



calgary economic
development
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Calgary in the New Economy

The Economic Strategy for Calgary

Calgary is the city of choice in Canada for the world's best entrepreneurs who are embracing technology to solve the world's greatest challenges: cleaner energy, safe and secure food, efficient movement of goods and people, and better health solutions.



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Letter from the CEO Roundtable

The rapid advance of technology across all industries has caused a disruption in the global economy. This disruption has created risks and opportunities for all cities, becoming the driving force for this update to the Economic Strategy for Calgary. As times change this strategy evolves to remain relevant and to be a guide for The City of Calgary, Calgary Economic Development and the numerous stakeholders who contribute to our prosperity.

Calgary has a global reputation as an inclusive and entrepreneurial city that is connected through incredible community spirit. These core values have influenced the development of this update to the strategy, *Calgary in the New Economy*.

Since the initial economic strategy in 2008, Calgary has experienced booms and an historic recession. It is notable that in each year in the decade since, The Economist Intelligence Unit rated Calgary in its Top 5 most livable cities in the world. In 2018, we improved to fourth place globally and are now the most livable city in North America.

The updated strategy, which was unanimously approved by City Council in June 2018, supports the enablers of economic development and the belief that an entrepreneurial and innovative city with exceptional human capital will generate robust and enduring prosperity.

Like many cities, our economy is at a crossroads and must adapt. This Strategy commits us to advancing our established sectors and embracing emerging industries. It reflects both the risks and the opportunities from the unprecedented advances in technology, impacting every aspect of the economy. Our future will largely be determined by the adoption of technology, deepening our talent pool and strengthening our innovation ecosystem.

Calgary in the New Economy envisions us as “the city of choice in Canada for the world’s best entrepreneurs as we embrace innovation and create solutions to meet the world’s most fundamental needs in food, health, energy and transportation.” The focus is on four key elements for enduring prosperity and establishes our ambitions in each:

- **Talent:** Canada’s destination for talent
- **Innovation:** Canada’s leading business-to-business innovation community
- **Place:** Canada’s most livable city
- **Business environment:** Canada’s most business-friendly city

Charting a course for a city’s economy is a challenge at any time, but in today’s fast-evolving world it was an immense undertaking. We greatly appreciate that more than 1,800 Calgarians provided perspectives for this update. The many hours, insight and direction offered by the CEO Roundtable of business, community and academic leaders, in particular, was tremendously valuable. We also want to acknowledge the leadership of Mary Moran and the pro-bono support provided by The Boston Consulting Group (BCG). Their efforts have contributed to the success of this project.

The Strategy is intended to support economic competitiveness, embrace shared prosperity and build a strong community. Success will be achieved through cross-sector collaboration and by engaging all stakeholders to achieve these ambitious, yet realistic, goals for Calgary.



Adam Waterous
Chair
CEO Roundtable



Mary Moran
President & Chief Executive Officer
Calgary Economic Development



Calgary is a growing and unique city with a strong sense of community values.

Introduction

Calgary is located along the foothills of the Rocky Mountains in Alberta at the meeting point of the Bow and Elbow rivers. These are the traditional territories of the Blackfoot and the people of the Treaty 7 region in Southern Alberta. It is also home to the Metis Nation of Alberta, Region 3. The third largest municipality in Canada, with a population of 1.4 million¹, Calgary is surrounded by profound beauty and an unspoiled natural environment.

Calgary was incorporated in 1894 and today it is a growing, multicultural city, renowned for its “can-do” spirit, Olympic legacy and legendary hospitality. One-third of our global population are visible minorities and speak more than 120 languages. Our lifestyle is active, our perspective is global and we value inclusivity.

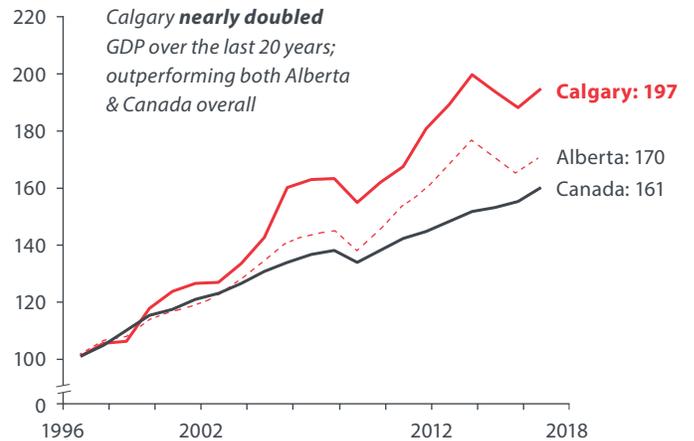
We enjoy the benefits of a large, sophisticated city, as well as a relaxed and friendly lifestyle. We are rich in the arts, culture, entertainment and leisure activities. We are home to the most extensive urban pathway and bikeway system in North America.

Our dynamic and innovative spirit, youthful workforce and clean and safe environment make Calgary a world-class city. We are home to diverse industries, including: agribusiness, transportation and logistics, energy, financial services, health and life sciences and creative industries. We are risk-takers and visionaries, a city that embraces change and change-makers.

Over the last two decades, Calgary has had one of the highest rates of economic and population growth in North America. Our economic output, driven primarily by a globally significant energy industry, has effectively doubled.² Today, an unprecedented wave of automation and digitization is disrupting all aspects of the economy. This represents our greatest opportunity to apply innovation to ensure we are able to compete at a global level within our key industries.

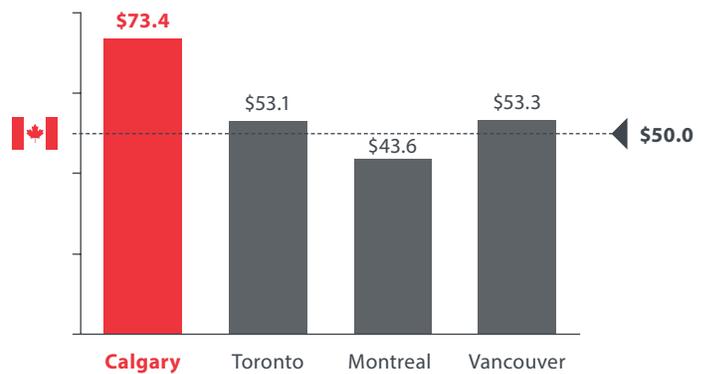
Calgary has experienced outstanding growth in the past two decades

Indexed Real GDP Growth (1997 = 100)³



Source: Statistics Canada (2017)

2017 GDP per capita (\$k)³



Source: Statistics Canada (2017)

By embracing innovation and technology, and continuing to diversify into high-growth sectors, Calgary has the ability to impact major global issues, including: hunger, health and well-being, energy security and environmental sustainability.

We envision Calgary as Canada’s destination for talent, a leading city with an experienced business-to-business innovation community, as well as the country’s most livable and most business-friendly city. Workforce issues are an ongoing worldwide challenge and preparing our people with skills for the new economy is critical. It is also a priority to ensure that all citizens have the ability to participate in a thriving economy and enjoy the benefits of a prosperous city.

¹ Statistics Canada (2017).

² Since 1997 to 2017, Calgary’s real GDP has increased by 97%. Data based on Statistics Canada (2017).

Core Values

The Economic Strategy for Calgary is a living document that sets direction and establishes priorities while evolving to adapt to changing times. Calgary has a well-deserved reputation for inclusion, entrepreneurship and community spirit and those values have influenced the development of the Strategy.

Inclusive

- We are a safe and diverse community
- We are a community that values your contribution
- We have a sense of shared ownership in decision making and implementing initiatives

Entrepreneurial

- We are risk takers
- We expand and grow to diversify our economy
- We understand education is key to our success

Community Spirit

- We support each other to achieve our goals and solve problems
- We have a volunteer mindset
- We are resilient and believe in coming together as a community

We worked with our community to update our vision and strategy.

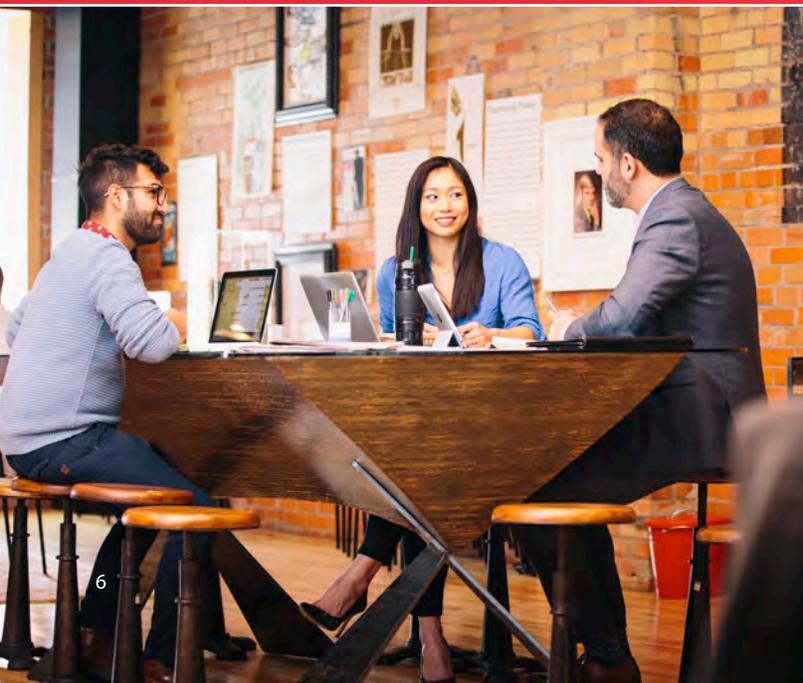
An economic strategy is a roadmap that directs collaborative economic development activities and establishes shared priorities with, and for, community stakeholders.

In 2008, Calgary adopted its first 10-year Economic Strategy *Think big. Act bold. Create great.* It was the peak of one of our longest and largest cycles of growth. The Strategy acknowledged the city's role as an economic driver for Canada and set our sights on global greatness. A 2014 update titled *Building on our Energy, an Economic Strategy for Calgary* focused on three areas — purposeful diversification, shared prosperity and strong community.

As it was being completed, oil prices began a plunge that led to a global restructuring of the industry and the impact on Calgary was significant. The United States was always the biggest customer for Alberta's oil and gas exports but is now our largest competitor. Our access to global markets is restricted and attempts to expand the pipeline network are contentious. In 2015 and 2016, 40,000 jobs were lost in the energy sector in Calgary, unemployment peaked above 10 per cent³ and more than 25 per cent of downtown offices were vacant.⁴

Despite the challenging economy, 88 per cent of the 32 specific actions in the six focus areas in the 2014 Strategy were either completed or had progressed considerably. In *Calgary in the New Economy*, there are four areas of focus with 13 actions and 45 tactics.

BCG and KPMG were engaged to provide research that included: global trends analysis, competitiveness assessments with peer cities, and industry-cluster analysis. Community engagement was achieved with digital platforms, advisory committees, stakeholder roundtables, and interviews. It totaled more than 1,800 touchpoints with community and business stakeholders. We also received insight and direction from more than two dozen business, government and community leaders.



³ Statistics Canada (2015, 2016).

⁴ CBRE (2016).

Guiding principles and inputs used for strategy update

Data driven	Research: Conducted benchmark and competitiveness of the community and our industry sectors
Stakeholder led	Stakeholder engagement: Engaged via digital platforms, advisory committees, and one to one discussions
Aspirational	CEO Roundtable: Convened a CEO Stakeholder group to guide strategic direction and develop bold actions



Why Now?

It is accepted best practice to routinely refresh economic strategies. After almost five years, the time came to update *Building on our Energy* to ensure it remains relevant. Also, the convergence of recent technological advances have heightened the need to update the Strategy.

The glossary of terms that define the digital economy — Industry 4.0, blockchain, industrial Internet of things, big data, fintech, artificial intelligence, clusters — barely existed when earlier iterations of the Strategy were developed.

The timing also ensures there is alignment with the four-year agenda setting process at The City of Calgary. The strategy closely aligns with Council Directives for One Calgary 2019-2022, the Municipal Development Plan, Corporate Industrial Land Strategy, imagineCALGARY, Centre City Plan, Enough for All Poverty Reduction Strategy, Calgary Metropolitan Region Board, Tourism Calgary’s Destination Strategy, Calgary’s Arts Development Strategy, Cultural Plan for Calgary and Calgary’s Affordable Housing Strategy.

It also aligns with the development of a Calgary Resilience Strategy through the 100 Resilient Cities global network that Calgary joined in 2017.

This update puts greater focus on the enablers of growth. Of the challenges we face, the biggest risk may be the rapid advances in technology in our industrial sectors. The capacity for a company, or an entire industry, to effectively employ technology to be more productive will be crucial to success. The convergence of technologies will be equally disruptive to the labour force. The skilling and re-skilling of our workforce to accommodate the changing nature of the work is a major driver of this update.



About Calgary Economic Development

Calgary Economic Development works with business, government, and community partners to achieve sustainable economic growth, embrace shared prosperity and build strong communities. Managed by an independent Board of Directors, we are a not-for-profit corporation funded by The City of Calgary, community partners, other orders of government and the private sector through our Action Calgary partnership. We position Calgary as the location of choice to attract business investment, foster trade and enhance the city's workforce.

Our organization takes a lead role in developing the economic strategy for Calgary. Through stewarding the implementation of the Strategy we can measure progress toward shared goals.

Clusters

Clusters, or ecosystems, are widely seen to foster productivity. Our analysis identified seven established and emerging industry clusters where Calgary has a competitive advantage.

Clusters include interrelated firms and industries characterized by buyer-supplier relationships, as well as institutions and a skilled workforce. Companies have an advantage when they are geographically closer to resources – and each other. This sparks innovation, builds knowledge creation, unlocks opportunities for collaboration and enhances competition.

Calgary's energy cluster includes companies of all sizes. Research and development, global traded networks, professional support services and a pipeline of talent makes Calgary's energy cluster a global leader.

Through analysis of current strengths - areas with historical advantages, current productivity and business activity levels – three established clusters (energy, agribusiness and transportation and logistics) were identified as clusters where Calgary has a "right-to-win." Another four emerging clusters (tourism, creative industries, life sciences and financial services) were identified for their strategic fit and potential to grow.

These clusters allow Calgary to enhance our positive attributes – such as knowledge spillovers, or potential for innovation – and improve our overall economic performance.

Identifying industry clusters allows our business recruitment, and attraction and development efforts, to focus on companies that complement existing businesses. Calgary can build its reputation through higher productivity, cost leadership, differentiation, and specific market focus on its established and emerging industry clusters.

Strengths and Opportunities

Calgary is building on a strong economic foundation with limitless potential.

Strengths

Calgary has strengths, advantages and opportunities that cities around the world envy. Over the last 20 years, Canada's growth in gross domestic product (GDP) and its GDP growth per capita have been the fastest growing among G7 countries⁵, and Calgary has driven much of the economic growth nationally.

With a young and highly educated population, a rich history of innovators and entrepreneurs, a cluster of corporate head offices, competitive business environment and exceptional quality of life, Calgary's success has been no accident. Calgary's GDP recovered to beyond pre-recession levels, to more than \$120 billion in 2017, and has outperformed other Canadian cities by roughly 20 per cent during the last 20 years.⁶ We consistently post the highest level of economic output per person⁷ in Canada (approx. \$73,000 in 2017) and the highest labour participation rate.⁸

An exceptional public education system feeds seven local post-secondary institutions, where 27 per cent of degree completions are in STEM (Science, Technology, Engineering and Math) programs.⁹

As Canada's third most multicultural city, Calgary is a welcoming city with a globally connected workforce and a flourishing international community.

We are Canada's energy capital. Alberta is home to an abundance of wind, solar and other renewable resources, as well as oil and gas. There are endless opportunities for breakthroughs and advances in the fast-evolving energy sector, which will likely emerge from the innovation ecosystem in downtown Calgary, where companies have competed and collaborated for decades to produce solutions to technical challenges.

Even after a structural recession, Calgary's energy sector remains the largest industry in Canada with \$110 billion in revenues, with capital spending of \$45 billion in 2017. It is also the largest export sector in the country.¹⁰

Calgary has been an agribusiness and logistics hub dating back to the 19th century. Also, Calgary is one of four global financial centres in Canada. Along with the highest concentration of head offices in Canada, Calgary is home to the second highest concentration of small and medium-sized businesses per capita.¹¹ The thriving startup scene is a testament to a deeply embedded entrepreneurial spirit.

From our low cost of doing business, exceptional infrastructure and commercial fibre networks, to efficient road and transit systems, and a regional transportation network centered on a globally connected airport, we have the capacity to boost trade and investment and foster growth among existing or emerging local companies.

⁵ Organisation for Economic Co-operation and Development (OECD) data (2017).

⁶ Statistics Canada (2017).

⁷ Major comparable Canadian cities include: Toronto, Vancouver and Montréal. Data from Statistics Canada (2017).

⁸ Participation rate is defined as: % of working age population that is employed or looking for work. Data from Statistics Canada (2017).

⁹ Alberta Advanced Education (2016-2017).

¹⁰ Statistics Canada (July 2018).

¹¹ Statistics Canada (December 2017).

Opportunities

The four areas of focus in this strategy – Talent, Innovation, Place and Business Environment – are deeply interconnected. As we implement this Strategy, our ability to create or expand partnerships with the business community, governments and community partners will be critical to success.

Place-building and being a dynamic, vibrant city is now an integral part of all economic development. It is mutually reinforcing for attracting and retaining key talent. The idea of “investment in place” includes encouraging investment in physical and social infrastructure to support connections within the city and to the rest of the world.

Calgary is livable and affordable, with a quality of life that can attract and retain the millennial talent imperative to the city’s economic future. Adding to the vibrancy in the downtown core is important to ensuring the city is a magnet for talent.

A business-friendly environment – everything from tax levels to ease of municipal permitting – has a renewed commitment from City Council. It is crucial to attracting investment, as well as retaining and encouraging successful local companies.

Alliances and partnerships with industry, government, other organizations, advanced education and community are a key feature of this economic development strategy. All leading jurisdictions create opportunities for alliances and networks to flourish. Engaged stakeholders are compulsory to achieving any goals. Any transformative economic change will require widespread engagement.

We see technology infiltrating every sector of the economy, as opposed to being a standalone industry. With an increased emphasis on innovation, it is vital we adapt to technological change across all industries in order to improve competitiveness and productivity. A critical part of this Strategy will be a focus on the application of technology to Calgary’s dynamic industrial sectors. From the digital, physical and virtual worlds to business and industry—technology will permeate every facet of the economy.

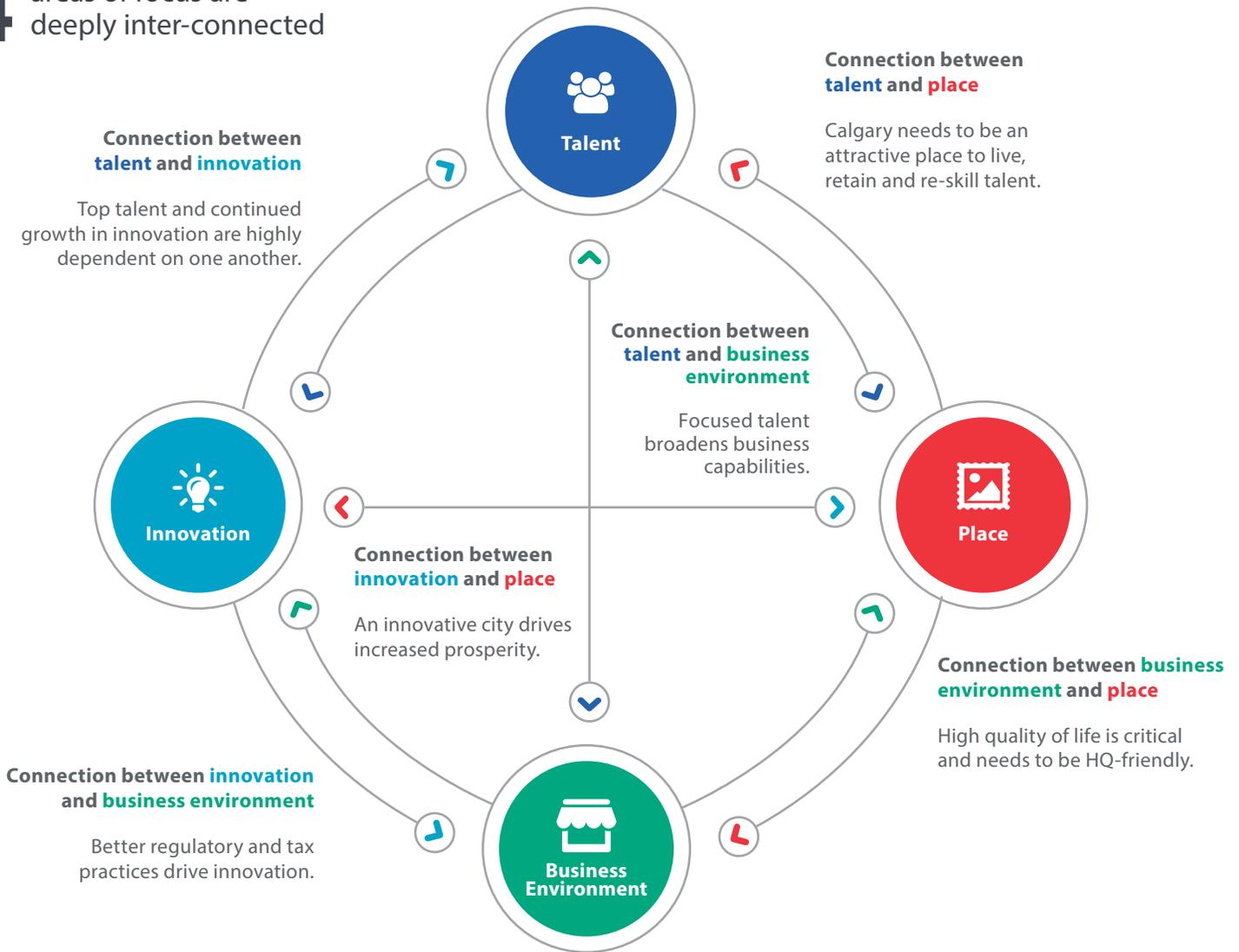
Competitive Assessment

In establishing a list of peer cities, BCG first considered 79 North American cities for comparison. They then identified 40 comparable cities to Calgary’s population, geographic size and other factors. Of the 40, there were 22 selected with similar or higher productivity to Calgary and comparable characteristics, such as: human capital, innovation community, quality of life, business environment, infrastructure and connectivity.

The peer cities are Austin, Baltimore, Boston, Charlotte, Columbus, Denver, Edmonton, Houston, Indianapolis, Milwaukee, Minneapolis, Montreal, Nashville, New Orleans, Pittsburg, Portland, Salt Lake City, San Diego, San Francisco, Seattle, Toronto and Vancouver.

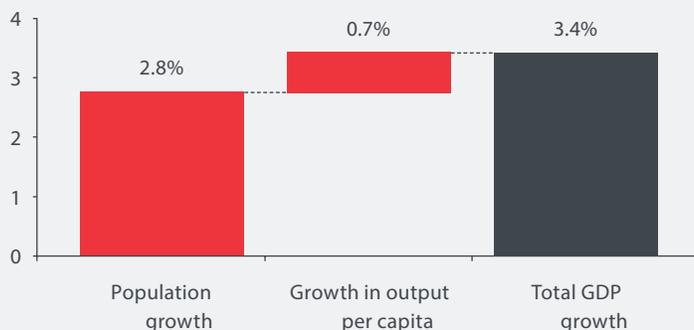
In the competitiveness assessment, Calgary ranked 10th among the peer cities with our highest marks for human capital and business environment.

4 areas of focus are deeply inter-connected



Calgary's growth has been largely driven by high population growth

Calgary's GDP growth: 20 year CAGR % (1997-2017)



Our growth in output per person lags other major Canadian cities

Growth in GDP per capita (1997-2017)



Source: Statistics Canada (2017)

Strategic Framework

Our Economic Strategy is composed of a unified vision, shared values, and four strategic focus areas.

The Strategy is intended to align The City of Calgary, its civic partners, the private sector, educators, and other community stakeholders to achieve economic competitiveness while building long-term prosperity and a stronger community. The Strategy embodies our values, makes our ambitions clear, and details the plans for achieving these bold goals.

The four areas of strategic focus will help us to achieve our vision for enduring prosperity and strengthen our shared values.

Calgary has a “right to win,” or a competitive advantage, within the established and emerging clusters. We are building on our success from a strong starting point.

These strategic areas are deeply inter-connected. It is critical we work to advance them in parallel.



Vision

Calgary is the city of choice in Canada for the world's best entrepreneurs who are embracing technology to solve the world's greatest challenges: cleaner energy, safe and secure food, efficient movement of goods and people, and better health solutions.



Values

Calgary is an inclusive and entrepreneurial city connected through our community spirit.



4

Focus Areas



Talent

Canada's destination for talent



Innovation

Canada's leading business-to-business (B2B) innovation ecosystem



Place

Canada's most livable city



Business Environment

Canada's most business-friendly city

Established Clusters



Transportation & Logistics



Agribusiness



Energy

Industry Focus

Emerging & Growth Clusters



Tourism



Creative Industries



Life Sciences / Health



Financial Services



Talent

We aim to be Canada's destination for talent.

What do we mean?

When we say talent, we mean the number of educated, experienced and skilled people available to work. Driven predominantly by the energy sector, our talent base has expanded significantly over the last two decades. Alongside oil and gas, the Calgary economy has grown and diversified giving our highly educated labour force transferable skills.

We have a workforce with talent from around the globe. Our people are highly skilled with world-class experience in engineering, logistics and supply chain management, finance, information technology and numerous other professional capabilities. Calgary is one of Canada's youngest cities with a median age of 36.8¹²— and 73 per cent of the population participates in the labour force.¹³

Calgary is a dynamic centre for learning, offering outstanding educational options—from a high-quality public school system to seven universities and colleges, providing world-class programs, continuing education options, and training resources. In 2016, the University of Calgary was the top ranked university in North America founded in the last 50 years.¹⁴

Ninety-one per cent of Calgary's workforce has a high school diploma while 66.1 per cent has completed post-secondary education.¹⁵ 27 per cent of bachelor's or higher degree completions from Calgary's post-secondary institutions are from science, technology, engineering and math (STEM) programs.¹⁶

12 Statistics Canada (2017).

13 Statistics Canada (2017).

14 Quacquarelli Symonds Limited (QS) World University Top 50 Under 50 Rankings.

15 Statistics Canada (Census 2016).

16 Alberta Advanced Education (2016-17).

While we have a highly educated workforce, we lack a critical mass of in-demand skills and our pipeline for future talent lags other cities:

- Calgary has the highest number of engineers per capita in Canada but the lowest software and computer engineers¹⁷
- Calgary's post secondary student-age population is declining relative to the Canadian average and lags other major cities
- Calgary trails peer cities in post-secondary participation. Participation in science, technology, engineering, arts and math (STEAM) programs is falling behind the Canadian average¹⁸

Why does it matter?

In a fast-changing world, talent—or human capital—is the key to unlocking long-term economic growth. Being Canada's leading destination for talent is critical to Calgary building a robust pipeline of talent for continued economic prosperity.

With the rapid advancement of technologies and automation disrupting the nature of industries, having skilled workers to support and grow technology-oriented companies is essential in Calgary. Research by BCG indicates approximately half our workforce is at risk to automation in the next 20 years.¹⁹

It is imperative that our educational systems support people in developing skills needed for the jobs being created - and these skills are changing rapidly. Capacity to re-skill the existing talent pool is also a priority. As industries transform, there will be rapid shifts in the demand for talent. With workforce requirements shifting so fast, we need to be able to quickly adapt our talent supply by attracting top talent from across Canada and the world.

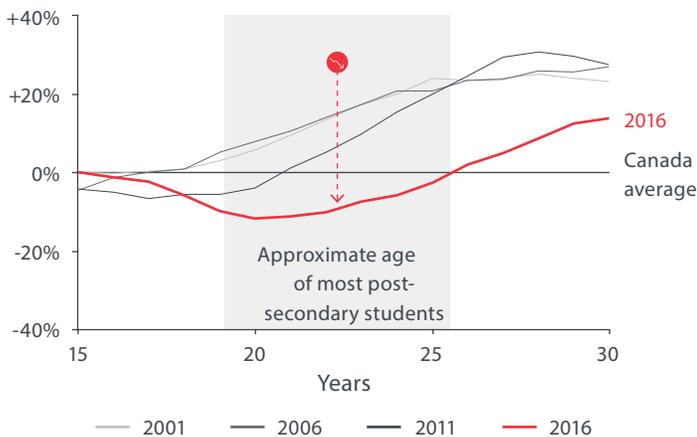
Half of the most in-demand skills in 2017 were not on the radar in 2013.²⁰ It is equally important that we include underrepresented populations in our efforts. Historically, fewer women participated in STEAM related educational programs and careers. High school completion rates are lower for Indigenous Peoples. We have not been successful at recognizing overseas experience or credentials and transitioning new Canadians into jobs that make use of their skills. Focusing on our diversity is imperative as it brings innovation and creativity into our business practices.

We have an opportunity with our motivated workforce and highly skilled educators to accelerate experiential learning and better integrate our post-secondary institutions with our business community in order to match talent supply with demand.

Recent trend towards Calgary having fewer post-secondary students could leave Calgary with a structural talent deficit in 5–10 years.

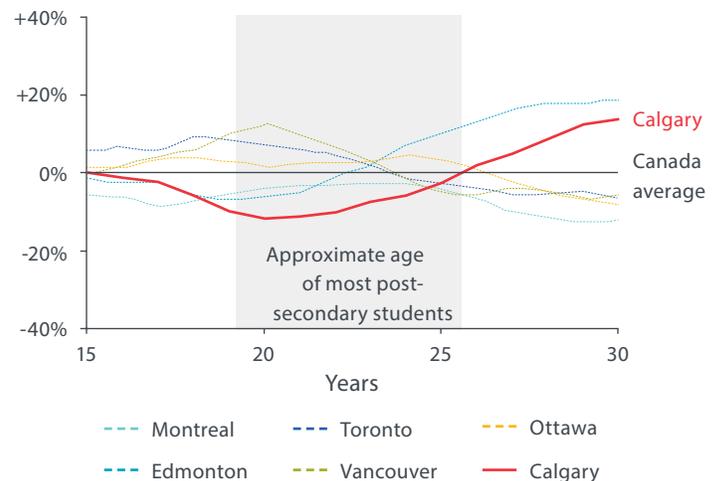
Calgary's student population is in decline, relative to the Canadian average...

Calgary population indexed to Canadian average



...and Calgary now lags major Canadian cities

Calgary population indexed to Canadian average



Sources: CMA populations by age (Statistics Canada, 2016); Compiled by BCG.

17 Statistics Canada (2017).
 18 ISCED classifications of instructional programs. Statistics Canada (2017). Analysis by BCG.
 19 Oxford Economics, Automation Potential of Canadian Occupations (Brookfield Institute), Compiled by BCG.
 20 LinkedIn (2017).

How will we achieve it?

To become Canada's destination for talent, we intend to pursue four key initiatives:



Create Canada's largest Talent accelerator

(Time Frame: Immediate)

- Expand work-integrated learning programs
- Collaborate with post-secondary institutions and other providers to design programs aligned with business workforce requirements
- Enhance program access to diverse communities
- Pilot/scale nimble short-term programs to re-skill workers



Establish Calgary as a magnet for students

(Time Frame: Immediate)

- Advocate for increased capacity within our post-secondary institutions
- Explore co-branded programs with global institutions
- Promote advantages of a globally diverse workforce
- Continue to prepare teachers to teach STEAM programs
- Secure funding for globally recognized professors



Emphasize creativity and innovation from kindergarten to university (K-U)

(Time Frame: 1-5 years)

- Grow work-integrated learning partnerships for STEAM careers
- Increase capacity to teach STEAM programs
- Enhance programs encouraging underrepresented participation in STEAM learning
- Develop after-school programs with the tech accelerator



Address immediate needs through attraction efforts

(Time Frame: 1-5 years)

- Build and execute talent attraction campaigns that target senior technology leaders
- Attract companies that serve as a magnet for talent



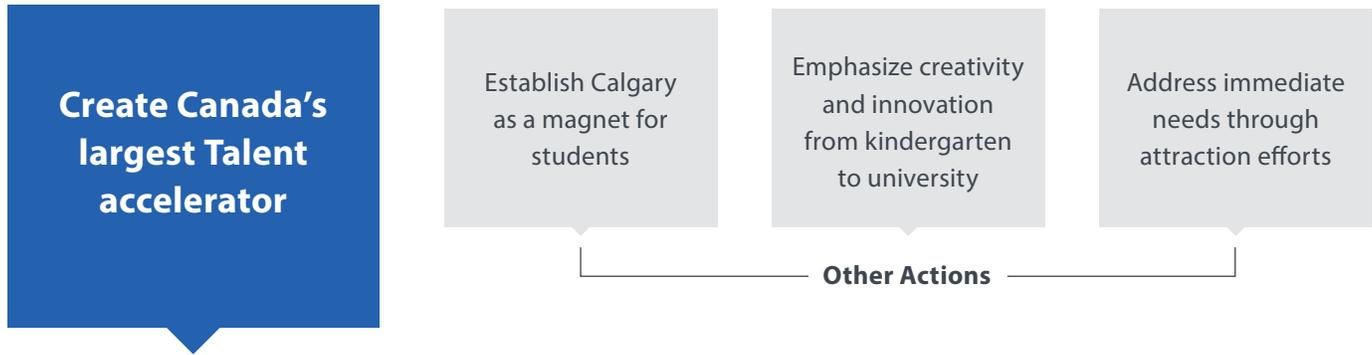
How will we measure success?

To successfully implement and continuously improve this initiative, we will track key performance indicators at all activity levels. At the highest level, they include:

- Unemployment rate
- Net migration of the population in Calgary, aged 18 to 30
- Percentage of the labour force that is in specialized technology (e.g. software engineering, computer sciences)

Integrating innovation and technology into our economy requires the very best talent.

Marquee initiatives



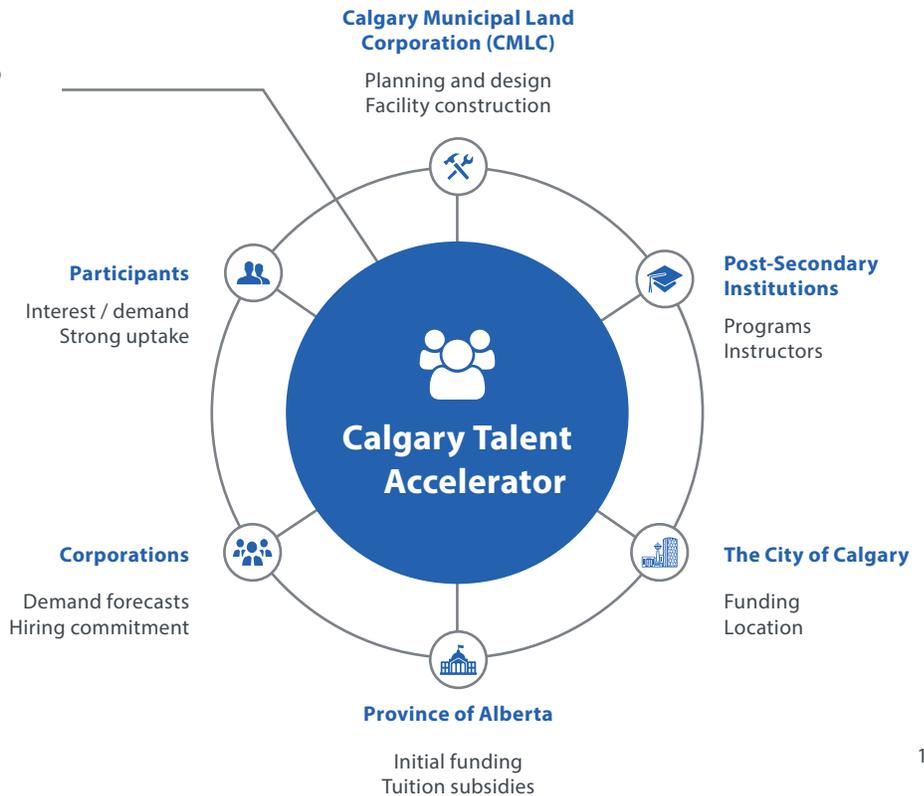
As companies demand specialized, non-traditional skill sets from workers, the goal of becoming the largest Talent Accelerator in Canada is to provide recent and past graduates with the most relevant, in-demand skills. Talent Accelerators create a marketplace to better match demand with supply through short-term certificate programs offered by various organizations. It helps to re-skill our workforce to meet industry requirements, to become future-ready in specialized, technical areas such as software development

It also equips workers displaced by changes with the skills to find employment in an evolving job market. Through three- to six- month non-degree programs, people receive rapid training in new skills to access new opportunities.

Key activities:

- Expand work-integrated learning programs
- Collaborate with post-secondary institutions and other educators to pilot and scale nimble, short-form programs (three- to six-month certificates) that address immediate business needs
- Ensure programs offered are accessible and tailored to minority communities
- Offer appropriate networking and recruiting opportunities to ensure graduates obtain competitive jobs
- Explore opportunities to deliver courses downtown

Many stakeholders would have roles to play within the Talent Accelerator





Innovation

We aim to be Canada's leading business-to-business innovation ecosystem.

What do we mean?

When we say innovation, we mean the number of new and creative solutions being introduced to solve the world's problems. Our entrepreneurial spirit runs deep in Calgary. We are risk-takers who are not afraid to create change. Pockets of innovation have emerged throughout the city driven by a variety of stakeholders, including: educators, enterprises, startups and public agents. They are generating new ideas and commercializing existing ideas.

Since 2012, there has been a six per cent compound annual growth rate in the number of inventions patented²¹ in Calgary—primarily in energy, but also in electronics, healthcare, information technology, chemicals and interior design. A 2018 report said Calgary companies file more patents per capita than those of any other Canadian city.²²

Our post-secondary institutions produce world-class research. Since 2013, the University of Calgary has published more than 21,000 scientific papers²³—primarily in neuroscience, engineering and life sciences.

A new generation of startups is emerging in Calgary and so are funding sources (e.g. venture capital, angel investors) to support them. Several venture capital and private equity firms have established in Calgary to look for investment opportunities. The City of Calgary created

the Opportunity Calgary Investment Fund (OCIF) in 2018 to provide \$100 million for catalytic investments that will spur growth and transform the economy.

The innovation community includes numerous key stakeholders to support growth, such as: Calgary Technologies Inc., Rainforest Alberta, Startup Calgary and Creative Destruction Labs (Rockies).

Calgary energy companies are leaders in advanced drilling, reservoir treatment, remote sensors and below-the-ground innovations to improve productivity and environmental performance. They are now applying innovative thinking to above-the-ground technologies, such as: blockchain, artificial intelligence and augmented and virtual reality.

The creation and evolution of home-grown global success stories, such as: Canadian Natural Resources, WestJet Airlines, ATCO and Shaw Communications are evidence of our entrepreneurial nature. These companies continue to innovate and disrupt their industries. Our startup companies also play a major role in promoting innovation. Since 2013, more than 240 companies have established in Calgary—with a total investment of \$2.4 billion.²⁴

21 Thomson Innovation (2017), BCG Center for Innovation Analytics (2017).

22 Innovate Calgary (2018).

23 Thomson Innovation (2017).

24 Quid database (2017), BCG Center for Innovation Analytics (2017).

Why does it matter?

For Calgary to improve its economic competitiveness, we need to develop new sources of growth for enduring prosperity — and innovation is key to delivering them. In order to start and grow new companies, we need a networked ecosystem for innovation comprised of people and organizations that move and connect in a culture of trust, leadership, mentoring, policy and resources.

Calgary already has one of the best examples of a networked ecosystem in our oil and gas industry and its associated value chain. For decades, this network of connections has generated enormous wealth for Calgary, Alberta and Canada.

While we have a good foundation for innovation, we recognize areas of opportunity:

- Post-secondary institutions can benefit from more and stronger connections with the private sector to commercialize their ideas

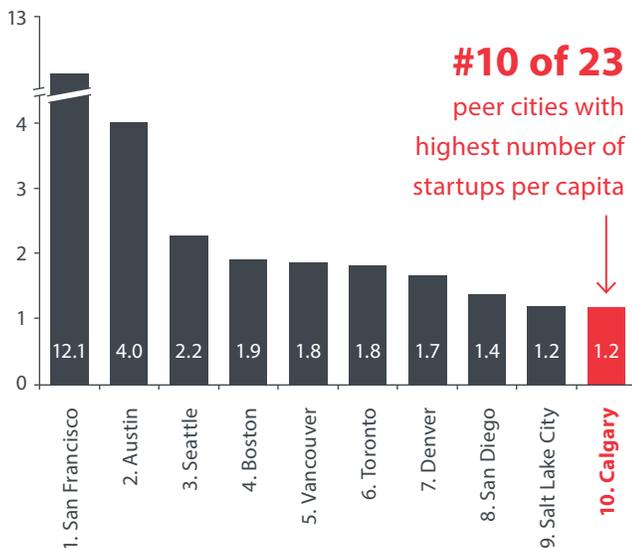
- We need more and different funding sources to spur new startups
- We need more and stronger connections between groups in our innovation community

Addressing these opportunities will allow us to sustain economic growth in a constantly changing world. We can create a powerful innovation network that delivers creative ideas and solutions to the world. Being home to Canada's leading business-to-business innovation ecosystem is vital to managing challenges from digital disruptions to global competitors.

Innovation can spur new ideas and new sources of growth. Calgary already has a dynamic community of innovators in several sectors. If we can further grow and strengthen our innovation community, we can accelerate ideas and become leaders in innovation.

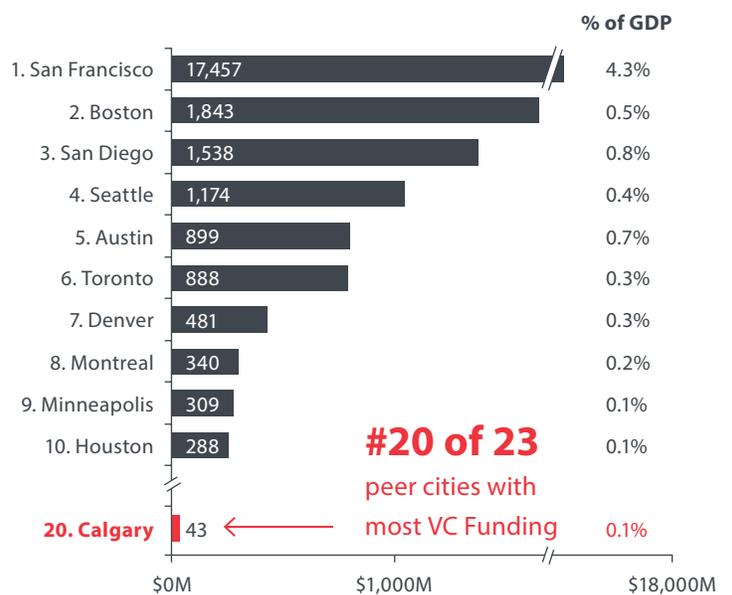
Calgary is growing in number of startups per capita, but not receiving as much venture capital funding as its peers.

Top 10 cities for startups per 100K people (2016)



Source: Crunchbase

Top 10 cities for VC Funding (2016)



Innovation

How will we achieve it?

To become Canada's leading B2B innovation ecosystem, we intend to pursue four key initiatives:



Create the Calgary Innovation Corridor

(Time Frame: Immediate)

- Create more enterprise connections for startup and scale-up companies
- Build on existing assets to connect and expand innovation places and spaces in the downtown core
- Find creative ways to provide access to workspaces



Build funding to support generation growth

(Time Frame: 5-plus years)

- Pursue new funding models for startups and scale-ups, including creation of Canada's largest community-built fund to support companies as they grow
- Educate investors in the innovation space
- Facilitate the entrance of global capital into the local market



Develop relationships within the innovation ecosystem

(Time Frame: 5-plus years)

- Curate and cultivate relationships between academia, enterprise, service agencies and investors
- Embrace innovation in large enterprise
- Align and expand programming of innovation accelerators
- Enhance access to mentors and senior advisors



Accelerate growth through attraction, advocacy and trade

(Time Frame: 1-5 years)

- Attract investment and companies to fill gaps in our innovation ecosystem
- Advocate for government venture capital investment and tax credits
- Build the connections and reach of Calgary's tech companies



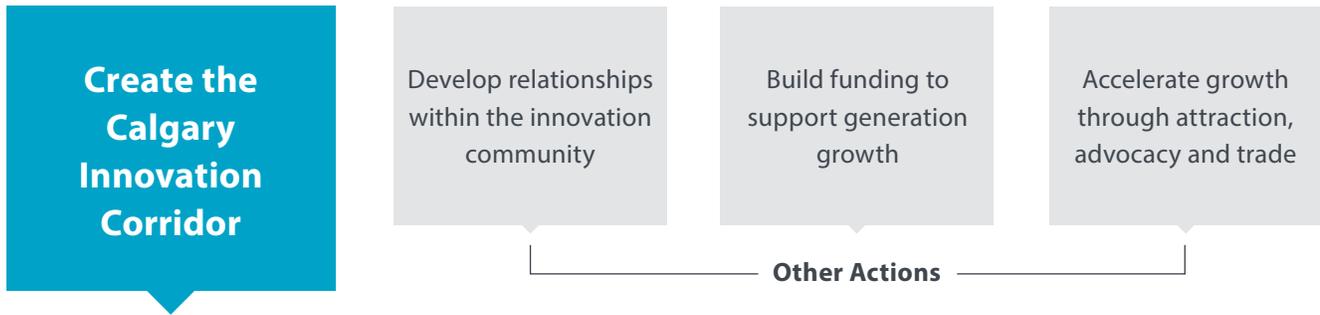
How will we measure success?

To successfully implement and continuously improve this initiative, we will track key performance indicators at all activity levels. At the highest level, they include:

- Number of startup companies per capita
- Total value of deal flow for Calgary-based startup companies

Innovation is creating and commercializing new products. Processes are needed to build a strong and inclusive economy.

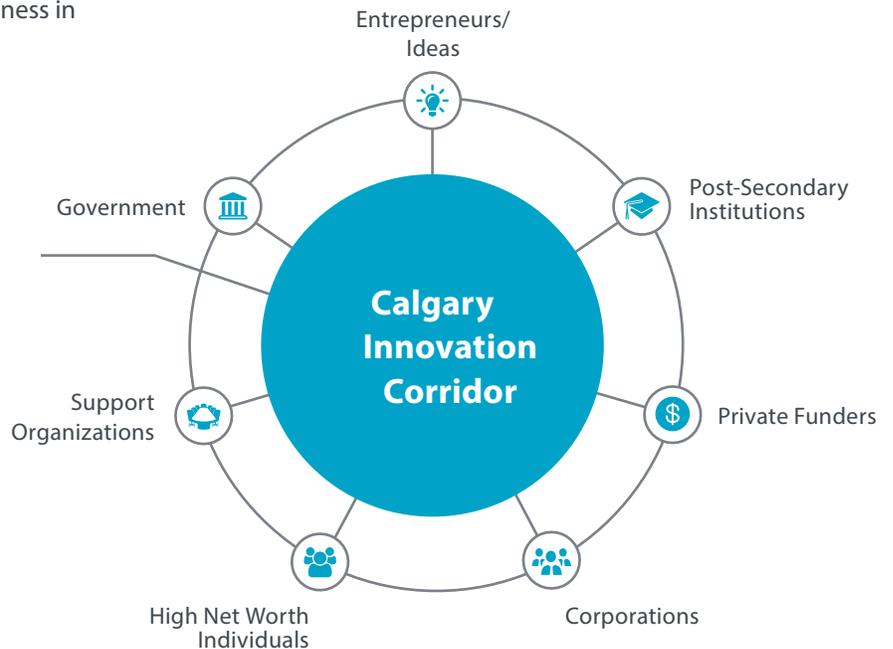
Marquee initiatives



Many sectors are innovating in Calgary — including academic institutions, large enterprise, startups, public agencies and others — but there is an opportunity to increase, streamline and strengthen the connections and relationships among them. The goal is to create a network of individuals and organizations that connect ideas to appropriate human and financial capital in order to help companies start and scale up.

The Innovation Corridor will create more collaboration with corporations, investors and customers. Location is critical and downtown we can build on assets, such as: Bow Valley College, Nucleus, Edison, Platform and the New Central Library. The Corridor can leverage the concentration of corporate headquarters and connect startups with larger companies. They can receive more funding, strategic mentorship and scalable revenue sources if corporations become customers. Corporations, in turn, can work with multiple startups to access innovative ideas. Partnerships also allow big corporations swiftness and cost effectiveness in developing creative solutions.

Many stakeholders would have roles to play within the Calgary Innovation Corridor



Key activities:

- Act as a central point of contact to create productive relationships among startups, companies scaling up, corporations, investors and customers
- Strengthen connections between founders and funders to improve, as well as increase access to startup funds
- Promote startups and success stories to local, national, and global audiences
- Work with private, public, and community leaders to attract new participants into the Corridor
- Research, understand and track the startup and funding environment



Place

We aim to be Canada's most livable city.

What do we mean?

When we say place, we mean the environment we live in, as well as our overall quality of life.

Imagine CALGARY, the 100-year vision for Calgary speaks to the city being "A great place to make a living, a great place to make a life." There is a focus on offering a premier living environment; safe communities; a global centre for business; a centre for arts, culture and recreation; and a city that welcomes people. A city that offers these elements will attract talent, foster innovation and lead in economic growth.

After years of robust population growth and a steady influx of newcomers, Calgary is now Canada's third most ethnically diverse city.

Calgary hosts world-class events, like the annual Calgary Stampede, and with venues such as Calgary Zoo, Heritage Park Historical Village, Prince's Island Park and TELUS Spark Science Centre, the city attracts over 3 million visitors annually.²⁵ Right in our backyard, we have unsurpassed and world-famous Banff National Park and other countless natural wonders.

Our downtown—while offering low levels of congestion — has bloomed in recent years with modern and innovative architecture in office towers and residential buildings. The Peace Bridge, Bow Tower, TELUS Sky and the Central Library have all gained international attention. CMLC has achieved success with its award-winning, mixed-use community projects in the East Village and on RiverWalk and St. Patrick's Island.

Calgary ranked the fifth most livable city in the world by The Economist Intelligence Unit every year from 2008 to 2017. This year Calgary improved to fourth place overall, and most livable city in North America.²⁶ In 2017, we were ranked the second healthiest city in Canada by The Conference Board of Canada.

Alberta also ranks among the top provinces in Canada for charitable contributions, volunteering and participating in community events.

²⁵ Tourism Calgary (2017).

²⁶ Based on 30 factors spread across five main areas: stability, infrastructure, education, health care, and environment. Global Liveability Ranking (2018). The Economist Intelligence Unit.

We have the most extensive urban bike and pathway system in North America and, compared with 22 peer cities, one of the lowest levels of traffic congestion²⁷, roughly 21 minutes commuting versus an average of 27.²⁸

Why does it matter?

Place is an important strategic focus area because enhancing livability can support how well we attract new talent and businesses.

Existing strategies lay the foundation for building a strong sense of place for residents and visitors. Calgary's Destination Strategy, *Ultimate Hosts. Ultimate Host City.* for example, emphasizes the need to attract, develop and enhance events and experiences, as well as build the necessary infrastructure to host these events.

The *Calgary Cultural Plan* and *Living a Creative Life*, the Arts Development Strategy for Calgary set Calgarians up with the opportunity to connect artistically and culturally with our diverse community. They encourage promotion of arts and culture as part of what defines our city.

Although we have a high quality of life, we recognize challenges we aim to address:

- Students and young professionals (aged 20 to 40) in Calgary are more likely to move away when compared to other major cities. They may be seeking more urban lifestyles²⁹
- Perceptions research suggest people do not see downtown as a livable, caring and thriving place³⁰
- Many Canadians do not believe Calgary offers arts and culture comparable to their current home city³¹

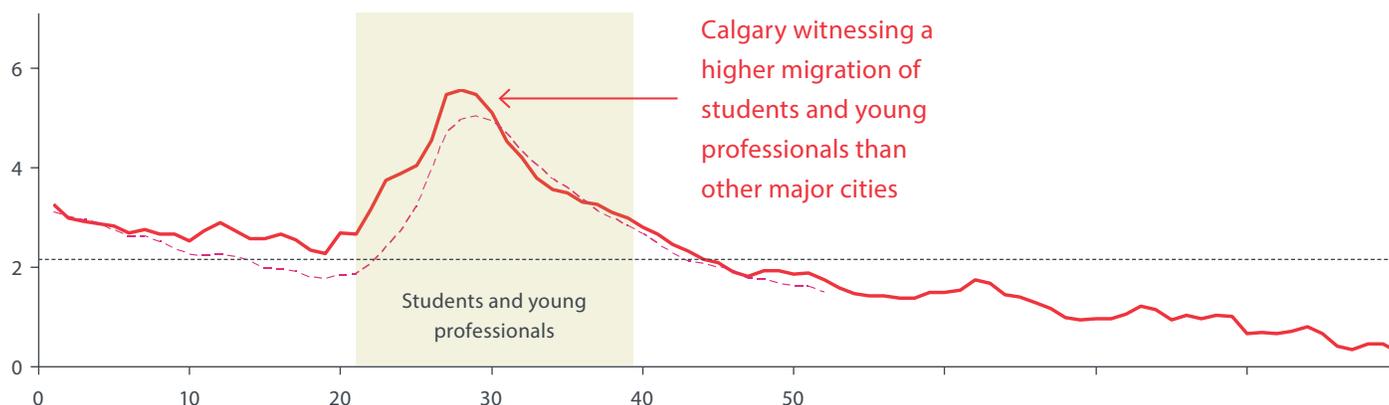
By becoming Canada's most livable city, what we offer people includes a better quality of life. Other cities are investing in infrastructure and services. In order to be competitive, and attract and retain top talent, we need to make similar investments.

Calgary has the highest median income in Canada³², but it also has one the highest income gaps. Approximately one in 10 people in Calgary live in poverty. It is imperative we continue to support *Enough for All*, the poverty reduction strategy as well as the plan to end homelessness.

Calgary students and young professionals are more likely to migrate than those in other Canadian cities.

Highest migration typically seen from ages 20–40 across Canada

Likelihood to change city by age (% of total population)



Sources: 2016–17 CMA migrations by age (Statistics Canada); Compiled by BCG.

Note: Canada average includes Toronto, Montreal, Vancouver, Calgary, Edmonton, Ottawa

²⁷ Defined as the average number of extra minutes added due to traffic reasons when commuting using cars.

²⁸ TomTom Traffic Index (2016).

²⁹ Migration Data—Statistics Canada (2017). Analysis by BCG.

³⁰ Migration Data—Statistics Canada (2017). Analysis by BCG.

³¹ Migration Data—Statistics Canada (2017). Analysis by BCG.

³² Statistics Canada (Census 2016).

Place

How will we achieve it?

To become the most livable city in Canada, we intend to pursue three key initiatives:



Accelerate urbanization and connectivity in the Core

(Time Frame: 5-plus years)

- Target investment to build on existing and planned assets
- Investigate funding models for catalytic investments
- Create a multi-agency committee to implement the vision for our downtown core
- Enhance connectivity between the Core, Rivers and Entertainment Districts and the Beltline



Expand and enhance tourism, cultural and recreational assets

(Time Frame: 5-plus years)

- Attract, enhance and promote premier experiences and events showcasing Calgary as the Ultimate Host City
- Pursue a transportation corridor linking YYC Calgary Airport, Downtown Calgary and Banff
- Support *Cultural Plan for Calgary* and *Living a Creative Life*
- Continue to build on livability assets that reflect our diversity throughout the city



Actively support diversity and inclusion

(Time Frame: 1-5 years)

- Increase economic participation for the underrepresented and underemployed
- Promote *Enough for All* – Calgary's poverty reduction strategy
- Continually provide affordable housing options



How will we measure success?

To successfully implement and continuously improve this initiative, we will track key performance indicators at all activity levels. At the highest level, they include:

- Percentage of the population living in the city's core area
- Overall quality of life rating based on The City of Calgary's annual Citizen Satisfaction Survey
- Global livability score

To be drivers of growth, cities need to develop policies and action plans to attract and retain talent.

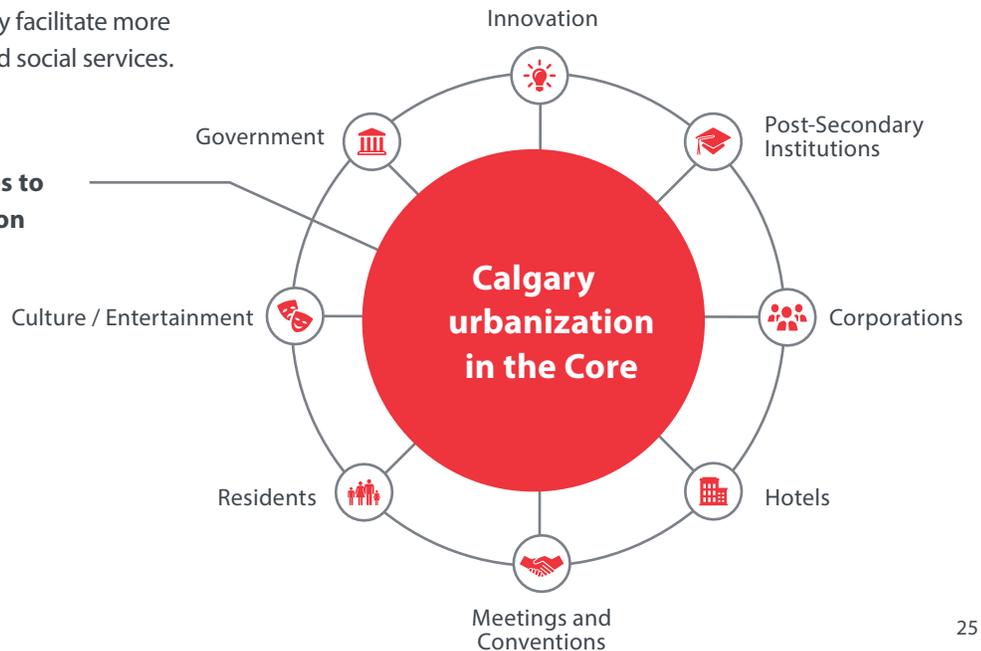
Marquee initiatives



The City of Calgary has the *Centre City Plan* to create a livable, thriving and caring core. The Calgary Municipal Land Corporation has a *Rivers District Master Plan*, a bold vision for Calgary’s cultural and entertainment districts. The approved alignment for the Greenline will enhance connectivity in the core. However, there is potential to create a coordinated plan to accelerate urbanization and connectivity in the core. It would expedite the creation of a downtown that supports vibrant, mixed-use activity centres and buildings, the result being better connected transit, more recreational options, and a magnet for students and young professionals.

Accelerating urbanization and connectivity in the core is beneficial for citizens, corporations, and The City of Calgary. An urbanized core would support the retention of young professionals and the attraction of talent. More people living in the downtown area would also mean more arts, culture, entertainment and recreational events for all citizens. Increased tax revenues from higher occupancy rates could potentially facilitate more investment in infrastructure projects and social services.

Many stakeholders would have roles to play within accelerating urbanization and connectivity in the core



Key activities:

- Create and promote a unified vision for urbanization and connectivity across relevant stakeholders
- Unify, increase, and promote arts and culture, tourism and recreation in anchor neighborhoods, like: Victoria Park, East Village, West Village, Chinatown and Downtown core
- Use creative partnerships to fund marquee buildings, infrastructure projects such as roads, bike-sharing programs, light rail transit, and restoration in anchor neighborhoods
- Establish districts (e.g. culture/entertainment, innovation) in anchor neighborhoods to promote unique traits and facilitate inter-connectivity



Business Environment

We aim to be Canada's most business-friendly city.

What do we mean?

When we say business environment, we mean both the ease of conducting business and the level of business activities in Calgary. Access to talent, a culture of innovation and a great quality of life are important to being a business-friendly jurisdiction, as are initiatives to support business growth and maintain strong lines of communication within the business community.

Business activities are driven by a number of forces, including how companies perceive the business environment, how costly it is to operate and more. Compared with peer North American cities, studied by BCG, Calgary ranks second³³ in having the most business-friendly environment.

Over several decades, Calgary developed a leading business environment supported by available commercial and industrial real estate³⁴, no provincial sales tax or health care premiums, low corporate tax rates³⁵, accessible equity and debt financing for mature firms, and consistent levels of investment. As a result, our economy has historically led Canada's overall growth.

These factors make Calgary a cost-effective location for any business from startups to multinational corporations. With our world-class resource base, talent pool, and business environment, Calgary is home to more than 100 companies in the S&P/TSX Composite Index, as well as

the second highest small and medium-sized businesses per capita in Canada.³⁶

Why does it matter?

While talent, innovation and place are important strategic focus areas, maintaining a business-friendly environment is just as important. As the world becomes more connected and complex, so do business activities. From startups to mature enterprises, major cities around the world are competing to create more business-friendly environments to attract companies.

After Saskatchewan³⁷, Alberta is the province most exposed to Canada's international trading partners. With ongoing changes in international trading regulations—especially the North American Free Trade Agreement—we aim to spur new business activities. Calgary has historically enjoyed a low effective corporate tax rate but it is an ever-changing environment.

³³ Based on competitive assessment of 22 similar cities across capital flow, cost-effectiveness and corporate influence.

³⁴ CBRE (2017), Cushman & Wakefield (2017).

³⁵ KPMG and MMK Consulting (2016).

³⁶ Statistics Canada (December 2017).

³⁷ Alberta exports ~\$24 per capita vs. Ontario exports ~\$15 per capita vs. Quebec exports ~\$10 per capita. Data from province websites (2017), Statistics Canada (2017), Analysis by BCG.

A competitive business environment also fosters continuous innovation, which creates new business activities. To enhance our business-friendly environment, we will improve what matters to people and companies, shifting perceptions along the way. A 2018 survey for Calgary Economic Development revealed nearly one-third of Canadian business leaders were not familiar with Calgary’s business environment or business support programs.³⁸

- Business group at City Hall to address major issues and creation of a Customer Coordinator, Small Business position
- Opening new city permit portal
- \$100 million Opportunity Calgary Investment Fund
- Downtown Enterprise Zone

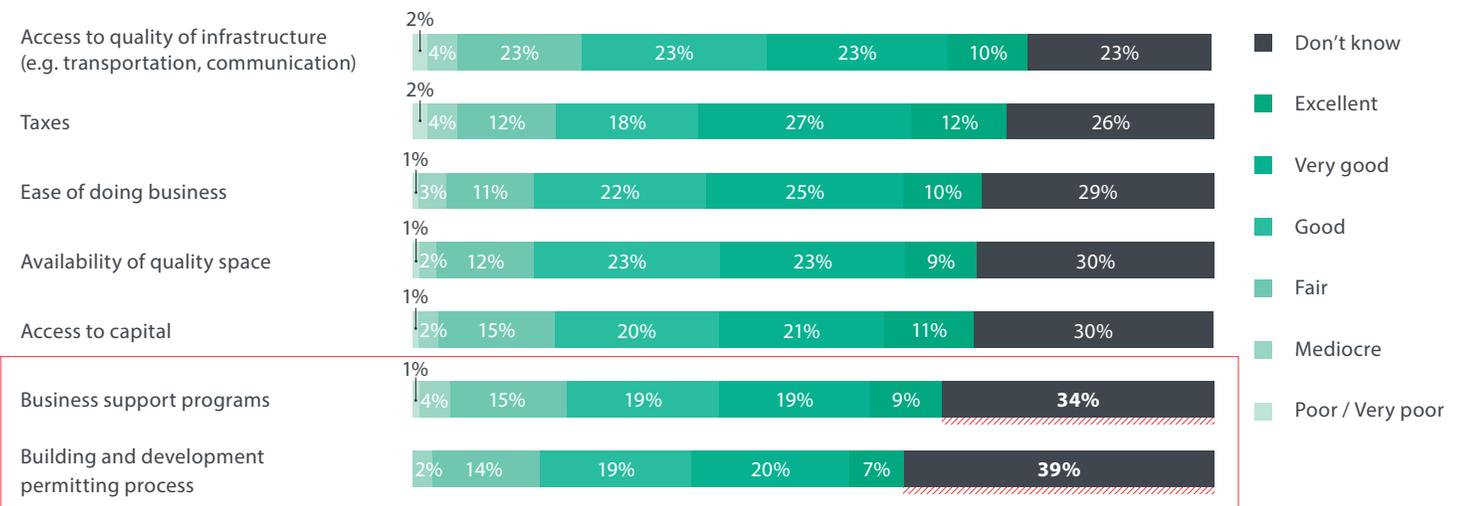
Progress toward an improved business environment by The City of Calgary includes:

- Invest in focused infrastructure to enhance economic prosperity
- Implementing the Goods Movement Strategy, an Electric Vehicle Strategy and Calgary as a Living Lab Initiative
- \$90 million in tax relief for businesses
- \$500 million reduction in operating expenditures

We must also promote new avenues of growth, including forming new trading partnerships, attracting new sources of foreign investment, and diversifying our industries. Efforts to be more business-friendly are ongoing and we recognize opportunities to improve.

Most Canadian business leaders believe it’s easy to do business in Calgary, but over a third aren’t familiar with our permitting process and support programs.

Given everything you know about the business environment in Calgary, how would you rate Calgary on:



Source: Calgary Economic Development’s 2017 National Perceptions Survey

Business Environment

How will we achieve it?

To become Canada's most business-friendly city, we intend to pursue two key initiatives:



Implement initiatives to generate business development

(Time Frame: Immediate)

- Launch an *Open for Business* campaign
- Enhance communication with the business community
- Initiate a one-window approach for business and expand the role of Customer Coordinator, Small Business
- Ensure business continuity through disasters and infrastructure projects
- Maintain a supply of industrial land to meet objectives in attracting new business and supporting business growth
- Develop and deploy a public Key Performance Indicators (KPI) scorecard
- Advocate for provincial and federal governments to improve tax position versus the United States



Develop Calgary as a Living Lab

(Time Frame: 5-plus years)

- License and share The City of Calgary data on a large scale
- Open City infrastructure to create wireless (5G ready) zones with industrial partners
- Extend dark fibre footprint of technology and innovation to provide solutions to city challenges



How will we measure success?

To successfully implement and continuously improve this initiative, we will track key performance indicators at all activity levels. At the highest level, they include:

- Increase net percentage in the number of businesses
- Increase the number of industries represented by top companies
- Decrease average time to acquire a business permit or license
- Decrease the number of business-related, city regulations

An effective business environment, including policy frameworks, processes and clear communication can enhance competitiveness and attract investment.

Marquee initiatives

Implement initiatives to generate business development

Develop Calgary as a Living Lab

Other Actions

Initiatives to generate business development

Calgary is a business-friendly place that offers multiple financial advantages for companies to operate. When considering growth or relocation, businesses are concerned with fees, permit requirements, licensing processes and approval timelines. The City of Calgary understands that a competitive, business friendly environment will help small, medium and large enterprises thrive. The City of Calgary is the first municipality in Canada where business owners can apply for and manage their required licenses, approvals, and fees entirely online.

A Key Performance Indicator scorecard for the public, government and businesses creates a transparent view of a business-friendly environment and will highlight areas for continuous improvement. The scorecard can include: commercial real estate cost, industrial real estate cost, city response time to business-related inquiries, percentage of processes with clear guidelines and timelines.

Key activities:

- Work with The City of Calgary to launch the *Open for Business* campaign to share guidelines and timelines for starting a new business
- Develop and publish a Key Performance Indicator scorecard on Calgary’s business environment
- Expand role of The City of Calgary’s Customer Coordinator, Small Business to be a “one-stop shop” to address any business-related services and questions
- Ensure business continuity through disasters-relief and infrastructure projects
- Maintain a supply of industrial land to support growth of existing businesses and attract new businesses
- Advocate for provincial and federal governments to improve corporate tax rates and incentives in order to be more competitive than those in the United States

Many stakeholders would have roles to play within business development





Implementation and Timelines

Hierarchy of indicators

The previous Economic Strategy for Calgary reported on core indicators to answer the question: “How are Calgarians better off?” In this update, they are replaced with indicators reflecting progress on each of the areas of focus. In addition, performance indicators will be developed to reflect the progress toward key initiatives.

4

Focus Areas



Talent



Innovation



Place



Business Environment

13

Key Initiatives



Create Canada’s largest talent accelerator



Emphasize creativity and innovation from Kindergarten to University (K-U)



Create the Calgary Innovation Corridor



Develop relationships within the innovation ecosystem



Accelerate urbanization and connectivity in the core



Intentionally support diversity and inclusion



Deploy initiatives to facilitate business development and growth



Establish Calgary as a magnet for students



Address immediate needs through attraction efforts



Build funding to support generational growth



Accelerate growth through attraction, advocacy and trade



Expand and enhance tourism, culture and recreation assets



Develop Calgary as a Living Lab



Focus area indicators

The key performance indicators for each area of focus meet three criteria:

1. Progress toward the goal
2. Data available on an annual reporting basis
3. Comparable data is available from other jurisdictions in Canada

Implementation

With four areas of focus, 13 key initiatives and 45 actions, there is much to do in achieving the vision of the Economic Strategy within the timelines that have been established.

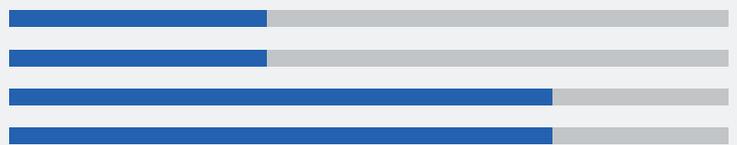
Calgary in the New Economy will be a living document. It will adapt and evolve over time to meet the needs of Calgary.



Implementation Timeline

Immediate | 1-5 Years | 5+ Years

Create Canada's largest talent accelerator
 Establish Calgary as a magnet for students
 Emphasize creativity and innovation from K-U
 Address immediate needs through attraction efforts



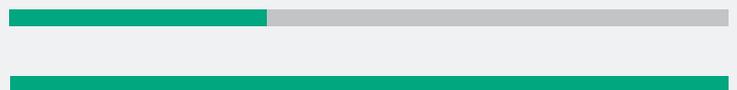
Create the Calgary Innovation Corridor
 Build funding to support generational growth
 Develop relationships within the innovation ecosystem
 Accelerate growth through attraction, advocacy and trade



Accelerate urbanization and connectivity in the core
 Expand and enhance tourism, culture, and recreation assets
 Intentionally support diversity and inclusion



Implement initiatives to generate business development and growth
 Develop Calgary as a Living Lab





Industry Focus:

Established and Emerging Industry Clusters

Established Clusters



Transportation & Logistics



Agribusiness



Energy

Emerging & Growth Clusters



Tourism



Creative Industries



Life Sciences / Health



Financial Services

Established Clusters

Energy

The energy sector's roots in Calgary go back more than a century and have been the driving force in the city's economy for decades. Canada is one of the top producers of crude oil and natural gas in the world with every major energy company in the country headquartered in Calgary. There is a highly integrated ecosystem linking talent, capital and policy that make Calgary a global centre of excellence in all things energy.

The cluster-centred downtown includes companies involved in all aspects of energy production and transportation, entrepreneurs, highly skilled workers, well-developed supply chains and applied research. Our expertise in this global-scale industry extends from petroleum to solar, wind and other renewables, as well as innovation in clean tech.

Even with challenging economic fundamentals and a historic structural recession in recent years, oil and gas companies still make considerable investments in Canada with planned expenditures of \$22.5 billion in 2018.³⁹ In 2016, the oil and gas sector accounted for approximately 46,000 jobs in Calgary.⁴⁰

Renewable energy and clean tech are fast-growing elements to the sector as Calgary represents nearly half of Alberta's \$2.7 billion clean tech market in energy.⁴¹ We are leaders in addressing environmental issues through stringent regulation and investments in advanced technologies, such as carbon capture and storage. Calgary companies also operate about 25 per cent of Canada's installed renewable energy capacity.⁴²

Organizations like Canadian Oil Sands Innovation Alliance (COSIA) and Clean Resource Innovation Network (CRIN) are key elements driving change in the oil and gas industry. Among the most promising opportunities for the sector to leverage is the convergence of technological advances, such as: industrial Internet of things (IIoT), machine learning, big data, blockchain, robotics and sensor fusion to reduce costs and improve performance.

Trends influencing the energy industry include:

- Energy demand is growing globally; driven by developing and non-OECD countries
- As the global energy supply map changes, Canadian oil and gas is essentially landlocked due to a lack of tidewater access for exports and our biggest customer, the United States, is now also our biggest competitor
- The need for greater efficiency and lower carbon emissions globally is pushing energy companies to adopt new technologies that produce more with less
- Economic viability of renewable energy is improving, and, in combination with public policy, is resulting in increased capital investment



Renewable energy and clean tech are fast-growing elements to the sector as Calgary represents nearly half of Alberta's \$2.7 billion clean tech market in energy.

Agribusiness

Agribusiness is another historic economic sector in Calgary and part of the fabric of the community, with roots dating back to the 19th century.

Today, the industry has expanded to crop and livestock production, meat processing, food and beverage manufacturing, support services and equipment manufacturing, as well as growth areas such as, precision agriculture and functional foods. Value-added activities in the sector include sales and marketing, finance, and research and development.

³⁹ Alberta NAICS 211, Statistics Canada (2017).

⁴⁰ Statistics Canada (2016).

⁴¹ Delphi Group (2017).

⁴² CanWEA (2018). Calgary Economic Development Analysis.

Value added food processing and manufacturing generates \$95 billion in sales and employs approximately 18,600 in Alberta, 14 per cent of the manufacturing workforce.⁴³ Alberta has an established advantage in producing plant-based protein and pulse crops. Alberta's top agri-food leading exports in 2017 were processed meats, wheat and oilseeds. The leading export market was the United States, which at \$4 billion, was greater than the rest of the top five combined – China, Japan, Mexico and South Korea.⁴⁴

Calgary is a centre of agribusiness in Canada and is home to a cluster of leading firms, a multi-modal transportation network, and post-secondary institutions. The University of Calgary, SAIT and nearby Olds College are working with industry to drive innovation.

In 2018, the Calgary-Olds Smart Agri-Food Corridor was established to further develop an ecosystem to support innovation and incubate entrepreneurial companies with access to a world-class agriculture environment supporting the development and scaling of new technologies throughout the production chain.

Trends influencing the agribusiness industry include:

- Global population is forecast to reach 9.8 billion by 2050⁴⁵ and will drive agriculture demand; most growth will come from China and India
- Increases in crop production will come from yield efficiency improvements, not land usage
- Conscious consumerism is driving a demand for food quality, safety, transparency, and supply chain management
- Sector consolidation will see companies vertically integrate to capitalize on branding, and research and development

Transportation and Logistics

Calgary has been a transportation and logistics centre since the intercontinental railroad arrived in the 1870s and today it is the leading inland port in Western Canada. There is a well-established ecosystem for moving cargo and people, warehousing and storage of goods, as well as support activities for modes of transportation.

Three quarters of all air cargo in Alberta moves through YYC Calgary Airport and can reach anywhere in the world within 48 hours.⁴⁶ Calgary is at the intersection of major east-west and north-south highways, providing access to 16 million consumers by road within a one-day drive. Both of Canada's Class I railroads operate high-velocity intermodal facilities that provide 48-hour transit to West Coast ports.

The Transportation and Logistics sector in Calgary was estimated to employ approximately 55,000 people in 2017.⁴⁷

Calgary's location in the centre of Western Canada results in lower total costs over other cities across the west. Calgary is the second busiest airport for air cargo flights. In addition, Calgary is home to large shipment hubs for leading courier companies and trucking firms and home to distribution centres for a number of leading consumer goods companies.

Calgary is emerging as a global hub for development of technologies for autonomous mobile systems that are expected to drive future growth in the sector. A cluster of Unmanned Aerial Vehicle (UAV), geospatial data and analysis, navigation and global positioning companies are located in Calgary and, along with local post-secondary institutions, is focused on improving efficiency in major industrial sectors, including: energy, agribusiness and construction.

Trends influencing the transportation and logistics industry include:

- Cross border e-commerce is increasing, resulting in higher demand and requirement for distribution and fulfillment centres
- Multi-channel supply chain is emerging as companies expect reliable and faster deliveries
- Automation is giving rise to the use of Internet of Things (IoT), robotics and modularization in warehouse management
- Autonomous vehicles are approaching mainstream application which will disrupt the labour force in the transportation sector, and other sectors

43 Deloitte (2017).

44 Trade Data Online (2017).

45 United Nations Department of Economic and Social Affairs.

46 The Calgary Airport Authority (2018).

47 Statistics Canada (2017).

Emerging Clusters

Life Sciences

The life sciences industry is an emerging sector in Calgary and is focused on industries related to public health and well-being. The high-growth sector includes: biotechnology, healthcare services, clinical trials, pharmaceuticals, animal health, medical imaging and medical devices, nutraceuticals, genomics and medical research.

This sector typically has a higher degree of research and development and public-sector investment than most sectors.

Calgary is also home to dozens of life science companies and has strong research infrastructure at the University of Calgary and Foothills Hospital with particular strengths in infectious disease, brain and mental health, animal health, clinical trials and biomedical engineering.

Trends influencing the life sciences industry include:

- Technology is disrupting the delivery of health care and pharmacy services
- Research and development will remain as an integrated component of the life sciences industry

Financial Services

Calgary is one of four largest financial centres in Canada. The cluster of financial services firms in the city are leaders in managing foreign direct investment, investment banking, private equity management, wealth management and retail and corporate banking.

Most of the world's major investment and commercial banks have a presence in the city. Calgary firms handled 9.5 per cent of energy-related finance deals across the world from 2012 to 2016 and about 17 per cent of their total value.⁴⁸

The financial services sector accounted for approximately 21.5 per cent of Calgary's GDP and employed approximately 30,900 people in 2016.⁴⁹ The sector includes retail and investment banking, accounting and insurance, but with the emergence of financial services technologies (fintech) and the



Research and development will remain as an integrated component of the life sciences industry.

adaptations of technology such as blockchain to finance, the sector has grown to include software companies.

Growth in financial services has been a catalyst for emerging fintech firms, cybersecurity and other tech firms with products and services for the financial sector.

Trends influencing the financial services industry include:

- Increasing regulation and compliance regime globally
- Increasing protection of cybersecurity and customer protection issues of identity
- Financial companies are focusing on digital strategies and utilizing new technology platforms and applications to serve and stay in touch with customers
- Automation is improving productivity and changing the nature of the workforce
- Increasingly, financial services are becoming technology companies

⁴⁸ The Conference Board of Canada (2017).

⁴⁹ The Conference Board of Canada (2017).

Creative Industries

Creative Industries is based on the ability to convert ideas and knowledge into commercial products and services. It encompasses the firms and organizations that contribute to Calgary's arts and culture, including: film, television, video and sound production, broadcasting, visual and performing arts, advertising and marketing, publishing and printing, digital media and design services.

Film and TV production are a notable strength for Calgary as our talented crews have won more Emmy, Golden Globe and Academy awards than any jurisdiction in Canada over the past 15 years.⁵⁰ Significant assets in the community for creative industries and culture include the Glenbow Museum and National Music Centre. The Calgary Film Centre has modern sound stages and can accommodate any size of production.

In 2017, the film and television sector brought about an estimated \$178 million in production.⁵¹ Calgary is also home to a cluster of companies in the fast growing sectors of e-learning and digital advertising.

Calgary's low operating cost and growing talent base has the city in a position to be a leader in digital media. The sector is supported by educational programming at the Alberta College of Art and Design, SAIT, Mount Royal University and the University of Calgary.

Trends influencing the creative industries include:

- Digital subscription based platforms are assuming market share from cable providers and are increasing their investments in digital productions
- Advertising is the fastest growing segment of digital media followed by digital education
- During economic downturns, film and television digital subscriptions continue to rise
- Virtual and augmented reality technology is disrupting how creative content is generated and consumed
- Emerging economies share of creative industries production and consumption is increasing

Tourism

Tourism is a cluster that cuts across several industries, including: accommodation, food and beverage, retail, transportation, sport and recreation, and arts and culture. This puts the tourism cluster in a unique position of both contributing to quality of place, as well as being an industry cluster.

Spending from vacationers and business travellers pulls new money into the economy. Spending by residents hosting friends and family, as well as 'staycations', keeps money circulating in local economy and generates ongoing benefits. Seven million visitors generated \$1.6 billion in tourism spending in 2017.⁵²

Calgary's Destination Strategy – *Ultimate Hosts. Ultimate Host City* emphasizes the role of marketers, advocates, hosts and activators to drive tourism growth.

Calgary is the gateway to Banff National Park, one hour west of the city. Other tourism sites and events, include: the Calgary Stampede, Spruce Meadows, Calgary Folk Festival, Glenbow Museum, Calgary Zoo and Heritage Park. Calgary hosted more than seventy major events in 2017.⁵³ These events are an important source of visitor spending.

Trends influencing the tourism industry include:

- China is leading growth in outbound tourism expenditure accounting for 21 per cent of the global market⁵⁴
- Increasing demand for experienced-based tourism including wilderness adventures, ecotourism and wellness retreats
- Technology is disrupting how travel is planned and experienced, which decreases the role of intermediaries

⁵⁰ IMDB (2017). Analysis by Calgary Economic Development.

⁵¹ Calgary Economic Development (2017).

⁵² Tourism Calgary (2017).

⁵³ Tourism Calgary (2017).

⁵⁴ Tracy Chen Bloomberg (2018).



Conclusion

This is an exciting time to be in Calgary, and we invite you to be a part of the future.

Calgary is a city with endless potential. Our core values and community spirit are what drives our inclusive and entrepreneurial city.

Our young and growing population is energetic. We will attract top talent from across Canada and the world.

Our entrepreneurs and corporations are already innovating. We will become a leading business-to-business innovation hub.

Our city is also growing rapidly with new events, venues, residential areas and commercial buildings. We will accelerate our urbanization and connectivity efforts.

Our business environment is exceptionally competitive. We will become one of the world's most business-friendly cities.

With our strong foundation and existing advantages in talent, innovation, place and business environment, we are ready to tackle challenges together.

We are committed to making Calgary the city of choice in Canada for the world's best entrepreneurs. We are ready to embrace innovation and create solutions to meet the world's needs in food, health, energy, and transportation.

What can you do to be a part of the change?

In order to realize our vision, we will need support from civic partners, public agencies, businesses, educators, non-profit organizations, and above all, you. There are various ways to get involved, and we invite you to be part of the change.

Learn more at:

calgaryeconomicdevelopment.com/the-new-economy



Thank You to Key Contributors

Over the past year, we have engaged more than 1,800 civic partners, business leaders, educators, industry associations, community stakeholders, and other public as well as private organizations. With their deep insights, valuable input, and unwavering commitment to Calgary, these stakeholders have played a key role in shaping our updated Economic Strategy. We greatly appreciate their time and contributions.

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