clients in our last fiscal year, compared to 780 two years prior," says Doug Holt, Former Associate Vice President, Capital Development.

In 2022, Platform Calgary opened the Platform Innovation Centre, a purpose-built facility in the heart of Calgary's East Village. Inspired by the success of international tech hubs, the Centre, funded by all three levels of government and private contributions, aims to be the province's premier destination for innovation and technology. "The Platform Innovation Centre is Calgary's home for innovators," says Jordan Pinkster, Former External Relations and Communications Officer at Platform Calgary. "We support entrepreneurs by connecting them with the resources they need to build incredible companies that will boost productivity, create economic opportunities and tackle major global challenges. For innovators and entrepreneurs, the future is limitless here in Calgary."

In 2024, Calgary-based InterGen, a multifaceted organization dedicated to propelling Alberta's tech sector forward, secured $1.3 million in federal funding. This injection of capital will empower InterGen to expand its suite of services, which include a scale-up fund, a talent matching program and educational initiatives, all aimed at fostering the growth and success of Alberta's tech companies. InterGen has invested in several technology companies, including ZayZoon, Athennian and StellarAlgo.

GEOGRAPHIC TECH HUBS

In addition to institutions like Amii and University Innovation Quarter, other hubs are contributing to Alberta's innovation ecosystem. The Edmonton Research Park (ERP), for example, fosters partnerships between 55 companies and post-secondary institutions, resulting in 62% of ERP companies engaging in university collaborations. Furthermore, the global reach of 86% of these companies highlights the potential for Alberta-based innovation to impact the world.

Innovation isn't confined to major cities. Innovate Cochrane showcases how a smaller community can foster its own tech hub. Cochrane's appeal lies in its proximity to the Rocky Mountains and access to the University of Calgary. As Shane Pegg, Director of Innovate Cochrane, observes, "There's a small tech hotbed in Cochrane. There are lots of successful businesses in the community that are growing."

This collaborative spirit, combined with a dedication to R&D and a willingness to embrace new technologies, positions Alberta at the forefront of technological advancements. Rajesh Jaiswal, Executive Director of the Northern Alberta Business Incubator, captures the optimism: "We have all the right elements for success. We have the opportunity, the resources and the talent. There's no shortage of potential here."

ZayZoon stands as a testament to the power of innovation and social impact. Founded in Calgary in 2014, this earned wage access (EWA) platform is on a mission to minimize financial stress and empower employees with financial flexibility. Its mission is more than just words: "Our goal of saving 10 million employees $10 billion is referenced daily," says Co-Founder and CEO Darcy Tuer, highlighting the company's commitment to customer-centricity and meaningful change.

Tuer paints a bleak picture of the problem ZayZoon tackles: "Someone is driving home from work and they have to decide whether they put food on the table tonight or put fuel in their car. Millions of people are suffering with that challenge." This reality inspired ZayZoon's mission to provide a lifeline for individuals caught in a cycle of debt and financial instability.

ZayZoon's platform integrates with company payroll systems, allowing employees to access a portion of their earned wages before payday. This alleviates the stress of unexpected expenses and reduces reliance on payday loans and other predatory lending practices. The results speak for themselves: 89% of workers using ZayZoon report reduced financial stress, while companies benefit from increased employee retention and reduced absenteeism, saving an average of $727 annually per employee.

Although Alberta-born and raised, ZayZoon launched in the United States and is only expanding its services to Canada recently. Despite this, ZayZoon remains committed to its Calgary connection and has no plans to relocate. "It would have been a lot easier if we just moved to the US," admits Tuer. "However, our roots were here. We wanted to benefit Calgary's economy, and we decided to go for it."

This dedication to its hometown speaks volumes about ZayZoon's belief in Calgary's tech ecosystem.

And the company is going big. Between 2020 and 2024, it experienced phenomenal growth, achieving a compound annual growth rate of 160%. Even more telling is its exceptional customer net promoter score of 82, a clear indication it is making a difference in its users' lives.

Reflecting on his 20-year journey in Calgary's startup ecosystem, Tuer has seen an incredible evolution. As a tech startup in Alberta during the mid-2010s, there was no shortage of challenges, particularly when it came to securing capital. However, he points to a positive shift in recent years, crediting local success stories like Benevity and Solium for paving the way and attracting investor attention.

Probably the most significant evolution has to do with the ecosystem itself. "There was no ecosystem here in the year 2000," he states. "When it did develop, it was very fragmented." Today, he sees a more cohesive and supportive environment but emphasizes the need for resources tailored to the unique challenges of scaling companies like ZayZoon. "Founders need very specialized support on the stage of their business. It's like school. You need different curriculums, assignments, homework and skills between elementary school, junior high school and high school," he says. "We need new resources for our stage of scaling that aren't as easy to find in Alberta."

Tuer's advice to aspiring entrepreneurs reflects his own experience and ZayZoon's values: Stay actively involved in the community, maintain a long-term vision and never underestimate the power of pursuing meaningful work. "If I can do it," he affirms, "then there are a lot of people that can do this in our own backyard."

PLATFORM calgary

Platform Calgary has established itself as the hub for entrepreneurial resources within the city, bringing together a network of partner organizations to support entrepreneurs at every stage of their journey. “Our vision is to establish Calgary as the best place in the world to start and grow a tech business,” says Jordan Pinkster, Former External Relations and Communications Officer at Platform Calgary. The organization’s focus is simple: “Resources for founders have existed in Calgary for a long time, but they were not easy to navigate,” states Pinkster.

The nonprofit is designed to be the “front door” for Calgary’s entrepreneurial community, ensuring access to resources all live under one roof. In 2022, it realized that dream, literally, by opening the Platform Innovation Centre. “If you have an idea and don’t know where to start, walk through the front door, grab coffee and someone is here to help you,” encourages Pinkster.

Platform Calgary aims to surround entrepreneurs with the resources they need to be successful at every stage of their company. It does this by working with over 150 ecosystem partners, hosting large tech events such as Innovation Week and providing founders with access to coaches and mentors. Whether founders have questions as broad as how to start a business, or as narrow as how to structure a pitch deck, Platform Calgary can help. As Pinkster shares, the team at Platform Calgary views the founders as their customers. “If our initiatives aren’t improving outcomes for entrepreneurs, then we’re doing the wrong thing.”

Platform Calgary has seen a significant increase in its demand since its founding. “In 2018, we worked with between 100 to 200 founders,” says Pinkster. “We were wondering where we could get the next cohort.” Now, Platform Calgary aims to increase the number of founders it works with each year. In 2023, the organization worked with almost 1,100 founders, with “the demand exceeding all of our expectations.”

Those numbers have a tangible economic impact too. Pinkster points out that all large tech companies started somewhere. To land a single 100-person company, you may need to work with more than 100 startups. “What could that mean for our economy if we see the creation of 500 companies with 100 employees each?” he posits. “That takes time and more people with ideas coming through our doors.”

To continue serving founders as best it can, Platform Calgary knows it needs to constantly reinvent. “As we become more mature as an ecosystem, the tools, the tactics, the strategies all need to adapt to solve those problems,” shares Pinkster. In the near term, the organization is looking at two areas: improved access to scale-up capital and improved collaboration between local industry players and the tech community. “We’ve made tremendous strides over the last five years, we’ll make tremendous strides over the next five—but the game changes,” he says. “We can’t keep doing the same things and expect to continue that trajectory.”

Having already seen success from its early years working with smaller cohorts, Platform Calgary is excited to see the economic impacts of its efforts in higher-demand years, such as 2023. However, patience is key. “We’re not in the business of instant gratification,” says Pinkster. “The effort we put in today might not see an impact in the local economy for years.”

Ultimately, Platform Calgary is grateful for the founders it works with. “I’m in awe of these founders every single day. They take tremendous personal and financial risk, put their lives on hold to go all in on creating something amazing,” reflects Pinkster. “Being an entrepreneur is incredibly difficult. We’re here to remove inertia and get barriers out of the way.”

ATIS'S IMPACT

Like many entrepreneurs, Cory Janssen, CEO and Co-Founder of AltaML, is optimistic about the future of Alberta's tech sector, citing the government's commitment to the Alberta Technology and Innovation Strategy (ATIS) as a key driver.

He identifies how ATIS's ambitious strategy is backed by significant investments in key areas:

- **Artificial intelligence:** $37 million allocated by Alberta Innovates to the artificial intelligence and machine learning ecosystem, including $30 million for Amii
- **Major Innovation Fund:** $27.3 million contributed to Alberta universities in 2023 to support research and innovation
- **Innovation Catalyst Grant:** Up to $250,000 in fellowship and seed funding provided to recent science, technology, engineering and mathematics master's or PhD graduates pursuing entrepreneurial ventures
- **Investment and Growth Fund:** A deal-closing incentive program that attracted $319 million in investment and created 895 jobs in 2022 to 2023
- **Quantum City:** $23 million invested in the University of Calgary's initiative to drive quantum computing research and education

These strategic investments are already yielding tangible results, attracting both domestic and international players. Janssen highlights several recent examples:

- **April 2024:** QAI Ventures, a Swiss venture capital firm specializing in quantum tech innovation, partners with Quantum City at the University of Calgary to establish and fund an accelerator in Calgary.
- **March 2024:** Google Canada awards Amii $1.1 million in grant funding for its Autonomous Drinking Water project.
- **July 2023:** Teknol, a Silicon Valley-based startup, announces its expansion to Canada with a new office in Calgary, bringing $12.5 million in investment and 125 new jobs.
- **July 2023:** Ciba Health, a digital therapeutics and virtual care company, announces its expansion to Edmonton, with plans to create up to 40 new jobs in the next two years.
- **March 2023:** Terrestrial Energy, a Canadian nuclear technology company, announces an $18 million investment to develop a small modular reactor in Alberta.
- **February 2023:** Applexus Technologies, a global technology leader, opens a Calgary office, creating 125 jobs with support from Alberta's Investment and Growth Fund.
- **June 2022:** Mphasis, a global tech firm specializing in cognitive and cloud solutions, opens a Calgary office, with plans to create 1,000 jobs over two years.
- **September 2022:** Infosys, a tech giant, announces plans to bring 1,000 jobs to Calgary over the next three years.

Not only is the province's focus on innovation and targeted investments already paying dividends, but they are also giving new businesses the confidence to grow—and the tools to thrive—in Alberta.

WHAT'S NEXT FOR ALBERTA TECH?

Introduction

Alberta's decades-long investment in technology has established the province as a major player in the industry's future. Building on past successes, we anticipate Alberta will continue to capitalize on its strengths while addressing existing gaps.

Alberta is witnessing a diversification of its tech ecosystem overall. The province is driving the next generation of energy innovation through its thriving EnergyTech and CleanTech sectors while also demonstrating traction in AgriTech, FinTech, HealthTech and AerospaceTech.

RuralTech, technology companies based out of rural communities and small population centres, also presents a unique opportunity. With recent acquisitions of rural Alberta tech companies and the inherent connection between rural areas and AgriTech, the province can amplify its tech sector's economic impact by addressing the challenges faced by rural ventures.

As Alberta's tech ecosystem matures, we anticipate exponential growth in both the size and impact of the tech industry. This will lead to more companies starting and staying in the province, while enjoying a higher likelihood of success. The close-knit community, offering hands-on mentorship and easier access to seed capital compared to other regions, will continue to benefit Alberta's tech companies.

However, to ensure this growth continues at its maximum potential, several key challenges beyond the technology skills gap must be addressed:

- **Ecosystem navigation:** Alberta boasts a vast and diverse support ecosystem for tech companies, but its sheer size can make it difficult for entrepreneurs to find the right resources.
- **Funding gaps that limit scaling:** Despite record-breaking venture capital investment, concerns remain about specific funding ranges, particularly in the $5 million to $15 million bracket.
- **Mental health support:** The mental health of entrepreneurs is a critical concern. Research shows Canadian entrepreneurs are more likely to experience mental health challenges, often severe, and face barriers to seeking help due to financial and reputational concerns.

The ripple effect of EnergyTech

Alberta's deep roots in the oil and gas industry have undeniably shaped its prosperity. While this resource-based economy will remain a key driver in the future, a powerful narrative is emerging: Alberta is poised to leverage its core expertise in resouces to become a global tech powerhouse.

This isn't about a simple coexistence of oil and gas with tech—it's about active synergy. "The technical expertise in Alberta, the innovation, the science, the environmental stewardship and our world-class leadership in oil and gas—we can transpose that way of thinking to other industries," says Grant Sanden, CEO and President of GeologicAI. "If we have an oil and gas industry, we should be the region inventing the most sustainable, automated and efficient ways to get the work done."

Indeed, Alberta's oil and gas industry provides an advantage for all businesses, particularly in the tech sector. "We are very fortunate to have a strong resource-based economy backing our tech sector," says Chelsea Hallick, Director of Business Development at Calgary Economic Development. "We have no payroll tax, provincial sales tax, nor healthcare premiums. We have a combination of affordability created by the benefits of our energy industry, with top tech talent. It's a place to grow something special."

Alberta is already advancing innovation in energy production, storage and consumption. With a focus on renewable energy, smart grids, energy efficiency and battery technology, the province is leveraging its engineering talent and commitment to clean technology.

Home to over 900 CleanTech companies and boasting Canada's highest per capita engineer rate, Alberta ranks among the top 50 CleanTech ecosystems globally. It's also attracting investment that will help it shape the future of energy, such as the July 2024 $11.8 million federal commitment for hydrogen and small modular reactor projects.

One of the biggest challenges for emerging technologies is finding early adopters. This too is where the oil and gas industry can help. Gail Powley, President of Technology Alberta, sees a solution in the province's energy giants. "Emerging technologies don't always deliver immediate, flawless results," she explains. "We need companies willing to embrace early adoption, provide feedback and collaborate on refining these technologies." Larger companies with capital, like those in the energy sector, are ideal partners for startups. Powley believes energy companies are "a great first customer to technology," positioning the tech sector for rapid growth and mutually beneficial partnerships.

Alberta's diversifying tech

With local expertise in artificial intelligence and machine learning already proving to be a strength for the province, we believe the future of Alberta technology will span across all verticals. Here's a look at notable areas:

AGRITECH

Alberta is a key player in the booming AgriTech sector. With a focus on sustainability and efficiency, the province is attracting significant investment from venture capitalists eager to support its innovative AgriTech ventures. Dedicated funds like Carrot Ventures ($15 million) and The51 Food and AgTech General Partnership ($51 million), along with the arrival of Silicon Valley's SVG Ventures Thrive, demonstrate growing confidence in Alberta's potential as a leading hub for agricultural innovation.

FINTECH

FinTech is transforming the financial services landscape, and Alberta is establishing itself as a hub for success stories. The 2019 acquisition of Solium Capital (now Shareworks) by Morgan Stanley for over $1 billion, along with Neo Financial achieving unicorn status in just three years, highlights Alberta's fertile ground for FinTech innovation and its ability to foster companies that compete and thrive globally.

HEALTHTECH

Alberta is also fostering a growing ecosystem of HealthTech companies and initiatives. This growth is fuelled by noteworthy investments, such as the Government of Canada's $80.5 million contribution to the Canadian Critical Drug Initiative out of the University of Alberta. This initiative, aimed to accelerate the commercialization of new therapeutics, is a collaboration with Applied Pharmaceutical Innovation and Li Ka Shing Applied Virology Institute—home to Sir Michael Houghton, co-recipient of the 2020 Nobel Prize in medicine and co-discoverer of Hepatitis C. Other substantial investments are further confirming Alberta's position as a leader in healthcare innovation, such as Alberta Innovates' $4.25 million commitment to the IDEATEAlberta platform, which connects HealthTech founders to testers and validators.

AEROSPACETECH

Alberta is soaring to new heights in AerospaceTech, encompassing advancements in air and space travel, satellite technology and more. Home to over 500 aerospace and defense companies, Alberta boasts a strong sector, employing over 16,000 people. Strategic investments, like the $3.9 million from Opportunity Calgary Investment Fund into the Aerospace Innovation Hub, are fuelling Alberta's ambition to lead the future of aerospace. Within the next four years, the Aerospace Innovation Hub plans to incubate over 180 companies and create 150 new jobs.

Unlocking RuralTech's potential

Rural communities and small population centres are essential to Alberta's economy. In 2018, despite being home to only 18% of the province's population, rural centres represented 41% of public and private investment and 26% of the provincial GDP.

Clearly, the potential for growth in RuralTech is significant. Between early 2022 and mid-2023, there were 101 venture capital deals within the province, but only 3% occurred outside of Calgary and Edmonton. Despite the lack of venture capital funding, Alberta has its share of successful rural technology companies.

- Medicine Hat's Auto-Star, initially an automotive company, has pivoted to become a leading point-of-sale system for grocery and pharmacy businesses.
- EZ Ops, based in Valleyview, developed oil field management software and secured $1 million in funding from Alberta Innovates in 2021 before being acquired by Detechtion Technologies in 2024.
- Decisive Farming, a precision agriculture company founded in 2011 by a family-owned crop-input company in Beiseker, was acquired by TELUS in 2019.

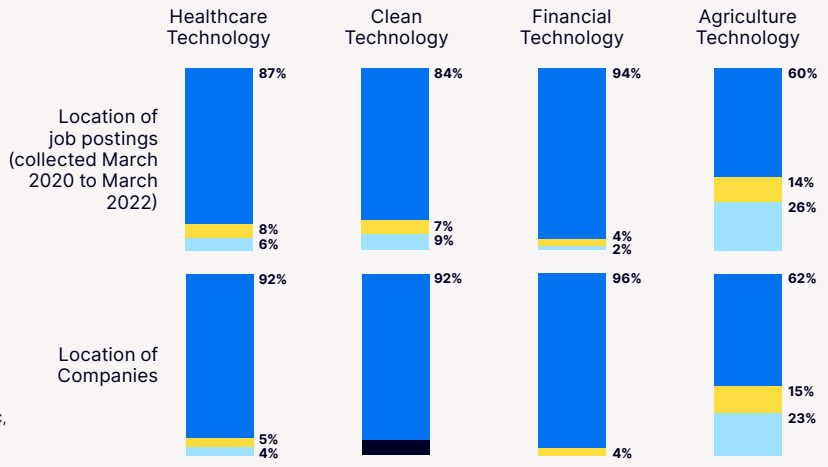
RuralTech companies are often closely tied to the region's dominant industries, creating jobs and contributing to the local economy. For example, between March 2020 and March 2022, small population centres (areas with populations between 10,000 and 29,999) represented over a quarter of agri-food job postings and just under a quarter of agri-food companies. This contrasts sharply with FinTech, where these same centres accounted for only 2% of job postings and none of the companies.

Remote workers who live in smaller towns can also play a big role in their communities. Shane Pegg of Innovate Cochrane shares an example: "We have a local man who works in AI consulting who does monthly AI sessions at Innovate Cochrane. He talks to business owners, large and small, about how to embrace AI and eases fear and uncertainty about it."

While rural technology holds immense promise for Alberta's economic growth, there are challenges. These include access to broadband infrastructure, the cost of transitioning to technology, aligning customers and partners with a more technology-driven experience and labour shortages. Mirroring the broader tech industry, rural technology companies say labour shortages are their biggest obstacle.

Figure 12

Location of Alberta's Technology Industries



Data Source: Cutean, A. et al., "A Resilient Recovery," ICTC, 2022, https://www.digitalthinktankictc.com/ictc-admin/resources/admin/ab-covid-report-final-6-30-22.pdf

Despite these challenges, the potential of RuralTech in Alberta is undeniable. By addressing these barriers and fostering a supportive ecosystem, the province can unlock the full potential of its rural communities and drive inclusive economic growth across all regions.

Retention and attraction of tech companies

Alberta's tech scene is not a fledgling industry—it's a robust ecosystem poised to amplify the success of homegrown businesses. Gone are the days when ambitious tech companies might have been tempted to leave the province. Today, Alberta offers the resources, capital and support network needed to build and scale world-class tech ventures right here at home.

"A decade ago, relocating out of province was almost a given for Alberta tech companies," recalls Gail Powley, President of Technology Alberta. "They had to follow the money." But the tide has turned. "I haven't heard of many companies leaving in about a decade," says angel investor Jade Alberts.

In fact, the flow is now reversing, argues Doug Holt, Former Associate Vice President of Capital Development at Alberta Innovates. "We're seeing companies actively choosing Alberta," he says. "They're drawn to the available resources, funding opportunities and talent pool. We even have companies adjusting their strategies to qualify for our funding programs—they want to be 'Alberta enough' to benefit from what we offer." This influx of companies signals a significant shift in the perception of Alberta's tech ecosystem, marking it as a burgeoning hub for innovation and growth.

This shift can be attributed to several factors already highlighted in this paper: increased access to capital within the province, stronger global connections fostered through accelerator programs and the rise of remote work opportunities. These factors create fertile ground for Alberta-grown tech companies to flourish. The province is no longer only a place to start a business—it's a place to build a legacy.

As the ecosystem continues to mature and attract investment, we're on the cusp of a new era for Alberta tech. This means:

- **More high-growth companies will choose to stay and scale in Alberta:** The "brain drain" of tech talent will reduce, creating a virtuous cycle of innovation and economic growth.
- **Alberta's economy will diversify:** The tech sector will emerge as a major economic driver, creating high-paying jobs and attracting new investment.
- **Alberta will become a tech hub:** The province's growing reputation for its unique strengths will attract more talent and investment from around the world.

"Calgary and Alberta are fast emerging as some of the best places in the world for anyone to start and grow a tech company," says Jordan Pinkster, Former External Relations and Communications Officer at Platform Calgary. The future of Alberta tech is bright, and it's being built by a new generation of entrepreneurs who are choosing to call Alberta home.

Hope for streamlined support

Alberta boasts a generous network of support for entrepreneurs, with programs funded at federal, provincial, municipal and private levels. However, this abundance presents its own challenge: navigating the complex web of available resources.

Rajesh Jaiswal, Executive Director of the Northern Alberta Business Incubator has witnessed a continuous cycle of support organizations launching, rebranding, merging

and even closing, creating confusion and fragmentation within the ecosystem. “Every time an organization changes,” he explains, “it loses valuable context within the community. They have to rebuild their network, and entrepreneurs simply don’t have the time to keep up.” This constant flux often leaves entrepreneurs unaware of the resources designed to help them.

Adding to the complexity is the often-limiting definition of a “technology company,” which can impact access to specific resources. “Technology innovation can actually be very narrow,” Jaiswal points out. “Airbnb was an early-stage example of the ‘technology industry’ but their innovation wasn’t in technology—it was in the business model.” This distinction, he argues, has real-world implications for Alberta’s ecosystem, influencing access to funding, investment, resources and networks. For example, Airbnb, despite being a tech success story, might not qualify for support specifically earmarked for technology businesses.

Jaiswal believes a simplified support system, in the form of a single, permanent organization, could have a profound lasting effect. Features of this organization would include:

- Delivers funds and services for federal, provincial and local governments, as well as international partners linked to Canadian institutions
- Offers such services and activities as grants and loans, events, business support, data and surveys and an opportunity hub
- Addresses urgent or ongoing business needs
- Provides most funding as no-interest and/or low-interest loans, similar to a student loan program
- Simplifies access for support and collecting outcomes through a unique ID for every business accessing support

Michael Kelly, Director and Chairman of the Board at GeologicAI, echoes the need for a more coordinated approach, drawing a parallel with Alberta’s success in the oil and gas sector. “We have the ability to be leaders in technology,” he states. “We’ve done it before.” The key difference, he notes, lies in the funding model. While past success relied on corporate investment, the new technology era demands a more collaborative approach. “I’d like to see a continued dialogue between provincial and federal governments to ensure policies are aligned to attract the best people and capital to drive these initiatives forward.”

Fortunately, innovative digital tools are emerging to help entrepreneurs navigate this landscape. Start Alberta, a comprehensive database of Alberta startups and funding sources, is one such example. Born from a partnership between The A100, Alberta Enterprise Corporation and the Venture Capital Association of Alberta, this tool empowers users to explore funding data, connect with startups and discover “Community Builders,” such as academic institutions, accelerators, government agencies, nonprofits and service providers. In 2024, Start Alberta received approximately $270,000 in federal funding to expand its services. Regional programs such as Platform Calgary are also simplifying the navigation of this ecosystem.

Ensuring funding reaches all corners

Alberta’s venture capital scene has witnessed an undeniable surge in the last five years, but some experts caution that the benefits haven’t reached all corners of the entrepreneurial ecosystem. They emphasize the critical need for a more inclusive approach that supports businesses of all sizes.

“We’ve become fixated on building the next big company,” observes angel investor Jade Alberts, highlighting a potential blind spot in the current strategy. “But we need to remember the businesses that form the backbone of our

economy—those with the potential to reach $2 to $5 million in revenue and employ 5 to 20 people." These companies, often deemed too small to attract significant investment, are nonetheless vital for job creation and economic stability.

Alberts acknowledges the challenges these businesses face in securing funding. "Banks and traditional investors shy away," he explains. "But we need to find creative solutions to bridge this gap. Their success is ultimately our success." He suggests a shift in focus for early-stage companies, encouraging them to prioritize product development and organic growth over chasing venture capital. "Build a solid business, and the investment will follow."

Martin Toner, Managing Director of Institutional Research, Growth and Innovation at ATB Capital Markets, pinpoints another potential funding gap, in the $5 million to $15 million range. "Everyone struggles with that first or second round of funding," he notes. "It's a make-or-break stage, and navigating it successfully is a testament to a company's potential."

While angel investors and early-stage venture capitalists are increasingly recognizing Alberta's potential, larger firms tend to focus on later-stage deals exceeding $20 million. This creates a critical funding gap for companies poised for significant growth. Jordan Pinkster, Former External Relations and Communications Officer at Platform Calgary, agrees. "Access to scale-up capital is a huge challenge right now. Founders are wondering where they will find the investor to take them to profitability."

To truly unlock Alberta's full economic potential, a more inclusive approach to funding is essential. This means:

- **Continuing to expand funding options for smaller businesses:** Exploring alternative financing models, such as revenue-based financing or microloans, can provide crucial capital for early-stage growth.
- **Encouraging more investment in the $5 million to $15 million range:** Attracting local investors and venture capital firms that specialize in this critical growth stage can help bridge the funding gap and fuel the expansion of promising companies.
- **Ensure focus spans beyond just unicorns:** Recognizing and supporting businesses that contribute to a diverse and resilient economy, even if they aren't likely to reach billion-dollar valuations.

Addressing mental health

The entrepreneurial journey, often romanticized for its freedom and innovation, can take a significant toll on mental well-being. A Business Development Bank of Canada report paints a stark picture: Over half of Canadian entrepreneurs grapple with mental health issues, primarily stemming from stress and financial pressures.

Access to mental health resources remains a significant barrier for many entrepreneurs. Bootstrapping their businesses often leaves founders struggling to afford care. Additionally, concerns about reputation and potential investment repercussions create a culture of silence around mental health challenges.

The struggles aren't limited to everyday stress. Entrepreneurs are disproportionately affected by serious mental health conditions. They report higher rates of ADHD, substance use, depression and bipolar disorder than comparison participants. They are also more likely to report more co-occurring mental health conditions, with 32% reporting two or more co-occurring conditions and 18% reporting three or more.

"I can't tell you how many hard conversations I've had about people's businesses, advising them to shut down and not invest more money," says angel investor Jade Alberts, whose passion for entrepreneurial mental health led him to

found Peer Guidance, an organization that hosts “Office Hours” in Calgary, providing a safe space for entrepreneurs to discuss business and mental health challenges. “These are difficult conversations, but they need to happen.”

Alberts emphasizes the importance of seeking support. “Asking for help is not a sign of weakness,” he asserts. “We want all entrepreneurs to know this is a journey they do not have to take alone.”

The weight of these challenges underscores the urgent need for normalizing conversations about mental health within the entrepreneurial community, providing affordable and entrepreneur-specific mental health services and creating safe spaces for entrepreneurs to share their struggles without fear of judgment. By addressing the mental health crisis within the entrepreneurial ecosystem, we can foster an environment where innovation thrives alongside well-being.

Promise Robotics

Imagine a world where homes are built faster, more sustainably and with greater affordability. This is the world that Promise Robotics, cofounded in 2021 by Ramtin Attar and Reza Nasseri, is building. By seamlessly integrating industrial robotics and artificial intelligence, Promise Robotics is revolutionizing the construction industry, tackling its biggest challenges head-on.

Promise Robotics envisions a future where intelligent design and robotic precision converge to create homes with unprecedented efficiency and sustainability. Its ready-to-deploy production systems empower homebuilders to:

- **Design smarter:** Leveraging AI algorithms to optimize building plans for material efficiency, energy performance and reduced waste
- **Build with precision:** Communicating instructions to autonomous robots that fabricate building components, minimizing errors and material waste
- **Accelerate timelines:** Significantly reducing construction time frames, addressing labour shortages and enabling faster occupancy for homeowners
- **Prioritize sustainability:** Minimizing environmental impact through reduced waste, optimized material usage and the potential for incorporating eco-friendly materials

As Attar states, “The construction industry has seen stagnant productivity for decades, coupled with a growing shortage of skilled labour and significant contributions to waste and GHG emissions.” Attar and Nasseri recognize the pressing nature of the situation. “To meet the urgent need for a 60% increase in homebuilding capacity amidst these challenges, technology offers a vital pathway to transform the industry.”

By modernizing processes and upskilling the workforce, Promise Robotics aims to position Canada as a leader in construction innovation. Its innovative approach has already garnered significant attention. In 2023, Promise Robotics secured a $15 million USD Series A funding round led by Horizon Ventures. Its recognition as a Top 20 Early Startup in Canada in 2022 and inclusion on BuiltWorlds’ 2024 Robotics Top 50 List for emerging robotics solutions further solidifies the company’s position as a trailblazer in construction technology.

To get to global leadership, Attar, Nasseri and their team need the right support from their communities. They are finding that in Alberta. “An advantage of being in Alberta is it is a fast-growing entrepreneurial environment with strong enthusiasm for innovation and new ideas,” Nasseri shares.

But there are gaps: “talent, talent, talent.” Attar and Nasseri emphasize the crucial role of talent in the success of technology companies but acknowledge that the factors influencing talent acquisition are complex and outside the control of any single entity or ecosystem. “Scaling is challenging with a limited tech talent pool. Building a workforce for the future requires attracting, developing and upskilling talent.” The cofounders also mention that support for scaling organizations needs to span different ecosystems. “Canada-wide we need to see more provincial collaboration to help scaling businesses.”

Despite the challenges, Attar and Nasseri remain deeply passionate about the mission. “We’re incredibly proud of the team and the culture we’re building. It’s this shared passion for innovation that drives us to create a better way to build homes—one that’s both sustainable and accessible to everyone.” Their advice to aspiring entrepreneurs reflects this sentiment: “The success of your company hinges on the talent you attract and the culture you cultivate—these are your most valuable assets that enable you to navigate an uncharted path.”

Promise Robotics is not just building homes—it is building a future where technology empowers us to address the housing crisis with sustainable, efficient and affordable solutions. As it continues to innovate and scale, its impact promises to resonate far beyond the construction site, shaping a better future for generations to come.

Source: Promise Robotics

CONCLUSION

Alberta's rise as a powerful tech hub showcases its adaptability, strategic investments and entrepreneurial spirit.

This report has illuminated the key factors driving this remarkable transformation, tracing the province's evolution through three distinct eras. From its humble beginnings, where the tech industry grew alongside and benefited from the pro-growth environment and resource sector's innovation, to its current status as a diversified tech ecosystem, Alberta has consistently defied expectations and proven its capacity for reinvention.

As we look ahead, Alberta's tech sector stands at a pivotal juncture. The province is poised to become a global leader in EnergyTech, leveraging its expertise to pioneer sustainable energy solutions for the future. Simultaneously, AgriTech, FinTech, HealthTech and RuralTech present exciting opportunities for diversification and growth.

However, realizing this immense potential requires a continued commitment to fostering a supportive and thriving ecosystem. Addressing the challenges of technology skills shortage, ecosystem navigation, funding gaps and entrepreneur mental health will be crucial to maximizing Alberta's tech potential.

But Alberta's story has always been one of resilience, innovation and ambition. There is no doubt it's up for the challenge. By embracing collaboration, boldness and a commitment to excellence, Alberta can ensure its tech sector flourishes, drive economic prosperity and shape the future of technology, both here and worldwide.

Note: All interviews for this report were conducted during the second half of 2024

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